

Input-Output Tables of the Spanish Economy and their Usage

Angel Alcaide*

1 The First Input-Output Table of the Spanish Economy

During one particular moment in 1956, the then-acting director of the Institute for Political Studies, Francisco Javier Conde, suggested Professor Valetín Andrés Álvarez start a research project investigating the economic reality in Spain. Mr. Valetín had read an article back then from Wassily Leontief on input-output analysis, subsequently asking his associate from the Chair of Economic Theory, Alfredo Santos Blanco, to organize a team to estimate a table for the Spanish economy. Other members who incorporated into this team led by Professor Santos Blanco included: Joaquín Fernández Castañeda – who also collaborated with the Chair led by Valentín Andrés, Gloria Begué – who later became professor of economics at the University of Salamanca and the author of this article.

Our goal was to estimate a table of this fashion for the year 1954. We were well aware of the colossal task of finding quantitative data of sufficient quality required for constructing the table. The reality was subsequently corroborated when we found limited statistics on productive activities, scarce information on primary factors used for

production (including remuneration to labor), and virtually no information on transactions of production sectors to other industries or final demand (except for data on exports).

Furthermore, the Institute of Political Studies did not have sufficient resources to finance surveys that could have helped to estimate essential data (members of the team also received a very modest remuneration for their labor at the Section of Political Economy at the Institute). Under these conditions, we requested help from statisticians specialized in each economic sectors that formed part of the National Syndicate. Their contributions permitted us to estimate all the "inputs" and "outputs" corresponding to 28 economic sectors, from which the input-output table for 1954 was derived.

After the statistical task was close to completion, professor Manuel de Torres became aware of the project and got excited by the possibility of using the table for economic analysis. As Mr. Manuel had direct contact with works conducted by Italian economists on this topic directed by Vera Cao Pinna – as the dean of the faculty of Political Science and Economy – he successfully invited the Italian professor to discuss the results with the team. The feedback was very positive towards the Spanish team.

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Nevertheless, the Italian team was interested in further discussing the final estimation results contained within the table. Furthermore, the matrix still needed to be inverted, which was impossible back then as Spain did not have an electronic computer in the spring of 1958 that could have made the calculation. The high cost of transportation was remedied thanks to the interest shown by the sub-director of the institute, Manuel Fraga Iribarne.

After having successfully inverted the matrix of 1954, the results were subsequently published in 1958 under the title **The Structure of the Spanish Economy. "Input-Output Table"**. The editor was the same Institute of Political Studies, with the final containing a prologue written by Valentín Andrés Alvarez, an epilogue (demonstrating the application of the table to foreign trade) written by Manuel de Torres, a statistical appendix (containing a note from the Syndicate Services of Statistics) and a mathematical explanation of the Leontief Model.

The input-output table of the Spanish economy. The year 1954 the table proper was illustrated as figure 1 within the publication; with numerical values being denoted in millions of pesetas (two decimal spaces). The table was divided into 28 economic sectors, with four values of primary inputs and other categories for final demand. The basic table was also disaggregated into a **rectangular table**, with 146 rows and 28 columns – each of them corresponding to a productive sector – as well as the own final sectors of the rectangular table. Ad-

ditionally, other tables were included, such as a table with **net-worth values** (discounting any re-employment from the sector calculation), the **table of technical coefficients** as well as the **inverse matrix** (calculated using the FINAC computer from the Institute for Calculus in Rome). A final table was included aggregating all the economic sectors into 7. This table facilitated the calculation of several macroeconomic indicators of our economy. Only the national rent (National Economic Board) was estimated up until that point in 1958.

We highlight here several facts from the preparation of the table of 1954:

- the **inputs** and **outputs** were valued at production prices
- the aggregation was done considering the nature of the products themselves, not from categories provided by the producers
- All imported primary inputs consumed by each of the industries was aggregated within one of the rows of primary **inputs**
- one of the categories within final demand is classified as "Government" and includes both public consumption and investments made by the state
- changes to inventories were not considered
- one primary **input** denominated as "personal economy", includes both all the rents from salaries and non-salaries and expenditures given to social security