

THE STRATEGY OF  
CONCENTRATED DECENTRALIZATION  
FOR  
REGIONAL GROWTH

by

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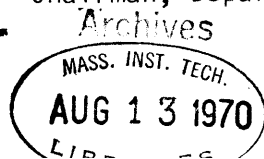
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## ABSTRACT

Title of the Thesis: The Strategy of Concentrated Decentralization  
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The problem of regional development is a concern of underdeveloped as well as developed countries of the world. The purpose of this thesis, broadly defined, is: to establish a clear connection between the growth theories as they have developed in economics, and the theory of regional development planning; to develop methodologies for simultaneous selection of regions and economic sectors for development; and to explore the mechanism of growth, in the absence of planning and under planning conditions.

It is assumed that the main objective of each planning effort is growth and development. The methodology developed in this thesis (Chapter III), presupposes the national goal to be a minimum acceptable rate of growth for the national income. The national growth rate is defined as a function of regional growth rates. The regional objectives, if defined at regional levels, should be adjusted in a way to achieve the national growth objective. The choice of growth strategy is made at the national level with reference to specific goals for development of selected regions.

In the empirical part of the thesis (Chapters IV and V), two recent cases of regional planning activities, Mezzogiorno, Italy and Guayana, Venezuela are discussed. An historical review of the economic performances of the two countries, in the absence of deliberate planning, and the statistical analyses of the more recent data for the pre-planning period (Venezuela), and the planning period (Italy), corroborate the theoretical arguments made in Chapters I and II.

The results of findings and conclusions drawn from these case studies may be summarized as follows: first, the goal formulation differs in its process and content for countries at different stages of economic development. In Venezuela, the goals were set up at the national level, with limited participation of the regions. In Italy, the objectives of the economic plan also were determined at the national level, but with particular emphasis on development of the underdeveloped regions, and with more participation of social and political groups. Secondly, the developmental programming in countries at the middle-phase of economic

development, as long as they are based on the principle of exploitation of the regions for the benefit of the national economy, would further increase regional differentials. Moreover, the existing economic forces in already developed regions, makes the process of adjustment and regional equalization long and tedious. Thirdly, the adoption of the strategy of concentrated decentralization suggests solutions to the problems of planning for the "middle-phase" and the "micro-phase", by allowing degrees of trade-off between concentration and decentralization of people and of economic activities.

Thesis Supervisor: Lloyd Rodwin

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Cambridge, Mass.

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## CHAPTER I

### INTRODUCTION: THE THEORY OF CONCENTRATED DECENTRALIZATION

#### A. INTRODUCTION: AN OVERVIEW

There has been a growing awareness of the necessity for regional development programming in the world in recent years. Since there is no definition for a region with regard to its boundaries, actual regional programming is being implemented both at the intranational and international level. The symptoms of regional imbalances and inequalities have been considered to be generally the same regardless of national or international classification. In this dissertation, however, we are concerned strictly with the problem of regional planning within the national boundaries. Historical facts on economic development processes among different nations and different zones show varying degrees of imbalances. The inquiry into the nature and causality of regional differentials has been the subject of an extensive survey in the literature of the growth and development economy. The spatial factor as a new dimension in the analysis of national or supra-national economies has introduced new problems in the selection of goals and strategies for economic development. On the national level, regional goals are described as detrimental to the achievement of national goals, and any attempt for equal distribution of income among geographic regions are considered as brakes on the rate of



growth of the economy as a whole. Most often the efficiency criterion in economic planning dictates that some regions would never be developed. The problem of underdevelopment of some regions would be augmented if a single efficiency criterion is being used. Non-economic variables sometimes are as much responsible for the backwardness of a region as economic variables. Underdeveloped countries of the world are confronted with a complex problem: How to attain a high rate of growth without widening the regional gaps. These are only a few of many problems of national and regional developmental programming which this dissertation will attempt to explore.

The need for an integrated growth model to deal with national as well as regional goals is evident. Meanwhile, any planning model must be sensitive to the past trends and the prevailing economic forces at work, to avoid any unrealistic target setting. Economic development being essentially a long process, any attempt to reverse the undesirable trends must be done on an incremental basis. The structural shift in the regional and sectoral composition is constrained by an upper bound set by existing conditions. In the initial stages of economic development, strategy of "concentrated" growth seems to be a solution to the problem of rapid growth. But in the long run, a proliferated policy of concentrated growth will jeopardize the chances of potential but untapped regions for growth. The history of economic development in today's developed countries has shown that development of one section of the country is often achieved at the expense of another. It has been the experience of the developed countries that attempts to close

the enlarged gap between regions at later stages of development is, if not impossible, at least impractical and prohibitively costly. Learning a lesson from this experience, it seems that there are more options available to underdeveloped economies to integrate a policy of "decentralization" into a "concentrated" growth scheme, while the regional differentials still have not reached an irreversible level.

The main theme of this dissertation is to emphasize the degrees of trade-off that a country at different stages of development can choose between a policy of "concentration" and a policy of "decentralization" by adopting the strategy of "concentrated decentralization."

The two case studies selected for an exposition of the effectiveness of the strategy of "concentrated decentralization," if implemented, are typical of the two categories of countries with regional differentials described earlier. Italy is a highly developed country with extreme regional inequalities developed over a century. On the other hand, Venezuela with a relatively recent history of rapid growth has been moving toward regional disparities, in spite of the existence of untapped regional resources.

The historical and recent data are used in both cases and under various analytical techniques; a full picture of the regional economic characteristics in relation to the national conditions is shown. Then an attempt is made to exhibit the future patterns of economic development, if different degrees of a policy of

"concentrated decentralization" is applied to the problem of national and regional growth. Several regional-sectoral decision-making models also are suggested. Finally, a multiregional-multisectoral-multiproject paradigm for simultaneous selection of regions, sectors and projects is presented.

The organization of the dissertation is as follows. Chapter I reviews the theoretical controversies in the literature of growth and development on the issues of "balanced vs. unbalanced" growth, spatial equilibrium theories, theories of spatial concentration and the theory of polarized regions. Chapter II focuses on selection of the regional objectives and the choice of strategy. It also presents a discussion of the major constraints to development and its effect on the choice of strategy. Some clarification on the concept of "concentrated" growth and the national and regional "specialization" in relation to regional growth objectives terminates the theoretical research of this dissertation. Chapter III is confined to an explanation of the principle of induced investment, development of some decision-making models of simultaneous selection of regions and sectors, a multiregional-multisectoral-multiproject net benefit decision matrix and a multi-regional growth model. Of the several models developed, only a simple decision-making model for selection of regions and sectors and the multi-regional growth model lent themselves to some experiments with the existing regional data on Italy and Venezuela. Chapters IV and V choose two case studies of regional development in Italy and Venezuela and contain the historical background of regional economic characteristics, the statistical analyses of the data, and the summary of

findings and conclusions.

Chapter VI is an attempt to spell out the differences between Italy and Venezuela with respect to the economic performance, political environment and planning style of the two countries.

In order to keep the chapters as self-contained as possible, Appendix A is added to supplement the discussion of Chapter II on income distribution and the policy of concentration.

Appendices B and C contain several statistical tables, derived or computed from original material, used as sources for computation and formation of tables in Chapters IV and V.

## B. A CRITICAL REVIEW OF THE LITERATURE

In this chapter the theories of "balanced" and "unbalanced" growth are critically evaluated. In the field of spatial economics, related works to the theories of economic growth and development are analyzed and evaluated for their contributions to the issue of development programming. The intention of this review is to cite major works on the foregoing subjects rather than a comprehensive survey of the literature.

The objective of the review is to arrive deductively at the conclusion of what strategy is best suited to the process of growth and development.

In the literature of economic development two theories have emerged. These two theories have provided two different answers to the question: "What strategy leads to a rapid growth?"

We will first review the literature of "balanced" growth, because it would help to a great extent in understanding the counter-arguments made in the theory of "unbalanced" growth.

### 1. Balanced Growth Theory

An initial objection to the liberal school of economic thought of Adam Smith and his followers was made by Friedrich List, notable

German economist who received more recognition after his death than during his lifetime, not only for his theory of "balanced" growth, but mostly for his patriotic efforts in the creation of a "unified Germany." List, emotionally disturbed by the imperialistic policies of Great Britain toward her colonies and other nations, tried to prove that the British economic school was closely tied to the political ambitions of the Empire.<sup>1</sup>

He did not actually deny the validity of international economics, but viewed it as "economics of the most distant future." He thought of "universal union and absolute freedom of international trade" as a "cosmopolitan dream only to be realized perhaps after the lapse of centuries." He explicitly pointed out that in his belief the liberal trade theory of "Adam Smith on the dreams of Quesnay...does not understand the needs of the present and the meaning of nationality -- in fact, it ignores national existence, and with it the principle of national independence." It is probably an unnecessary clarification to point out that the strong desire for a balanced growth in today's underdeveloped countries stems from the kind of ideology presented by List.

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<sup>1</sup>Hirst, 59, p. 305. List argued that: "Since individual nations, through specially favorable circumstances, gained an advantage over others in manufactures, trade, and shipping, and since they early understood the best means of getting and maintaining through these advantages political ascendancy they have accordingly invented a policy which aimed, and still aims, at obtaining a monopoly in manufactures and trade, and at checking the progress of less advanced nations."

List, of course, was not a nationalist for all seasons. He believed in international union as an ultimate utopian goal. He was, however, trying to associate different types of economies with different stages of economic development. He believed in an evolutionary process of economic development starting from "the savage" to "commercial." Although List's classification was somewhat different from the Marxian classification of evolutionary process, it shared common points with Marx's theory, both in concept and in rationalization for the choice of a "national" economic system in a particular period of economic development which he phrased as "the agricultural and manufacturing." He was actually referring to the transitional period from an agricultural society to an industrial, to be called by later writers as "industrialization".

List's "balanced"<sup>2</sup> growth theory, therefore, was closely tied to the political reality of the nineteenth century as much as he claimed that the British school of economic thought was. In the meantime, List did not fail to mention that "manufacturing power embraces so many branches of science and knowledge, and presupposes so much

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<sup>2</sup>When we refer to balanced growth theory (or strategy) we always mean an attempt to develop simultaneously all sectors within an economy which are prerequisite for national self-sufficiency. An "unbalanced" national economic system might be in equilibrium within the international economic system. Therefore, any attempt to balance the sectoral growth at the national level may be considered as a disturbance in the international equilibrium system. Hence, our references, in this work, to "imbalance" and "disequilibrium" are always aimed at the state of national economic conditions. Moreover, it must be noted that at each stage of development, the strategies of "balanced" or "unbalanced" growth may either be a move toward national equilibrium or away from it.

experience, skill, and practice, that national industrial development can only be gradual."

It is not surprising that the celebrated article of Paul Rosenstein-Rodan on the "Problems of Industrialization of Eastern and South-Eastern Europe" -- now known as a pioneering effort in the development of the modern theory of "balanced growth" -- appeared at the time when countries of Eastern and South Eastern Europe, in order to retain their national entities were in need, more than ever, of a national economic system, although the notion had never been put as explicitly as it appears in List's writings.

Rosenstein-Rodan followed the same line of argument which led Ricardo to the "Doctrine of Comparative Advantage"<sup>3</sup>, namely, that "If the principles of International division of labour are to be applied, labour must either be transported towards capital (emigration) or capital must be transported toward labour (industrialization). From the point of view of maximizing world income, the difference between these two ways is one of transport costs only, and may be assumed to be negligible. Emigration and resettlement would, however, present so many difficulties in immigration areas (and in

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<sup>3</sup>Ricardo, 107, writes: "If the profits of capital employed in Yorkshire, should exceed those of capital employed in London, capital would speedily move from London to Yorkshire and an equality of profits would be effected: but if in consequence of the diminished rate of production in the lands of England, from the increase of capital and population, wages should rise, and profits fall, it would not follow that capital and population would necessarily move from England to Holland, or Spain, or Russia, where profits might be higher." (p. 134)



emigration areas) that it cannot be considered feasible on a large scale. A very considerable part of the task will have to be solved by industrialization."<sup>4</sup>

Ricardo was assuming perfect mobility of labor and capital at the national level, and practical (not theoretical) imperfection of mobility of the two factors internationally. In contrast, Rosenstein-Rodan, even assuming transport costs to be negligible, considered the mobility of labor impractical within the national boundaries. Industrialization in his view was seen as a problem of transportation of capital toward labor, somehow implying the dispersion of capital resources over a national territory.

He also argued that only creation of "a complementary system" reduces the risk of not being able to sell, and, since risk can be considered as cost, it reduces costs. It is in this sense a special case of "external economies."

Thus Rosenstein-Rodan's main theme of the strategy of "balanced" growth in his model is based on complementarity among different sectors of the economy.<sup>5</sup>

Nurkse, in his Istanbul lectures, described the notion of balanced growth as follows:

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<sup>4</sup> Rosenstein-Rodan, 115.

<sup>5</sup> ibid., 114, p. He made one more statement which was later considered to be meant as simultaneous expansion of all sectors in a "balanced" growth system: "We have seen how complementarity makes to some extent all industries 'basic'."

In the absence of vigorous upward shifts in world demand for exports of primary products a low-income country through a process of diversified growth can seek to bring about upward shifts in domestic demand schedules by means of increased productivity and therefore by increased real purchasing power. In this way, a pattern of mutually supporting investments in different lines of production can enlarge the size of the market and help to fill the vacuum in the domestic economy of low-income areas. This, in brief, is the notion of balanced growth.<sup>6</sup>

In this remark, Nurkse, along with his predecessors Rosenstein-Rodan and List, agreed with Allyn Young's famous variation of Adam Smith's dictum: "the inducement to invest is limited by the size of the market," but unlike List, with respect to small countries which may have to rely on foreign trade, Nurkse did not make any exception. He did not elaborate on how a country with a small domestic market could diversify its economic activities in the first place.

Several points in Nurkse's formulation and description of the balanced growth theory are worth mentioning. In contrast to List's proposition of the linkage between the international trade theory and imperialism, Nurkse announced that in his view "Imperialism had very little to do with the expansion of trade." Basically his theory followed the traditional argument of international division of labor vs. national economic independence and self-sufficiency. He also claimed that, because of an uncertainty in interdependency of, say, industry A to industry B, the unbalanced growth of A may not be a stimulus for expansion of industry B, and therefore the process of

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<sup>6</sup>Nurkse, R., 96, p. 247.

unbalanced growth would tend to be slow. Meanwhile the application of capital to industry A as a result of the passivity of industry B would be subject to diminishing returns. He concluded his argument by saying that "as a way of escape from slowness if not stagnation, the balanced-growth principle envisages autonomous advance along a number of lines more or less simultaneously."<sup>7</sup> Confronted with the insoluble question of resource scarcity in underdeveloped countries he had to sacrifice the generality of the theory by saying that: "In my presentation, balanced growth is an exercise in economic development with unlimited supplies of capital, analogous to Professor Lewis' celebrated exercise in development with unlimited labor supplies."<sup>8</sup>

Nurkse repeatedly points to the notion of the center-periphery relationship. He equates the strategy of unbalanced growth for peripheral countries with the continuation of the traditional policy of specialization in primary products. Thus, he argues that "In the absence of vigorous upward shifts in world demand for exports of primary products a low-income country through a process of diversified growth can seek to bring about upward shifts in domestic demand schedule by means of increased productivity and therefore by increased real purchasing power."

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<sup>7</sup> Ibid., 96, p. 248.

<sup>8</sup> Ibid., 96, p. 250.

<sup>9</sup> Ibid., 96, p. 247.

Arthur Lewis' theory of economic development with unlimited supplies of labor is indeed a "classical" academic exercise. In contributing to the theory of balanced growth, Lewis says that: "all sectors of the economy should grow simultaneously, so as to keep a proper balance between industry and agriculture, and between production for home consumption and production for export."<sup>10</sup> Some writers on the subject of balanced vs. unbalanced have considered the Lewis version of the theory as a "moderate view," against the "extreme view" suggesting simultaneous development of all sectors at equal rates.<sup>11, 12, 13</sup>

Balanced growth theorists have their claims on the "external economies" property of the theory. Nurkse, for example, pointing to the problem of the small size of the market says that "at least in principle, the difficulty vanishes in the case of a more or less synchronized application of capital to a wide range of different industries. Here is an escape from the deadlock; here the result is an overall enlargement of the market. People working with more

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<sup>10</sup>Lewis, 78.

<sup>11</sup>Lipton, 79.

<sup>12</sup>Nurkse, 96, writes: "within the manufacturing field alone the case for balanced investment implies a horizontal diversification of industrial activities all pushing ahead, though naturally at varying rates."

<sup>13</sup>Von Neumann, for instance, uses the balanced growth meaning the expansion of all industries at equal rates, Sutcliffe, R. B., 134, footnote p. 624.

and better tools in a number of complementary projects become each others' customers."<sup>14</sup> Even in the case where capital is available in unlimited supplies, it would be inefficient to develop industries to satisfy all the effective demands of the market. This is because of peculiar structural characteristics of a society's demands. At the initial stage, the demand structure is nondirectional and the dictates of the market may not be an economical solution in the long run. It is especially important in underdeveloped economies with skewed income distribution, where a minority in the high-income bracket has a large share in the demand for consumption goods -- mostly imported luxury items -- which may lead the planners to develop industries to satisfy the existing demand. At the later stage of development, with a less skewed income distribution, the demand structure may shift to the production of mass consumption goods. It is in this sense that the initial emphasis on the development of some sectors following the market demand may not be compatible with long-run production and consumption goals. Moreover, the demand for products of different sectors must be sufficient enough to justify their initiation or expansion. This is exactly the peculiar problem of small markets. Therefore, the theory of balanced growth, as an operational methodology, does not provide a definite answer to the problem of resource allocation.

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<sup>14</sup>Nurkse, 97, p. 11.

## 2. "Balanced Growth" with Unlimited Supplies of Capital and Labor

Two types of balanced growth theories have developed under the assumptions of availability of unlimited supplies of labor and of capital. Since both theories ignore a fundamental problem of underdeveloped economies, namely, resource scarcities, it was considered that further investigation about the two theories would be necessary to understand the nature of planning problems in underdeveloped countries and the probable contribution of the theory of unbalanced growth to their solutions.

Professor Lewis' argument never reaches the reality of today's undeveloped world when he assumes, in the tradition of classical economists, that there are unlimited supplies of labor at subsistence wages.<sup>15</sup> Underdeveloped countries today are suffering from acute shortages of the type of labor necessary for the development of key sectors of their economies. One reason for this shortage is the distribution of labor with respect to the level of education.

Unlike the 19th century development atmosphere in the western world, the underdeveloped world is confronted with a serious obstacle: i.e., the "technological gap." In the 19th century, developing countries were innovators and developers,<sup>16</sup> while the developing countries of the 20th century are borrowers of innovations

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<sup>15</sup>Lewis, W.A., 70, p. 400

<sup>16</sup>Kuznets, 72.

and developers. It might be argued that the underdeveloped countries are in an advantageous position, since they do not have to bear the cost of innovation. While this argument is valid, especially endorsed by the fact that most underdeveloped countries are enjoying high rates of growth, it does not however answer the problem of the labor supply.<sup>17</sup> Modern industry uses specialized techniques that require a great deal of knowledge and sophistication. Although the machinery is importable instantly, the knowledge of operating the machine is not so easily importable. Vast programs of education and training are needed. When considered that development in one sector's technology requires the technology of other sectors to catch up, the handling of the problem becomes especially insoluble for underdeveloped countries. It might be argued that since unlimited supplies of labor at a subsistence wage level usually exist in the agricultural sector, and probably at the initial stage of development, this "reserve army" can be used to increase agricultural production (which uses a relatively simple technology) or some primary productive activities which do not require a high level of skill. Some economic case studies on India<sup>18</sup> and Egypt<sup>19</sup> have shown that even in the agricultural sector

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<sup>17</sup>This argument is close to the model presented by Kindleberger which attributes the redundancy of labour in densely populated underdeveloped areas to the limitation in the existing technology or the structure of demand (Ekaus, 35, p. 350).

<sup>18</sup>Schultz, 120, pp. 63-70.

<sup>19</sup>Hansen, 50, pp. 367-407.

such an excess supply of labor with zero marginal productivity does not exist. Even if Professor Lewis' theory were actually correct with respect to the existence of such labor, from the viewpoint of economic development, a country with surplus labor may still have the labor scarcity, an assumption general to neoclassical models.<sup>20</sup> The scarcity of labor, in the sense used here refers to the shortage of skilled labor in certain industrial sectors, while the supply of unskilled labor may be abundant in non-industrial sectors. The problem is not only of physical mobility of labor from one sector to another, but also of the mobility on the educational and skill level.

Yet, there are other characteristics of Lewis' model to be discussed. Professor Lewis argues that "as more capital becomes available, more workers can be drawn into the capitalist from the subsistence sector."<sup>21</sup> At another point he says that the process of capital accumulation in capitalist sector "continues so long as there is surplus labour."<sup>22</sup> It seems that the model turns out to be a growth model with limited supplies of labor if the capital for investment is regarded as "unlimited." It is interesting to note that Nurkse's model of "balanced growth" which he calls a growth model with unlimited supplies of capital is this version of Lewis' model. There is no need to point out that neither case (unlimited supplies of labor

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<sup>20</sup>Lewis, 77, p. 425.

<sup>21</sup>Lewis, 77, p. 408.

<sup>22</sup>Lewis, 77, p. 413.



and capital) has any relevance to the situation of underdeveloped economies. Even developed countries cannot carry on a "balanced growth" program based on the premise of availability of unlimited supplies of capital.<sup>23</sup>

In contrasting the doctrine of comparative advantage with the argument of diversification, Nurkse recommends "concentration of efforts on a limited range of activities rather than by trying to do everything at home." But there is no reason to believe that the two strategies of specialization and diversification cannot both be part of a country's economic program. A small country such as Cuba under a temporary hostile economic environment may concentrate heavily in a single industry (sugar), but in the long run may pursue the objective of diversification.<sup>24</sup>

### 3. Unbalanced Growth Theory

Perhaps any review of the literature of the development theory ought to start with Schumpeter. He argued that economic history could not be separated from total history. Therefore "because of this fundamental dependence of the economic aspect of things on everything else, it is not possible to explain the economic change by previous economic conditions alone. For the economic state of a people does not

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<sup>23</sup>Nurkse, 96.

