ANALYSIS OF FOREIGN TRADE POLICIES BY MEANS OF A NUMERICAL EXPERIMENTATION COMPUTER MODEL, WITHIN THE CONTEXT OF ALTERNATIVE ECONOMIC DEVELOPMENT STRATEGIES FOR VENEZUELA

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1. GENERAL PRESENTATION OF THE PAPER

This paper consists of a comparative analysis of foreign trade policies, by means of a numerical experimentation (or simulation) computer model, that represents the Venezuelan economy in terms of its structure, basic relations, and base-year information.

The paper is based on a more extensive work carried out at CENDES (Centro de Estudios del Desarrollo) over the past few years in comparing and evaluating the economic feasibility of two very different development strategies for the economy of Venezuela, called Consumption Style and Creative Style. The foreign trade policies studied here have been formulated in the context and conceptual framework of these two Development Styles; and much of what follows has been taken directly from that extensive work, including summarized descriptions of the Styles and their salient characteristics.[1]

The research on Development Styles directly and concretely deals with those problems which, for one reason or another, Latin American (and, in general, underdeveloped) countries, their technical planning offices, and their economic policymakers abstain from taking into consideration. Among these we find the following resistances or failures: to set national objectives in explicit detail; to give concrete shape to the global long-run framework containing the strategy pursued; to discuss in concrete terms the qualitative aspects of the quantitative indicators representing each alternative strategy and its corresponding goals; and to make the strategy and the policy instruments and hypotheses that it embraces logically consistent with the final objectives sought, by applying the available normative and feasibility criteria, which would lead to a comparative study of alternative strategies and, thus, to a choice that could then be considered rational (in the sense of giving some assurance of its compatibility with the future desired).

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[1] Grupo de Modelos Matemáticos (Equipo de Desarrollo Económico y Modelos Matemáticos), *Estilos de Desarrollo: Análisis Comparativo de Políticas a Largo Plazo* (CENDES, Universidad Central de Venezuela, Caracas, 1971). Due to restrictions imposed upon the length of this presentation, the authors have been forced to omit important details presented at the Cuernavaca conference and contained, therefore, in the original Spanish version. These concern details of the most important numerical hypotheses and their explanations, the equations of the model pertaining to the determination of the balance of payments, a brief explanation of the computer program, and the detailed results of the final basic run of each Development Style, grouped in tables of the form of national accounts. In addition, some of the details of the policy experiments also had to be omitted. This information may be obtained directly from Juan Pablo Perez Castillo, director of the group.

The above-mentioned omissions actually mean that the process of economic and social development has been conceived more as an extrapolation of the present structural conditions and relations (a process which evolves in stages and with autonomous dynamics) than as a conscious process of social change and, above all, of structural change. On the other hand, it also means that development is being considered in relation to the situations and processes presented by other countries considered "more developed"; implicitly, or explicitly, one tries to be like those other countries, without questioning feasibility or the normative contents that are implicit in this approach.

This imitation of other countries may nevertheless run into serious difficulties insofar as the decisions taken may produce contradictory results, different from those expected or predicted (especially if a development path is followed implicitly and not explicitly). Such decisions may have a lasting effect, preconditioning the future, and generating still other sets of complementary decisions that may reduce even more the degrees of freedom available for independent action.

It is undoubtedly difficult to specify concretely the desired Development Style, including the corresponding social aspirations and goals; nevertheless, it does not seem to be acceptable to substitute for concrete specifications vaguely defined propositions concerning social instruments and structures. What we propose is the testing of different possibilities by means of the *numerical experimentation* method. The method consists of first defining the different strategies in quantitative terms, but making explicit the differentiating categories (including their value judgments and ideological contents), such as the degree to which the society is planning to satisfy the needs for goods and services of the different population groups; and then evaluating comparatively the social effort—in terms of the human, capital, and foreign resources required—by means of the usual economic indicators.

Two strategies (Styles) were chosen, each possessing some real interest or possibility, rather than being entirely abstract cases. The starting point is the Venezuela of 1966 and 1967; thus, the model had to be correspondingly debugged and tuned to the statistical information previously gathered, processed, and analyzed.

The qualitative description of each Style constitutes the necessary frame of reference to estimate its (quantitative) time path, to indicate the sets of economic policy instruments that are consistent with it, to allow for the setting of quantitative goals, and to evaluate the results (also quantitative) comparatively.

One may or may not agree with this description, since it also serves as a working hypothesis. What is important is that each Style requires interdisciplinary discussion for its description, as well as to determine its correspondence with the numerical values of the exogenous variables that represent goals, policy instruments, and technical and behavioral hypotheses. In this manner, the sociopolitical context has to be taken into account, whether one likes it or not. Both the initial quantification and the evaluation of its concrete results in the economic field call for considerable effort, since the correspondence between the economic and sociopolitical aspects is frequently not univocal. However, there is, in fact, no alternative if what is sought is to implement a development strategy with some degree of rationality and feasibility.

Perhaps an example may clarify what has been stated in the previous paragraph. Most certainly, it is relatively simple to achieve consensus on some general proposition defining minimum levels of consumption for different population groups. But it will be considerably more difficult, if not extremely so, to achieve agreement as to the concrete specifications of those minimum levels in terms of individual components, their relative weights, and the policies to be implemented in order to achieve the goals.

Regardless of the many techniques and social experiences available to solve this type of problem, there always will be a margin of uncertainty; and it is precisely this margin that may be made explicit with this method. Once the values are tentatively fixed, based on the knowledge one has, the range of the variations may be limited and the sensitivity of the results may be examined by experimenting with different values. In a similar manner, one may proceed to set other groups of numerical values (the technical coefficients, for example).

2. The PRODINGR Model

The PRODINGR Model, a numerical experimentation (NUMEX) model[2] for computers, was used for the comparative study of the Development Styles. It describes the economic system of Venezuela, simulating the economy as it is usually conceived. The economic system is divided into 19 productive sectors (which represent a greater disaggregation than what is generally used by the institutions that study the Venezuelan economy), each of which is divided, in turn, into three subsectors, or subdivisions, called "techniques."

The sectoral subdivision is based on specific criteria for each sector. In some sectors, particularly the industrial, the techniques reflect the average size of the productive units, measured by the volume of employment per unit; in others, as in agriculture and transportation, the techniques represent different forms of social or institutional organization, or define real subsectors. In still others, they reflect differences in technology.

