# Using input-output to disentangle the farm income problem in Tuscany: an integrated macro-micro level analysis

Topic: Regional Input-Output Economics - IV
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The analysis of value chains through input-output tables has been widely recognised by economic literature (e.g., Koopman et al., 2014; Bentivogli et al., 2019). The creation and use of interregional tables at the international level has allowed estimating multiple indicators relating to the position of sectors and regions within the global supply chains (e.g., World Bank, 2019).
Alternatively, many studies have analysed the effects of participation in global value chains from a micro-economic perspective (e.g., Giovannetti and Marvasi, 2018), often with no connections with the macro-economic level. Indeed, this integration is still largely unexplored, often because financial indicators at the firm level are missing and not always consistent with the information provided in interregional tables. This is especially true for some sectors, like agriculture, whose fiscal regimes are atypical and for which statistical information at firm level is incomplete and often dispersed in several sources of data.

The aim of this paper is to analyse the distribution of the value added in the Tuscan agri-food chain and, in particular, to understand the position of agriculture along the value chain. One of the main aim of the 2023-2027 Common Agricultural Policy is to improve the position of farmers along the agri-food chain, in order to increase their incomes, so as to deal with the â€œfarm income problemâ€• (e.g., Gardner, 1992), but also to limit the asymmetric transmission of prices along the value chain. In fact, in time of constant prices and stable supply, the issue turns to be less crucial, even if some imbalances along the supply chain might still persist. However, the triggering of inflation and the increasing probability of supply crises at the global level, due to the diffusion of unpredictable natural disasters associated to climate change, have recentralised the issue of redressing these imbalances.

Our analysis makes use of an interregional input-output table for Italian NUTS2 regions (see PanicciÃ  and Rosignoli, 2018), augmented in order to single out value added generated in both production and post-production phases by the food final demand. We then single out the contribution in terms of value added of each sector and region from raw materials to consumption. Second, we build up a novel microeconomic dataset of Tuscan firms, derived from administrative and statistical sources, in which all the sectors of the economy are represented, together with their balance sheets, and assess how macro-economic indicators are mirrored by micro-performances of firms at work for the agri-food value chain.

In such a perspective, the novelty is twofold. First, going beyond an input-output representation of the economy at basic prices, we have estimated the distribution of value added along the agri-food value chain, also considering post-production stages, namely commercial services and transportation. Second, the macro-economic assessment has been integrated with a micro-economic evaluation of the financial results of the firms involved into the agri-food chain.

The results show that out of 100 Euros of agricultural products sold in Tuscany, the gross operating margin of the agricultural sector is 30 Euros. In the case of food products, the margin is even lower. These results are in line with Nucera et al. (2016) and Finizia and Merciai (2012) and they are consistent with the input-output analysis too. If, in absolute terms, in the very specific case of Tuscany, there is still an income gap between agriculture and the other sectors, the margin of profitability out of sales is comparable with the rest of the economy. As a result, producers seem to

struggle to gain a fair profit between the price faced by consumers and the price imposed on them by commercial operators.

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