<sup>24</sup>The objective of diversification as we will see later is not incompatible with the theory of unbalanced growth.

emerge simply from the preceding economic conditions, but only from the preceding total situation."<sup>25</sup> It is necessary to read Schumpeter on the development theory, since most of his arguments are followed rigorously in the writings of other development theorists. He wrote that "static analysis is unable to predict the consequences of discontinuous changes in the traditional way of doing things,...it can only investigate the new equilibrium position after the changes have occurred."<sup>26</sup> This line of argument was closely followed by Hirschman later. He also asserted that in his theory, the growth of the economy as shown by the growth of population and wealth must be differentiated from the process of development.

Schumpeter clearly states that the spontaneity and discontinuity of changes are not due to the wants of the consumers of final products, but "these disturbances of the center of equilibrium appear in the sphere of industrial and commercial life." He considers the spontaneous and discontinuous changes in consumers' tastes and preferences as "a sudden change in data with which the businessman must cope" and he does not consider it as a sufficient motive for development. "It is," Schumpeter argues, "however, the producer who as a rule initiates economic change, and consumers are educated by him if necessary.... Therefore, while it is permissible and even necessary to consider consumers' wants as an independent and indeed the fundamental force in

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<sup>25</sup>Schumpeter, 121, p. 58.

<sup>26</sup>Schumpeter, 121, pp. 63 and 64.

a theory of the circular flow, we must take a different attitude as soon as we analyze change."<sup>27</sup>

Schumpeter's theory of development is based on the capacity for innovation and introduction of new goods, new techniques of production, opening of new markets, conquest of new sources of supplies and creation of new organizations. He favors a competitive economy, since it is in such an economic environment that the emergence of a new combination would mean the replacement of the old. He believed that imbalances may be contributory circumstances, favorable conditions "and even incentives to the emergence of new combinations," but at the same time are consequences of non-economic events. And, moreover, these conditions would not exist in "a well balanced circular flow" system.<sup>28</sup> He objected to the proposition that economic development employ the unused capacity of factors of production, but insisted that "the carrying out of new combinations means, therefore, simply the different employment of the economic system's existing supplies of productive means." Schumpeter recognized that "in carrying out new combinations, 'financing' as a special act, is fundamentally necessary, in practice as in theory."<sup>29</sup> Schumpeter, indeed, has the answer as to how the process should be financed. The "method of obtaining money," he wrote, "is the creation

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<sup>27</sup>Schumpeter, 121, p. 65.

<sup>28</sup>Schumpeter, 121, p. 67.

<sup>29</sup>Schumpeter, 121, p. 70.

of purchasing power by banks."

Scitovsky distinguishes between the traditional doctrine of comparative advantage and the modern arguments for "concentrated growth."<sup>30</sup> He thinks that the modern theory of concentrated growth is based mostly on technological considerations. There are certain technological advantages in concentrated growth that have something to do with the economies of scale. In a dynamic setting, the scale economies and economies of concentration result in a higher rate of technological change, while at the same time creating some imbalances. In Scitovsky's model the higher rate of technological change is associated with the higher rate of growth. Thus he concludes that "unbalanced growth appears, therefore, as the price of the fast growth that in a variety of ways stimulates technical progress." Through the linkage of technical progress and a high rate of growth, Scitovsky's model comes close to satisfying one of the conditions of Schumpeter's theory of economic development. Scitovsky emphasizes the cancelling effects of investment and profit in a single industry and the inducement effects of investment in one industry on the profit of the other. In other words, he regards profits as a sign of disequilibrium, and, at the same time, an inducement for additional investment. And, since additional investment in turn

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<sup>30</sup>Scitovsky, 123, p. 214. He writes that the "dependence on foreign trade, however, is very different from that which accompanies unbalanced growth concentrated on industries with a comparative advantage. For one thing, this is a temporary dependence, while that is permanent; for another, the dependence here is primarily on foreign import supplies, there, on foreign export markets."

results in more production and a higher rate of growth, a disequilibrium policy therefore is more inducive to economic growth than an equilibrium policy. This mechanism works under a freely competitive market, indeed.

Scitovsky also points out two important cases of the failure of the "balanced" growth theory: (1) "insufficient effective demand to render profitable, and (2) insufficient savings to render possible, the construction of productive capacity of optimum size...[of] a wide range of industries."

Hirschman has obviously followed Schumpeter's theory of economic development. On his strategy of "unbalanced" growth, however, he has not entered the dichotomy of the growth vs. development, the way Schumpeter has clearly defined them. To avoid any confusion, we evaluate Hirschman's theory strictly on its relation to the growth process rather than development, although the relation of the two in the imbalance growth models are elaborated by Scitovsky.

Hirschman sees the pattern of "unbalanced" growth as a kind of seesaw advance in different sectors of the economy, always the uneven advance of one sector followed by the catching up of the other sectors. This process is shown for the two sectors of the economy in Figure [-].

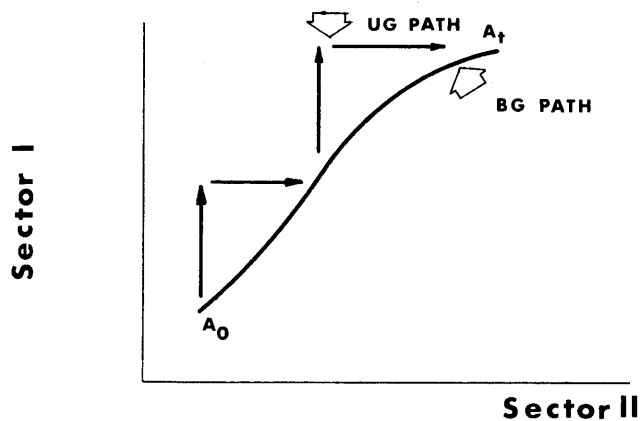


FIGURE I-1

Hirschman claims that the smooth curve of growth process between the two equilibrium points  $A_0$  and  $A_t$  hypothesized by "balanced" growth theorists is fictitious, since these theorists used two still photographs of points  $A_0$  and  $A_t$  to construct the curve.

Hirschman essentially follows the profit-motivation argument of Scitovsky in defining the concept of "induced investment" in his model of unbalanced growth. But he differs in a fundamental aspect, namely the causal relationship between the shortages and the technological innovations. He agrees with Veblen that "invention is the mother of necessity" rather than vice versa,<sup>31</sup> while Scitovsky believes that

<sup>31</sup>Hirschman, 50, p. 68. In his view the theory of balanced growth is an exercise in "comparative statics," not a theory of development process. What actually happened between the two equilibrium points is the unbalanced growth of one sector over the other in each stage of growth process.

"many of the major technical inventions have been sparked by shortages created by an unbalanced pattern of growth."<sup>32</sup> Hirschman's viewpoint stresses furthermore the effect of supply on economic development in general. On the level of abstraction, his view is somehow analogous to the notion of spontaneity and discontinuity of "change in the channels of flow" in Schumpeter's theory of economic development.

In addition to the above, there are several other characteristics of Hirschman's model that are important for the reformulation of an "imbalanced" growth model to be presented in this work. These are:

1. If development means a disturbance in the state of low equilibrium, every attempt to balance the state of unbalance will overcompensate to the degree that the next stage would become another unbalanced situation. And it is exactly this state of perpetual unbalance which forces the energies and materials to produce more and expand further.

2. The self-correcting forces are propelled "through a variety of market and non-market mechanisms,"<sup>33</sup> implying among other things, that state intervention is necessary to conduct a strategy of unbalanced growth. The reason for this necessity, perhaps, is the fact that the private sector would not be induced to invest in production of items above the level of effective demand, since beyond

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<sup>32</sup>Scitovsky, 123, p. 216.

<sup>33</sup>Hirschman, A. O. and Charles E. Lindblom, 58, pp. 211 and 212.

that no profit will be gained. For the state, however, it is possible to overproduce in one sector and cause shortages in others so as to induce the private sector to invest in bottleneck sectors. In such cases, governments are not profit-maximizers, but the private sector certainly is.

3. The process of development through an imbalanced growth path is conceived "to be more costly in terms of resource utilization."<sup>34</sup>

4. The self-correcting mechanism is believed to make the growth under the conditions of unbalance speedier than under the conditions of balance expansion.<sup>35</sup>

5. The expansion under the conditions of unbalance calls forth more resources and investment than would otherwise become available. This is based on the assumption that there is some "slack" in the economy.<sup>36</sup>

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<sup>34</sup>Hirschman, A. O. and Charles E. Lindblom, 58, pp. 211 and 212.

<sup>35</sup>ibid.

<sup>36</sup>Hirschman, 58, p. 212. "On the assumption of a given volume of resources and investment, it may be highly irrational not to attempt to come as close as possible to balanced growth; but without these assumptions there is likely to exist such a thing as an "optimal degree of imbalance."



6. There are varying degrees of pressures imposed by shortages and bottlenecks pending the selection of sector(s) to be expanded. One of the pressures imposed by the unbalanced growth is on the decision-making processes. Hirschman considers "genuine decision-making" as the "principal scarce resource," and argues that "shortages" and "bottlenecks" cause the imposition of political as well as psychological pressure on the decision-making bodies to accelerate the decision-making process and therefore to economize this scarce resource.<sup>37</sup>

7. The theory recognizes the direct connection "between the investment of one period and that of the next."<sup>38</sup> Therefore, the notion of complementarity which is absent in the traditional theory of comparative advantage is the principal theme of the Hirschman theory of "imbalance."

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<sup>37</sup>Hirschman's theory of "unbalanced growth" is designed to be a descriptive theory, especially on the subject of "decision-making" processes on planning issues in most underdeveloped countries (with great reliance on Latin American experience). But he genuinely thinks that "unbalanced" growth strategy can be used as an effective tool to create deliberate shortages and bottlenecks to accelerate the process of decision-making. Note that Hirschman is not worried about the availability of capital, but is concerned about the creation of social and economic tensions in the system, which he thinks would speed up the developmental efforts.

<sup>38</sup>Hirschman, 58, p. 213. "For instance, to start by developing... industry is likely to introduce more compelling pressures (because of the resulting food shortages, or, if food is imported, because of the balance-of-payments difficulties) than if the sequence is started by an expansion in agricultural output."

8. The sequential development of complementary sectors indicates the preference of the model for a long-run policy of diversification of sectoral activities. In this respect, it is not what the balanced growth theorists claim it to be: a theory of specialization in primary products.

Hirschman argues that the reason why the theory of growth in developed countries did not incorporate the sequential characteristic of development into a structural framework of the growth theory is that in an advanced economy, the development of all sectors were supposed to be "instantaneous" and "automatic".<sup>39</sup>

9. The concept of "induced investment" is defined by the "provision that the projects that fall into this category must be net beneficiaries of external economies."<sup>40</sup>

#### 4. Spatial Equilibrium Theories

Parallel to the development of economic theories on subjects such as growth and international trade, spatial economists have tried to develop theories of interregional trade and regional growth within a national boundary.

The structural framework and the determinant elements of a regional system were borrowed directly from the international trade theory. Regional economists, land economists, and location theorists added new dimensions to the field of regional sciences, namely the

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<sup>39</sup>Hirschman, 57, p. 42.

<sup>40</sup>Hirschman, 57, p. 71. He adds that there is no connection between the size of an investment and its net "input" of external economies, although some association between these two magnitudes may be expected to exist.

taxonomy of economic regions, the land value and the cost of friction (transport costs). In the international trade theory, the national boundaries were given by political agreements. In addition, the theory dealt with the volume and aggregate value of trade among nations. Trade theory was indeed the only segment of economics which was directly and separately dealing with transport costs. Location theorists put greater emphasis on transport costs of resource mobilization. The economists had, of course, their explanations. They said that there is no difficulty in measuring the transport costs as part of the production costs, or allocating them proportionally to other factor costs (labor and capital). The same was true about land. Unlike capital and labor, however, the total amount of land was considered to be fixed.<sup>41</sup>

Ricardian theory of rent proved to be wrong. The share of landlords did not increase in the course of time but rather decreased. von Thunen's descriptive theory of agricultural rent was a useful exposition of the mechanics of the agricultural land market for its own time, but ceased to be so, as soon as transport costs became negligible in relation to the total cost.<sup>42</sup> The modern urban rent

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<sup>41</sup> Ricardo's theory of rent that eventually all the profit goes to the landlord, or von Thunen's agricultural rent theory and Alonso's model of urban rent structure all stem from the economic conditions of the time, when the theories took form.

<sup>42</sup> This is not a general statement on all production functions. In retrospect, however, the transport costs' share in the total cost was higher in the past than it is today.

models the direct descendants of the theory of agricultural rent, also lose even their descriptive quality when the transport costs become a negligible part of the family budget of urban dwellers. Thus, the contribution of the location theory and land economics to the regional economic theory as far as rent and transport costs are concerned is a matter of relativity. If the cost of land or transportation is a major component of the production costs, it is important to be singled out and if it is not, there is no need for undue complication of the programming model. The transport costs, however, were a major factor in the theory of international trade and even tariffs and custom duties were considered as artificial transport costs.

The pioneering works of Christaller and Lösch in the development of the spatial theories of regions and central places are germane to the understanding of the theoretical and analytical direction of regional planning thoughts.

Lösch in several theoretical works on the location theory in general and economic regions in particular, introduced a model of the market area "starting with assumptions of evenly and adequately distributed raw materials over a wide plain and homogeneity in every other respect," described the tendency toward specialization and large-scale production on one hand and toward self-sufficiency on the other.<sup>43</sup>

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<sup>43</sup> Losch, 80, p. 108. Several observations on the Lösch model must be made: (1) the model is made in the tradition of all equilibrium models, assuming a demand must exist to justify the supply and the supply must be made as much as satisfies the demand. (2) There is a precise recognition of large-scale economies, but that, too, is a function of the size of the market. (3) A clear trade-off schedule is suggested between the shipping costs and the advantages of large-scale production.

In his geometric presentation of regions as networks of market areas, Lösch elaborated on the equilibrium system to the extent of algebraic and geometric abstracts. His attempt to create a theory of regions was a deliberate one, particularly designed to find a way out of the theory of international trade. He wrote about a few economists who tried to identify economic regions with political boundaries (among them Ohlin) that: "Actually they did alter little more than words; they began to speak of interregional, in addition to international trade; and what had held for states now held also for regions."<sup>44</sup>

Lösch was modestly critical of his own theory as well -- not that he saw anything wrong with the theory but the fact that spatial utopia was not exactly materializing in the real world. He wrote: "We have found three main types of economic regions: Simple market areas, regional networks, and regional systems.... The members of this series become, in that order, increasingly complicated, increasingly self-sufficient, but unfortunately, increasingly uncommon too."<sup>45</sup>

In the process of evolution of the location theory, one finds a continuous and deliberate effort to build a general equilibrium

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<sup>44</sup>Lösch, 80, p. 104. He also added that the definition of a region as a locus of equal prices is erroneous. "This definition is unsuitable, however, because there are no such regions; and even if there were, they would be without significance and thus not worth our attention."

<sup>45</sup>Lösch, 80, pp. 218 and 219.

theory which encompasses the spatial aspects. Alfred Weber, Laundhardt, Predohl, Palander and Lösch, all followed the equilibrium analysis' framework in the line developed by Walras, Pareto and Cassel. Predohl, for instance, concluded his investigation into the question of the position of the location in the general equilibrium theory by saying that land as well as capital and labor is subject to factor distribution analysis. "Therefore general location theory is deducible from the application of the principle of substitution to the employment of the several groups of productive factors."<sup>46</sup>

The original Weberian equilibrium theory of location was based on the following notorious assumptions: (1) the location and size of the places of consumption are fixed; (2) the location of raw materials is given; (3) "the geographic cost pattern of labor is given, and at any one point labor is unlimited in supply at constant cost."<sup>47</sup>

The general location theory formulated as such could at best only partially describe the spatial relationships of the economic activities in particular parts of the world and had no validity as a developmental planning tool, nor did it, indeed, claim to be. The fact that initial formulations of the location theory were developed in Germany is not incidental. It was a part of a total reaction of economic thought to the Anglo-Saxon bias in economics.<sup>48</sup>

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<sup>46</sup> Isard, 65, p. 33.

<sup>47</sup> ibid., footnote p. 28.

<sup>48</sup> ibid., p. 24.

The connections between List's balanced growth strategy for development and self-sustained economic units in Lösch's general system of regions are evident.

Walter Isard in the Preface to Location and Space-Economy after a quotation from Abbott P. Usher<sup>49</sup> remarks that "Despite the disrupting effects of technological advance and other dynamic phenomena and the consequent failure to attain equilibrium in the secular sense, there is still value in equilibrium analysis." And so goes the rest of the Location and Space-Economy, elaborating the ceteris paribus type general and partial equilibrium models of the past contributors and adding some new ones.

Isard, however, acknowledges that "the general theory of location developed in Location and Space-Economy does not consider, except in minor fashion, the aggregate demand and income side of the picture, particularly as they relate to regions and to inter-regional trade. In his view of the concept of opportunity cost and transport-orientation into trade theory would contribute "to the fusion of trade theory and location theory."

Undoubtedly, Isard is not much concerned with the problems of growth and development strategies. His emphasis on analytical

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<sup>49</sup>"Classical and neo-classical theory rest upon a concept of equilibrium that becomes a source of serious difficulty in historical analysis. It is implied that disturbances of the socio-economic equilibrium are small in magnitude and quickly corrected by adaptive changes. Such disturbances do exist, and market processes have developed that deal with some measure of adequacy with these minor disturbances of the equilibrium. But these are not the only disturbances that occur in the socio-economic world. The world economy is beset by other disturbances, whose magnitude is of such an order that adjustments require several generations..., "65, p. ix.

properties of location theory and specific stress on the importance of transport cost, turns the theory into a sterile device, devoid of any flexibility or potential of being incorporated into a development theory, although it must be acknowledged that it may serve as an analytical tool to observe how the adjustment process operates.

The tradition of equilibrium analysis in spatial economics is followed in the field of regional sciences as a direct result of Isard's revival of the German school of thought in space-economy.

Isard attempts, in his latest writing, to build a holistic equilibrium model embracing the social and the political factors as well as economic factors.<sup>50</sup> His general theory assumes that (1) there are indifference consumption curves for individuals as well as for economic regions, (2) total supply at the market of each region must equal total demand for each good, (3) the exporting unit is motivated by the possibilities for profit, (4) the exporting unit considers the market price of the commodity at the importing region plus transportation costs, (5) the economies of the regions consist of large numbers of competitive traders who are maximizing their gains from trade (a necessary condition for the existence of an equilibrium), (6) the traders do not have any influence on prices, i.e.,

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<sup>50</sup> Isard, 68, pp. 519-520. In an introduction to Chapter 11, titled "General Equilibrium of the Economic Subsystem in A Multiregional Setting" he affirms that he draws "heavily upon works of diverse economists who have been concerned with general economic equilibrium."



regional prices are given, (7) the condition of diminishing return prevails, i.e., there is a point where the increase in volume of shipments to other regions results in zero or negative net gain. etc.<sup>51</sup>

Apart from a consideration of several technical problems (example: construction of indifference collective consumption curves for the regions) the basic premises of the model do not guarantee an analytical property for the explanation of the regional growth and development. The model fails especially in its applicability to the regional development processes of underdeveloped nations. The following may be cited as major shortcomings of the theory:

1) Most underdeveloped countries can be classified as those with mixed economies. State planning efforts might not necessarily be oriented toward profit maximization, while its policies must induce the profit maximizer entrepreneurs in the private sector for investment. Since the model does not recognize the public sector activities, its use as a planning tool is almost nil.<sup>52</sup>

2) The model is typical for a free-market competitive economy where the prices are given. Because of state intervention, most developing countries are run as Chamberlinian monopolistic economies. Price policies are one of the important instruments of central governments in the inducement of growth in some sectors of the economy or in the stoppage of others.

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<sup>51</sup> Isard, 68, pp. 527-535.

<sup>52</sup> This criticism may not be warranted, since the theory is intended to be a descriptive theory for the private sector, not a normative theory for the public sector.

3) The model following the tradition ignores the economies of scale and externalities that cause the net gains of some exporting sectors to fall.

#### 5. Theories of Spatial Concentration

Among development economists, Tinbergen has addressed himself precisely to the questions of different stages of planning, sectoral expansion and the regional development. Tinbergen has come very close in conciliating such disciplines as general economic theory, welfare economics, theory of economic development, theory of regional economic development and city and regional planning.

His model recognizes three main stages in planning over time: (1) macrophase, (2) middle phase and (3) microphase. In the macrophase, Tinbergen stresses that economy must show development only in macro-terms, "without subdivision into regions or industries." The middle phase is the time for introducing sectoral and regional dimensions into the picture. Finally, the microphase is a continuation of the middle phase with more precision and detail, dealing "with separate projects and even smaller geographical regions, perhaps even separate rural and urban districts."<sup>53</sup>

The middle phase which is of the utmost concern in our work (accepting the classification of Tinbergen) is described by Tinbergen as a temporal stage in which the country "is divided...into a limited

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<sup>53</sup>Tinbergen, J., 136, p. 76.

number of sectors, or industries in the broadest sense. In both cases, this number may vary from two to twenty, but it is preferable not to deal with too many regions and sectors at the same time." On the question of migration, Tinbergen believes that "voluntary migration of a section of population from a poorer region to more prosperous areas will make the development problem easier."<sup>54</sup> At most, he recognizes regional aims as those concerned with the equalization of income among regions, the rise in per capita income of particular regions, and the increase in the level of regional employment. Although he mentions transport costs and migration of the labor force, he apparently does not consider the spatial dimension in the middle phase to be so important. It seems that he is more interested in the rehabilitation of man by increasing his income than in the development of the land, although the suggested index of the well-being of the population is the familiar term of per capita income.

In the selection of sectors, Tinbergen advises that "a relatively small number of sectors that are fairly homogeneous" be chosen.<sup>55</sup>

It is obvious that Tinbergen suggests concentration, but not in line with the liberal trade theorists or even in the way recommended by the "unbalanced growth" theorists, but purely from the practical point of view. He neither preaches rapid industrialization nor specialization in primary products. Instead, he refers to the

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<sup>54</sup>Tinbergen, J., 136, p. 90.