Occupations are presented in a double classification, according to level of education (and thus skill) and according to type of occupation. Debts are also subject to a double classification, by type of creditor and by the conditions of each type of loan.[3]

In order to simplify understanding the PRODINGR model, it may be divided into two blocks, or submodels, which, however, are integrated and executed simultaneously. The first block (the PROD submodel) produces for each year the results of economic activity on the production side, including the technico-economic requirements for the different sectors and techniques. It deals basically with the following aspects of the economy: product and production, investment and capacity, foreign trade (exports and imports, and so on), employment, and intermediate input requirements. The second block (the INGR submodel) produces the other aspect of the productive process, from the point of view of the earning and use of the incomes generated and their consolidation in terms of a national

[2] For a detailed explanation of the method, see the bibliography listed at the end of Chapter III of the book cited, *Estilos de Desarrollo [Development Styles: Comparative Analysis of Long-Run Policies]*.

[3] For a detailed listing of the classifications see the Appendix.

accounting framework: wages and salaries, interest and rent, depreciation, taxation, income distribution, and expenditures on final consumer goods. The results of the calculations performed by the model are then summarized in the familiar national accounts, including the family, enterprise, government, and capital accounts.

With the output obtained from the model calculations, it is possible to analyze the economic policies that are embraced in a development plan in terms of their consistency and feasibility.

According to the method of numerical experimentation, the conceptual model of the economic system (with the characteristics mentioned in the previous paragraphs, in our case) is converted into a series of equations in mathematical language, which are then translated to a computer language (in the PRODINGR case, FORTRAN) to be used in a computer (middle-sized in our case, an IBM 360-50). The model is basically exogenous; that is, almost all of the variables depend not on endogenous relations that serve to explain their behavior in time, but rather on rates of change, coefficients, and parameters that are introduced from "the outside," as data or information for the model, in the form of time series. The introduction of these exogenous values in the sequence of the calculations results in specific combinations of rates and coefficients. These exogenous time-series values represent the set of hypotheses, or theories, that are to be tested and tried out. Each of these combinations of values results in an output, a "run" of an experiment, as a function of the exogenous values introduced and processed by means of the same formal calculation scheme. The results of each run could be interpreted as a different theoretical model, comprising the behavioral relations introduced as data by the "user."[4]

The "output" of each experiment consists of annual results. Following a sequential, step-by-step calculation process, beginning each time with the previous year, already calculated, the model may extend its calculations into time for as many years as the time series of exogenous data introduced permits. These yearly results are organized into tables that may combine several years of the same run or several runs for the same year; in addition, plotting facilities are available which graph any variable selected. This whole process is automatically included in the run of the model. At his discretion, the user may select the tables, variables, or graphs that are to constitute the output.

It is, then, a model designed to provide a formal accounting framework, such that, in a rapid and precise manner, it is possible to try out different policies related to different time paths for a considerable number of variables of the economic system—without losing sight of the system as a whole; while at the same time, being able to detect inconsistencies, bottlenecks, imbalances, and so on among the many policies to be tested, in relation to the various aspects of the economy. This paper seeks to demonstrate that with this type of NUMEX model, and in our case, the PRODINGR, the above-mentioned objectives are achieved.[5]

[4] The term user refers to the researcher who designs the run and introduces the data he wishes to try out.

[5] For a more complete demonstration, consult the book cited. *Estilos de Desarrollo.*

3. Basic Characteristics of the Numerical Experimentation Model

In as great a degree as possible, theories about the behavior of the economic system have been left out. The purpose was to design an accounting framework as neutral as possible, in the sense of enabling the analysis of two substantially different patterns of development for any given country. The economic laws usually expressed in terms of endogenous mathematical relations have been replaced by explicit hypotheses about the future behavior of the most frequently used parameters in economic analysis, such as the coefficients for capital, labor, national and imported input requirements, final consumption, and so forth.

However, it must be admitted that the model has a theoretical basis, at least at two distinct levels. In the first place, there is an a priori criterion regarding what is important and what is not. To describe the economic system, a specific set of variables was selected over another one equally acceptable. In the second place, although in most cases the equations are of the accounting type or identities, in a few cases they contain a certain amount of theory, but expressed in very general terms. One may take as an example the calculation of investment requirements in Sector S, Technique T, for Period P.[6]

$$IBF(S, T, P) = CP(S, T, P)^*[QQP(S, T, P + 1) - QQP(S, T, P)].$$

The relation simply states that investment is equal to a certain capital coefficient $CP(S, T, P)$ times the expected increase in production. At first glance, a naive linear relation is suggested with a gestation period of one year. This is not so, however, since $CP(S, T, P)$ depends on time, and its value must be given exogenously every year. It does have definite theoretical content, but this comes given from the "outside." In other words, the relation between investment and production does not have to turn out linear over time, and it may differ among experiments. In short, in each experiment tried with the same model, it is possible to have a different investment function given exogenously through the data; and the "theory" included in the model simply states that "investment is some general function of the increase in production." It is not even necessary to postulate a gestation period, although this is convenient from the point of view of computer programming.

It follows, then, that the substantive content of any theory is taken into account explicitly in the form of exogenous data expressed in time series of coefficients, parameters, and rates of change. The verification and confirmation of these numerical hypotheses remains outside the model; and it may be based on any type of reasoning, from mere intuition and consultations with experts to econometric estimates and historical extrapolations. In this manner, the methodology takes full advantage of the progress achieved by other methods, incorporating what is useful in each one. It is not exclusive of other techniques; instead, it is generalizing and complementary.

The computer model makes possible the confirmation and verification of the internal consistency, feasibility, and efficacy of the set of economic policies and

[6] The complete equation is of another form. Here, the assumption that there is no idle capacity nor depreciation is made only to simplify matters.

hypotheses concerning the future behavior of the economic system which is commonly labeled "development plan." Basically, it is an instrument that can be used to order, integrate, and analyze existing information so as to enable the evaluation of the implications and consequences of the hypotheses and goals of the implemented policies.

The equations have a clear and familiar meaning for the researcher (or planner), and the analytical scheme they integrate is useful in discovering information gaps and critical areas for analysis; moreover, it forces the use of consistent concepts and dimensions.

The model is ambitious from the point of view of its scope and level of disaggregation, since it attempts to represent with great detail and in abstract form the relations of the economic system of a country. It is, therefore, more detailed than the usual models; although even greater detail would have been useful in the treatment of such problems as import substitution. This was not possible, however, because the necessary information was not available at the time; consequently, it remains a task for the future. In any case, the treatment given intermediate inputs was sufficient for the degree of detail considered in the conclusions.

Considerable work was necessary to tune up the model and adequately fit the data for the base year. Merely to adjust the initial year, more than 3,000 coefficients, parameters, and rates of change had to be elaborated, verified, and made consistent with each other. In addition, all this had to be done for the assumptions regarding their time paths into the future, to the year 2000.

