

Using CBMS Data in CGE Modeling

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Abstract

The paper focused on how to incorporate CBMS household survey data sets into the structure and calibration of a CGE model to have a richer picture of policy impacts. It provided a rationale for the linkage, suggested a stylized structure for the link and evaluated potential transmission channels, frameworks and approaches. The paper aims to stimulate discussion and critical comment on the possible linkages and interrelations between CBMS and CGE and on the outcomes and implications of such linkages rather than propose a concrete strategy or model.

Introduction

Computable general equilibrium (CGE) modeling with CBMS data can help address the lack of a systematic analytical framework in assessing the micro impacts of macroeconomic policies in the Philippines. It can also shed light on what macroeconomic policies can be instituted to reduce poverty more effectively.

This study is of practical importance to the country given the wealth of information that CBMS data provides as well as the excellent opportunity this offers to gain specific insights on the effects of

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national policies at the community and household levels. Moreover, the results of the study can aid policymakers at all levels in the following areas: monitoring welfare and development conditions, assessment of poverty and gender impacts and institution of complementary reforms aimed at protecting the community.

Why use CGE?

A CGE is a structural model designed for policy analysis. Specifically, it allows an analysis of policy implications in a consistent analytical framework. Moreover, it can be used in a number of policy contexts and counterfactual scenarios and is indispensable in ranking policy alternatives.

CGEs are completely-specified models and can therefore account for interactions of all agents in the economy. It is also capable of capturing poverty and income distributional impacts of policy shifts.

CGE-CBMS link

This study will explicitly integrate into a CGE model all households from a national household survey as well as from CBMS surveys to simulate how each individual household is affected under alternative policy scenarios. Changes in the family income, family consumption and poverty threshold for a given policy change can be tracked down through the integration of CGE and household data.

In particular, one can investigate the transmission mechanism of how households are affected by changes in factor incomes as a result of factor and output changes, and by changes in consumer prices.

Two approaches can be used for this purpose. One is the use of the *Top Down* approach wherein results from the CGE model will be applied to the CBMS data in a recursive manner. The other is the *Bottom Up* approach which will involve a construction of village level SAM linked to a national level SAM (integrated national and community level SAM).

Comments

- Conceptually, this idea is good. It will have promising results that can serve as inputs into the policymaking exercise on poverty issues not only at the national level but also at the provincial and local government levels. This is also one way of integrating the data base generated in the community-based monitoring system (CBMS) with the tools used in the impact analysis subnetwork (MPIA). The micro data set used in microsimulation analysis in the case of the Philippines is the Family Income and Expenditure Survey (FIES), which is a regional data base. CBMS, however, gathers data at the municipality and community levels, which gives a more accurate profile of the poverty situation. Thus, the impact analysis would be far richer if this data resource is utilized in the modeling exercise.
- Operationally, however, the integration of CBMS data into the existing economy-wide model in the case of the Philippines may not be straightforward. At the moment, the social accounting matrix (SAM) used in the computable general equilibrium (CGE) model incorporates FIES data on household expenditure and sources of income. Proper integration of CBMS data into the existing SAM would require consistency in the FIES households with the CBMS households so that the flow of information from changes at the macro level to the CBMS household level is consistent. In particular, the expenditure pattern and the sources of income of households in the FIES should be consistent with the household in the CBMS. For example, if the effect of a macro policy change on a single household in a certain location is to be analyzed, the expenditure and income of that household in the FIES should be consistent with the household in the CBMS.

- In the impact analysis, households are affected in the income side by changes in factor prices and transfers. Thus, given the resource endowments and the sources of income of households, their incomes change as factor prices and transfers change. In the consumption side, they are affected by the changes in the commodity prices in their consumption bundle. Thus, given their pattern of expenditure, their consumption changes as commodity prices change. In micro simulation, the heterogeneity of households is taken into account. That is, the expenditure pattern and sources of income of each and every household in the FIES are considered.
- To do away with the consistency problem, one way is to reconstruct the SAM. Instead of using FIES data on household expenditure and income, data from the CBMS are used. In this case, the flow of information from macro changes to households in the CBMS is consistent. This, however, would require that there are CBMS data on household expenditure and income in all municipalities/communities in the country.
- Provide details on what sort of information there is in CBMS to link it to CGE and the purpose behind linking CBMS to CGE.
- The point of doing things is to improve the situation for people. As such, if there are no decisions on who is making what decisions and at what level, then this exercise may not be very useful.
- CBMS is two-fold in that it provides data for resource allocation primarily at the local level, and provides information that can be aggregated for national level decisionmaking. The linkage suggested here between CBMS and CGE might be useful for the latter aspect of CBMS. The advantages of a modeling approach is that it provides predictions about the future and this could be useful for communities.
- Provide information on how a national level model can be used at the local level and vice-versa.

- There is no need for complex data collection and models but more of something concrete and usable. The jump suggested here is too much, too soon.
- Having a more detailed labor market component to CBMS could be used to forge a link using income determination equations. A community is more open than a nation so one cannot take an estimate from the community to the national level.