<sup>55</sup>Ibid.

size and the share of particular sectors in the national economy. It seems natural to him to treat the oil sector in Venezuela and cotton in Egypt as separate sectors. But he does not exclude the possibility of development of those sectors "which are for the time being 'empty',... but do show imports." He makes a distinction between "regional, other national and international sectors."<sup>56</sup> He defines the regional sectors as sectors whose products cannot be transported to other regions. The other national sectors are those whose products cannot be transported abroad, and the international sector whose products can be transported abroad.<sup>57</sup>

The international sectors are "all branches of industry, agriculture and mining, which produce material commodities."<sup>58</sup>

Tinbergen thinks that further detail and breakdown of the sectors in the middle phase is not necessary. He considers this degree of refinement as characteristic of the micro-phase, in which problems such as the relation of the regional center to the hinterland ought to be considered. He points out that "along the lines of town and country planning, the country has to be divided in the micro-phase

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<sup>56</sup>Tinbergen, 136, p. 92.

<sup>57</sup>Among the strictly regional sectors are the building industry and most service activities. At times it is difficult to define the national sectors as separate from regional sectors or international sectors. Coal, steel and building materials in a large country may be considered as national industries, but in a small country may be classified as international sectors.

<sup>58</sup>Tinbergen, 136, p. 93.

into even smaller territorial units."<sup>59</sup>

One more point on the Tinbergen model is that he eliminates the transport cost variable by differentiating between the commodities that are or are not to be transported outside a certain territory. The reason for this simplification is that an aggregate transport cost minimization in conjunction with the minimization of total production cost is cumbersome and sometimes quite unnecessary.

#### 6. The Concept of Polarization in Regional Context and the Theory of Unbalanced Growth

Although the theory of regional polarization is only 25 years old, it is conceptually a classic.<sup>60</sup> A polarized region, according to Boudeville, is a set of neighbouring towns whose exchange is more with the regional metropolis "than with other cities of the same order in the nation."<sup>61</sup> In a closed regional system the notion of a polarized region is synonymous with Christaller's hierarchical system of cities. A polarized region which appears as an hierarchical system implies the existence of an equilibrium. The rank-size studies made originally by Zipf and followed by others, state that an hierarchical order of cities is an equilibrium system, when a linear curve with the slope of -1 could be fitted to a plot of rank against size of cities within national boundaries on double-logarithmic

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<sup>59</sup>Tinbergen, 136, p. 159.

<sup>60</sup>Boudeville, 15, p. 9.

<sup>61</sup>ibid., p. 11.

paper.<sup>62</sup> For most underdeveloped countries as well as some developed countries the curve is non-linear and is convex to the origin (a rectangular hyperbola). There has been a long search for a theoretical basis by which linear regularity can be called an equilibrium and the deviation from it a state of disequilibrium. There is only an intuitive belief that a skewed distribution of cities according to their sizes might be an implication of disequilibria in social and economic activities, and therefore an unhealthy situation.

One important distinction must be made between the concept of a polarized region and the theory of growth poles developed by François Perroux. The regional growth-pole as Boudeville defines it is "a set of expanding industries located in an urban area and inducing further development of economic activity throughout its zone of influence."<sup>63</sup> Since regional growth-pole is designed to create a deliberate imbalance in a previously "balanced" but stagnate system, it would be different from a steady state of relationships among hierarchically ordered cities within a so-called polarized region. For those who are apt to look for an equilibrium after any stage of disequilibrium, it would be easy to see the end product of a growth-pole strategy as an equilibrium system in a polarized region. It is one of the intentions of this work to show that that eventual equilibrium system, if it can be theoretically proved to

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<sup>62</sup>Berry, 13 and 40, p. 118.

<sup>63</sup>Boudeville, 15, p. 11.

be meaningful, may only be a special case among a large number of possible consequences of the strategy of growth-poles. There are two aspects of such an equilibrium that must be analyzed:

(1) The Spatial Equilibrium - In discussing the Löschian spatial equilibrium system, it was noted that the strong homogeneity assumptions were responsible for the resulting equilibrium pattern of market places.

(2) The Price Equilibrium System - Most neoclassical two-sector models are based on the assumptions that a scarcity of capital raises the interest rate and that a scarcity of labor raises the wage rate, resulting in a mobility of capital from a low-interest rate to a high-interest rate sector and in the mobility of labor from a low-wage rate to a high-wage rate sector. There are several reasons for the failure of these equilibrium models. As much as the two sector models can be related to the regional transfer of labor and capital, the most important reason cited by John Friedmann is "the failure of diminishing returns to set in at the center." Hirschman has provided a psychological reason, namely that private investors consistently overestimate the profitability of investments at the center, relative to the periphery.<sup>64</sup>

The existence of economies of scale, external economies and technological innovations at the center that are principally responsible for the failure of the equilibrium system, all have something to do with the economies of concentration, whether these economies are

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<sup>64</sup>Hirschman, 57, p. 185.

resultants of concentration of population by their sheer numbers, concentration of capital resources, or concentration of human energies, talents and innovative capacities.<sup>65</sup>

The theory of growth-pole as applied to French regional planning, contains the concept of decentralization in terms of administrative power as well as social and economic activities. This approach, as its title "Metropoles d'Equilibre" implies, is another attempt to achieve an integrated social, economic and political equilibrium within a spatial system, using both concepts of concentration (on regional metropoles) and decentralization (dispersion of the social-economic-political power).

In underdeveloped countries, however, no such refined and elaborate schemes can be implemented. The development of a single region surrounding the capital cities of most underdeveloped countries creates a great "imbalance" which Hirschman might have called a non-optimal unbalance.

There have been no systematic studies concerning the benefits and costs of creating new (or expanding the existing) regional centers (excluding the capital cities) in underdeveloped countries. Intuitively, however, it is easy to conceive that some underdeveloped countries may lack the economic strength to create more than one or two sizeable regional centers.

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<sup>65</sup>The term center does not refer to the central city, but to a larger entity such as large metropolitan areas and regional conurbations.



This problem has been analyzed by Lloyd Rodwin in his attempt to develop a theory of "unbalanced" or "concentrated" growth in conjunction with the notion of "decentralization." In his formulation of the theory of "concentrated decentralization," Rodwin states that the encouragement of economic activities oriented to leading sectors would appear to be an effective strategy "to promote development in a few 'leading regions' and to push those programs which would stimulate leading sectors within the regions... 'balance' would imply simultaneous development of some related sectors within the region; and imbalance or what I prefer to call concentrated decentralization, would mean that some regional and sector development would be stopped, curtailed or not encouraged until some later stage, because of scarcities of capital, managerial and administrative talent and markets."<sup>66</sup>

The main features of Rodwin's theory are:

(1) Recognition of the viability of some leading or "key" sectors in promoting economic development at the regional level. The notion of key sector(s) has been extensively discussed by W. W. Rostow. He groups the sectors of an economy into three categories: primary growth sectors, supplementary growth sectors and derived growth sectors. Among these three only the primary growth sectors can play the role of leading sectors, since they derive their "momentum" essentially from the introduction and diffusion of changes in the

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<sup>66</sup>Rodwin, Lloyd, 112.

cost-supply environment."<sup>67</sup> The supplementary growth sectors advance in response to the requirements of the primary growth sectors. Therefore, their expansion is indirectly related to the supply side. In contrast, the derived-growth sectors enjoy a "fairly steady relation to the growth of total real income, population, industrial production or some other overall, modestly increasing variable."<sup>67</sup> These sectors are demand-oriented sectors and are, therefore, unable to create a stimulus for growth. Rostow believes that in the early stages of development the rapid expansion "in a limited number of primary sectors, whose expansion has significant external economy" will result in accelerated growth. As a rule of thumb, he suggests that since the overall rate of growth is the weighted average of the growth rates in various sectors of the economy, the leading sectors can be defined by the growth rate criterion. This indeed implies that there is no single sector which universally can be recommended for development as "the magic key." Thus in Rostow's conception of the "leading sectors," there is no preference for rapid industrialization or promotion of agriculture.<sup>68</sup> Rodwin, however, does not

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<sup>67</sup> Rostow, W. W., 118.

<sup>68</sup> Rostow also introduces four basic factors as required conditions for considering a sector as a leading sector. These are 1) the existence of an enlarged effective demand, 2) an introduction of a new production function, 3) the social capability for generating required capital for developing the sector, and 4) the capability of the leading sector to "induce a chain of requirements for increased capacity and the potentiality for new production functions in other sectors." Rostow adds that "a considerable array of sectors appears to have played this key role in the take-off process."

elaborate on how the leading sectors at the regional level must be chosen. If we assume that these sectors are the national leading sectors, then, it would be useful to investigate their contributions to the regional well-being as well as to the national objectives.

(2) Introduction of the term "leading region" has supplemented the sectoral growth theory with a spatial dimension. It is not to say that the problem of selection of the regions for development have not been considered before, but that emphasis can be made on the embodied notion of concentration both in sectoral and regional development which makes the theory distinctive from Boudeville's regionalization of the national plan<sup>69</sup> or the regional equilibrium system of Perroux. Following the same line of argument in the selection of the leading sectors, the leading regions can also be defined as those regions showing a high rate of overall growth. But this criterion completely overlooks the possibility of development of regions with tremendous potential which at the time of planning may show no rate of growth at all. Such a situation is analogous to a sector which shows no production at the base time, but promises a great potential for expansion. The issue of the establishment of certain criteria for selection of the leading regions will be discussed fully in Chapter III.

(3) Introduction of the concept of "unbalanced" growth to the problem of regional development. If we can make the assumption that

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<sup>69</sup>Boudeville, 15.

the term "region" implies (in the narrow sense) a territory smaller than a national state, then, the application of the "unbalance" approach to the problems of the regional development requires some clarification. There are two types of resources: mobile and immobile. The immobility of some resources creates natural advantages as well as disadvantages for regions. Thus, a fixed pattern of preferences for development of some regions over others in relation to the immobile factors exists. The mobile factors also are not moving freely from one region to another. There are costs to be borne. Therefore the fixed list of development priorities will change according to a new list, considering the costs of mobilization of other factors. The regional inequalities seem to be induced by both the unequal distribution of immobile factors of production and the expulsion of mobile factors caused by the existing state of disequilibrium in the distribution of immobile factors. It seems almost absurd when one tries to build a theory of regional equilibrium on the basis of equal distribution of all factors of production. And since it is very unlikely that anyone, even the sincerest proponents of "balance" and equilibrium would go that far, the "imbalance" in theory of "concentrated decentralization" intentionally is not used to describe the obvious, but to mean precisely: "concentration." It is within the property of "concentration" which need not be in contrast with the equilibrium analysis. As will be shown in a hybrid version of the Kaldor-Harrod models of growth, concentration may occur in an equilibrium system.

(4) The classical overlapping of the "balance" and "imbalance" with regard to the problem of sectoral development. The theory of "balanced" growth as is cited in the above quotation implies "simultaneous development of some related sectors" and imbalance seems to do exactly the same thing. The difference, perhaps, is only in the degree of concentration, since the balanced growth doctrine as cited above does not recommend the expansion of all sectors simultaneously. This is not caused, however, by the fact that unbalanced growth theorists have not been fighting the right enemies, but because most of the balanced growth theorists have been hesitant to express such an extreme view as recommending simultaneous expansion of all sectors. Beside the notion that in some cases concentration may be acceptable to the balanced growth theorists, the concept of "sequential" sector development versus simultaneous expansion of some sectors in my belief is more basic to the theory of "concentrated decentralization" than the concept of imbalance.

#### C. SUMMARY AND CONCLUSIONS

The review of the literature on growth and development theories is aimed at finding an appropriate strategy for developmental programming.

Although the theory of "unbalanced" growth was found to be more descriptive of historical growth patterns, because of its overlapping properties with the theory of "balanced" growth, it was abandoned in favor of a strategy of "concentrated decentralization" which in my

belief is more flexible for an application to various economic environments aiming at a higher rate of growth than either theory of "balanced" or "unbalanced" growth. It was argued that concentration is not a peculiarity of a disequilibrium system, but may occur in an equilibrium system as well.

It was stressed that the main feature of the strategy of "concentrated decentralization" is the concept of "sequential" sector development and not the notion of "imbalance." A policy of concentrated decentralization in the long run may move toward equilibrium, while initially it can be considered as the originator of disturbances in a previous state of equilibrium.

The achievement of an equilibrium, however, does not imply "balanced" growth. An economic system may reach equilibrium by following either strategies, "balanced" or "unbalanced."

## CHAPTER II

### REGIONAL OBJECTIVES AND THE STRATEGY OF CONCENTRATED DECENTRALIZATION

#### A. INTRODUCTION

In the Introductory chapter, we defined the regional objectives as subordinates of the national economic goal. We stated the national goal as a certain per capita rate of growth. We argued that a strategy of "concentrated decentralization" at particular stages of economic development will serve the stated national objective best.

The theoretical controversy on the subject of selection of national and regional goals, however, is going beyond the level of simplicity of a national goal such as the one stated above.

In order to be able to introduce some regional objectives into the general objective at the national level, we will first review the major arguments around the issue of national and regional goals selection. In doing this, we will attempt to draw heavily on the theoretical discussion of Chapter I, and make some conclusive remarks on the effectiveness of the strategy of concentrated decentralization toward the general end of economic development.

#### B. THE OBJECTIVES OF A REGIONAL GROWTH PROGRAM

A distinction must be made between the "regional programs" and

the "regionalized programs." The latter refer to national programs which by operational necessity are regionalized. The goals are set at the national level, with a certain rate of growth for GNP or per capita income. Those regions which best contribute to these objectives are chosen as programming regions. The Regional Program for Guayana, Venezuela is of this latter type. The former type regional programs are designed specifically to achieve some regional goals, although these goals may not be inconsistent with the national development objectives. These targets have been derived from regional needs, and might be of a higher level of consumption, a higher level of employment or a more equitable distribution of income. In any event, in either case the objectives must be stated in operational form and as a part of a national plan. The prerequisite condition makes it necessary to consider several national variables. The most important of these variables are:

1. Size of the Country - Size is a primary binding factor in economic development. Small countries with limited size of their markets may not be able to diversify their economic activities, and even if capable, it may not be to their advantage to do so. A high degree of specialization in these countries may lead to the most efficient pattern of resource utilization. Looking at size in geographical terms, a small country may not even encounter the regional inequalities problem because of even distribution of population over the land and the negligible effect of transport costs. On the other hand, a large country, in terms of area and population size, with a large market, would have to diversify sooner or later because a large market bears a



greater risk and uncertainty by relying on international trade. Even if the flow of goods and services were guaranteed to continue from abroad, an excessive volume of trade becomes uneconomical because of transport costs and distributional problems. In a country such as India, the specialization on some sectors of the economy may prove to be a wrong strategy in the long run.

2. Resources - The problem of resources to a large extent is related to the size of the countries. A country with a single natural resource endowment such as Kuwait will probably always be better off to concentrate on the exploitation of her oil resources and import almost all other goods from abroad. The large and medium-size countries with abundant natural resource endowments are constrained by the availability of capital for extraction of these resources. While in the long run, diversification of economic activities by the expansion of the potential capacities may be an ultimate goal, the short-term programs, however, should follow a path of the most efficient way of allocating scarce capital resources. The case of capital constraint with unlimited supplies of other factors of production, especially that of labor, was discussed in the review of the Lewis theory of growth. Upon the availability of additional capital, the capitalist sector (Lewis' definition) can be expanded indefinitely. However, the resource availability is not limited to natural endowments and capital. The labour shortage in most underdeveloped countries may be a serious bottleneck. The problem of factor unemployment in some underdeveloped countries is not in the monopoly of labor alone, but in capital as well. Economists may argue that any amount of capital

becoming available to underdeveloped countries can be used with no problem. There may be, however, situations called "underemployment" and "disguised unemployment" of capital in some underdeveloped countries, when such a country decides to employ masses of unskilled labor in certain economic activities with low skill requirement and in most cases with a low level of productivity. It is important to note that the "underemployment" of capital is a direct result of the "labor shortage" in this particular sense, a shortage of the right kind of labor. If the above analysis is correct, then some of the medium and large-size countries with adequate natural and capital resources, and in some stage of development will follow the strategy of concentration, until the time that the labor force of the right kind is in excess supply. This at times may imply the concentration of planning efforts on the expansion of education and training sector of the economy. This, indeed, has been a controversial issue in economic development because of the difficulty of measurement of the return on educational investment.<sup>1</sup>

3. Stages of Economic Development - The choice between the two types of regional programming approaches depends also on the stages of economic development in the countries concerned. Regional differentials and inequalities are not peculiar to the underdeveloped countries. Developed countries show a larger gap between the

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<sup>1</sup>McClelland, David C., 82.

regional indices than the underdeveloped nations.<sup>2</sup> Apart from the conventional reasons such as labor immobility, poor natural endowments and geographical and climatic conditions, the tendency of a free-market economy is toward concentration, because of scale economies and advantageous externalities of concentration. For reasons that do not yet constitute a theory, the concentration of population and economic activities is not only common to the free-market economy, but is evident as well in socialist-planned economies. Therefore, a certain degree of regional inequality (if it is assumed that equality is a good thing) is unavoidable. If there are certain economies in concentration, then it is not justifiable at least on economic ground for a state to follow the strategy of dispersion. It might be argued that in a free-market economy, since the share of the private sector is large (in relation to the share of the public sector), free enterprise would benefit from the economies of scale and of concentration, while it will not carry the burden and costs of the diseconomies of concentration. So far, there has been no satisfactory empirical work on such an hypothesis, and even if it is proved to be so, it would probably affect the economies of developed countries more than those of developing nations. If, in underdeveloped countries, the diseconomies of concentration appearing in later stages of development and the regional differentials in an early stage of development were not so great, then a program based purely

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<sup>2</sup>In underdeveloped countries, only primate cities show a tremendous difference with other regions, but these other regions among themselves show few inequalities.

on the "regional" objectives seems to be senseless. However, the question of concentration of population and economic activities in most underdeveloped countries cannot be separated from the question of the economic and social structure of the country under consideration. Most underdeveloped countries have their largest concentration in one (mostly capital) city or a few large cities as consumption centers and a large dispersed rural sector as the productive sector of the economy with a low level absorption capacity for industrial products.<sup>3</sup> Some economists, especially the proponents of the "balanced" growth theory, have pointed out that the low income elasticity of demand for industrial products of the ruralites is caused by the inadequacy of farm production. Therefore, any concentration of resources on industrial activities (in the narrow sense) at the center, is doomed to failure, as structuralists are pointing out (see Hirschman). The problem of development in these countries is not the availability of resources but the socio-economic structure. The center constituting somewhere around ten percent or more of the national population is heavily dependent on the importation of consumer products from abroad. There is no domestic or international market for the industrial (better to say manufacturing) products of the economy. Thus the only way to get out of the vicious circle is to increase agricultural productivity, reduce the importation of consumption goods (especially luxury goods) by

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<sup>3</sup>For example, Lampard has stated that "the presence of an overly large city in a preindustrial society may act as a curb rather than a stimulus to wider economic growth." He is specifically referring to the

the imposition of tariffs and custom duties, and restrict the imports to necessary capital goods as much as scarce resources of foreign exchange will allow. Despite the fact that there is no mention of the dispersion of economic activities in such a prescription, it is evident that a policy for expansion of the agricultural productivity necessitates the dispersion of capital and managerial resources over a vast agricultural territory. The opposing viewpoint is that an increase in agricultural productivity is extremely costly. The income elasticity of consumption of agricultural products at home is quite high (because of a low level of previous consumption). Finally, the exportation of surplus agricultural products for obtaining necessary foreign exchange is very difficult. The obvious reasons for this difficulty are: 1) most developed countries with a sizeable market for agricultural products are countries of "surplus agriculture," therefore, are in a better position to compete with agricultural exports of underdeveloped countries, 2) the technology of agricultural production in underdeveloped countries is retarded, and takes a large investment and much time to update it, and 3) if all underdeveloped countries were to try to become agricultural surplus countries, there would be no foreign market for their products, since the diversity of agricultural products relative to manufacturing products is quite limited.

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Life of "parasitical" cities which are not economically productive. Lampard, Eric E., 73, p. 131.

Most economists are in agreement on the question of an agricultural surplus as a prerequisite for economic development. They differ mostly in their next suggestions on which sector is to be developed and how. The growth theorists are silent on the question of where the economic activities must be initiated or expanded. It is the question of least interest to them. Regional economists, regional scientists and location theorists have addressed themselves to the problem of location and spatial relationships of economic activities which were discussed in Chapter I.

Both "balanced" growth patterns based on the dispersal of manufacturing activities in rural areas and "unbalanced" growth programs based on the concentration of industries in large centers are criticized for creating "white elephants" in the economies.

The criticism rotates around two pivots; supply and demand function. The balanced growth theorists argue for balance in demand. Their prescription therefore would be to find demand elasticities for all primary, intermediate and final products, to project the demand according to these elasticities, and to produce just as much output as can be absorbed by the new incomes created.<sup>4</sup> The "unbalanced" growth theorists argue that supply creates its own demand, and if not exactly by amount supplied, at least it induces a level of demand above the one obtained at the equilibrium point of the balanced growth path. Some regional economists working on

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<sup>4</sup>Lipton, 79, pp. 642-57.

regional objectives have considered the regional differential in per capita income (the only measurable and agreed upon index) a transfer problem within a maximization problem given the scarcity of resources; namely labor and capital. The results of their efforts are a handful of simplified two-sector models devoid of any reference to the stages of economic development. The prevailing assumption is that "equality is good" and as long as by bettering off someone we are not causing some other one to become worse off, the maximization problem can be solved successfully.<sup>5</sup>

The formulation of the regional objectives, however, without consideration of the particular stages of economic development is an exercise in futility.

For highly advanced countries with an elaborate tax system it is theoretically possible to channel the public funds to the development of depressed regions. Most underdeveloped countries lack a strong and operational tax system. Moreover, if the taxes are collected, it is more appropriate to expand existing rapidly growing industries in already developed centers rather than to transfer them to new regions because of scarcity of investment funds. In addition, by analogy to what Professor Rosenstein-Rodan, a forerunner of the "balanced" growth strategists, once pointed out, that in underdeveloped countries all industries are to some extent "basic," we may say that in most underdeveloped countries all regions

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<sup>5</sup>Mera, 86, p. 2.

are to some extent depressed. Therefore a strategy of simultaneous equalization of per capita incomes in all regions means spreading scarce capital resources thin over several regions. Thus, it seems that a scanning and selection process is unavoidable. In prior arguments, we mentioned the inadequacy of the "balanced" growth theory on the basis of its fundamental error of assuming unlimited supplies of labor (Lewis) and unlimited supplies of capital (Nurkse). The problem of development is essentially a scarcity problem. There is, indeed, a relativity in scarcities. By definition, when there is a scarcity of one factor and plenty of another, if they are substitutable, we try to use more of the plentiful and less of the scarce. There are always sectors which are more economical for development under labor-or-capital-intensity conditions. If there is a factor-improportionality in an economy, certain sectors cannot be developed. In other words "imbalance" is an inevitable solution.

