Analysis of a developing economy using linear multi-sectorial models based on a home production for home consumption Social Accounting Matrix: the Kenya case

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The purpose of this communication is twofold: firstly, to present and describe the process of estimating a Social Accounting Matrix (SAM) structured especially for developing countries, incorporating the economic fact of home production for home consumption (HPHC) together with a detailed breakdown of the agricultural sector and also considering different regions and agro-economic zones. Furthermore, using this matrix in applying a customized version of the model of mixed-multipliers, extending it to supply models that allow for better analysis of facts such as increased water availability or improved land factor productivity. Specifically, it has been estimated a SAM Kenya by 2014, applying these techniques to analyse the impact of the discovery of new sources of vital natural resources (as huge aquifers) and potential improvements in land productivity. In developing countries the fact that many households combine a dual and non-separable role as consumers and producers is particularly important, since the activities carried out in this way have important weight in the national economy, especially in the agricultural activities. In this sense, it may be useful to incorporate into SAMs the home production for home consumption (HPHC). HPHC represents a major component of both household incomes and expenditures; this is especially so for the very poorest who overwhelmingly live and work in rural communities. Typically peasants farmers in developing countries retain at least part of their production for home consumption, which means the mechanisms that determine the value of commodities they home consume are different to the notionally same commodities they might buy on the market. Despite these important issues the distinction between market and HPHC commodities is typically unreported and merged into the commodity accounts of SAMs, compromising its ability to provide information about the behaviour and well-being of the poorest (rural) households.

Therefore the analysis proposed in this paper will be based on a new Social Accounting Matrix (SAM) for Kenya, the 2014 Kenya SAM, incorporating the HPHC issue. This SAM, estimated by the authors, will contain a proper disaggregation of activities (with focus on regional agriculture), commodities and households based on the economic characterization of the different regions comprising the country. 2014 Kenya SAM is a novel contribution as it is estimated from the new rebased National Accounts (including a short version of Supply and Use Tables) for Kenya and the micro-data from Kenya Integrated Household Budget Survey 2005/06 (KIHBS 05/06). They have been also used other relevant databases related with agriculture and labour market, and has been updated too and used auxiliary the production structure of a previous 2007 SAM elaborated by IFPRI.

The 2014 Kenya SAM consists of 54 activities producing 70 commodities using 3 types of labour (skilled, unskilled and semi-skilled) in 10 regions (30 labour accounts in total), 3 types of capital (agricultural, non-agricultural and livestock) and land. An enterprise account and 24 household accounts (rural and urban households in 7 regions and 10 urban households in 2 metropolitan areas which are disaggregated according to expenditure quintiles). The regional disaggregation follows Agro-Ecological Zones (AEZ) classification and main metropolis, allowing the study of specific problems related to certain regions.

The methodology framework will be the linear multipliers analysis, combining the classic techniques of accounting multipliers (decomposition of effects, detection of key sectors, etc.), with a customization of the well-known model of mixed multipliers. Mixed-multipliers part of the consideration, within the endogenous variables, of a set of variables whose output are fixed and can't freely respond to increases in final demand (e.g., activities / commodities / factors whose

elasticity cannot be considered infinite, but almost null). But mixed multipliers obtained, although allow estimating more realistically the effects of exogenous shocks on the endogenous accounts model, they are not the most appropriate to estimate the impact of, for example, an increase in the availability of water or an increase in land productivity, because they are based on Leontief multipliers, a demand-driven model. So a customized supply-driven model will be used (as a novelty), namely a version of mixed multipliers in the Ghosh model, using the allocation matrix instead of the technical coefficient matrix, obtaining supply-driven mixed multipliers.