# A price-quantity linear model as an extension of the standard models in input-output analysis: An empirical application on NextGenerationEU funds.

Topic: Input-Output Analysis: Industrial Policies and Prices
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Price models have proved to be very useful linear tools in input-output (I-O) analysis for a first approach policy evaluation to assess price effects. Similarly, quantity-oriented models do the work for the assessment of quantity effects. However, both these I-O models reside in unconnected spheres: prices do not interact with quantities and quantities, in turn, do not interact with prices. Therefore, they have been questioned for their limited capacity when a more exhaustive and broader exercise is required. The aim of this paper is to contribute a possible improvement in the capability of this well-known instruments. We do so by presenting an extension of the classical, but separated, I-O models to an enhanced "price-quantity model" that connects the price model with the quantity model. This will allow us to obtain a wider range of results within the scope of the linear structure that characterizes the I-O model. Such a "price-quantity model" could be of particular interest by providing a broader set of interpretations and conclusions, which could shed light and provide academic support to policy decisions as an alternative to a more complex general equilibrium framework.

Once the theoretical basis of this proposal is presented and developed, we will implement our model by using a Social Accounting Matrix (SAM) as our database. For this case, we have worked on an updated and adequately disaggregated SAM for Spain to develop an empirical exercise based on this new â€œprice-quantity modelâ€• to assess the impact of NextGenerationEU funds. These funds have become a key solidarity and recovery instrument jointly issued by all member-states for the first time in history of the EU with the aim of boosting economic growth, digital transition, greener economies, and welfare after the Covid-19 pandemic outbreak. With the help of our novel model, our goal is to assess the effects of this funds in a wide range of indicators with especial attention to activity levels in real terms, primary factors use, primary factors remuneration, and welfare, among other indices.

For the implementation of the model, it has been necessary to previously elaborate an allocation rule for the distribution of the amount of these funds to the aim of finding an equivalence among the budget items to be managed within different categories of projects and the corresponding accounts in the Social Accounting Matrix.

In short, SAMs are databases that enlarge the information provided by the input-output tables with statistical information from the survey of household budgets, or from the national or regional accounting, among other sources. SAMs can behave as an instrument for the impact analysis of certain exogenous shocks. These enlarged databases are defined as extensions of the input-output tables and have been commonly used for their simplicity and their utility in impact assessment and evaluation of public policies. A SAM incorporates, for a given period and level of sectoral disaggregation, the complete flow of incomes in the economy and contains, in addition, an input-output table as submatrix. These more accurate databases, comprise economic transactions which enable us to extract information on the different economic agents such as producers, consumers, government and foreign sector; as well as on the behavior of productive factors. Consequently, they complete the information provided by the input-output analysis, whose data limitations have been deeply discussed in the literature. From a conceptual viewpoint, another key advantage of SAM models is that they project short-run policy evaluations, rather than the long-run adjustments typically supplied by Computable General Equilibrium (CGE) models; therefore,

providing more focused insights on practical observable policy effects.

Keywords: Input-Output models, Social Accounting Matrices, Regional Accounting

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