The "imbalances" and "inequalities" at the regional level, of course, are not synonymous, although the former may intensify the latter. As Hirschman had suggested that there must be an optimal level of "imbalance," we may say also that there must be an optimal level of regional "inequality" which is economically, socially and politically tolerable, if it is an unavoidable choice to develop some regions over others.

In attempting to clarify the relationship between "goal identification" and choice of "strategy", it seems irrelevant to use a



purely deductive method in arriving at universally acceptable goals for regional economic development, and then search for the strategy which best suits our goals and objectives. We believe that regional "goals" must be based upon national and regional means which ought to be used to achieve such "goals." Without denying the importance and plausibility of utopian models designed for the equalization of regional indices, the fact of regional development programming, we believe, is more complex than can be solved by such models. A distinction must be made between the spatial static equilibrium models of concentration (i.e. models developed around the concepts of central place theory, rank-size and cities as systems) and the dynamic disequilibrium model of concentrated decentralization.

The models of the former type are mostly descriptive and when applied to the developing economies for predictive purposes show a poor forecasting capability. The latter type models are essentially planning models. Their function is to create a deliberate imbalance in spatial order to promote growth. In one sense their objective is more general than the term regional objective may imply. Their objective is to cause rapid growth. But at the same time, since each pole of concentration has an influence on its immediate hinterland, the objective of rapid growth is contributing to the regional objective. Whether this contribution satisfies the interests of the majority of the region's population or not is more a question of the prevailing social and economic system rather than the choice of the strategy.

A model of concentrated decentralization may lead to more equal distribution of income or further polarization of the income strata, depending on the economic system in which the model operates. An exposition of this fact is made in Appendix A using a hybrid of Harrod-Domar national accounting model and Kaldor's model of income distribution. The results of this model show that an initial emphasis on a concentrated growth strategy will produce in the long run, economic systems which have more equal distribution of income while maintaining a rate of growth.

C. SOME CLARIFICATIONS ON THE CONCEPT OF "CONCENTRATED" GROWTH AND THE 'NATIONAL' AND 'REGIONAL' SPECIALIZATION IN RELATION TO THE REGIONAL GROWTH OBJECTIVES

There has been some misdirected effort in confronting the "balanced" growth strategy with the strategy of "unbalanced" growth by equating the latter with the principle of international specialization and investment in primary production. We've abandoned the term "imbalance" in favor of the term "concentration." But we are aware that regional concentration may lead to regional specialization. Therefore, we feel that there is a need for further clarification on the difference between the concept of concentrated growth with the theory of international specialization on one hand and the international and interregional specialization on the other.

Chenery writes: "In most cases there remains a wide margin of disagreement between the advocates of international specialization and investment in primary production on the one hand, and the

proponents of 'balanced growth' and industrialization on the other."<sup>6</sup> In our argument on concentrated growth, there is no need for confrontation of the two fronts; namely, proponents of "balanced" and "unbalanced" growth, at least in the way they are classified by Chenery. The theory of concentrated growth in the sense used in this work does not imply, necessarily, international specialization, nor does it suggest investment in primary production. It may well be advantageous for a country to concentrate on what Chenery calls "industrialization" (as opposed to involvement in primary production), and still have a pattern of unbalanced or concentrated growth. The other point which makes our analysis different from that suggested so far by advocates of the "unbalanced growth" theory is its spatial dimension of the developmental scheme. A model of concentrated regional growth which implies sectoral and regional concentration may well be a rapid industrialization program. Such a program, if successful, would certainly create inequalities among the regions. But the long-run objective of the unbalanced growth is not the creation of persistent inequalities. Quite the contrary, unbalanced growth aims at promotion and inducement of activities in regions suffering from inequality. This process, however, is by no means automatic.

If the process of development is left to the private sector because of large benefits occurring to the private businesses from scale economies and external economies of concentration, the inequalities would persist indefinitely. The examples of West

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<sup>6</sup>Chenery, H. B., 25, p. 450.

Virginia in the U.S., Brittany in France and Glasgow in Scotland are witnesses to the laissez-faire operation of the market in the western capitalist world. It follows that any concentrated regional program must be made with the objective of creating shocks which can be absorbed by other regions. This implies the complementarity of the regions rather than competitiveness. The objective of a concentrated regional growth program is not the creation of a self-sustained region, but development of a regional economy operating on excessive supply of some products and deficit in some others. This pattern of development will give rise to regional specialization within the national boundaries, and in the short run may lead to some extent to national specialization. It ought to be remembered that regional specialization mentioned above is quite different from the concept of international specialization. Opponents of international specialization<sup>7</sup> may argue that the present pattern of specialization, namely that of underdeveloped countries producing primary products and developed economies specializing in manufacturing products, is imposed by the advanced countries over the international trade system, since they (developed countries) are the ones who control the world market prices and also have a lower elasticity of demand for primary products than the underdeveloped countries for manufacturing products.<sup>8</sup> Therefore, international

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<sup>7</sup>List, F., "National System," in Hirst, 59.

<sup>8</sup>Prebisch, R., 102.

specialization may result in a deterioration of the terms of trade for underdeveloped countries.<sup>9</sup> In spite of the fact that part of this argument is applicable to regional specialization within the national boundaries, there are two points which make the regional division of labor distinctive from international specialization. First, that regional specialization is not in jeopardy with the national development objective (growth of the economy as a whole), while the international specialization, following the argument of Prebisch, may well be. Second, theoretically, regional inequalities within the national boundaries can be eliminated by policy manipulation of the central government, while there is no international government to be concerned with national inequalities. Some part of the regional inequalities is caused by the resource endowments and the size of the regions. These two factors are shared in the realm of international trade as well. Some countries do have to specialize in production of some commodities because of the limited resource endowments and the small size of their national

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<sup>9</sup>Nurkse, obviously, makes two important points here: (1) the strategy of unbalanced growth is justified if the demand elasticity for exports of primary products is higher than the demand elasticity of imports of manufacturing products, i.e. favorable terms of trade for underdeveloped countries, and (2) within the framework of an "unbalanced" growth strategy, he is assuming that underdeveloped countries can only expand their primary products. The first point reduces the attractiveness of "balanced" growth theory as a general theory of growth, and the second is not a criticism of the "unbalanced" growth theory. The confusion about the contents of an "unbalanced" growth strategy stems from the fact that opponents refuse to make the distinction between the Ricardian comparative advantage type of growth in the 19th century and the modern theory of "unbalanced" growth. The historical pattern of development in the 19th century, especially

markets.<sup>10</sup> In such cases, economists have suggested economic integration,<sup>11</sup> which is nothing more than consolidation of specialized economic regions. In other words, the aim is to internalize the regional externalities in a new unit which for all practical purposes will not be different from a national economy with specialized regions.

#### D. SUMMARY AND CONCLUSIONS

The first and probably most important conclusion that may be drawn from discussions in this Chapter is that neither strictly "regional programs" with individually derived regional goals, nor the "regionalized programs" with a single national growth objective are performing to the best advantage of a country's economy, at least in the long run. A proper choice is a multi-regional growth strategy,

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in countries under colonial rule was specialization in primary products. Some underdeveloped countries today may still continue to follow this 19th century policy, and the terms of trade for their products may not be favorable to them in the foreseeable future. The theory of unbalanced growth does not prefer the expansion of any particular sector of the economy over any other. It simply says that given scarce resources, some sectors of the economy must receive priority for development. It is a sequential development strategy with no explicit reference to the order of sectoral development. The order may change for different countries, given their resources and their positions in the development path, with relation to the rest of the world.

<sup>10</sup> List, *op. cit.*, 59. He, a proponent and probably the original author of "balanced growth" theory, acknowledges that some countries have no choice but to specialize.

<sup>11</sup> Boudeville, 15.

satisfying a specified minimum measure of national growth. The second conclusion is that the degree of concentration or decentralization is a function of several variables, among them the size of the country concerned, resource availabilities and the stages of economic development. Thirdly, the resource scarcity always implies selectivity in sectoral and regional development. This condition may or may not necessitate the adoption of an "unbalanced" growth strategy. It is essentially an allocation problem. The fourth conclusion is that a strategy of concentrated decentralization may lead to more equal distribution of income or further polarization of the income strata, depending on the economic system in which the model operates. The fifth conclusion is that the strategy of concentrated decentralization is not necessarily a development policy toward specialization, although it may call for specialization in early stages of development.

Before proceeding to Chapter III on research methodology and Chapters IV and V on case studies, a summary of what we have said about the strategy of concentrated decentralization would seem appropriate.

We have argued that in the absence of planning, regional inequalities, such as income differentials, unequal distribution of factors of production, differences in wage rates, variations in size of the markets and in the level of scale economies, would always favor economic expansion of some regions over others.

The familiar argument in favor of continuation of a policy of concentrated growth is that as long as by concentrating economic activities in one or few regions, the national income is maximized, regional equalization of income will gradually be approached by the market mechanism itself via mobilization of labor from low to high wage regions and

movement of capital from low to high interest rate regions. Thus, in the long run an equilibrium position will be reached. In the real world, such equalization of regional per capita incomes over time has not yet materialized.

The long-run automatic equalization theory is based on the assumption that perfect mobility of factors of production exists. Such mobility, for one reason or another, has failed to materialize at a rate high enough to bring the situation to an equilibrium, even in the long run. This is especially true for countries whose backward regions' populations are growing at a higher natural growth rate than their developed regions. The Italian case presented in Chapter IV is a clear example of the failure of the theory over a hundred year period.

On the other hand, the supposition of a higher rate of return to the factors of production in existing centers of concentration of population and economic activities has seldom been put to a test of reliability. In a number of cases where such test has actually been performed (Guayana, for instance) the rate of return to the factors in the periphery were substantially higher than in the center.

Moreover, most developed nations have already entered an era of insurmountable difficulties caused by over-concentration of population and economic activities. Economically (if not technologically), it has become increasingly difficult to combat environmental pollution. If the diseconomies of high concentration were properly quantified, the net return on the resources used in some of the world's largest population centers might prove negative. In underdeveloped countries, such diseconomies are already in existence, while the technology and knowledge of how to eliminate them, not to mention the financial resources, are non-existent.



This, indeed, is not an argument against the policy of concentrated growth, but the recognition of the existence of some optimal level of concentration. The policy of decentralization may be pursued under two conditions: 1) when an existing center of concentration of population and economic activities has already reached the saturation level, beyond which further investment would result in a lower rate of return than that of other regions, considering all costs and benefits, and 2) when the rate of return at the center is still higher than other regions but is gradually declining. In the latter case, a policy of decentralization diverts the forces which ultimately may force the center into its decline, notably the influx of an unwanted labor force. This latter is a dynamic, not comparative static, argument, and recognizes the lags and irreversibilities inherent in many economic location decisions.

It is a well known fact that the elasticity of migration with respect to change of income at the center is greater than one, especially in underdeveloped economies. If the rate of change of income at the center is  $x$ , the rate of growth of migration to the center is  $ax$ , where  $a$  is greater than 1. The higher rate of in-migration in the center, other things (the rate of growth of income and the natural rate of growth of population) being equal, clearly means a lower rate of per capita income growth. One would expect that the lowering of the rate of per capita income growth, in turn, would result in a lowering of in-migration rate. In actuality, however, the response of the labor force is not instantaneous and "rational". The rate of in-migration remains high while the rate of per capita income growth falls, partly because of the high level of expectation of the labor force to find jobs in large market areas.

In other words, the rate of in-migration is a function of volume of output at the center rather than the rate of growth of per capita output.

In the following two case studies an attempt is made to show the decline of the centers and the possibility of expansion of some sectors in the periphery which obviously enjoy higher rate of returns on investment.

If either condition, the decline of the center or the relative advantage of some sectors in the periphery are established, the adoption of a policy of decentralization may be justified.

The policy of decentralization, however, cannot be applied by spreading investment funds thinly over a wide range of sectors and over so many regions. We have discussed in the present chapter and in Chapter I the beneficial aspects of the strategy of concentrated growth. In this context, under the capital and managerial scarcity constraints some degree of concentration within a framework of decentralization is not only desirable but necessary.

We are now in a position to define the strategy of concentrated decentralization more precisely as follows:

The strategy of concentrated decentralization is an attempt to decentralize economic activities from a previous state of centralization having used the strategy of concentrated growth to expand and develop a few peripheral regions and a few sectors within these regions which clearly show an existing economic advantage or a potential for growth.

In Chapter III an attempt is made to develop simple models for the recognition of growth potentials of sectors and regions of a national economy in order to direct the decentralization efforts to the regions holding potentials for growth and the areas of sectoral concentration within these regions.

Chapters IV and V, the case studies are concerned with the historical trend of concentrated growth policies in the absence of planning, the identification of factors contributing to regional differentials, the recognition of regions and sectors as candidates for application of the strategy of concentrated decentralization, and the behavior of the economic systems under planning conditions, and its relevance to the strategy of concentrated decentralization.

### CHAPTER III

#### RESEARCH METHODOLOGY

##### A. INTRODUCTION

Development planning is a complex matter, dealing with all kinds of variables, quantifiable and non-quantifiable in social sciences. No single method or technique is capable of handling the whole problem from the initial stage to the end. In the field of regional analysis, numerous analytical techniques have developed, ranging from simple statistical analysis to highly sophisticated mathematical and programming models, and from macro-models dealing with regional aggregates to highly detailed micro-models of interregional-intersectoral input-output analysis.

The objective of this chapter is a rather modest one, namely to introduce simple models of decision-making for the use of decision-makers in a form that can easily be understood and acted upon. These models are also designed to suit the condition of data availability at several ranges, from aggregate regional data on population and income to the detailed data on the inter-industry basis. Another objective following the design of these models is to make them flexible enough to allow a measurement of some non-economic factors as well as economic factors. This is particularly true of the multi-

regional-multisectoral-multiproject decision matrix presented in Section D of this Chapter. The models are basically static models, and the time dimension enters only in the form of period analysis and streams of costs and benefits over time.

The organization of this Chapter is as follows: In Section B, the principle of induced investment in relation to the sectoral development is explained. In Section C a static decision-making model for simultaneous selection of leading regions and leading sectors by the use of regional and sectoral growth rates in the past is exhibited. In Section D a more elaborate model for the selection of regions and sectors for investment using cost-benefit analysis is suggested. A refinement of the same model using the industrial complex analysis and a third model with additional objective function is presented later in Section D. In Section E a multiregional growth model which satisfies a certain per capita income growth rate, given the regional objectives and constraints, is developed. Finally Section F lists a number of statistical techniques for regional analyses used in the case studies.

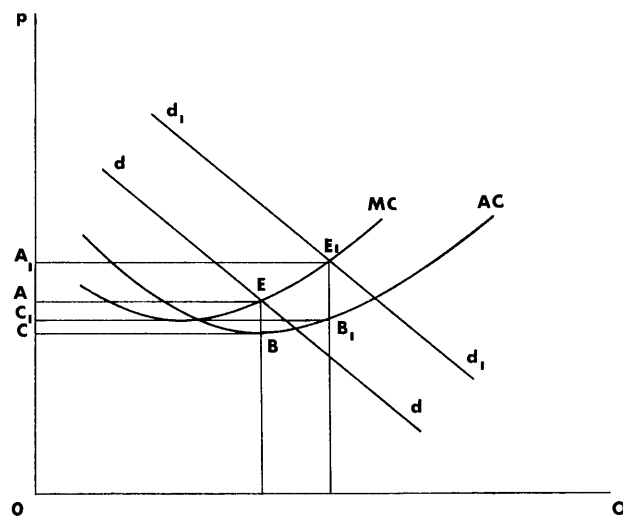
## B. THE PRINCIPLE OF INDUCED INVESTMENT

We discussed in Chapter I the principle of induced investment. The main argument was that the private sector is essentially profit-motivated, and it will not invest in the production of items above the level of effective demand. But the states, we argued, are not profit-maximizers - they can overproduce in one sector and cause shortages in others so as to induce the private sector to invest in bottleneck sectors.

The argument's validity rests entirely on the existence of "slack" in the economy. If such a condition exists, state involvement in over-production may result in an upward shift of the demand curve in other sectors. The shift of the demand curve and the rise of profits in the sector expanded by the private sector is shown in Figure III.1.

FIGURE III-1

## THE MECHANISM OF INDUCED INVESTMENT



$$\text{Increased Profit} = A_1E_1B_1C_1 - AEBC$$

For the economy as a whole, the net result of the losses suffered by the public sector and the gains enjoyed by the private sector must be positive to justify government investment.

C. A STATIC DECISION-MAKING MODEL FOR  
SIMULTANEOUS SELECTION OF LEADING  
REGIONS AND SECTORS FOR DEVELOPMENT

1. Definition of the Problem. Planning authorities in developing countries are confronted with the problem of how to choose from among various regions and sectors, those which may achieve the highest rate of growth of the national economy and the regional output.

2. Data Sources and Problems. In most underdeveloped countries, data on a regional basis are almost non-existent except for some aggregate measures, such as Gross Output, Gross Investment and the like. Ordinarily the selection of regions and sectors in countries with limited data on economic indicators is made on the basis of intuitive judgment of public officials who may not have a deep understanding of the interplay of economic forces in the development process. To cope with the problem of data scarcity, a simple static decision-making model is presented here, which is capable only of pointing out the sectoral and regional potentials for development. A final decision on the selection of regions and sectors is made only after extensive feasibility studies are made, which will be presented later as a cost-benefit analysis.

3. Analytical Technique. We use a simple criterion for the selection of regions and sectors, i.e., rate of growth of sectors and regions in the past. In other words, we are assuming that if the rate of investment remains constant, the sector with a high rate of

growth in the past will continue to grow as rapidly or even faster.

Let us assume a country with seven regions and seven major sectors. We choose the rate of growth of the gross product as the single criterion of selection. If we calculate the sectoral rates of growth in each region for an immediate time interval in the past we might obtain a matrix as is shown below:

### DECISION-MAKING MATRIX

(TABLE V-14)

|         |   | Sectors |      |      |      |      |     |     | Total |
|---------|---|---------|------|------|------|------|-----|-----|-------|
|         |   | 1       | 2    | 3    | 4    | 5    | 6   | 7   |       |
| Regions | 1 | -1.9    |      | 6.4  | -1.0 | -.8  | 7.1 | 5.9 | 5.8   |
|         | 2 | -.5     |      |      | -2.5 | .2   | 4.7 | 7.3 | 3.0   |
|         | 3 | -.1     |      |      | 5.9  | 10.1 | 6.3 | 7.2 | 5.9   |
|         | 4 | 4.5     |      |      | -1.4 | -1.5 | 7.4 | 7.5 | 6.2   |
|         | 5 | .2      |      |      | -2.3 | -2.4 | 5.0 | 7.1 | 3.0   |
|         | 6 | 1.8     | -2.7 | 12.0 | 1.6  | -2.4 | 6.6 | 8.4 | 9.0   |
|         | 7 | -1.1    | 15.1 |      | -.7  | .1   | 3.0 | 8.3 | 4.0   |
| Nation  |   | .4      | 15.3 | 7.9  | 3.5  | 5.3  | 6.3 | 7.1 | 5.8   |



Now we can define the criterion (or criteria) for the selection of sectors and regions more explicitly: 1) make an initial selection of all sectors which show a higher rate of growth than the average sectoral rate of growth at the national level; 2) choose those regions with higher rates of growth than the national average. If the above criteria are applied, regions 3, 4 and 6 are candidates for development. Region 3 has three sectors with rates of growth higher than the national-sectoral average. Region 4 also has three sectors performing better than the national average. And Sector 6 has four sectors each with a higher rate of growth than the national-sectoral average.

4. Shortcomings of the Model. The model presented above has the simplicity of revealing the picture of past trends in different sectors and regions but at the same time as any static model can do, it holds the danger of misleading planning authorities in the course of decision-making. First, there is the problem of young industries within each sector which may not yet have shown a high rate of growth, but in the course of time may do so. Secondly, few sectors within a region even with higher than average rates of growth cannot bring the regional rate of growth as high as to be considered candidates for development. Thirdly, the model does not recognize the development potential of some sectors or industries which have never been promoted in some regions, or show a low rate of growth because of under-investment. Finally, as it is characteristic of any strategy of concentrated growth, the model recommends further expansion of

already growing sectors and regions at the expense of slow-growing or depressed sectors and regions.

#### D. A DECISION-MAKING MODEL OF SIMULTANEOUS SELECTION OF REGIONS AND SECTORS FOR INVESTMENT

1. Definition of the Problem. A national development plan consists of several projects within each economic sector to be realized in various regions. The problem to be solved in this model is how to choose these developmental projects. The solution to this problem is simultaneously a solution for the selection of regions and sectors for investment.

2. Analytical Technique. We start with presenting a paradigm which has the form of a Tinbergenian regional-sectoral matrix. The original Tinbergen model consisting of three regions and five sectors is reproduced below:

MATRIX (1)

|         |   | Regions   |           |           |
|---------|---|-----------|-----------|-----------|
|         |   | 1         | 2         | 3         |
| Sectors | 1 | ${}^1y^1$ | ${}^2y^1$ | ${}^3y^1$ |
|         | 2 | ${}^1y^2$ | ${}^2y^2$ | ${}^3y^2$ |
|         | 3 | ${}^1y^3$ | ${}^2y^3$ | ${}^3y^3$ |
|         | 4 | ${}^1y^4$ | ${}^2y^4$ | ${}^3y^4$ |
|         | 5 | ${}^1y^5$ | ${}^2y^5$ | ${}^3y^5$ |

In the above matrix,  $y$ 's represent incremental incomes to the national income by each sector within each region. The superscripts at the left and right of each  $y$  represent numbers of regions and sectors respectively.

Tinbergen has suggested the matrix as a simple linear programming model. With a slight modification, however, the matrix can be turned into a decision-making model for solving the problem of selection of leading regions and sectors.

Development plans as was mentioned above usually contain a number of specific projects which can be classified under several sectors of the economy. The investment on each project must be justified by satisfying some selection-criteria.

The model presented here uses the maximum value of net benefits resulting from a combination of projects, subject to the capital constraint as the only criterion for simultaneous selection of regions and sectors. Any number of criteria, however, can be added without changing the principal format of the model.