Each run, or experiment, requires about 3,000 items of data per year; hence, for a thirty-four-year run, more than 100,000 numbers must be fed to the model (and this is especially true when alternative Development Styles are being studied). Since the problem, presented in such a manner, is almost impossible to handle, it was necessary to elaborate special routines that would give the option of presenting initial values and isolated points along the time paths of the variables, filling the gaps by linear interpolations between the numbers given.

An essential feature of the model, and of this technique in general, is its great flexibility and adaptability to changes in equations and relations among variables, as its use has suggested. In actual fact, the model has been continually modified and improved. Even as the final report was being prepared, the investment equation suffered successively two important changes, without producing any serious problem of adjustment or programming. As a result, it may be concluded that this model is never a finished instrument; it is under constant change and relatively easy to improve.

4. Methodology of the Model

Given the above characteristics of the model, the critical issues involving the use of this type of model concern the techniques of elaborating the input data and analyzing the output data. Two different problems arise.

On one hand, the exogenous data are not necessarily independent from each other, in the sense that the value of one variable in no way affects the value of any other variable. Actually, many variables are related although the nature of the

relationships are often not known with reasonable precision; in such cases, these can be explicitly introduced into the model and experimented with.

On the other hand, the variables indicating at each iteration the state of the system do not correct the exogenous input data when imbalances appear. Thus, for example, the appearance of a deficit in the balance of payments does not affect the input data, nor such endogenous variables as the rate of growth of national income. The gap may continue to grow until the final year of the experiment run. This may be interpreted in different ways, but in the end it is the responsibility of the analyst to determine whether to consider the deficit tolerable and capable of finance, or to reject the experiment and change the assumptions.

There is an exception to the above rule, however. At the option of the analyst, the model may be made to correct automatically the sectoral supply-demand gaps by adjusting supply to its respective demand. In this case, the exogenous rate of growth of output for each sector is adjusted by a factor that depends upon its respective gap of the previous period. Since the assumptions affecting the rate of growth of supply are introduced independently of those affecting the rate of growth of demand (by sector), large inventories (positive or negative) may result and distort the analysis of other gaps and indicators. To avoid this, the automatic adjustment of the supply-demand imbalance was introduced in order to allow concentrating on such other output variables as unemployment, excess capacity, income distribution, savings, and so forth. This, of course, implies a specific value judgement about what is considered important and what is not.

Following is a description of the procedure used to deal with the problems cited above, for the comparison and evaluation of the Development Styles.

5. Input Data

Taking into account the requirements raised by the quantitative expressions of the two Development Styles initially described in a literary and qualitative manner, as well as the obvious meanings of the many variables contained in the model, the exogenous input data were grouped into the following categories: initial values, goals, policy instruments, technical coefficients, and exogenous parameters.

The *initial values* describe the state of the system at the start of each run. Every calculation period, these values are updated so as to represent the current state of the system. Among the corresponding variables are included sectoral capital stocks, wages, exports, outputs, and labor productivities.

The *goals* describe the essence of each Development Style. Among the most important of these are the specific types of needs that are to be satisfied and distributed among the population in a certain way, which in turn are expressed in per capita consumption expenditures, by level of income and sector of origin, and are postulated for each $tyle at specific points in time. Among other goals helping to define each Style are the following: degree of economic independence of the Style with respect to the foreign sector, free time for creative and recreational leisure, health, education and skill composition of the labor force, housing, degree of political participation, and so on. Except for the last one, these goals may be expressed explicitly in numerical terms. Others, like the degree of participation

in political decisions, can only be treated indirectly from the point of view of their possible effects on other variables.

The *policy instruments* are variables that may be controlled with greater facility than others. There is no precise definition for an instrumental variable; it is rather a question of degree. Given the goals, the range of instruments consistent with the goals and the manner by which they must be used are narrowed down. Within this range, they might even be ordered according to their implicit costs. The model contains an appreciable number of policy coefficients (most of the exogenous input of the submodel INGR is of this type). The intensity and way in which they are used will depend, in the final analysis, on the Development Style.

Finally, the *exogenous variables* are, in principle, all those parameters which are related to the technological structure (capital coefficients, intermediate and labor inputs) and are considered relatively more difficult to control, as well as expected to change rather slowly through time. The term exogenous as used here indicates the way the variables enter the model, but it also infers that these are variables which are not sizably affected by the state of the system, while it, in turn, is affected by them (for example, the price indexes for exports and imports).

6. Output Data

The analysis of results was systematized, as in the case of the input data. The purpose was to organize a method to check the feasibility of the numerical hypotheses that constitute each Style, and to compare and evaluate them on that same basis. The output tables designed specifically for this work show clearly the physical and financial gaps that occur in the system as a result of the assumptions made.

Following is a list of the areas in which important *imbalances* can take place: balance of payments, human resources (unemployment, underemployment and demand-supply imbalances by occupational categories), installed productive capacity, government account, family account, enterprise (foreign, public, and private) account, and housing.[7]

7. Description of the Development Styles

Following is a description of the two socioeconomic Development Styles—which represent different social systems—delineating their salient features and exemplifying their differences concerning the foreign sector.[8]

The Style called CONS (for Consumption) receives its name from the generalized "consumerism" which characterizes the so-called mass-consumption countries with a high and diversified level of industrialization, which it seeks to reach by imitation and following the guidelines set by those countries. It is, therefore, a type of society in which private consumption is characterized by its diversification, sophistication, and constant renewal (the annual change in models of consumer durables is a typical example).

[7] Lack of space made impossible inclusion of the explanations of these gaps, their precise meanings, and forms of calculation. These may be found in the book cited, *Estilos de Desarrollo.*

[8] For detailed definitions, consult the publication cited, *Estilos de Desarrollo.*

In order to achieve this, the economy depends upon private enterprise. The State is fundamentally a mediator between the conflicting interests of labor and management, attempting to implement an economic policy which is, on the whole, more of the regulatory or complementary type than of the orientating or long-range type. It must guarantee the adequate supply of such basic services as public order, education, health, transport, and the material resources which in Venezuela are public goods (for example, natural resources, petrochemicals, basic metals), since this is considered indispensable for the efficient operation of the economy and is required by the private investor.

