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QUANTITATIVE ECONOMIC RESEARCH IN LATIN AMERICA

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INTRODUCTION

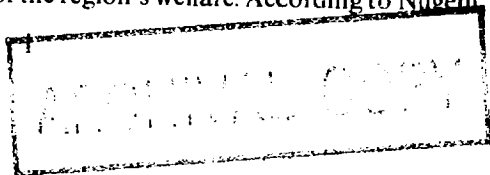
A conference on the use of quantitative economic models as research tools for Latin American economies was held in Mexico City from November 27 to November 29, 1974. Sponsored and organized jointly by El Colegio de Mexico (Centro de Estudios Económicos y Demográficos) and the National Bureau of Economic Research, the conference was designed to survey the state of quantitative research in Latin America. This entire issue of the *Annals* is devoted to some of the papers presented in Mexico City (with a complete list of papers and participants featured below).

The papers included in this volume are arranged according to techniques used and economic problems analyzed. The first set of three provides different approaches to the framework for dealing with macroeconomic policy problems. Another set of three shows alternative ways (input-output and linear programming) to examine the structure of the Mexican economy. The last paper focuses on the technological characteristics of a Latin American industrial sector.

In the first paper, Jere Behrman discusses the justification for using a macroeconomic determination model for less developed countries. He presents a 30-equation prototype model of income determination designed for developed countries as a frame of reference, and transforms it step by step to correct for the shortcomings usually associated with that type of model under LDC conditions. Most of Behrman's paper is devoted to examining the corrections necessary to take into account the special Latin American characteristics of the labor market, of aggregate demand components, and of the financial markets. Behrman's conclusion is that a large-scale macroeconomic income determination model is, indeed, an appropriate tool for examining the role played by different stabilization policies in a Latin American economy.

In the next paper, Affonso Pastore presents a small-size theoretical and econometric model to examine the behavior of the rate of inflation in Brazil. Pastore uses such explanatory variables as the money supply, the wage rate, and the exchange rate and by utilizing Brazilian data, he arrives at the following conclusions: He finds that the initial impact of an increase in the money supply on prices is quite small, and with fairly long lags. Comparing stabilization strategies using a gradual approach of shock treatment, with and without the presence of repressed inflation, Pastore favors the gradual approach because of the type and magnitude of the generated cycles. Moreover, he holds that release of repressed inflation should not occur simultaneously with a monetary shock.

In the third paper, Jeffrey Nugent goes beyond country boundaries by examining the interdependencies of the five Central American countries. Five identical macroeconomic models of income determination are used to evaluate the effects of intraregional coordination (or non-coordination) of economic policies on the attainment of maximum income by the region as a whole. The compounded macroeconomic model is transformed into a linear programming model, which allows the examination of possible trade-offs between different policy instruments measured in terms of the region's welfare. According to Nugent,



quite substantial benefits ranging from 2 percent to 7 percent of the region's GDP could be obtained for the region by a strategy of policy coordination. The distribution of this gain would be uneven with smaller countries benefiting more than larger ones on the one hand, and the richer countries more than poorer ones, on the other.

First among the studies on the Mexican economy, the paper by Rogelio Montemayor and Jesus Ramirez introduces a combined input-output and national income determination model. In fact, one of the purposes of the paper is to show how to link an input-output matrix to a macroeconomic model; the process will require that both models be solved simultaneously. This composite model is used to examine the effects of simulated policies that improve the technology of different sectors. One of the interesting conclusions Montemayor and Ramirez reach is that changes in the agricultural row produce higher multiplier effects in the secondary and tertiary sectors than column changes in the basic metal industry. This is the basis for suggesting that more attention should be paid the agricultural sector in the development process of Mexico.

Next, Pedro Uribe's paper explains the generation of a time series of input-output matrices by applying the RAS method. The author uses the 1960 Mexican input-output matrix as a basis and generates 25 input-output matrices for the 1950-1975 period. A theoretical discussion about the validity of the approach and an empirical verification of its forecasting properties follow. In this connection, the predicted power of the intermediate demand approach is compared with the behavior of the "final demand blow-up predictor," and it is found that input-output prediction performs better in the short and medium run. Further, Uribe attempts to establish the empirical possibility of analyzing ex-ante technological change both with and without the use of a production function or of equilibrium conditions.

The paper by Luz Maria Bassoco and Roger Norton discusses a sectorial planning model of Mexico's agriculture, a fairly disaggregated model in terms of crops, techniques of production, and location. They trace the effects of agricultural policies regarding (1) the rate of expansion of arable land, irrigation, and labor; (2) the rate of change of yield per hectare for all crops; (3) different rates of GNP growth; and (4) the rate of change of crop exports. Their relevant conclusions include the following: (i) Job creation will increase at the rate of 1 percent to 2.5 percent per year under the various solutions; since the rural labor force increases more than 3 percent per year, this implies continuing rural-urban migration in Mexico at a significant rate. (ii) In every respect—whether production, income, or employment are concerned—irrigation is clearly the factor of prime importance in Mexico; as to income distribution, the uneven distribution of water over farms is the major determinant of the skewness of the income distribution in the agricultural sector.

Finally, in the last paper, Patricio Meller looks at some microeconomic and structural aspects of the manufacturing sector in Chile. Technological characteristics are explored through the econometric estimation of production functions for industrial establishments classified according to size. The objective of the paper is to examine whether establishments within the same industry have the same or different production functions. Chow tests and the trans-log production function

are used to test this hypothesis. Moreover, the changes in the technological parameters across establishment size are examined, and it is found, that diseconomies of scale for each size class prevails in Chilean manufacturing sector, which is certainly a puzzle at this stage of our knowledge.

Manuel Gollás
Patricio Meller
M. Ishaq Nadiri

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14. Reyes, P., "Programming and Basis Economies: A Model of Job Creation for Mexico."
15. Uribe, P., "Some RAS Experiments with the Mexican Input-Output Model."

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