We start with the simple benefit-cost criterion. The benefit side can be extended to the point of embracing all kinds of benefits which are economically quantifiable. These benefits are calculated for the lifetime of the project, then discounted to the present value. The concepts of scale economies, externalities and complementarities, may enter the calculation of the benefits of the projects. On the cost side, the initial investment, operation and maintenance costs over the lifetime of the project are computed. The

costs also are discounted to the present value. Any internal or external diseconomies which are predictable and quantifiable may be added to the overall costs. The net benefit figures found for different projects can be stated as:

$$B - C = v$$

If we calculate these net benefits for different industries in different regions we will have a matrix of the following form (we are keeping the number of sectors and regions the same as in Matrix 1):

MATRIX 2

|   |   | Regions   |           |           |
|---|---|-----------|-----------|-----------|
|   |   | 1         | 2         | 3         |
| Sectors/<br>or Industries/<br>or Projects | 1 | ${}^1v^1$ | ${}^2v^1$ | ${}^3v^1$ |
|   | 2 | ${}^1v^2$ | ${}^2v^2$ | ${}^3v^2$ |
|   | 3 | ${}^1v^3$ | ${}^2v^3$ | ${}^3v^3$ |
|   | 4 | ${}^1v^4$ | ${}^2v^4$ | ${}^3v^4$ |
|   | 5 | ${}^1v^5$ | ${}^2v^5$ | ${}^3v^5$ |

A numerical example may be useful in showing how the selection of leading regions and sectors is made.

The  $v$ 's in Matrix 3 represent the net benefit figures for five sectors (or industries/or projects) in three different regions.

Matrix 3, however, is not sufficient as a decision-making tool. Each sectoral development is tagged with a minimum amount of investment necessary for initiation or expansion of certain industries.

MATRIX 3<sup>6</sup>

Unit: Billions of Dollars

|         |   | Regions |     |     |     |
|---------|---|---------|-----|-----|-----|
|         |   | 1       | 2   | 3   |     |
| Sectors | 1 | .5      | .3  | .4  | 1.2 |
|         | 2 | .2      | .5  | .6  | 1.3 |
|         | 3 | 1.5     | 1.0 | .5  | 3.0 |
|         | 4 | 2.0     | 1.0 | 2.0 | 5.0 |
|         | 5 | 1.0     | .5  | .2  | 1.7 |
|         |   | 5.2     | 3.3 | 3.4 |     |

In the calculation of developmental projects, the initial investments are the most important part of the problem. Availability of capital is one constraint. The second is the problem of indivisibility and the minimum initial capacity of some projects. We attempt to show these problems by a numerical example given in Matrix 4. Each investment figure in Matrix 4 corresponds to a value  $v$  in Matrix 3. It is important to note that in spite of the fact that the candidate sectoral projects for each region are identical, the amounts of initial investments, because of regional differentials, are not. These differentials are also reflected in the  $v$  values. We have, indeed, exaggerated the differentials in  $v$  values for the purpose of more clarity in exposition of the results. The same is true for the initial investment figures.

## MATRIX 4

Unit: Billions of Dollars

|  |   | 1       | 2   | 3   |
|--|---|---------|-----|-----|
|  |   | Sectors | 1   | .10 |
|  | 2 | .10     | .10 | .12 |
|  | 3 | .50     | .65 | .25 |
|  | 4 | 1.00    | .55 | .30 |
|  | 5 | .45     | .40 | .28 |

<sup>6</sup>The values in the matrix are fictitious and have no real economic meaning.

If we divide the  $v$  values in Matrix 3 by their corresponding values of investment requirement in Matrix 4, we can make a rank-ordered list of projects according to the values of  $v^* = v/I$  such as shown in Table III-1. The larger the value of  $v^*$ , the more efficient the project is. If capital is unlimited in supply, all the projects with the value of  $v^*$  higher or equal to one (unity) can be developed. Such a selection criterion excludes only project  $P_{53}$  with the value of  $v^*$  equal to .71.

TABLE III-1

| Rank | Project Number | V Values | Required Investment = I | $V^*$ Values |
|------|----------------|----------|-------------------------|--------------|
| 1    | $P_{13}$       | .4       | .05                     | 8.00         |
| 2    | $P_{43}$       | 2.0      | .30                     | 6.66         |
| 3    | $P_{11}$       | .5       | .10                     | 5.00         |
| 4    | $P_{22}$       | .5       | .10                     | 5.00         |
| 5    | $P_{23}$       | .5       | .12                     | 4.16         |
| 6    | $P_{12}$       | .3       | .08                     | 3.75         |
| 7    | $P_{31}$       | 1.5      | .50                     | 3.00         |
| 8    | $P_{33}$       | .6       | .25                     | 2.40         |
| 9    | $P_{51}$       | 1.0      | .45                     | 2.22         |
| 10   | $P_{41}$       | 2.0      | 1.00                    | 2.00         |
| 11   | $P_{42}$       | 1.0      | .55                     | 1.81         |
| 12   | $P_{32}$       | 1.0      | .65                     | 1.53         |
| 13   | $P_{52}$       | .5       | .40                     | 1.25         |
| 14   | $P_{21}$       | .2       | .12                     | 1.66         |
| 15   | $P_{53}$       | .2       | .28                     | .71          |

Now let us introduce one constraint into the model. Suppose that the total investment funds are 1.00 units (billions of dollars). The decision-maker starts with the project ranked 1 in Table III-1 and distributes investment funds in descending order until he runs out of capital. In the example given above, when the decision-maker reaches the ninth project in Table III-1,  $P_{51}$ , the total amount of investment funds allocated is 1.88 units of capital, and the next project,  $P_{41}$ , needs 1.00 units of investment. Suppose that because of the indivisibility problem, it is not possible to make partial investment (.12 units of the remaining investment funds) in projects  $P_{41}$ ,  $P_{42}$ ,  $P_{32}$ , and  $P_{52}$ . Hence, the project ranked fourteenth in Table III-1, which uses exactly .12 units of investment but is lower in ranking than the four previous projects can be chosen to complete the list of selected projects. If the decision-maker does this, within his 1.0-unit hypothetical budget, he will be able to develop the projects shown by 'x's in Matrix 5.<sup>7</sup>

---

<sup>7</sup>The simple maximization problem in the case above can be stated as follows:

$$\text{Max. } \sum_{x=1}^x v^*_x \text{ subject to the constraint } I = 1.0. \text{ The}$$

solution of the above problem in:  $v^*_x = v^*_{13} + v^*_{43} + v^*_{11} + v^*_{22} + v^*_{23} + v^*_{12} + v^*_{33} = 4.8$  which satisfies the constraint. Summing up the amounts of corresponding investment required for the selected project we will have  $I_{13} + I_{43} + I_{11} + I_{22} + I_{23} + I_{12} + I_{33} = 1.0$ . Any other combination in this case proves to be sub-optimal.

MATRIX 5

|         |   | Regions |   |   |
|---------|---|---------|---|---|
|         |   | 1       | 2 | 3 |
| Sectors | 1 | X       | X | X |
|         | 2 |         | X | X |
|         | 3 |         |   | X |
|         | 4 |         |   | X |
|         | 5 |         |   |   |

### 3. Some Suggestions on Further Refinements of the Model.

There is a major problem in defining net benefits on a project-by-project basis, because this procedure does not take into account the inter-relationships of the projects and the economies resulting from them. Thus, it would be more appropriate to lump inter-related projects or complementary sectors and evaluate the composite value of net benefits for the package projects or sectors rather than on an individual project basis. This kind of analysis, known as industrial complex analysis, will also allow us to deal with inter-regional complementarity as well as inter-sectoral interdependency. The net benefits of each package accrued to a single region or a number of regions can be shown in a matrix such as Matrix 6.





To overcome this problem, several combinations of intersectoral and interregional projects in terms of their net benefits could be analyzed. There, indeed, would be one maximum net benefit among various combinations, but the existence of non-optimal combinations will make the selection procedure more flexible in similar conditions as described in the example given for the case of project-by-project selection.

In previous analyses, we introduced only the capital constraint matrix. Theoretically, however, it is possible to introduce as many objectives as well as constraints as may exist. The existence of the optimal solutions, indeed, is not guaranteed. In the development of such decision-making models we are aiming at satisficing, rather than maximizing, and looking for compromise schemes rather than absolute solutions.

In what follows, we will introduce a short-run objective, i.e., an employment target which may have been set up not necessarily for economic reasons, but mostly because of political and social pressures.

Note that this objective could have been incorporated in the calculation of costs and benefits of the projects, but since the net benefits are calculated for the lifetime of the project(s), a short-run employment objective, even if weighted very heavily in the initial years of the projects would not affect the result as much as to shift the selection entirely from one set of projects to another.

Let us assume that the employment target for a short-term of a five year planning period is set up as  $E^* = 10$  unit (1000's) increments.

In Matrix 7 the employment capacity of each project for the same time interval is shown.

MATRIX 7

|         |   | Regions |     |     |
|---------|---|---------|-----|-----|
|         |   | 1       | 2   | 3   |
| Sectors | 1 | 3.0     | .5  | 1.0 |
|         | 2 | 5.0     | .2  | 2.0 |
|         | 3 | 2.0     | 1.0 | 3.0 |
|         | 4 | 1.0     | 1.0 | .5  |
|         | 5 | 1.0     | .2  | .1  |

Our maximization solution in the example given before results in the selection of  $P_{13}$ ,  $P_{43}$ ,  $P_{11}$ ,  $P_{22}$ ,  $P_{12}$ , and  $P_{33}$ . The total employment capacity created by these projects in the short-run is as follows:  $E_{13} + E_{43} + E_{11} + E_{22} + E_{23} + E_{12} + E_{33} = 1.0 + .5 + 3.0 + .2 + 2.0 + .5 + 3.0 = 10.2$ . Thus the maximization solution has over-satisfied the employment objective in the above case. But consider the case of Matrix 8.

## MATRIX 8

|         |   | Regions |     |     |
|---------|---|---------|-----|-----|
|         |   | 1       | 2   | 3   |
| Sectors | 1 | 1.0     | .5  | 1.0 |
|         | 2 | 5.0     | .3  | 1.0 |
|         | 3 | 1.0     | 1.0 | 1.0 |
|         | 4 | .5      | 3.0 | 1.0 |
|         | 5 | 6.7     | 2.0 | 1.0 |

In this example the solution to maximization of  $v$  does not satisfy the employment objective. The aggregate value for employment is 5.8 or slightly more than half the stated target figure.

The problem, indeed, is insoluble if we insist on maximization of the net benefits. But a compromised solution exists if we satisfy primarily the employment objective and accept a minimum loss in net benefits. If projects  $P_{13}$ ,  $P_{43}$ ,  $P_{11}$ , and  $P_{51}$  are selected, the investment constraint and employment objective are satisfied, while the net benefit is no longer a maximum.

The employment objective was added for an exposition of how one can find a compromised solution in a case with more than one objective. Obviously the same procedure may be pursued for finding satisficing solutions to problems with any number of objectives and constraints.

## E. A MULTI-REGIONAL GROWTH MODEL

### 1. Definition of the Problem.

An attempt is made to develop a satisficing model which satisfies a certain per capita rate of growth of the national income with reference to the regional components in the over-all growth rate.

### 2. Mathematical Structure of the Model.

We consider a country with  $r$  regions. The national income of this country can be written as follows:

$$(1:1) \quad Y = Y_1 + Y_2 + \dots + Y_r$$

Dividing Equation (1:1) by  $Y$  we can write:

$$(1:2) \quad \frac{Y}{Y} = \frac{Y_1}{Y} + \frac{Y_2}{Y} + \dots + \frac{Y_r}{Y}$$

Let the percentage share of each region in national income be called  $\gamma_1, \gamma_2, \dots, \gamma_r$  respectively.

Then Equation (1:2) may be rewritten as:

$$(1:3) \quad 1 = \gamma_1 + \gamma_2 + \dots + \gamma_r$$

Multiplying both sides of Equation (1:3) by  $Y$  we will have:

$$(1:4) \quad Y = Y (\gamma_1 + \gamma_2 + \dots + \gamma_r)$$

Let us also assume that the national income  $Y$  grows at annual rate  $g$ , and the regional incomes grow at  $g_1, g_2, \dots, g_r$  respectively.

Assuming a linear growth, the total national income in time ( $t$ ) will be

$$(1:5) \quad Y(1 + g)^t = Y[\gamma_1(1 + g_1)^t + \gamma_2(1 + g_2)^t + \dots + \gamma_r(1 + g_r)^t]$$

In the same way as was shown for national income, we can write the following equation for national population as follows:

$$(1:6) \quad N(1+n)^t = N[\lambda_1(1+n_1)^t + \lambda_2(1+n_2)^t + \dots + \lambda_r(1+n_r)^t]$$

where

$N$  = national population

$n$  = annual rate of population growth

$\lambda$  = percentage share of regional population

The rate of growth of national income for the planning period ending at the year  $t$  can be written as a difference equation of the (1:5):

$$(1:7) \quad g^* = \frac{Y[(1+g)^t - 1]}{Y} \quad \text{or} \quad g^*Y = Y[(1+g)^t - 1]$$

$$\text{and} \quad g^*Y = Y[\lambda_1(1+g_1)^t + \lambda_2(1+g_2)^t + \dots + \lambda_r(1+g_r)^t - 1]$$

The same type of equation may be written for the rate of growth of population by writing a differential equation for (1:6):

$$(1:8) \quad \frac{n^*N}{N} = \frac{N[(1+n)^t - 1]}{N} \quad \text{or} \quad n^*N = N[(1+n)^t - 1]$$

$$\text{and} \quad n^*N = N[\lambda_1(1+n_1)^t + \lambda_2(1+n_2)^t + \dots + \lambda_r(1+n_r)^t - 1]$$

Dividing both sides of Equations (1:7) and (1:8) by  $Y$  and  $N$  respectively we will have two equations for the rates of growth of national income and population.

$$(1:9) \quad g^* = [\gamma_1(1 + g_1)^t + \gamma_2(1 + g_2)^t \\ + \dots + \gamma_r(1 + g_r)^t - 1]$$

and

$$(1:10) \quad n^* = [\lambda_1(1 + n)^t + \lambda_2(1 + n_2)^t \\ + \dots + \lambda_r(1 + n_r)^t - 1]$$

We define per capita national growth rate for the planning period as:

$$(1:11) \quad \eta = g^* - n^*$$

Substituting the values of  $g^*$  and  $n^*$  from Equations (1:9) and (1:10) and writing it in a more general form we can write the satisficing problem as follows:

$$(1:12) \quad \text{Satisfy } \eta = \sum [\gamma_r(1 + g_r)^t - 1] - [\lambda_r(1 + n_r)^t - 1] \\ (r = 1, 2, \dots, r)$$

subject to the constraints:

1)  $\eta \geq \eta^*$  where  $\eta^*$  is a minimum acceptable national per capita income rate of growth

and

$$2) \quad \min. \sum_{r=1}^r (\gamma_r/\lambda_r - 1)^2$$

Replacing  $g_r$  by Harrod's rate of growth,  $g_r = s_r \cdot \frac{1}{v_r}$ , we can rewrite Equation (1:12) in the following form:

$$(1:13) \quad \text{Satisfy } \eta = \sum [\gamma_r (1 + \frac{s_r}{v_r})^t - 1] - \\ [\lambda_r (1 + n_r)^t - 1] \\ (r = 1, 2, \dots, r)$$

subject to the constraints:

- 1)  $\eta \geq \eta^*$  and
- 2)  $\min. \sum_{r=1}^r (\gamma_r / \lambda_r - 1)^2$

Two points should be clarified. First, constraint (1) means that the transfer of investment funds or savings of one region to the others is permissible as long as the rate of growth of the national income does not fall below a certain level ( $\eta^*$ ). Second, constraint (2) which is a welfare objective states that the deviation of regional per capita incomes from the national per capita income be minimized. Since we are using the ratio of percentage share of regional income over percentage share of regional population in the above formulation, the national index is always equal to unity.

Another way of stating the problem is to write:

$$(1:14) \quad \min. \sum_{r=1}^r (\gamma_r / \lambda_r - 1)^2$$

subject to the constraint:

$$[\gamma_r (1 + \frac{s_r}{v_r})^t - 1] - [\lambda_r (1 + n_r)^t - 1] \geq \eta^*$$

### 3. Operational Properties of the Model

Since the model is sensitive to the savings rate, the capital-output ratio, and the rate of population growth, the constraint in formulation (1:14) will set the pace for transfer of savings to the various regions.

In cases where domestic savings would satisfy the national per capita



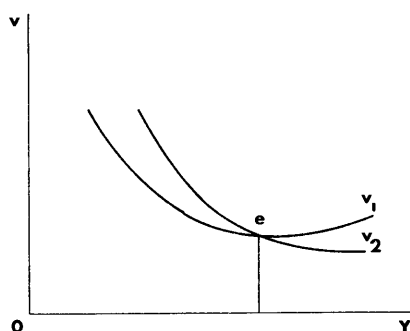
income growth rate ( $\eta^*$ ), the transfer of savings is an interregional flow of investment funds. But when the total national savings cannot achieve the rate of growth  $\eta^*$ , the low savings rate of some regions must be supplemented by borrowing from abroad.

The behavior of the model will be as follows:

- 1) Regions with the ratio  $\gamma/\lambda$  higher than unity will transfer part of their savings to regions with the ratio  $\gamma/\lambda$  below unity up to the point where  $\gamma_r/\lambda_r = 1$ .
- 2) Regions with higher savings rates will transfer part of their savings to regions with lower savings rate.
- 3) Regions with lower capital-output ratios are potentially capable of transferring part of their savings to regions with higher capital-output ratios.
- 4) The sensitivity of the model to the rate of growth of population is reflected in the ratio  $\gamma_r/\lambda_r$ .
- 5) The constraint stated in the formulation (1:14) sets the degree of trade-off between concentrated growth (a higher rate of growth) and decentralization (a step toward regional income equality). The concentration of investments in regions with a higher percentage share of income ( $\gamma_r$ ), a lower percentage share of population ( $\lambda_r$ ), a higher savings rate and a lower capital-output ratio results in a higher rate of growth. If the problem were stated as a maximization of the per capita national rate of growth, the concentrated growth strategy would be pursued until the capital-output ratio in the center falls below that of the periphery, thus justifying decentralization. This case is shown in Figure III-2. The curves  $v_1$  and  $v_2$  depict a hypothetical variation of capital-output ratios, overtime, for regions 1 (center) and 2 (periphery) respectively. The

maximization problem would suggest the investment of all the funds in region 1 to the left of point e, and diversion of all investment funds to region 2 to the right of point e. This case may be called a sort of spatial decentralization.

FIGURE III-2  
A CASE FOR SPATIAL DECENTRALIZATION



But it hardly makes any sense since, socially and politically as well as economically, it is impossible to divert all the investment funds from a center with high concentration of economic activities to the periphery.

The maximization model, however, may be useful if expanded to a level of disaggregation where it deals with capital-output ratios in various industries. Then, the policy of decentralization can be applied to those industries in the periphery showing lower capital-output ratios.

In the formulation presented above, the welfare objective (minimization of regional income inequalities) would allow some degree of decentralization. The degree of decentralization is obviously given by the value of  $\eta^*$ .

The value of  $\eta^*$ , however, cannot be determined by economic criteria alone. A high rate of growth and some degree of decentralization are both socially and politically desirable. Therefore, the choice of an appropriate national rate of growth ( $\eta^*$ ) is a political decision.

What the model can offer, to make such decision-making simpler and

more sensitive to regional economic conditions is an exposition of the degree of trade-off between the higher rate of growth and the higher degree of regional income equalities.

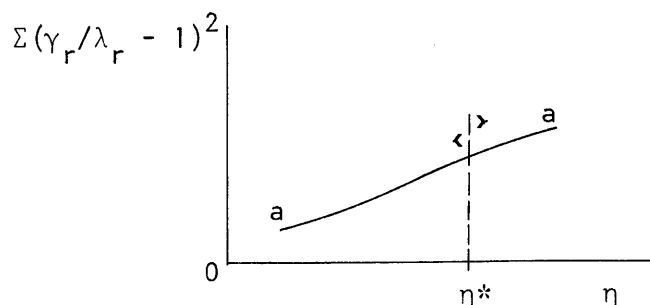
The ideal curve lies entirely on the horizontal coordinate in Figure III-3, where for any value of  $\eta$ , the expression  $\sum(\gamma_r/\lambda_r - 1)^2 = 0$ .

The model can present different rates of growth ( $\eta$ ) which achieve various degrees of regional income disparities. It is sensible to assume that higher rates of growth can be achieved by higher degrees of regional income inequalities. The hypothetical curve *aa* in Figure III-3 shows the deviation of the curvature from the ideal line (abscissa) by applying different rates of growth.

The rate of growth  $\eta^*$  should lie somewhere on this curve. The model is only capable of showing to the decision maker the degree of trade-off which ought to be made between the higher rate of growth and the higher degree of regional income equalities.

FIGURE III-3

A CASE FOR CONCENTRATED DECENTRALIZATION



It is then a case where a decision-maker chooses a lower rate of growth to allow for some degree of decentralization that we call a strategy of concentrated decentralization.

## F. STATISTICAL TECHNIQUES USED IN ANALYSES OF THE DATA

Several statistical techniques and methods of calculation are used in the analyses of the data related to the case studies. These techniques and methods are listed below:

### 1. Percentage Share Analysis

The percentage share of several variables in their respective larger entities is calculated according to the formula:

$$(2:1) \quad \phi = \frac{X_i}{X}$$

where

$X_i$  is the regional share of factor  $X$  in the nation; or it is the share of a sector in the regional income, etc., and

$X$  is the total value of the factor at the national level, regional level, etc.

### 2. Rate of Growth

The rates of growth for all variables considered in the statistical analyses are computed according to the following formula:

$$(3:1) \quad \delta = \left[ \sqrt[n]{\frac{X_t}{X_0}} - 1 \right] \times 100$$

where

$\delta$  = compounded rate of growth,

$X_t$  = the value of the variable at time  $t$ ,

$X_0$  = the value of the variable at time 0 and

$n$  = the number of years between time  $t$  and 0

### 3. Index of Prosperity

The index of prosperity used in the data analyses can be expressed in the following form:

$$(4:1) \quad \zeta = \frac{\frac{Y_r}{Y}}{\frac{N_r}{N}}$$

where

$Y_r$  is the income of the region (or sub-region),  
 $Y$  is the national income (or regional income),  
 $N_r$  is population of the region (or sub-region), and  
 $N$  is population of the country (or region).