Since it seeks to imitate other countries, in particular their consumption patterns and habits, it is equally necessary that the Style organize its productive apparatus in a manner similar to those countries, employ the same modern technology (which will have to be imported), and, in general, guide economic activities by the traditional criteria of efficiency and profitability. This means that the CONS Style will try to adopt the technical, economic, and social conditions prevailing in the hegemonic and leading nations, even though they may be inconsistent with the internal possibilities and capacities determined by the development of the national productive forces. It means also that in attempting to take advantage of foreign creative endeavors, not necessarily adequately adapted, the material results of that creativity are also imported, in the form of capital goods, managerial capacities, organizational forms and norms, and so forth, so that foreign capital is stimulated, increasing its relative importance significantly—particularly in the most dynamic sectors of the economy.

The Style labeled CREA (for Creative) seeks to create an entirely different society: one that is economically, politically, and culturally creative and autonomous (but without attempting to reach self-sufficiency nor fostering isolationism). Its main objective is to free man from the alienation and subjection that characterizes the social system at present (Venezuela in the 1970s) by guaranteeing to the entire population the satisfaction of such basic needs as food, education, health and housing, and by realizing to a maximum the creative potential of that population.

Thus, another basic goal of this Style is the production of free time for creative leisure. This means that the present social structures and education will have to go through such profound qualitative changes as serve to produce, with the conscious and active participation of the workers, a significant increase in the productivity and efficiency of the productive apparatus in order to reduce substantially the "normal" work day.

In this society, it is expected that social participation will be generalized in the fixing of the social national objectives at every level of the decision-making process and in daily activities. It will have its own culture, critical and autonomous; and its own basic technology, which will be the product of the internal requirements generated by the development of the national productive forces.

The central role of the State, in its economic dimension, is to guarantee the fulfillment of the basic economic goals by conducting this activity directly. This calls for the socialization of the means of production in the basic sectors (in general, all large productive enterprises, but also those that provide such services as education, health, transport, finance, and information). The remaining sectors may be left in private hands, so that the relative weight of the private sector will

be essentially complementary, and smaller than its initial relative importance or its role in a more traditional Development Style.

Foreign capital tends to disappear from the economy, but gradually, because it is contradictory with the objectives of this Style. As a result, most of the foreign-exchange requirements will have to be directly generated by exports, and considerably reduced; but it does not rule out the possibility of obtaining technical assistance, such as by renting the services of experts or the technical know-how of other nations.

8. Final Basic Experiments

Following is a very brief summary description of the results of the national development policies that were simulated for their evaluation in the more extended work cited, since the analysis of the Development Styles proper is beyond the scope of this paper although essential to its comprehension.

In that work, a first pair of experiments (called initial runs) directly assumed the hypotheses without prior corrections for methodological compatibility or feasibility (intentionally), with the object of demonstrating the concrete application of the technique used and, in general, the use of computers in the analysis of long-run development policies with a mathematical numerical-experimentation model. These experiments brought forth inconsistencies and problems that had to be corrected in subsequent runs, culminating with a second set of experiments (called policy runs). These, in turn, showed that all of the problems could not be corrected by means of changes in the policy variables (especially those relating to CONS), thereby indicating that some of the target variables had to be changed. Consequently, a final pair of experiments was put into effect (called final basic runs), which are the final results of attempts to close all of the important gaps, especially by changing the basic target variables representing per capita consumption expenditures for each of the four levels of income and seventeen sectors.

For purposes of this work, which is limited to the evaluation of foreign-trade policies, it is important to point out that these policies were conceived within the framework of alternative national development strategies. For each strategy, there is a corresponding set of policies regarding exports, imports, foreign capital remittances abroad, and the like; hence, there is a corresponding set of values reflecting rates of change, coefficients, and time series.

A. The Consumption Style

The final basic experiment for CONS (204) shows that regardless of its corrective efforts, this Style is unable to bring its unemployment rate within tolerance (17 percent, rising to 31 percent if the underemployed are included) and is equally unrealistic in terms of its external disequilibrium (a balance of payments deficit on current account amounting to 76 percent of its exports and a service charge on its foreign debt amounting to 79 percent of its exports).

This type of dependent society must be discarded as a plausible future prospect, because it seems unable to succeed. The technology it is forced to import constitutes a significant drain of foreign exchange and is capital-intensive biased; and it is unable to imitate the production and consumption patterns of the hegemonic

nations. The regressive nature of the distribution of income keeps the market so small and skewed that consumption gaps arise, reaching intolerable levels that are impossible to correct. Moreover, the consumption patterns, in turn, call for production patterns that are inconsistent with the system's financial and physical (human resource) capacities.

B. The Creative Style

By contrast, CREA does not show serious imbalances in its final basic run (206), although it does present a series of issues that are difficult to evaluate. This Style is based on the search for an original social project, generating and utilizing its internal possibilities of development by means of profound structural changes in the socioeconomic system and in the organization and distribution of resources. However, the success of this Style depends upon changes in the power structure, which are not capable of being analyzed and evaluated with the model.

The set of assumptions that constitute the strategy of CREA leads to the elimination of unemployment and to an overly large balance of payments surplus. In addition, the consumption patterns established provide for a development process that is harmonious, proportional in its economic relations, and considerably autonomous as regards foreign influence. Yet, a great deal depends upon the system's possibility of generating (and materializing) sufficient creative leisure and producing foreign-exchange-saving technology via exports and import substitution. Nonetheless, this Development Style shows a possibility of success, at least from the point of view of economic rationality.

9. Sensitivity Experiments

For purposes of this paper, several experiments were made based on the final basic runs, in order to measure the sensitivity of the balance of payments and other indicators to changes in key relevant assumptions. In the case of the CONS Style, under the criterion of placing it in the most favorable conditions, the assumptions regarding three groups of variables were modified: the growth of industrial exports, the effective utilization of industrial productive capacity, and the import substitution of capital and intermediate goods by industry. In other words, new assumptions were quantified with the predominant intention of overcoming the bottleneck presented by the balance of payments.

To avoid unnecessary programming difficulties, it was decided to apply the values assumed for these same variables in the CREA Style (final basic run 206). This in no way means that it was thought CONS could be made feasible and realistic via the CREA assumptions. The application of the values pertaining to CREA was done solely to simplify the preparation of the experiments and of the new sets of numerical input data; it does not necessarily imply that they are consistent with the conception of the CONS strategy.

Hence, industry exports (for five sectors) were made to grow at a higher rate (at an average of 4 percent) over the thirty-three years of the run (207), rather than the 3 percent of the basic final run (204); industrial excess capacity was reduced by the year 2000 to 8 percent (208) from the 24 percent of the final basic

run; and total imports were reduced 20 percent (208) by the year 2000, by accelerating the rate of import substitution.[9]

In a similar fashion, sensitivity tests were made of the CREA strategy by applying to the same sets of variables the values that had been previously adopted for CONS in its final basic run (204). In other words, and for the same reasons stated above, the Creative Style was placed in less favorable conditions regarding industrial exports, industrial excess capacity, and industrial import substitution by giving these variables the values they had in the final basic run of the Consumption Style.

