Understanding the Technological Structure at the Local Level: A Social Accounting Matrix of Milpa Agriculture in the Huasteca Veracruzana, Mexico

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The multifaceted challenges facing the global economy in the 21st century demand a comprehensive understanding of production technologies, particularly regarding the conditions of ecological sustainability and its social implications. For some decades, input-output economics has been a fruitful approach for understanding the technological structure of an economy, with theoretical and empirical developments that can analyze the economic implications of technological choice, either with comparative studies or with scenario analysis. These approaches are largely based on the representation of technologies through their input structures, which in turn operate in the associated economic model as a determinant for both cost and price. This analysis has been expanded to include income distribution and institutional arrangement with the expansion of input-output tables into social accounting matrices (SAMs), constituting a practical way of empirically representing the social dimension of the economyâ€™s technological structure. However, whereas historically the empirical development of SAMs has been dominated by applications at the national and regional scales, the local level has been largely underrepresented in the literature.

This paper reports on the construction of a social accounting matrix for a local economy to study the ways in which a particular community articulates its social reproduction through its technological structure. The local economy is constituted by four peasant communities dependent on small-scale, community-based Milpa agriculture in the mountainous huasteca region of the Mexican State of Veracruz. The indigenous population in these communities faces several challenges ranging from high levels of poverty, lack of economic opportunities, migration, and climate change. We investigate the extent to which traditional agriculture based on Milpa technology is able to guarantee the basic conditions of subsistence. We report on the results of a field study conducted in these communities to construct a survey-based social accounting matrix that illuminates the strengths or weaknesses of their internal economic interactions, and the nature of their relation to the economic system beyond the community.

Methodologically, this exercise makes three contributions: First, it offers a case of study for constructing a SAM at the local level via the application of a survey. Second, SAMs work both as an economic model (in this case, of income distribution) and as a database (depicting the circular flow of income), allowing us to investigate how their economy-wide scope and consistent methods can be of use for understanding of the social implications of production technologies, even at the local level. Third, it explores the possibilities of SAMs for contributing to social life-cycle analysis (S-LCA), an approach that has been developing recently for assessing the social impacts of goods and products across their life cycle. As has been recognized, LCA has benefited largely from the comprehensiveness of input-output tables. We assess that the social aspects analyzed in S-LCA can be easily included in the construction of a SAM.-The latter not only includes the technological structure of an economy like an input-output table would do, but also describes the interactions between technologies, factors of production (i.e., labor and capital), and the institutions to which they associate (i.e., firms and households).