Equation (4:1) can be written as

$$(4:2) \quad \zeta_r = \frac{Y_r}{N_r} \cdot \frac{N}{Y}$$

where

$\frac{Y_r}{N_r}$  is the regional (or sub-regional) per capita income

Stating  $\frac{Y_r}{N_r}$  as  $\bar{Y}_r$  we can write the equation (4:2) as

$$(4:3) \quad \zeta = \bar{Y}_r \cdot \frac{N}{Y}$$

### 4. Index of Capital Intensity

An index of capital intensity  $\sigma$  for various sectors is established according to the following formula:

$$(5:1) \quad \sigma = \frac{K_i/K}{L_i/L}$$

where

$K_i$  is the amount of capital stock in Sector  $i$ ,

$K$  is the amount of total capital stock in the economy,

$L_i$  is the number of active population in Sector  $i$ , and

$L$  is the number of active population in all economic activities

Equation (5:1) can be simplified and be written as follows:

$$(5:2) \quad \sigma = \frac{K_i}{L_i} \cdot \frac{L}{K} \quad \text{or}$$

$$(5:3) \quad \sigma = k_i \cdot \frac{L}{K}$$

where

$k_i$  is the capital-labor ratio in Sector  $i$ .

5. Ratio of Percentage Distribution of the Gross Fixed Investment to the Percentage Distribution of Gross Product. The formula used is as follows:

$$(6:1) \quad \tau = \frac{I_i/I}{Y_i/Y} \quad \text{or}$$

$$(6:2) \quad \tau = \frac{I_i}{Y_i} \cdot \frac{Y}{I}$$

where

$I_i$  is the gross fixed investment in Sector  $i$ ,

$I$  is the total gross fixed investment,

$Y_i$  is the gross product in Sector  $i$ , and

$Y$  is the total gross product

## 6. Ratio of the Percentage Change in Net Product to the Percentage Change in Net Investment

It is assumed that a linear function exists between the level of investment and the level of output.

This function in a general form can be expressed as follows:

$$(7:1) \quad Y_t = f(I_{t-1})$$

where

$Y_t$  is income at time  $t$ , and

$I_{t-1}$  is investment at time  $t-1$ .

Differentiating Equation (5:1) with respect to time, we will have:

$$(7:2) \quad \frac{Y_{t+1} - Y_t}{Y_t} = \epsilon \left[ \frac{I_t - I_{t-1}}{I_{t-1}} \right]$$

The elasticity  $\epsilon$  then, can be written as:

$$(7:3) \quad \epsilon = \frac{\frac{Y_{t+1} - Y_t}{Y_t}}{\frac{I_t - I_{t-1}}{I_{t-1}}} \quad \text{or}$$

$$(7:4) \quad \epsilon = \frac{Y_{t+1} - Y_t}{I_t - I_{t-1}} \cdot \frac{I_{t-1}}{Y_t}$$

## 7. Rank-Size Technique

The formula used for rank-size analysis is as follows:

$$(8:1) \quad N_n^\theta = N_1/n$$

where

$N_1$  is the population of the largest or first-ranking city,

$N_n$  is the population of the city of rank  $n$ , and

$\theta$  is a constant

whence it follows that

$$(8:2) \quad \log n = \log N_1 - \theta \log N_n$$

so that a plot of rank against size on double-logarithmic paper would give a straight line with the slope of  $-\theta$ .

### 8. Regression Analysis

In order to observe and predict the behavior of some inter-related economic variables, a linear equation of the form

$$(9:1) \quad Y = a + bx$$

is fitted to several pairs of data in the statistical analyses of the two case studies.

To fit a straight line to data consisting of paired observations of two variables  $x$  and  $Y$ , the method of least squares is used.

The numerical values of the constants  $a$  (the point of intercept) and  $b$  (the slope of the regression line) are found according to the following formulas:

$$(9:2) \quad a = \frac{(\Sigma y)(\Sigma x^2) - (\Sigma x)(\Sigma xy)}{n(\Sigma x^2) - (\Sigma x)^2}$$

$$(9:3) \quad b = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{n(\Sigma x^2) - (\Sigma x)^2}$$

### 9. The Coefficient of Correlation

To describe how well a regression line, obtained by the use of least squares method fits the data, we compare the sum of the squares of the vertical deviations from the least-squares line with the sum of the squares of the deviations of the  $y$ 's from their mean. The degree of the 'goodness of fit' is measured by  $r$  (coefficient of correlation) according to the following formula:



$$(10:1) \quad r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{n(\Sigma x^2) - (\Sigma x)^2} \sqrt{n(\Sigma y^2) - (\Sigma y)^2}}$$

The values found for coefficients of correlation are checked against the levels of significance of  $\alpha/2 = .025, .010$  and  $.005$  for selected values of  $n$  (number of samples in observation). The null hypothesis of no correlation at the level of significance  $\alpha$ , then, is rejected if the value of  $r$ , calculated for a set of data is less than or equal to  $-\alpha/2$  or greater than or equal to  $\alpha/2$ . If the value obtained for  $r$  falls between  $-\alpha/2$  and  $\alpha/2$ , the correlation coefficient is considered not significant, and the value of  $r$  can be attributed entirely to chance.

## CHAPTER IV

THE EMERGENCE OF THE STRATEGY OF CONCENTRATED  
DECENTRALIZATION IN THE CONTEXT OF THE  
REGIONAL DEVELOPMENT PLAN FOR MEZZOGIORNO, ITALY

## A. INTRODUCTION

The purpose of this Chapter is to review and survey the historical and recent planning activities in Mezzogiorno, Italy by use of various statistical techniques, in order to find answers to the following questions:

1. What are the objectives of the Mezzogiorno development program?
2. What strategies and policies have been selected toward the achievement of planning objectives?
3. How successful have the plans been in the short-run? Is there any prospect of better performance in the long-run?
4. Is there any indication of a tendency toward adoption of a strategy of "concentrated decentralization" as a result of recent experiences in regional planning in Mezzogiorno?

FIGURE IV-1  
ITALY  
POPULATION DENSITY  
NUMBER OF INHABITANTS PER SQUARE KILOMETER

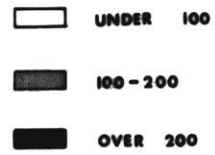
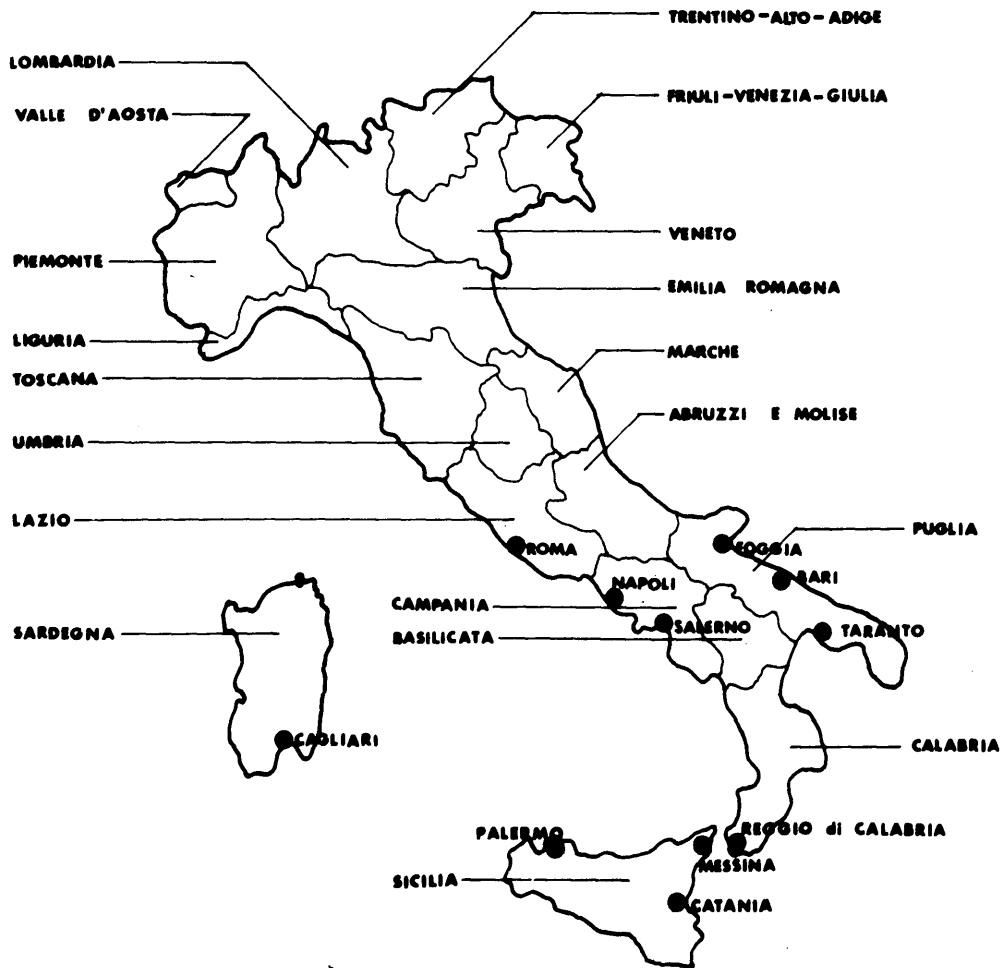


FIGURE IV-2  
 ITALY  
 REGIONAL BOUNDARIES AND CENTERS



B. THE HISTORY OF REGIONAL ECONOMIC  
DEVELOPMENT IN MEZZOGIORNO

1. A Brief Review of the Historical Background. From Greek and Roman times, through the Middle Ages and the Renaissance, Mezzogiorno had been characterized as a rich agricultural region. During the Napoleonic era, it was viewed as a granary and Napoleon tried to implement land reforms to increase agricultural production.<sup>1</sup> Until the unification of Italy in 1861, Mezzogiorno was ruled by the Bourbons as the Kingdom of Two Sicilies, and during this time, a budding industrial sector had developed to the extent that employment figures for the year 1861 showed a larger percentage of the working population in industry, transport and communication in Mezzogiorno (30.4%) than in the North (25.8%).<sup>2</sup> At this time, the population of Mezzogiorno was 39 percent of the total population of Italy.<sup>3</sup>

With the unification of Italy, the industrial sector of Mezzogiorno disintegrated with the abolition of internal tariffs and the lowering of external tariffs.<sup>4</sup> The free trade policy was abandoned in the 1870's, but industrial development henceforth would benefit mainly the North.

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<sup>1</sup>Wadsted, 139, pp. 35-36.

<sup>2</sup>Rosenstein-Rodan, 116, p. 5.

<sup>3</sup>Wadsted, 139, p. 53.

<sup>4</sup>Rosenstein-Rodan, 117, p. 12.

In this last century, Mezzogiorno has been plagued by all the economic characteristics of an underdeveloped country: an agrarian surplus population, open and disguised unemployment, a low income per head (\$180), in 1955, as opposed to the national average (\$350) and that of the North (\$450), and a rate of growth that is lower than the rest of the country.<sup>5</sup>

Although Mezzogiorno covers 40 percent of the area of Italy, and its population is 37.2 percent of the total Italian population, its percent of the national income in 1951 was 21.7 percent, and its net industrial production was 13.6 percent of the Italian total. Although the rates of population growth for the two major regions are about equal, the natural growth rates in Mezzogiorno have always been higher, and out-migration rates have been high enough to equalize the total population growth rates of the two regions.

As early as the beginning of the 1950's over 50 percent of the working population of Mezzogiorno was engaged in agriculture and slightly more than 25 percent in industry, transport and communications. At the same time, about 35 percent of the North's population was employed in agriculture and 40 percent in industry, transport and communication. Private investment in the South accounted for 40 percent of total investment while 75 percent of the total investment in the North was made by the private sector.

By 1950, while the Italian economy as a whole was surpassing all the conventional standards of underdevelopment, the South had

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<sup>5</sup>Rosenstein-Rodan, 117, p. 12.

remained a backward region within a developed economy.

The regional differentials had reached an intolerable threshold. The potential for a social and political explosion could be felt in the Italian atmosphere. An urgent need for remedial action was recognized by all political groups from extreme left to the right of center.

2. Recent Development Planning Activities. The problem of underdevelopment of Mezzogiorno has been a standard political topic for at least fifty or sixty years after 1890.<sup>6</sup> By the industrialization of Italy in this century, the problems of the South have become more apparent. In spite of much political discussion, no developmental programs evolved until 1950, by the establishment of The Cassa per il Mezzogiorno. In 1955, the Ten-Year Economic Development Program (Vanoni Plan), presented by the Italian Government, aimed at three main objectives: (1) "to achieve full employment for which purpose 4 million new jobs have to be created; (2) to achieve a rate of growth of 5 percent per annum in GNP, and (3) to reduce the inequality between Northern and Southern Italy."<sup>7</sup>

By 1961, the Italian economy as a whole was in serious trouble. Wages began to rise, bank credits rose rapidly and a consumption boom created shortages. In 1963, by forbidding banks

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<sup>6</sup>Rosenstein-Rodan, 16, p. 5.

<sup>7</sup>Ibid., p. 2.

to borrow from abroad, reserves could not be protected any more. "Food imports reached record levels. Some capital fled abroad, and by March 1964 devaluation was being seriously mooted."<sup>8</sup>

Meanwhile, the third objective of the Vanoni Plan never came close to reality, not to mention "a large fall in the rate of expansion of real gross national product to 2.7 percent in 1964."<sup>9</sup> As a result, the 1965 Economic Plan (Five-Year Plan) was designed to lubricate the wheels of a slowing-down economy. But the stated objectives of the Plan had to satisfy the political mood of the country, and as a result, they were explicitly geared to the ideology of attaining "substantial" equality between incomes in industry and agriculture on one hand, and closing the gap between incomes in the backward areas, in particular the Mezzogiorno, and the rest of the country.<sup>10</sup>

The emphasis in the Five-Year Plan (1965-70) was placed "on the structural reforms necessary for balanced growth rather than on an increased rate of growth,"<sup>11</sup> although the Plan sets the target rate of growth for the average annual increase in Italy's gross national product at 5 percent.

As a general strategy toward the objective of rapid growth

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<sup>8</sup> EIU, 135, p. 1.

<sup>9</sup> Ibid., p. 11.

<sup>10</sup> Ibid., p. 3.

<sup>11</sup> Ibid., p. 3.



in the South, the industrialization of the Mezzogiorno from the time of the establishment of The Cassa per il Mezzogiorno has been the main theme of the developmental programming in any single national economic plan of Italy. But the 1965 Economic Plan has more explicit and adequately developed regional policies for the achievement of this goal.

The EIU Report prepared by the Economist Intelligence Unit points to the fact that:

One of the worst problems encountered in the initial stages of development work in the Mezzogiorno was that of dispersion of effort: too many people and places chasing large but necessarily limited resources for local development. A considerable step towards curtailing this dispersion of money and effort was the decision in 1957 to recognize specific districts as Areas for industrial development and smaller zones as Nuclei for industrialization. This decision was reinforced by further measures enacted in 1959, 1961 and 1962, which strengthened investment incentives and improved the control of activities in the Areas and Nuclei.<sup>12</sup>

These considerations, which clearly indicate the tendency of economic planning toward the adoption of a strategy of "concentrated decentralization," were further pursued by the Common Market authorities in developing a sectoral expansion program in the case of the Apuglian growth pole.<sup>13</sup>

The purpose of the statistical analyses which follow in this

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<sup>12</sup>EIU, 135, p. 8

<sup>13</sup>ibid., p. 13.

Chapter, however, is not a detailed analysis of the regional-sectoral structure of the Mezzogiorno and its sub-regions, but is mostly concerned with the behavior of some macro-economic variables during 1950-1960 and in some cases beyond 1960, which led to the idea of the adoption of a "concentrated decentralization" strategy with reference to such objectives as rapid growth of the South via industrialization and reduction of the regional inequalities.

The statistical analyses of economic variables in a short period (about ten years) must always be accompanied by all kinds of reservations and qualifications, when the objectives of the developmental programs are of a long-run nature. This has been done throughout this Chapter for most of the following statistical analyses, and as a general concern, it must be extended to all findings represented in this work.

### C. STATISTICAL ANALYSES OF DATA

1. Growth of Population and Product. The population of Mezzogiorno as a percentage of the North declined from 64.0 percent to 57.9 percent over a century, 1861-1961. In the same period, Mezzogiorno's share of the national population dropped from 39.0 percent (in 1861) to 36.9 percent (in 1961). This period, however, was not characterized by a straight line sloping downward. A sharp decline in percentage share of Mezzogiorno's population occurred between 1861 and 1936, from 39.0 percent to 35.3 percent.

TABLE IV-1

POPULATION OF MEZZOGIORNO BY  
SUB-REGIONS, FOR SELECTED YEARS

|                  | 1861   | 1936   | 1951   | 1953   | 1959   | 1961   | 1963   | 1964   |
|------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Mezzogiorno      | 9,768  | 15,030 | 17,380 | 17,410 | 19,455 | 18,576 | 18,787 | 18,979 |
| Abruzzi & Molise | 1,213  | 1,546  | 1,615  | 1,623  | 1,685  | 1,564  | 1,562  | 1,569  |
| Campania         | 2,626  | 3,645  | 4,308  | 4,374  | 4,794  | 4,760  | 4,866  | 4,937  |
| Puglia           | 1,313  | 2,632  | 3,186  | 3,263  | 3,478  | 3,421  | 3,467  | 3,516  |
| Basilic          | 493    | 532    | 613    | 617    | 666    | 644    | 638    | 640    |
| Calabria         | 1,140  | 1,721  | 1,974  | 1,996  | 2,166  | 2,045  | 2,046  | 2,058  |
| Sicilia          | 2,392  | 3,929  | 4,418  | 4,479  | 4,832  | 4,721  | 4,773  | 4,809  |
| Sardegna         | 588    | 1,025  | 1,264  | 1,291  | 1,437  | 1,419  | 1,433  | 1,448  |
| North            | 15,249 | 27,436 | 29,358 | 29,630 |        | 32,046 |        |        |
| ITALY            | 25,016 | 42,445 | 46,738 | 47,040 |        | 50,623 |        |        |

Source: Data for 1861, 1936 and 1951 are taken from Wadsted, 139, Table 2 MZ. Data for 1953 are estimated on the basis of extrapolation of 1936 population to the year 1953 using the percentage growth rate between 1936 and 1951.

TABLE IV-2

POPULATION OF MEZZOGIORNO  
AS PERCENTAGE OF THE NORTH AND ITALY  
FOR SELECTED YEARS

|                            | 1861 | 1936 | 1951 | 1961 |
|----------------------------|------|------|------|------|
| Population of Mezzogiorno  |      |      |      |      |
| As Percentage of the North | 64.0 | 54.7 | 59.2 | 57.9 |
| As Percentage of Italy     | 39.0 | 35.3 | 37.1 | 36.9 |

Source: Table IV-1.

In the same time interval, Mezzogiorno's population as a percentage of the North declined from 64.0 percent to 54.7 percent. The period between 1936 and 1951 witnessed an increase in the region's population. In 1951, Mezzogiorno contained 37.1 percent of the national population and its population as a percentage of the North rose from 54.7 percent (in 1936) to 59.2 percent. This trend was reversed in the decade 1951-1961. In 1961, Mezzogiorno's population as a percentage of the North and as a percentage of Italy was 57.9 and 36.9 respectively. The conclusion may be drawn from the data that, if population increase of a region is an indication of economic growth, Mezzogiorno, during the 1936-51 period has been recovering from the economic decline suffered after unification in 1861. Judging from population data, the second setback for Mezzogiorno was experienced after World War II in the "Big Push" period for reconstruction and revival of the North's industrial power, implying

that Mezzogiorno's problems of underdevelopment, though historical, had become accentuated in the 1950's.

The data on regional income growth, however, does not support the hypothesis that Mezzogiorno's population growth in the period 1936-51 was due to economic growth. Mezzogiorno's income between 1928 and 1938 rose by .6 percent per annum, while that of the North increased by 1.1 percent per annum (Table IV-3). In the years of decline for the Italian economy in 1938-48, Mezzogiorno's Gross Product decreased by 1.5 percent per year, two and one half times faster than the North. In a short period after the war (1948-51) the rate of growth of income in the South was slightly below that of the North (7.1 vs. 7.3), but it fell sharply during the 1950's. Mezzogiorno's income in this decade grew at 4.6 percent per annum, while that of the North increased by 6.2 percent.

The data on population reveal that in the period of decline of Mezzogiorno's income, the population of the region grew one and one half times as fast as the population of the North. The rates of growth of population for Mezzogiorno and the North in the period 1936-51 were .9 and .6 per annum respectively (Table IV-4). In other words, when the two variables combined are analyzed, Mezzogiorno's per capita income gap with the North has increased more than three times in this period.

The widening of the per capita income differential between the South and the North during this period can be attributed to two major factors, 1) the inefficiency and underinvestment in Southern

TABLE IV-3  
 RATES OF GROWTH OF REGIONAL INCOMES -  
 MEZZOGIORNO, NORTH AND ITALY FOR SELECTED PERIODS

|             | Rate <sup>1</sup> of Growth % Per Annum |                      |                      |                      |
|-------------|---|----------------------|----------------------|----------------------|
|             | 1928-38 <sup>2</sup>                    | 1938-48 <sup>2</sup> | 1948-51 <sup>2</sup> | 1951-61 <sup>3</sup> |
| Mezzogiorno | .6                                      | -1.5                 | 7.1                  | 4.6                  |
| North       | 1.1                                     | - .6                 | 7.3                  | 6.2                  |
| ITALY       | 1.0                                     | - .9                 | 7.2                  | 5.9                  |

TABLE IV-4  
 RATES OF GROWTH OF POPULATION OF  
 MEZZOGIORNO, NORTH AND ITALY FOR SELECTED PERIODS

|             | Rate <sup>1</sup> of Growth % Per Annum |                      |                      |
|-------------|---|----------------------|----------------------|
|             | 1921-36 <sup>4</sup>                    | 1936-51 <sup>4</sup> | 1951-61 <sup>5</sup> |
| Mezzogiorno | .4                                      | .9                   | .6                   |
| North       | .7                                      | .6                   | .9                   |
| ITALY       |   |                      |                      |

<sup>1</sup>Compounded Rate

<sup>2</sup>Wadsted, 139, Table 7 MZ, p. 59

<sup>3</sup>Source: Informazioni SVIMEZ, 8

<sup>4</sup>Source: SVIMEZ Statistics, Table 16. Quoted from Wadsted, 139, Table 2 MZ, p. 53

<sup>5</sup>Source: Informazioni SVIMEZ, 8

industries, and 2) the higher rate of growth and lack of mobility of population of the South.