Thus, the average rate of growth of industrial exports was reduced from the 4 percent of the basic run (206) to 2.6 percent (209),[10] industrial excess capacity was raised to 25 percent (210) from the 8 percent of the final basic run, and total imports were increased 27 percent (210) for the year 2000.

A. Industrial Export Policies

The object of the first pair of runs was to measure the direct and indirect effects of export demand upon the Venezuelan economy, as conceived in each of the two development strategies. As was pointed out, the CONS strategy was modified by assuming a very successful industrial export policy, while a not so successful policy was assumed for the CREA strategy. Table 1 summarizes some of the most important results (see also Tables 4 and 5) and shows that, by the year 2000, export revenues increase by 43 percent in the former and decrease by 40 percent in the latter, relative to their respective basic runs.

As might have been expected, the larger demand for industrial products in CONS does not significantly alter the unemployment rate and produces a decline in the balance of payments deficit of reduced importance. On one hand, industrial enterprises are capital intensive (particularly the larger ones, which are the exporting industries in the model) and, therefore, have a relatively low employment-generating capacity. On the other hand, these enterprises are technologically dependent (so that their investments have high import coefficients) and absorb large sums of foreign capital (so that their profit remittances abroad are significant). Thus, a successful export policy, of and by itself, is shown to be incapable of solving the two basic problems posed by the Style.

Regarding the Creative Style, the reduced demand for industrial products does not generate significant unemployment, because industrial enterprises are similarly capital intensive and technologically advanced. However, since technological independence has supposedly been achieved and foreign capital is considered unnecessary, the impact upon the balance of payments is somewhat reduced—to the extent that only a small deficit is produced in spite of a 40 percent fall in export revenues.

[9] For the detailed results, see the tables given below. The inclusion of a table with the numerical hypotheses and policy changes was not possible, due to limitations of length. These may be found in the original Spanish version and in the book cited, *Estilos de Desarrollo*.

[10] This growth rate of total exports is lower than that of the final basic run of CONS due to differences in the assumptions regarding nonindustrial exports (agriculture, petroleum, iron), which were not altered in these runs.

TABLE 1
RESULTS OF THE INDUSTRIAL EXPORT POLICIES
[year 2000]

	Final Basic Runs		Policy Runs		Percentage Changes	
	CONS (Run 204)	CREA (Run 206)	CONS (Run 207)	CREA (Run 209)	CONS (From Run 204 to Run 207)	CREA (From Run 206 to Run 209)
Export policy						
Total exports[1]	35,036	50,890	50,169	30,783	+43.2	−39.5
Results						
Total imports[1]	30,341	31,387	34,479	27,409	+13.8	−12.6
Gross domestic product[2]	254,566	317,536	265,101	303,252	+4.1	−4.5
Balance of payments on current account[1]	−23,057	16,299	−12,510	−1,355	−45.7	−108.0
Unemployment[3]	1,641	−27	1,443	240	−12.1	−988.0
Gross fixed investment[2]	58,970	66,756	64,287	63,117	+9.0	−5.5
Foreign capital services:						
as % of GDP	15.2	0.2	13.6	1.3	−10.5	+550.0
as % of exports	110.5	1.5	71.7	12.7	−35.0	+746.0
Foreign debt:						
as % of GDP	125.1	2.8	98.5	15.5	−21.3	+454.0
as % of exports	908.5	17.4	520.3	152.4	−42.7	+790.0
Manufactured product:						
as % of GDP	20.8	23.5	22.0	21.7	+5.7	−7.7

[1] In millions of bolivars (Bs 4.50 = $1.00) at current international prices.
[2] In millions of bolivars at 1966 prices.
[3] In thousands of persons.

B. Industrial Import Substitution and Idle-Capacity Utilization Policies

The second pair of experiments consisted of assuming successful and not very successful policies regarding the replacement of intermediate and capital goods imports and the reduction of excess capacity in the same industrial sectors. Table 2 summarizes the results (see also Tables 4 and 5).

In the case of CONS, the new hypotheses signify large foreign-exchange savings, since the reduced investment requirements that have been assumed accentuate the decline in the import requirements also assumed. The external deficit thus falls 71 percent; however, this decline is insufficient to bring the service charges on foreign capital (including indebtedness) to acceptable levels. Unemployment also declines, but insignificantly.

On the other hand, while CREA continues to be economically feasible, despite the increased import and investment requirements assumed, the sensitivity of the Style is indeed notable. Imports rise by 27 percent and unemployment increases by 55 percent, while gross product is barely affected by 1 percent. Nonetheless, an external deficit is generated.

Table 3 gives the accumulated results of the joint application of the export, import-substitution, and excess-capacity policy assumptions. It therefore provides the net effects of those hypotheses upon such indicators as unemployment, balance of payments, and per capita income. Both strategies tested suffer significantly; nevertheless, the unrealistic and unacceptable situation presented for the year 2000

TABLE 2
RESULTS OF THE INDUSTRIAL IMPORT SUBSTITUTION AND IDLE-CAPACITY UTILIZATION POLICIES
[year 2000]

	Base Policy Runs		Policy Runs		Percentage Changes	
	CONS (Run 207)	CREA (Run 209)	CONS (Run 208)	CREA (Run 210)	CONS (From Run 207 to Run 208)	CREA (From Run 209 to Run 210)
Policies						
Total imports[1]	34,479	27,409	27,839	34,681	−19.3	+26.6
Industrial excess capacity[2]	23.5	8.3	7.3	25.1	−68.9	+202.4
Results						
Gross domestic product	265,101	303,252	267,823	299,632	+1.0	−1.2
Balance of payments on current account[3]	−12,510	−1,355	−3,614	−12,523	−71.1	−824.5
Unemployment[4]	1,443	240	1,350	372	−6.5	+55.0
Gross fixed investment[2]	64,287	63,117	61,625	65,222	−4.1	−3.3
Foreign capital services:						
as % of GDP	13.6	1.3	11.2	4.0	−17.7	+208.0
as % of exports	71.7	12.7	59.7	39.0	−16.8	+207.0
Foreign debt:						
as % of GDP	98.5	15.5	86.0	49.5	−33.0	+216.0
as % of exports	520.3	152.4	352.5	481.7	−39.3	+219.0
Manufactured product:						
as % of GDP	22.0	21.7	22.3	21.5	+1.4	−0.9

[1] In millions of bolivars (Bs 4.50 = $1.00) at current international prices.
[2] As percent of gross output: average for five sectors (4–8).
[3] In millions of bolivars at 1966 prices.
[4] In thousands of persons.

