

Social Accounting Matrices (SAM): Upward and Downward Estimation

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1. Introduction

The renewed interest for Social Accounting Matrices (SAMs) as a comprehensive framework for macroeconomic quantitative analysis goes back to the last about forty years, due to the wide spread of the Computable General Equilibrium (CGE) Models as a tool for tax optimisation models, income distribution and re-distribution analysis, as well as welfare, poverty and income distribution models (see, for example, Pyatt and Round, 1985; the activity of International Food Policy Research Institute (IFPRI)).

This has stimulated and has been accompanied by a parallel re-discovering of the SAM framework, as the most suitable approach - or at least, as a useful complementary information framework - to the System of National Accounts (SNA), or Macroeconomic Accounting, compilation, that took place in recent years, and that is still on the way. All the above led to an undoubtedly deserved rediscovering of the SAM approach (see, for example the activity of CBS of The Netherlands, of the Italian Statistical Institute (Istat) and of the Istituto per la Contabilità Nazionale (Iscona)).

The reasons of the oblivion of the original ideal "philosophy" and of the practical matrix representation, i.e., of the SAM approach, that stays behind the idea of the compilation of a SNA for the quantitative representation of a country's economic life, as conceived first by Richard Stone and associates, have been discussed in Ferrari (1999).

The construction of a SAM is not an easy task at all. In fact, as pointed out in Ferrari (1999), the SNA have been thought mainly in terms of institutional sectors, as far as the income distribution and re-distribution are concerned and in terms of branches, as for the production activity. Therefore the micro information and the flows are aggregated with respect to these subjects and not having in mind the much more flexible and operational SAM that one should have designed with respect to the goal to be pursued, and that would allow a far better organisation and exploitation of the available micro-data.

For the above mentioned goals to be achieved, all closely related to a more detailed analysis of the income distribution and re-distribution than that permitted by the usual National Accounts (NA) practice, it is also crucial to have at one's own disposal a classification of the transactions, and therefore, of the subjects, in terms of income classes or income percentiles.

So far, downward attempts have been performed only, with the purpose of decomposing the existing NA aggregates and of obtaining the information at the level of detail of the SAM that one wants to build up. This causes undoubted problems of construction and, consequently, "rigid" matrix compilation, not perfect utilisation of the available information, as well as simplifications and errors.

In Ferrari (1999) it has been proved that an upwards approach, besides being more satisfactory from the theoretical point of view, allows to overcome many of the above problems and may furthermore constitute the right background within which to put the SNA construction. Subsequently, it has been shown in Ferrari (2001) how, from the operational point of view, it seems advisable to follow a mixed approach, with an integrated use of both methods.

Concretely, the starting point must be represented by an Input-Output (I-O) Table. If this is already available, that's better. Otherwise, it is necessary to compile one first.

In this paper, we will focus on the discussion of a sub-matrix of a 1992 SAM for Italy. In particular, the estimation of the *module* "Production- Household Final Consumption Expenditure" by household income class in the upward approach is being described, based on the information contained in the Istat Household Budget Survey "Bilanci di Famiglia" (BF), of which is now available the series 1987-97.

2. The estimation of the module

This module is represented by a 31 row branches and 6 column income classes (in million lira: ≤ 18 ; 18-27; 27-36; 36-45; 45-54; >54) for 1992 SAM. (The choice of this year being originally suggested by the availability, for it, of a downward estimate of the module itself, which allows making comparisons.)

Since in the BF survey the consumption is classified according to 77 items, the first step in the module construction has been the linkage between the expenditure for these goods and services and the branches that have produced them. To this purpose, we made resort to the Istat "bridge matrix" for 1992, which shows the linkage among 92 branches and 54 expenditure items. As the number of branches of this matrix does not coincide with that of the module we intended to estimate, we have first grouped the 92 branches into 31 and obtained a 92 by 54 bridge matrix. Then, we have linked the 77 expenditure items of the BF survey to the 54 of this matrix on the basis of the NACE Rev. 1 classification.

The linkage between the 54 expenditure items and the 31 branches represented the subsequent step. This was not always easily carried out. In fact, in several cases, a product can come from more than one branch, what makes it impossible to establish a univocal correspondence between an expenditure item and the branch which have produced it. We have overcome this problem by assigning the expenditure items to the branches according to the ratio between every expenditure item produced by a branch and the total production of the branch itself, as appeared in the 31 by 54 matrix. In this way, since the BF supply the household income, we have taken all the households within an income class and have allocated the consumption expenditure for each item to the related branch with weights represented by the above ratios.

The expenditure items thus obtained have been transformed into domestic ones (those supplied by the BF survey are on a national basis) through the balance between the consumption incurred by non residents in the domestic territory and that incurred by the residents abroad.

3. Conclusions

The upward compilation of the above module was quite straightforward and the results appear to be robust and reliable. What we can conclude, at this research step, is that when collecting the basic information from administrative sources, designing the surveys for micro-data collection and processing and organising them, one should be as more analytical as possible, so to have the possibility to construct the SAM one has in mind. Above all, since the SAMs are widely utilised as a tool for income distribution and re-distribution analysis and optimal taxation models, always trying to emphasise the information on income micro-data. This is just what is done, even though not specifically for SAMs construction, in the above BF survey we used for the module compilation.

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RESUME

Dans ce travail, on discute la construction d'un module d'une matrice de comptabilité sociale (SAM) pour l'Italie en 1992 en utilisant l'approche "du bas" (upwards).