XXIV. COMPUTER STUDY OF THE DYNAMICS OF A NATIONAL ECONOMY

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Using the technique of simulation by means of the IBM 704 computer, this project is studying some of the dynamic processes and problems involved in starting growth in an underdeveloped economy. We are now using the Dynamo program that was developed, under J. W. Forrester, by the Industrial Dynamics group in the School of Industrial Management. It is an outgrowth of an unsuccessful effort to perform the simulation with analog equipment.

Funds granted by the Rockefeller Foundation for the analog study were expended by the end of 1959 without producing results — because of the abandonment of the analog equipment and the necessity for learning how to make the conversion to the digital computer technique. At this point the Research Laboratory of Electronics and the Sloan Research Fund (of which the latter had helped start the project in 1957) gave joint support toward completion of the study. Sufficient progress has been made to assure successful completion of the study and preparation of two doctoral theses that will report and interpret the results. Most of the computer runs have been made. Analysis and interpretation of the results were started concurrently with the computer operations. Many of the results are in final graphical form, and some of these will be presented at one of the sessions of the Industrial Dynamics Summer Program, together with a talk on the use of simulation for this sort of study of economic problems at the national level.

The two theses will compare and interpret runs showing the effects of different investment allocation patterns, foreign trade policies, and measures to cope with inflation, and the sensitivity of the results to differences in values of some of the parameters. One thesis (by Tencer) will focus mainly on internal problems and policies; the other (by R. W. Gillespie) will deal mainly with foreign trade and policies related thereto.

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