TABLE 3
RESULTS OF THE COMBINED INDUSTRIAL POLICIES: EXPORTS, IMPORTS, AND IDLE-CAPACITY UTILIZATION
[year 2000]

	Percentage Changes	
	CONS (From Run 204 to Run 208)	CREA (From Run 206 to Run 210)
Policies		
Total exports	+43.2	−39.5
Total imports	−8.2	+10.6
Industrial excess capacity	−69.7	+226.0
Results		
Gross domestic product	+5.2	−5.6
Balance of payments on current account	−84.3	−176.8
Unemployment	−17.7	–
Gross fixed investment	+4.5	−2.3
Foreign capital services:		
as % of GDP	−46.0	–
as % of exports	−26.3	–
Foreign debt:		
as % of GDP	−47.3	–
as % of exports	−61.2	–
Manufactured product:		
as % of GDP	+7.2	−8.5

TABLE 4

CONS: INDICATORS OF THE MOST IMPORTANT RESULTS OF THE EXPERIMENTS

	Year 1967	Year 2000		
		Run 204	Run 207	Run 208
Per capita GDP (Bs at 1966 prices)	5,095	9,306	9,691	9,791
Average % rates of growth (1967–2000):				
of GDP	–	5.2	5.3	5.3
of exports—total	–	3.1	4.0	4.0
nonpetroleum	–	6.6	9.5	9.5
of imports—total	–	3.8	4.3	3.5
intermediate goods	–	4.0	4.3	3.5
capital goods	–	4.6	5.2	4.5
of labor productivity	–	1.9	1.9	1.9
Ratio of maximum to minimum sectorial labor productivity	92.5	58.4	58.3	58.4
Unemployment as % of labor force	6.1	17.3	15.2	14.2
Manufacturing as % of GDP	18.1	20.8	22.0	22.3
Urban underemployment as % of labor force	5.3	13.9	13.8	13.7
Gross fixed investment as % of GDP	19.3	23.2	24.3	21.9
Share of equipment in investment (%)	26.8	20.9	22.8	21.5
Share of imports in equipment (%)	92.9	83.6	83.8	75.0
Average monthly wage level (Bs at 1966 prices)	644	1,243	1,249	1,247
Share of labor in national income (%)	39.8	51.4	50.0	48.9
Average profits before taxes (% of gross income):				
Foreign enterprise	67.5	41.3	44.3	50.8
Public enterpise	8.8	15.3	17.5	19.4
National private enterprise	41.6	27.3	29.6	35.6
Distribution of families by level of income (%):[1]				
High (over Bs 3,000 per month)	8.8	2.2	2.2	2.2
Medium high (Bs 1,500–3,000 per month)	16.8	13.0	12.3	12.4
Medium low (Bs 500–1,500 per month)	44.7	61.9	61.1	61.2
Low (under Bs 500 per month)	29.7	22.9	24.4	24.2
Distribution of income by level of income (%):				
High	36.3	21.4	23.0	23.7
Medium high	26.9	23.0	21.3	21.3
Medium low	30.2	50.6	50.1	49.4
Low	6.7	4.9	5.6	5.6
Distribution of savings by level of income (as % of disposable income):				
High	32.3	58.2	62.4	64.1
Medium high	5.4	4.7	7.8	8.9
Medium low	−17.0	−10.2	−4.7	−3.7
Low	−44.5	−74.3	−54.9	−49.9
Housing deficit in the low and medium-low income levels (thousands of units)	700	455	473	462
Government deficit (+) on current and capital account (as % of total income)	−27.7	−3.8	−8.9	−11.9
Import coefficients (%):				
Total imports as % of GDP	12.7	8.2	9.0	7.1
Consumer goods as % of consumption	4.3	0.9	0.9	0.9
Intermediate goods as % of GDP	7.7	5.1	5.5	4.2
Capital goods as % of investment	23.9	16.1	17.6	15.2
Balance of payments deficit (−) on current account (as % of total exports)	+6.6	−76.0	−30.5	−8.8
Foreign capital services as % of exports	28.4	110.5	71.7	59.7
Foreign debt as % of exports	11.1	908.5	520.3	352.5
Trade gap (millions of Bs at 1966 prices)[2]	−3,633	+738	−9,739	−16,853

NOTE: 204 = Final Basic Run.

207 = Export Policy Run. To the final basic run (204) have been applied the industrial exports assumption of CREA in its final basic run (206).

208 = Import and Excess-Capacity Policy Run. To policy run 207 have been applied the industrial imports and idle-capacity utilization assumptions of CREA in its final basic run (206).

[1] The limits of the income levels shift through time according to the rate of growth of per capita gross income. [2] The trade gap is defined as the current account balance less net remittances abroad of profits and debt charges. It is favorable when it is negative.