The shifts in percentage distribution of population and income among three major Italian regions: North, Central and the South for the years 1951-1961 are shown in Table IV-5. The percentage share of Mezzogiorno of the total national income dropped from 22.94 percent in 1951 to 20.38 percent in 1961. In the same period, the share of Mezzogiorno in total population of Italy decreased only slightly, from 38.80 to 38.50 percent. An index of prosperity<sup>14</sup> established for the comparison of the degree of regional inequality in terms of per capita income decreased from .59 in 1951 to .52 in 1961. The most prosperous region, the North, remained at the same position as it was in 1951, with the value of 1.57 in 1961. The Central region with a value of 1.04, which means a slightly higher percentage share in the national income than the percentage share in total population, increased its index of prosperity to a new level of 1.08.

There are differentials in population and income distribution among the sub-regions of Mezzogiorno as well as between Mezzogiorno and the North, although the former type differentials are not as severe as the latter. Among seven sub-regions of Mezzogiorno, the percentage share in population fell for four of them (Abruzzi and Molise, Campania, Basilic and Calabria) and rose for the rest

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<sup>14</sup>For definition of The Index of Prosperity see Section F-3 of Chapter III.

TABLE IV-5  
 PERCENTAGE SHARE OF GROSS PRODUCT AND  
 POPULATION BY THREE MAJOR REGIONS 1951 - 1961

| Year | Regions | Gross Product<br>$\gamma$ 's | Population<br>$\lambda$ 's | $\zeta = \gamma/\lambda$ |
|------|---------|------------------------------|----------------------------|--------------------------|
| 1951 | I       | 38.85                        | 24.72                      | 1.57                     |
|      | II      | 38.21                        | 36.48                      | 1.04                     |
|      | III     | 22.94                        | 38.80                      | .59                      |
| 1952 | I       | 39.13                        | 24.71                      | 1.58                     |
|      | II      | 38.89                        | 36.43                      | 1.06                     |
|      | III     | 21.98                        | 38.86                      | .56                      |
| 1953 | I       | 38.61                        | 24.70                      | 1.56                     |
|      | II      | 38.53                        | 36.33                      | 1.06                     |
|      | III     | 22.86                        | 38.97                      | .58                      |
| 1954 | I       | 38.99                        | 24.70                      | 1.57                     |
|      | II      | 38.80                        | 36.23                      | 1.07                     |
|      | III     | 22.21                        | 39.07                      | .56                      |
| 1955 | I       | 39.56                        | 24.73                      | 1.59                     |
|      | II      | 39.21                        | 36.10                      | 1.08                     |
|      | III     | 21.23                        | 39.17                      | .54                      |
| 1956 | I       | 40.03                        | 24.78                      | 1.61                     |
|      | II      | 38.57                        | 36.00                      | 1.07                     |
|      | III     | 21.40                        | 39.22                      | .54                      |
| 1957 | I       | 40.05                        | 24.86                      | 1.61                     |
|      | II      | 38.27                        | 35.91                      | 1.06                     |
|      | III     | 21.68                        | 39.23                      | .55                      |
| 1958 | I       | 39.66                        | 25.02                      | 1.58                     |
|      | II      | 38.86                        | 35.84                      | 1.08                     |
|      | III     | 21.48                        | 39.14                      | .54                      |
| 1959 | I       | 40.23                        | 25.22                      | 1.59                     |
|      | II      | 39.27                        | 35.78                      | 1.09                     |
|      | III     | 20.50                        | 39.00                      | .52                      |
| 1960 | I       | 41.34                        | 25.47                      | 1.62                     |
|      | II      | 38.97                        | 35.73                      | 1.09                     |
|      | III     | 19.69                        | 38.80                      | .50                      |
| 1961 | I       | 40.73                        | 25.78                      | 1.57                     |
|      | II      | 38.89                        | 35.72                      | 1.08                     |
|      | III     | 20.38                        | 38.50                      | .52                      |

Source: Tables B-1 and B-7, Appendix B



(Puglia, Sicilia and Sardegna) between 1861-1964. In a recent shift in percentage population (1951-1961), Campania, Puglia and Sardegna increased their shares, while others decreased (Table IV-6). In the same time interval, the percentage share in net regional products increased for Campania, Puglia and Sicilia and decreased for others (Table IV-7).

In order to draw any conclusion on the regional growth trend during the period 1951-61 for which data are available, the ratio of percentage distribution of net product over the percentage distribution of populations are calculated for 1951 and 1961. The results are shown in Table IV-7 as  $\gamma/\lambda$  ratios. These prosperity indices show that in per capita income terms, Abruzzi and Molise, Puglia and Sicilia improved their conditions slightly. On the other hand, the losses in index values were greater for the losers, especially of Sardegna.

Of two regions whose indices deteriorated during the 1951-61 period, one, Sardegna, had a substantially higher rate of population growth, and the other, Calabria, had the lowest rate of population growth in the Mezzogiorno Region (Table IV-8). Moreover, with the exception of Calabria, the development program in Mezzogiorno, as the indices for 1961 show, has had an equilibrating effect on the regional shares of population and income. In other words, the regions with higher indices in 1951 declined, and the regions with lower indices in 1951 grew in the period 1951-61 (with the exception of Basilic and Calabria). Even with the inclusion of Calabria in

TABLE IV-6  
 POPULATION OF SUB-REGIONS OF MEZZOGIORNO  
 AS PERCENTAGE OF MEZZOGIORNO FOR SELECTED YEARS

|                  | 1861   | 1936   | 1951   | 1961   | 1964   |
|------------------|--------|--------|--------|--------|--------|
| Mezzogiorno      | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Abruzzi & Molise | 12.43  | 10.29  | 9.29   | 8.42   | 8.27   |
| Campania         | 26.89  | 24.24  | 24.78  | 25.62  | 26.02  |
| Puglia           | 13.44  | 17.52  | 18.34  | 18.42  | 18.53  |
| Basilic          | 5.06   | 3.54   | 3.53   | 3.47   | 3.37   |
| Calabria         | 11.67  | 11.44  | 11.36  | 11.01  | 10.84  |
| Sicilia          | 24.49  | 26.14  | 25.43  | 25.42  | 25.34  |
| Sardegna         | 6.02   | 6.83   | 7.27   | 7.64   | 7.63   |

Source: Computed from Table IV-1

TABLE IV-7  
 INDEX OF PROSPERITY FOR SUB-REGIONS OF  
 MEZZOGIORNO FOR 1951 AND 1961

|                  | 1951     |           |                        | 1961     |           |                        |
|------------------|----------|-----------|------------------------|----------|-----------|------------------------|
|                  | $\gamma$ | $\lambda$ | $\zeta=\gamma/\lambda$ | $\gamma$ | $\lambda$ | $\zeta=\gamma/\lambda$ |
| Abruzzi & Molise | 9.16     | 9.29      | .98                    | 8.63     | 8.42      | 1.02                   |
| Campania         | 27.06    | 24.78     | 1.09                   | 28.08    | 25.62     | 1.09                   |
| Puglia           | 17.93    | 18.34     | .97                    | 18.19    | 18.42     | .98                    |
| Basilic          | 2.91     | 3.53      | .82                    | 2.87     | 3.47      | .82                    |
| Calabria         | 9.53     | 11.36     | .83                    | 8.54     | 11.01     | .77                    |
| Sicilia          | 24.40    | 25.43     | .96                    | 25.53    | 25.42     | 1.00                   |
| Sardegna         | 8.96     | 7.27      | 1.23                   | 8.14     | 7.64      | 1.06                   |

Source:  $\gamma$ 's for 1951 and 1961 from Table B-6, Appendix B  
 $\lambda$ 's for 1951 and 1961 from Table IV-6

TABLE IV-8  
 RATES OF GROWTH OF POPULATION FOR MEZZOGIORNO  
 AND ITS SUB-REGIONS FOR SELECTED PERIODS

|                  | Rate of Growth<br>% Per Annum (compounded) |           |           |           |
|------------------|--|-----------|-----------|-----------|
|                  | 1936-1951                                  | 1951-1961 | 1936-1953 | 1953-1964 |
| Mezzogiorno      | .9   | .6        | .9        | .9        |
| Abruzzi & Molise | .3   | - .4      | .3        | - .4      |
| Campania         | 1.1  | 1.0       | 1.1       | 1.1       |
| Puglia           | 1.3  | .7        | 1.3       | .7        |
| Basilic          | .9   | .5        | .9        | .3        |
| Calabria         | .9   | .3        | .9        | .3        |
| Sicilia          | .8   | .6        | .8        | .7        |
| Sardegna         | 1.4  | 1.2       | 1.4       | 1.1       |

Source: Table IV-1

the list, the arithmetic differentials of the highest and the lowest values of the indices for 1961 is less than in 1951.

Coefficients of correlation are found for the percentage share in population and the percentage share in net product by sub-regions for 1951 and 1961. These coefficients are  $r = .9871$  for 1951 and  $r = .9908$  for 1961.<sup>15</sup> Both coefficients are significant at the .005 level. The regression coefficient has improved slightly over a decade, which supports the previous conclusion on the trend toward equalization of per capita regional incomes within Mezzogiorno. Another indication of both correlation coefficients is that all sub-regions of Mezzogiorno are relatively in the same degree of under-development as far as regional income is concerned.

2. Per Capita Income. During the period 1951-61, per capita national income grew by 5.2 percent per year. That of the North increased at the rate of 5.3 percent per annum. The Central region's per capita income grew at the highest rate in the nation, 5.6 percent per annum, and Mezzogiorno's at the lowest rate, equal to 4.1 percent per year during the decade.

The annual rates of change in per capita gross income of Mezzogiorno show a sharp fluctuation between 1951 and 1961, characteristic of a region under developmental programming. In the years

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<sup>15</sup>The regression equations fitted to the percentage values of income share (y) and the percentage values of population share (x) for 1951 and 1961 are:

$$1951: y = -.3822 + 1.0267x \text{ and}$$

$$1961: y = -1.2146 + 1.0850x$$

RELATION BETWEEN PERCENTAGE SHARE OF REGIONAL  
INCOME AND PERCENTAGE SHARE OF REGIONAL POPULATION  
ITALY, MEZZOGIORNO

FIGURE IV-3  
1951

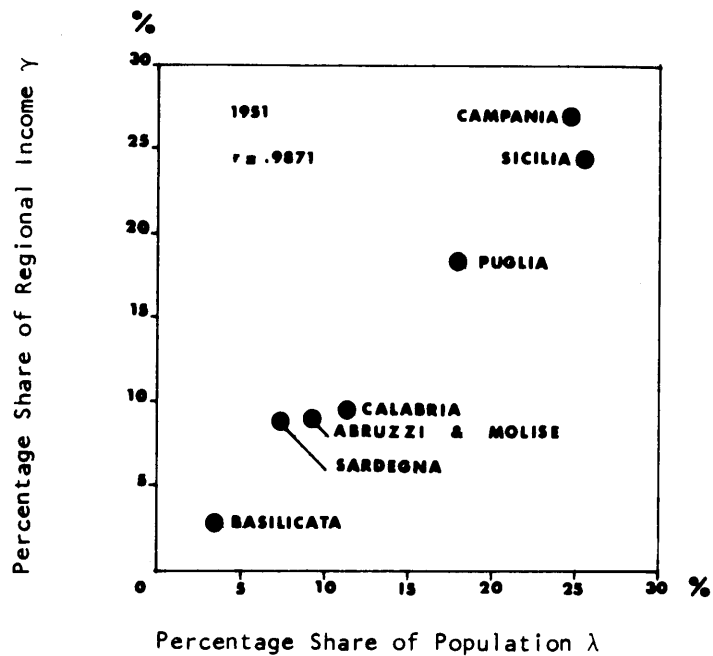


FIGURE IV-4  
1961

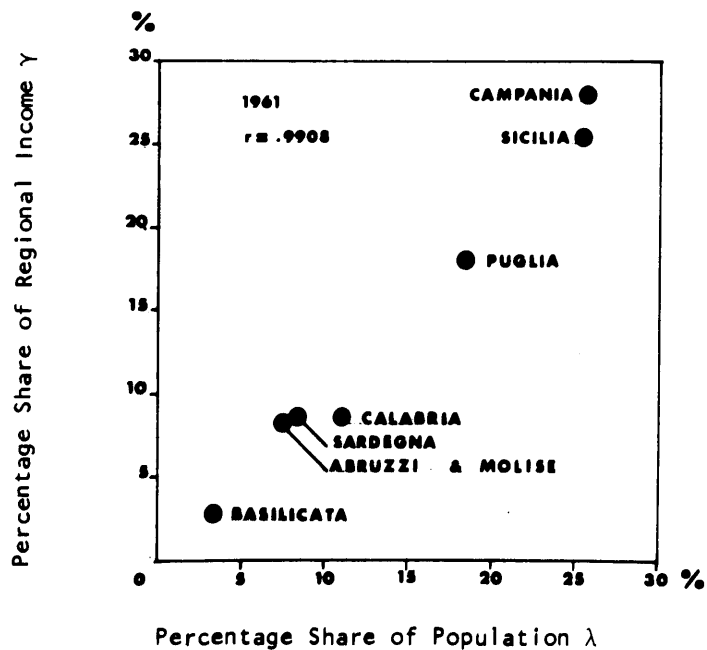


TABLE IV-9  
 PERCENTAGE ANNUAL GROWTH RATE OF  
 PER CAPITA GROSS INCOME, 1951/50 - 1961/60

|       | Italy<br>% | I<br>% | II<br>% | III<br>% |
|-------|------------|--------|---------|----------|
| 52/51 | 1.35       | 2.00   | 3.44    | - 3.10   |
| 53/52 | 6.22       | 5.05   | 5.83    | 10.20    |
| 54/53 | 4.18       | 5.08   | 5.11    | 1.42     |
| 55/54 | 6.42       | 7.63   | 7.49    | .70      |
| 56/55 | 3.77       | 4.72   | 2.43    | 4.89     |
| 57/56 | 5.81       | 5.86   | 5.44    | 7.33     |
| 58/57 | 3.43       | 1.91   | 5.48    | 2.48     |
| 59/58 | 7.64       | 7.94   | 8.56    | 3.03     |
| 60/59 | 6.48       | 8.33   | 5.91    | 2.94     |
| 61/60 | 7.24       | 4.65   | 7.18    | 12.00    |

Source: Table B-8, Appendix B

1952-53 and 1960-61, Mezzogiorno enjoyed the highest rate of growth in per capita income term than any other region during the decade (Table IV-9).

The per capita income of Mezzogiorno as a percentage of the North (North and Central combined) during 1951-60, declined by 10 percent. In spite of the previous low level of per capita income in the South, which under ceteris paribus conditions would lead to a higher rate of growth, Mezzogiorno's growth in per capita income did not keep pace with the rate of growth of the North, even with massive doses of investments (Table IV-10).

TABLE IV-10

PER CAPITA INCOME OF MEZZOGIORNO  
AS PERCENTAGE OF THE NORTH

|      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|
| 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
| 51.8 | 48.6 | 51.0 | 48.8 | 45.8 | 46.2 | 47.1 | 44.3 | 43.4 | 41.8 |

Source: Table IV-21

To observe the behavior of per capita net income of the sub-regions of Mezzogiorno in relation to Mezzogiorno as a whole and other regions of Italy, the percentages of per capita income at all levels of regional sub-division are calculated and shown in Table IV-11.



TABLE IV-11

REGIONAL NET INCOME PER CAPITA  
AS PERCENTAGE OF THE NATIONAL AVERAGE  
1951 and 1961

|                    | <u>1951</u> | <u>1961</u> | <u>Percent<br/>Annual<br/>Variation</u> |
|--------------------|-------------|-------------|---|
| North              | 1.31        | 1.28        | - .3                                    |
| Central            | .95         | 1.02        | + .7                                    |
| South              | .64         | .63         | - .2                                    |
| Islands            | .66         | .65         | - .2                                    |
| North              | 1.20        | 1.20        | 0.0                                     |
| Mezzogiorno        | .64         | .64         | 0.0                                     |
| Italy              |             |             |   |
| Abruzzi and Molise | .62         | .65         | + .4                                    |
| Campania           | .71         | .70         | - .2                                    |
| Puglia             | .63         | .63         | 0.0                                     |
| Basilic            | .53         | .53         | 0.0                                     |
| Calabria           | .53         | .49         | - .8                                    |
| Sicilia            | .62         | .64         | + .3                                    |
| Sardegna           | .80         | .68         | - 1.4                                   |

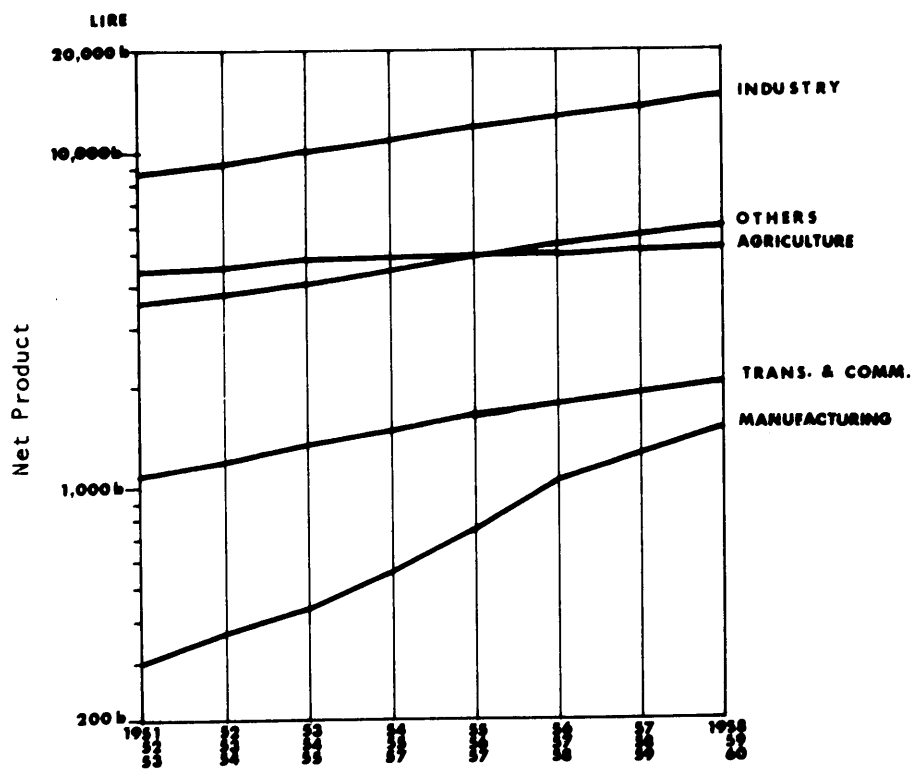
Source: Informazione SVIMEZ, Anno SVI - n. 4 -  
23 gennaio 1963.

On the net income basis and as a percentage of the national average, Mezzogiorno shows no change in per capita income during 1951-1961. The same is true for the North. On the 4-division

breakdown of the national territory, the only region showing a positive rate of growth is the central, and all other three regions' per capita income as a percent of the national average show negative variations. Within Mezzogiorno itself, three sub-regions declined, two remained constant and two showed increases in the ratio. The results shown in Table IV-11 are compatible with those we observed from Table IV-7 on the indices of regional prosperity. When the variations in absolute amounts of per capita incomes are computed for each region, the results are not as decisive as are shown in Table IV-11. The choice of the time interval is, indeed, to some extent responsible for different results. These calculations show that Mezzogiorno's per capita income during 1952-58 grew faster than the per capita income in the North and Italy. They also show that Puglia and Sicilia were the fastest growing regions (in terms of per capita income) in Mezzogiorno. These results are shown in Table B-10, Appendix B.