TABLE 5

CREA: INDICATORS OF THE MOST IMPORTANT RESULTS OF THE EXPERIMENTS

	Year 1967	Year 2000		
		Run 206	Run 209	Run 210
Per capital GDP (Bs at 1966 prices)	5,095	11,608	11,186	10,954
Average % rates of growth (1967–2000):				
of GDP	–	5.9	5.8	5.8
of exports—total	–	4.0	2.6	2.6
nonpetroleum	–	10.5	7.5	7.5
of imports—total	–	4.0	3.6	4.3
intermediate goods	–	3.8	3.3	4.3
capital goods	–	5.1	4.7	5.2
of labor productivity	–	2.0	1.9	1.9
Ratio of maximum to minimum sectorial labor productivity	92.5	42.0	41.9	41.9
Unemployment as % of labor force	6.1	−0.3	2.5	3.9
Manufacturing as % of GDP	18.1	23.5	21.7	21.5
Urban underemployment as % of labor force	5.3	2.1	2.3	2.4
Gross fixed investment as % of GDP	19.3	21.0	20.8	21.8
Share of equipment in investment (%)	26.8	27.5	25.8	26.6
Share of imports in equipment (%)	92.9	67.5	67.2	75.1
Average monthly wage level (Bs at 1966 prices)	644	1,656	1,652	1,653
Share of labor in national income (%)	39.8	65.7	67.6	69.1
Average profits before taxes (% of income):				
Foreign enterprise	67.5	1.2	0.9	0.9
Public enterprise	8.8	32.1	29.2	25.4
Private national enterprise	41.6	35.7	34.1	25.6
Distribution of families by level of income (%):[1]				
High (over Bs 3,000 per month)	8.8	0.7	0.7	0.7
Medium high (Bs 1,500–3,000 per month)	16.8	6.9	7.4	7.4
Medium low (Bs 500–1,500 per month)	44.7	81.3	80.8	80.4
Low (under Bs 500 per month)	29.7	11.1	11.1	11.5
Distribution of income by level of income (%):				
High	36.3	2.0	2.0	2.3
Medium high	26.9	9.8	10.5	10.4
Medium low	30.2	82.1	81.9	81.6
Low	6.7	6.1	5.7	5.7
Distribution of savings by level of income (as % of disposable income):				
High	32.3	56.3	54.3	60.2
Medium high	5.4	33.6	30.3	29.7
Medium low	−17.0	20.5	17.9	17.2
Low	−44.5	−22.3	−37.2	−43.3
Housing deficit in the low and medium low income levels (thousands of units)	700	0	0	0
Government deficit (+) on current and capital account (as % of total income)	−27.7	1.9	6.9	13.1
Import coefficients (%):				
Total imports as % of GDP	12.7	6.9	6.3	8.1
Consumer goods as % of consumption	4.3	1.2	1.2	1.2
Intermediate goods as % of GDP	7.7	3.8	3.4	4.8
Capital goods as % of investment	23.9	16.2	15.1	17.4
Balance of payments deficit (−) on current account (as % of total exports)	6.6	40.4	−5.2	−48.0
Foreign capital services as % of exports	28.4	1.5	12.7	39.0
Foreign debt as % of exports	11.1	17.4	152.4	481.7
Trade gap (millions of Bs at 1966 prices)[2]	−3,633	−16,340	−200	+7,589

NOTE: 206 = Final Basic Run.

209 = Export Policy Run. To the final basic run (206) have been applied the industrial exports assumptions of CONS in its final basic run (204).

210 = Import and Excess-Capacity Policy Run. To policy run 209 have been applied the industrial imports and idle-capacity utilization assumptions of CONS in its final basic run (204).

[1] The limits of the income levels shift through time according to the rate of growth of per capita gross income. [2] The trade gap is defined as the current account balance less net remittances abroad of profits and debt charges.

by CONS in its final basic run remains basically unaltered in these sensitivity runs (see 210), while CREA becomes vulnerable and approaches the unacceptable point, as its rate of unemployment rises to 4 percent.

10. Conclusions

A. Methodological Results

Via the method of numerical experimentation, a computer program of a formal accounting system has been applied to the complex problem of economic and social development. In order to deal adequately with the problem, which has been conceived and handled in a manner different from the traditional approaches, it was necessary to design a methodology capable of dealing with the various aspects involved in the analyses and to devise a flexible and highly disaggregated mathematical instrument (the PRODINGR model).

The results obtained and the experience gained in the course of several years of intensive research clearly indicate that the method developed and the model built are instruments of great value and multiple uses, despite the important problems that remain but that are capable of solution.

In this respect, reference may be made to the degree of exogeneity of the model and its scarce theoretical (behavioral) content. The more exogenous it is, and thus the fewer endogenous relations (theories) it contains, the more the model performs as a mere accounting scheme of an economic system, and the greater the input data required. Moreover, the information required increases with the disaggregation of the model, which to a certain extent depends upon the objectives sought, the hypotheses to be tested, and the nature of the problems to be analyzed.

The input data present at least two crucial issues: the availability of the information required, in quantity and quality; and the need to make the data internally consistent so as to effectively represent the state of the system in the base year. A great deal of effort and coordination is necessary.

The output of data also presents problems of relative importance due to its magnitude. In this case, the output must be systematized to offer a minimum of consistent feasibility criteria, so as to simplify the analyses of experiments. Global or macroeconomic balance indicators are not sufficient; more specific sets of indicators are needed to arrive at a more profound evaluation of each experiment. Moreover, each experiment must be carefully designed in order to avoid a disproportionate rise in computation costs. In point of fact, it is only after the model user becomes thoroughly familiar with such a model that he will achieve a certain efficiency in the technique of numerical experimentation. This can be unduly delayed if the work is not performed by a coordinated team, taking advantage of the division of labor without losing the notion of the organic whole of the work.

Special subroutines can be very helpful in dealing with the input and output data. Thus, a program that translates raw data into the type of information fed into the model (coefficients, rates) greatly simplifies the debugging process and speeds the tuning of the model, also allowing experimentation by trial and error with unreliable or conjectural information. Similarly, it is convenient to have programs that process the output differently, thereby facilitating communication

(and presentation) to persons not familiar with the model, computers, or economics. Bottlenecks in communications are not infrequently a great hindrance.

B. Policy Results

A first general conclusion of interest is that the two Development Styles studied show similar results regarding overall growth rates, although important qualitative differences may be observed in such aspects as income distribution, unemployment, savings gaps, and foreign-exchange requirements. In other words, the problem of economic development is not well stated if presented solely in terms of per capita income and its rate of growth as target variables, since the same rate of growth can have substantially different meanings in terms of more concrete indicators or criteria that reflect with greater precision and fidelity the true significance of the process of development.

A second conclusion concerns the sensitivity of the strategies to the foreign-trade policies assumed. While CONS remained an unlikely possibility from the point of view of its internal conditions, particularly unemployment, in spite of the very favorable conditions assumed for the external sector; CREA remained feasible in terms of its internal conditions, although it became vulnerable in terms of the unfavorable foreign-trade assumptions adopted.

As regards CONS, its strategy is one of passive imitation of the achievements of the leading hegemonic nations, but without undergoing the profound structural changes that, in those countries, historically preceded their present situation. This seems to be contradictory in itself: an attempt at modernization without integrating all of the sectors and without the internal cohesion of all the forces generating a self-sustained process of modernization. While the consumption patterns of the leading countries are postulated as goals, the distribution of income engendered by the Development Style produces consumption gaps at the lower levels of the income pyramid; thereby indicating that large segments of the population become marginal and unable to participate in the market.

The CREA Style presents a different situation. Although it goes through profound structural changes and a revolutionary educational process, CREA must penetrate the world markets with new and competitive products, if it is to finance the import requirements generated by a 6 percent rate of growth without wasting its petroleum by exporting it crude and as a direct source of energy. Hence, an issue that arises concerns the optimum rate of growth or absorptive capacity of an economy like the Venezuelan, possessing abundant resources and attempting to adopt a specific style of development: what is the gestation period of the assumed changes; when can it begin obtaining the expected results?

Both Styles turned out to be rather unresponsive to changes in exports and imports, insofar as the share of the industrial sector in total production is concerned. This is not too surprising, in view of the relative unimportance of industrial exports; although the import content of manufactured products is rather large initially, and somewhat greater effects were to be expected. Obviously, then, this means that a more detailed and profound study of the problem is necessary before attempting to derive more concrete conclusions. But one fact does seem to hold true; namely, that Latin American countries (in particular those like Venezuela)

should not expect definitive solutions to their problems from foreign-trade policies alone. Profound internal changes are required in order to overcome underdevelopment.

Furthermore, in both cases studied, a remaining issue concerns the consistency of the specific policy hypotheses tested with the general development strategies defined. In any case, to the results obtained nothing more should be attributed than what can be expected from long-run projections and analyses that are merely average indicators of approximate trends and situations.

It is reasonable to conclude, however, regardless of the style of development, that the social aspects of development are just as important as the technical-economic aspects. They interact and combine to establish the limits of the real internal possibilities of development and the feasibility or reality of the strategy adopted. Furthermore, it also seems to be fairly clear that foreign trade is an extremely important (strategic) variable in any style of development attempted, even in a country rich in resources such as Venezuela. And in this respect, it is significant to determine how to convert liquid foreign exchange into productive resources in a way consistent with a development program. Venezuela faces such a situation at present, although it does not have a clear and well-established development policy.

Finally, two additional conclusions stand out as interesting and plausible. The first of these refers to foreign capital, and the second to the thirty-three-year period of projection. In the case of foreign capital, it not only undoubtedly and excessively burdens the balance of payments with profit and service remittances abroad, but also seems to present an obstacle to the establishment of autonomous consumption (and so cultural) patterns and the eradication of technological and cultural dependence. Regarding the thirty-three years of the projection, these were barely sufficient to derive interesting conclusions; in fact, entirely different conclusions might have been derived from a shorter projection (say, twenty years or less).

11. Appendix

A. Sectoral Classification of the Model

Following is a list of the sectors comprising the PRODINGR. The number between parentheses refers to the International Uniform Classification of economic activities that applies to the sector. Each sector is subdivided into techniques, according to size or type of social organization involved.

1: Agriculture (0)
2: Petroleum (13, 32)
3: Mining (11, 12, 14, 19)
4: Foods and Beverages (20, 21, 22)
5: Textiles and Shoes (23, 24)
6: Other Consumer Goods (26, 28)
7: Intermediate Goods (25, 27, 29, 30, 31, 33, 34, 39)
8: Capital Goods and Vehicles (35, 36, 37, 38)
9: Housing Construction
10: Other Construction
11: Electricity, Water, and Urban Sanitation
12: Transport
13: Commerce and Finance
14: Other Services (82, 83, 85—except 821, 822, 823, 852, 853)
15: Recreation and Tourism (84, 852, 853)

APPENDIX TABLE
Classification of the PRODINGR Model by Sectors and Subsectors

Sector		Technique 1	Symbol	Technique 2	Symbol	Technique 3	Symbol
AGRO	(1)	Enterprises	EMPR	Land settlements IAN	ASNT	Subsistence	CNUC
PETR	(2)	Crude extraction	EXTR	Refining	REFN	–	–
MINR	(3)	Whole sector	UNIC	–	–	–	–
ALMT	(4)	Large industry	GNDE	Medium & small	PQMD	Crafts	ARTS
TEXT	(5)	Large industry	GNDE	Medium & small	PQMD	Crafts	ARTS
RCMO	(6)	Large industry	GNDE	Medium & small	PQMD	Crafts	ARTS
ITMD	(7)	Large industry	GNDE	Medium & small	PQMD	Crafts	ARTS
KPTL	(8)	Large industry	GNDE	Medium & small	PQMD	Crafts	ARTS
CTRV	(9)	Industrialized	INDA	Commercial not industrialized	TRAD	Self-help	AYPR
CTRP	(10)	Mechanized	MECN	Not mechanized	NMEC	–	–
ELEC	(11)	Whole sector	UNIC	–	–	–	–
TRSP	(12)	Cargo & storage	CARG	Passenger	PASJ	Communications	COMU
CMCO	(13)	Large & medium	GNMD	Small	PEQÑ	Street vendors	BUHO
SERV	(14)	Large & medium	GNMD	Small	PEQÑ	Not organized	NORG
ESPT	(15)	Large	GNDE	Small & medium	PQMD	–	–
SALD	(16)	Public	PUBL	Private	PVDA	–	–
EDUC	(17)	Public	PUBL	Private	PVDA	–	–
GBNO	(18)	Central government	CENT	States & municipalities	MUNI	Public service institutes	INST
VNDA	(19)	Whole sector	UNIC	–	–	–	–

NOTES: 1. The sectors (9, 3) (for S = 9, T = 3), (10, 2), (16, 1), (17, 1), (18, 1), (18, 2), (18, 3) are *public*, controlled by government.
2. The sectors (13, 3) and (14, 3) are called *not organized* due to their typical characteristics (street vendors, shoeshine boys, domestic servants, and so on).
3. The *mixed* sectors, which include the techniques 1 of S = 1 to 15, (2, 2), (9, 2), (10, 2), (12, 2), and (12, 3), are the best organized and contain foreign and public enterprises.
4. The *marketing* sectors are all sectors except VNDA, the *public* sectors, and the sectors *not organized*.

16: Health (822)
17: Education (821, 823)
18: Government Services (81)
19: Residential Property

B. Labor Force Subdivision

The labor force is classified into four levels of skills or training and four occupational categories.

Skills: Professionals and High Level Management
Technicians and Subprofessionals
Skilled Workers
Unskilled Workers

Occupations: Employers
Self-employed
Employees
Family Helpers

C. Classification of Loans and Debts

There are four types of loans, according to payment conditions regarding interest payments and terms.

Hard Loans (short term, averaging 3 months)
Semi-hard Loans (medium short term, averaging 1 year)
Semi-soft Loans (medium long term, averaging 3 years)
Soft Loans (long term, averaging 10 years)

In addition, three types of creditors are considered: foreign, domestic banks, and domestic non-banking sources.

D. Distribution of Disposable Family Income

Four levels of income account for the distribution of disposable family and personal income. The limits shift through time according to the rate of growth of per capita gross income.

High (over 3,000 bolivars per month, 1966 prices)
Medium High (between 1,500 and 3,000 bolivars per month, 1966 prices)
Medium Low (between 500 and 1,500 bolivars per month, 1966 prices)
Low (under 500 bolivars per month, 1966 prices)