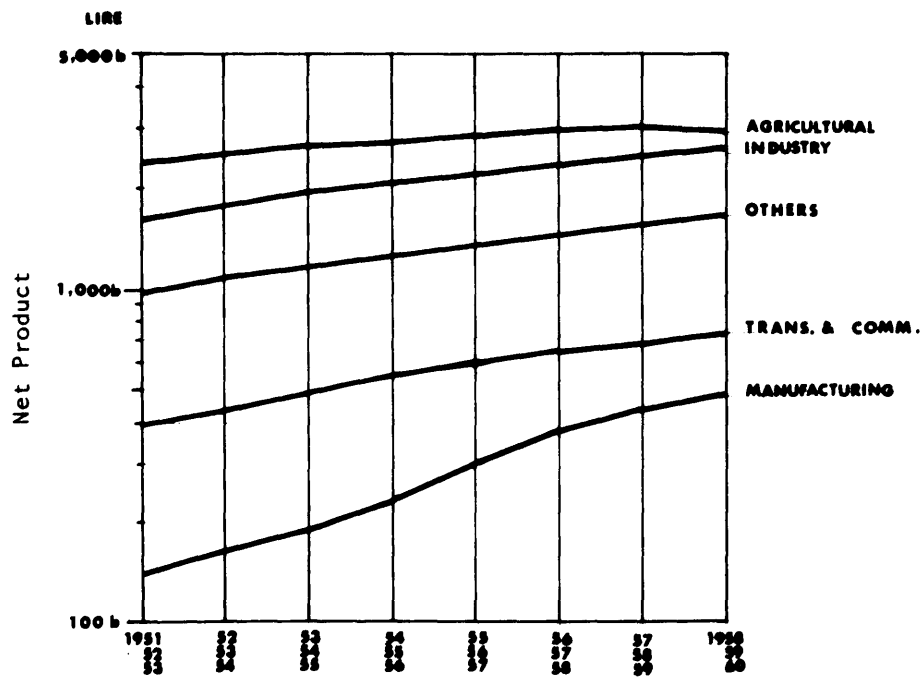
3. Sectoral Structure of the Regional Economies. Recent data on sectoral composition of the regional economies are available for 1958 and 1961. The sectoral composition of the Italian economy as a whole has shifted from 40 percent agricultural and 20 percent industrial at the beginning of the century to 20 percent and 60 percent respectively in 1958. Italy has had a rapid rate of growth in industry, commerce and transportation during the 1950's. At the same time, the percentage share of agriculture has been dropping steadily. Nevertheless, Mezzogiorno's share in agricultural produc-

FIGURE IV-5  
 ITALY, CENTRO-NORD  
 NET PRODUCT BY SECTOR, 1951-1960  
 (current lire)



Source: Table B-15, Appendix B

FIGURE IV-6  
 ITALY, MEZZOGIORNO  
 NET PRODUCT BY SECTOR, 1951-1960  
 (current lire)



Source: Table B-15, Appendix B

TABLE IV-12

PERCENTAGE COMPOSITION OF REGIONAL  
INCOME BY MAJOR SECTORS IN 1958

|                  | Agri. &<br>Forestry | Industry,<br>Commerce,<br>Trans., etc. | Other<br>Sectors | Public<br>Admin. | Total |
|------------------|---------------------|--|------------------|------------------|-------|
| Nord             | 16.9                | 65.7                                   | 7.7              | 10.4             | 100.0 |
| Mezzogiorno      | 34.5                | 40.7                                   | 7.3              | 17.5             | 100.0 |
| ITALY            | 20.7                | 60.3                                   | 7.1              | 11.9             | 100.0 |
| Abruzzi & Molise | 40.3                | 37.4                                   | 6.8              | 15.5             | 100.0 |
| Campania         | 26.4                | 47.5                                   | 7.4              | 18.7             | 100.0 |
| Puglia           | 38.0                | 36.6                                   | 7.6              | 17.8             | 100.0 |
| Basilic          | 50.6                | 28.3                                   | 5.9              | 15.2             | 100.0 |
| Calabria         | 41.6                | 33.9                                   | 6.0              | 18.5             | 100.0 |
| Sicilia          | 35.1                | 40.3                                   | 7.4              | 17.2             | 100.0 |
| Sardegna         | 32.2                | 43.3                                   | 8.8              | 15.7             | 100.0 |

Source: Prosp. 2 - Informazioni SVIMEZ - Anno XIII - n. 1 -  
6 gennaio 1960, p. 23

TABLE IV-13  
 PERCENTAGE COMPOSITION OF REGIONAL  
 PRODUCT BY MAJOR SECTORS IN 1961

|                  | Agri. &<br>Forestry | Industry,<br>Commerce,<br>Trans., etc. | Other<br>Sectors | Public<br>Admin. | Total |
|------------------|---------------------|--|------------------|------------------|-------|
| Nord             | 13.6                | 67.1                                   | 9.0              | 10.3             | 100.0 |
| Mezzogiorno      | 29.0                | 44.8                                   | 9.8              | 16.4             | 100.0 |
| ITALY            | 17.2                | 61.8                                   | 9.2              | 11.8             | 100.0 |
| Abruzzi & Molise | 38.4                | 39.5                                   | 7.9              | 14.2             | 100.0 |
| Campania         | 21.0                | 52.8                                   | 10.0             | 16.2             | 100.0 |
| Puglia           | 33.7                | 40.4                                   | 9.8              | 16.1             | 100.0 |
| Basilicata       | 47.9                | 31.6                                   | 6.8              | 13.7             | 100.0 |
| Calabria         | 35.9                | 40.0                                   | 6.9              | 17.2             | 100.0 |
| Sicilia          | 27.2                | 44.5                                   | 10.9             | 17.4             | 100.0 |
| Sardegna         | 27.5                | 44.1                                   | 11.5             | 16.9             | 100.0 |

Source: Informazioni SVIMEZ, Anno SVI - n. 4 - 23 gennaio 1963

tion as a percentage of total regional income was twice as much as the corresponding share of the North in 1958.

Total regional income of the Mezzogiorno during 1951-1960 rose by 5.3 percent per annum. Only the agricultural sector had a lower rate of growth than that of the total output. Transportation and communication rose at the rate of 7.3 percent per year, and manufacturing increased by 14.9 percent per year (Table IV-14). In comparison with the North, only industry (not manufacturing) had an equal rate of growth in both regions, all others showed a lower growth rate in the Mezzogiorno.

The rates of growth of sectoral outputs, however, are not indicative of the absolute or comparative regional advantages for development of specific sectors. Therefore, an efficiency index was established to measure the relative sectoral advantages in each region.

TABLE IV-14

PERCENTAGE CHANGE IN NET PRODUCT BY ECONOMIC SECTORS  
FOR MEZZOGIORNO AND THE CENTRO-NORD, 1951-1960

|                  | <u>Agri-<br/>cul-<br/>ture</u> | <u>In-<br/>dus-<br/>try</u> | <u>Trans.<br/>and<br/>Commun.</u> | <u>Mfg.</u> | <u>Others</u> | <u>Total Regional<br/>Income in<br/>Market Prices</u> |
|------------------|--------------------------------|-----------------------------|-----------------------------------|-------------|---------------|---|
| Mezzo-<br>giorno | 2.4                            | 5.7                         | 7.3                               | 14.9        | 6.2           | 5.3   |
| Centro-<br>Nord  | 2.1                            | 6.3                         | 7.5                               | 19.7        | 6.2           | 6.1   |

Source: Table B-15, Appendix B

TABLE IV-15

PERCENTAGE CHANGE IN NET INVESTMENT BY ECONOMIC SECTORS  
FOR MEZZOGIORNO AND THE CENTRO-NORD, 1951-1960

|                  | <u>Agri-<br/>cul-<br/>ture</u> | <u>In-<br/>dus-<br/>try</u> | <u>Trans.<br/>and<br/>Commun.</u> | <u>Mfg.</u> | <u>Others</u> | <u>Total<br/>Net<br/>Investment</u> |
|------------------|--------------------------------|-----------------------------|-----------------------------------|-------------|---------------|-------------------------------------|
| Mezzo-<br>giorno | 8.5                            | 5.7                         | 10.3                              | 20.0        | 9.3           | 8.5                                 |
| Centro-<br>Nord  | 11.7                           | -4.4                        | 8.1                               | 13.8        | 10.8          | 9.2                                 |

Source: Table B-15, Appendix B.

This efficiency index is expressed as percentage changes in sectoral output with respect to the percentage changes in sectoral investment (public and private). The results are shown in Table IV-16. The income elasticity of investment in the Mezzogiorno for total sectoral activities is less than in the North. Only two sectors (agriculture and miscellaneous economic activities under the heading of "others") show absolute advantages for the Mezzogiorno. In terms of output per unit of investment, the Mezzogiorno has a comparative advantage in developing sectors in the following order: Industry, Manufacturing, Transportation and Communication, Other economic activities (excluding Agriculture) and Agriculture. The same ordering holds for the North.

The pattern of sectoral expansion in the 1950's confirms the strategies chosen by the Economic Plans regarding heavy investment in agriculture and an attempt toward industrialization of the South.



TABLE IV-16

RATIO OF PERCENTAGE CHANGE IN NET PRODUCT  
TO THE PERCENTAGE CHANGE IN NET INVESTMENT BY  
ECONOMIC SECTORS FOR THE  
MEZZOGIORNO AND THE CENTRO-NORD, 1951-1960

|             | <u>Agri-<br/>cul-<br/>ture</u> | <u>In-<br/>dus-<br/>try</u> | <u>Trans.<br/>and<br/>Comm.</u> | <u>Mfg.</u> | <u>Others</u> | <u>Total</u> |
|-------------|--------------------------------|-----------------------------|---------------------------------|-------------|---------------|--------------|
| Mezzogiorno | .2823                          | 1.0000                      | .7087                           | .7450       | .6666         | .6235        |
| Centro-Nord | .1794                          | *                           | .9259                           | 1.4275      | .5740         | .6630        |

\*The net investment in Industry for Centro-Nord during the 1951-60 period decreased, while the net product increased. Consequently, a negative coefficient was found. Since the interpretation of the negative coefficient could not be made, in the absence of a detailed study, it was therefore omitted from the Table.

Source: Table B-15, Appendix B.

4. Investment. It is widely believed that the backwardness of Mezzogiorno is due largely to the lack of investment in the past and the sluggish response of the private sector in the present.<sup>16</sup> The Mezzogiorno with more than half the population of the North absorbs only one-third of the total gross fixed investment made by the public and private sectors in Italy (Table B-13, Appendix B). It is particularly important to note that the ratio of investment in Mezzogiorno, relative to the investment in the North from the beginning of the implementation of the Vanoni Plan, has been declining continuously, and the overall annual growth rate of the ratio, 1.8 percent, is the result solely of sharp increases in the ratio for the years 1952 and 1953 (see Table B-13, Appendix B). This ratio, however, is expected to rise during the 1960's, for which no data is as yet available.

The marginal capital-output ratios by major industrial sectors for Mezzogiorno and the North (Table IV-17) shed light on the fact that additional private investments are not materializing in the South as fast as they were expected. With the exception of manufacturing, almost all other industries during 1951-60 required more investment per unit of output in Mezzogiorno than in the North.

Coefficients of correlation found for the relation between the net capital formation and the net output (with no lag) for the Mezzogiorno and the North revealed the extreme efficiency of the

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<sup>16</sup>Rosenstein-Rodan, 116 and 117.

TABLE IV-17  
 MARGINAL CAPITAL - OUTPUT RATIO CALCULATED  
 TRIANNUALLY FOR TWO MAJOR GEOGRAPHIC REGIONS OF ITALY

(amounts in billions of 1954 lire)

| Net Income<br>Increment |            | Net<br>Investment |            | Marginal<br>Capital-Output<br>Ratio<br>$\frac{\Delta K_{t-1}}{\Delta Q}$ |
|-------------------------|------------|-------------------|------------|--|
| Period                  | $\Delta Q$ | Period            | $\Delta K$ |  |
| Mezzogiorno             |            |                   |            |  |
| 1952-54                 | 228.8      | 1951-53           | 963.3      | 4.21   |
| 1953-55                 | 338.1      | 1952-54           | 1,108.3    | 3.27   |
| 1954-56                 | 208.3      | 1953-55           | 1,320.5    | 6.33   |
| 1955-57                 | 385.3      | 1954-56           | 1,432.9    | 3.71   |
| 1956-58                 | 426.4      | 1955-57           | 1,558.0    | 3.65   |
| 1957-59                 | 378.7      | 1956-58           | 1,575.6    | 4.16   |
| 1958-60                 | 265.9      | 1957-59           | 1,649.4    | 6.20   |
| Centro-Nord             |            |                   |            |  |
| 1952-54                 | 1,591.9    | 1951-53           | 2,240.8    | 1.40   |
| 1953-55                 | 1,487.7    | 1952-54           | 2,330.7    | 1.56   |
| 1954-56                 | 1,613.7    | 1953-55           | 2,717.5    | 1.68   |
| 1955-57                 | 1,374.6    | 1954-56           | 3,173.1    | 2.31   |
| 1956-58                 | 2,043.3    | 1955-57           | 3,582.0    | 1.75   |
| 1957-59                 | 2,486.9    | 1956-58           | 3,784.4    | 1.52   |
| 1958-60                 | 2,896.4    | 1957-59           | 4,161.6    | 1.43   |

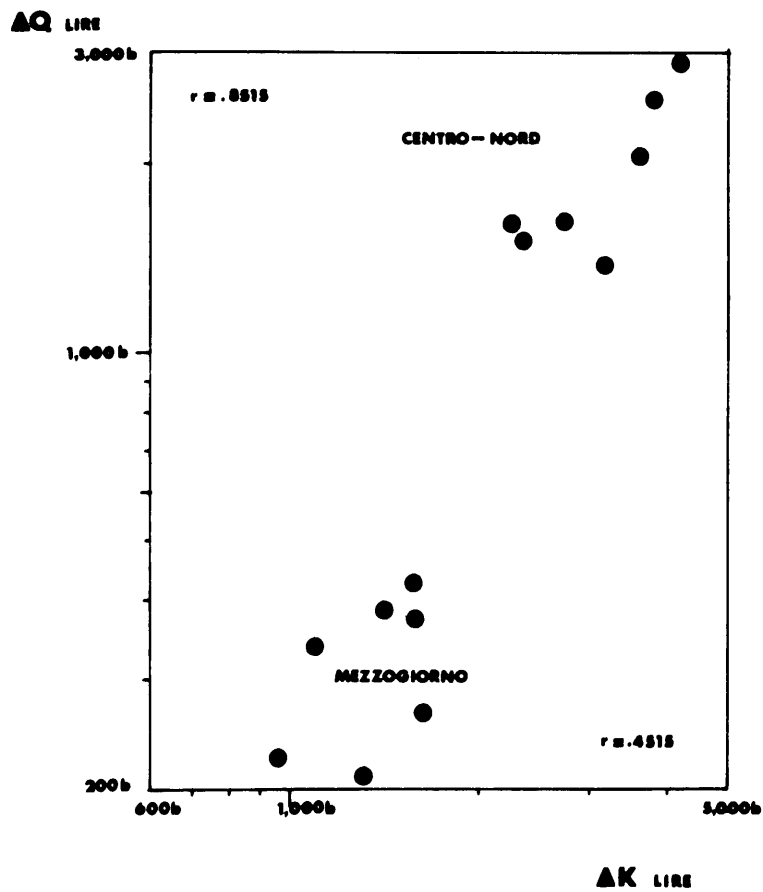
Source: Table 118, La 'Cassa' E Lo Sviluppo Del Mezzogiorno, Vol. I,  
 p. 312

North over the Mezzogiorno. These coefficients were:  $r = .4515$  for the South which is not significant, and  $r = .8515$  which is significant at the .01 level of confidence. This can be interpreted as inefficiency of the South's industries. But it is important to remember that the marginal capital-output ratios at initial stages of implementation of a regional plan are not accurate or reliable indicators of the efficiency of the industries. Most of the sectoral activities in the South use outmoded technology, and any process for updating the industrial technology requires substantial amounts of investment initially. This is particularly true for agriculture.

The net investments in Mezzogiorno as percentages of the North during the period 1951-60 are shown in Table IV-19. There were only two sectors which received higher proportional (considering the population size of the two regions) investment throughout the 1950's: agriculture and public works (with the exception of 1959 for the latter). Industries (not manufacturing) received a higher percentage in the years 1955, 1959 and 1960. Manufacturing investment in absolute terms remained as low as 7 percent of the North in 1951 and as high as 20 percent in 1960. During the period 1951-1960, the total net investment in Mezzogiorno as a percentage of that of the North increased by 21.6 percent. Within individual sectors, investment as a percentage of the North grew in industry, transportation and communication and manufacturing, and declined in agriculture and public works over the period 1951-1960.

FIGURE IV-7

ITALY  
RELATION BETWEEN INCREMENTAL CHANGE OF  
NET PRODUCT AND CAPITAL, BY REGION, 1951-1960  
(1954 lire)



Source: Table IV-17

TABLE IV-18

NET INVESTMENT AS PERCENTAGE OF NET PRODUCT BY  
SECTORS OF ECONOMIC ACTIVITIES AND BY GEOGRAPHIC AREAS

(absolute values: in billions of current lire & sums of three years)

| Period        | Agri. | Industry | Trans.<br>& Comm. | Mfg.   | Others | Total<br>Net Investment/<br>Net Produce in<br>Market Prices |
|---------------|-------|----------|-------------------|--------|--------|---|
| Mezzogiorno   |       |          |                   |        |        |   |
| 1951-1953     | 8.31  | 7.74     | 36.47             | 60.18  | 5.69   | 15.11   |
| 1952-1954     | 10.15 | 6.98     | 44.20             | 84.07  | 5.23   | 16.20   |
| 1953-1955     | 11.32 | 6.42     | 50.45             | 105.47 | 4.96   | 17.92   |
| 1954-1956     | 11.26 | 5.91     | 56.54             | 115.11 | 5.04   | 18.52   |
| 1955-1957     | 11.29 | 6.54     | 57.67             | 112.90 | 5.54   | 19.10   |
| 1956-1958     | 11.13 | 5.32     | 53.53             | 104.03 | 6.13   | 18.30   |
| 1957-1959     | 12.36 | 5.38     | 47.82             | 96.32  | 6.59   | 18.22   |
| 1958-1960     | 13.99 | 7.45     | 46.80             | 88.64  | 7.39   | 19.77   |
| 1951-55       | 9.89  | 6.80     | 44.85             | 88.57  | 5.36   | 16.65   |
| 1956-1960     | 12.67 | 6.92     | 51.00             | 95.19  | 6.84   | 19.35   |
| 1951-1960     | 11.40 | 6.87     | 48.61             | 93.37  | 6.24   | 18.22   |
| Centro - Nord |       |          |                   |        |        |   |
| 1951-1953     | 1.85  | 5.44     | 43.75             | 233.18 | 3.62   | 10.47   |
| 1952-1954     | 1.44  | 4.41     | 46.18             | 247.14 | 3.16   | 10.20   |
| 1953-1955     | 1.96  | 3.06     | 44.63             | 267.11 | 2.95   | 10.97   |
| 1954-1956     | 2.63  | 2.92     | 43.57             | 257.30 | 3.19   | 11.72   |
| 1955-1957     | 2.98  | 3.19     | 39.55             | 232.40 | 3.76   | 12.53   |
| 1956-1958     | 2.95  | 2.99     | 37.83             | 188.36 | 4.36   | 12.53   |
| 1957-1959     | 2.98  | 2.22     | 38.85             | 167.79 | 4.81   | 12.82   |
| 1958-1960     | 4.14  | 1.67     | 45.83             | 148.29 | 5.35   | 13.50   |
| 1951-1955     | 2.04  | 3.21     | 44.11             | 257.13 | 3.37   | 10.90   |
| 1956-1960     | 3.79  | 2.32     | 43.60             | 167.18 | 4.78   | 13.22   |
| 1951-1960     | 2.95  | 3.08     | 43.80             | 184.44 | 4.22   | 12.28   |

Source: Table 125, La 'Cassa' E Lo Sviluppo Del Mezzogiorno, Vol. I, pp. 324, 325

TABLE IV-19

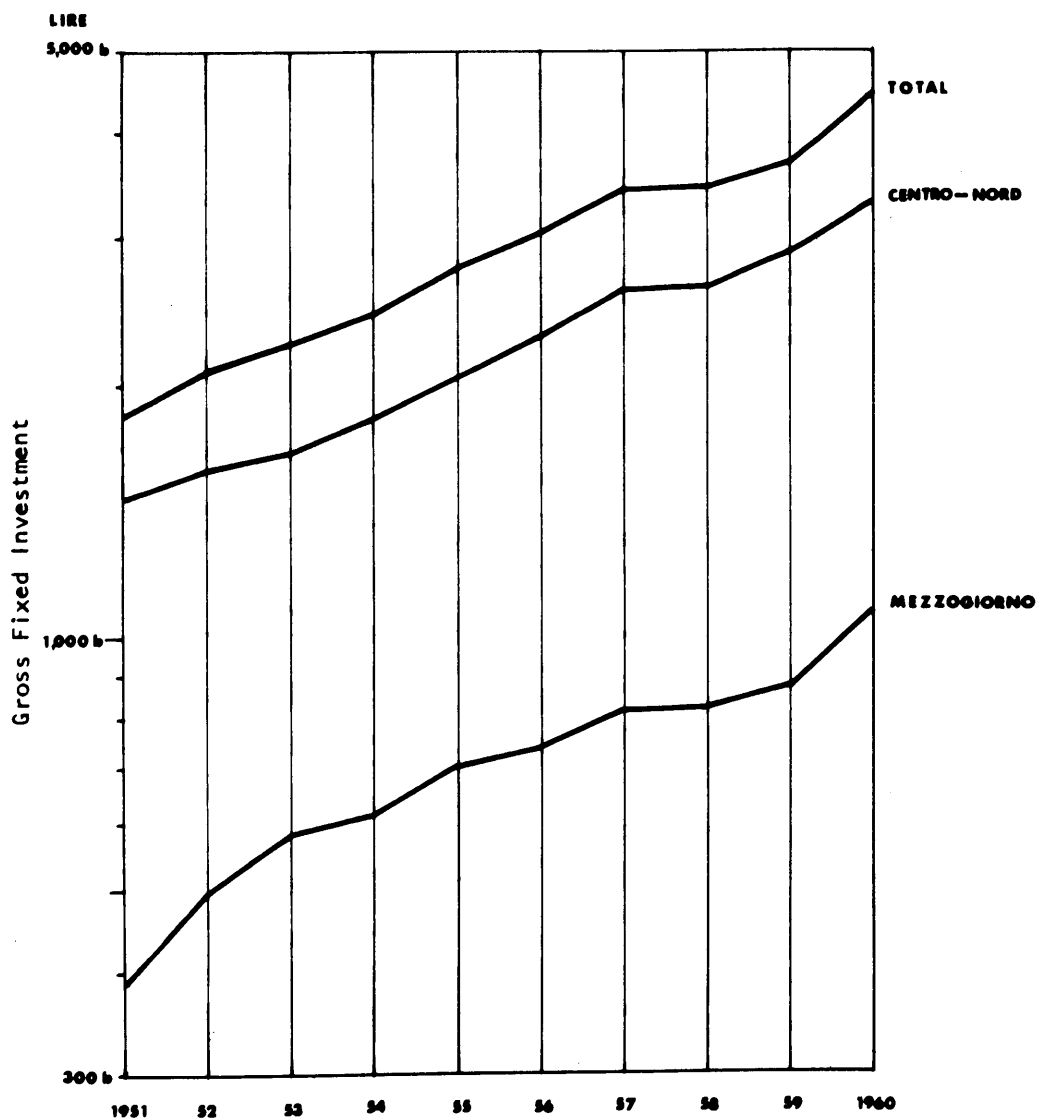
NET INVESTMENT - MEZZOGIORNO AS A PERCENTAGE  
OF CENTRO-NORD BY SECTORS 1951-1960

(absolute values in current prices)

| Year | Agri. | Industry | Trans.<br>& Comm. | Mfg. | Others | Public<br>Works | Total |
|------|-------|----------|-------------------|------|--------|-----------------|-------|
| 1951 | .97   | .14      | .25               | .07  | .40    | 1.02            | .33   |
| 1952 | 4.00  | .27      | .30               | .12  | .38    | 1.13            | .42   |
| 1953 | 4.55  | .36      | .33               | .14  | .54    | 1.14            | .50   |
| 1954 | 3.31  | .28      | .38               | .18  | .50    | .96             | .46   |
| 1955 | 2.48  | .57      | .51               | .18  | .41    | .88             | .48   |
| 1956 | 1.74  | .32      | .52               | .19  | .41    | .94             | .43   |
| 1957 | 2.49  | .31      | .56               | .20  | .37    | .62             | .41   |
| 1958 | 2.69  | .35      | .45               | .19  | .35    | .66             | .41   |
| 1959 | 2.31  | .91      | .33               | .18  | .36    | .46             | .38   |
| 1960 | 1.31  | 1.11     | .32               | .20  | .41    | .59             | .42   |

Source: Table B-16, Appendix B

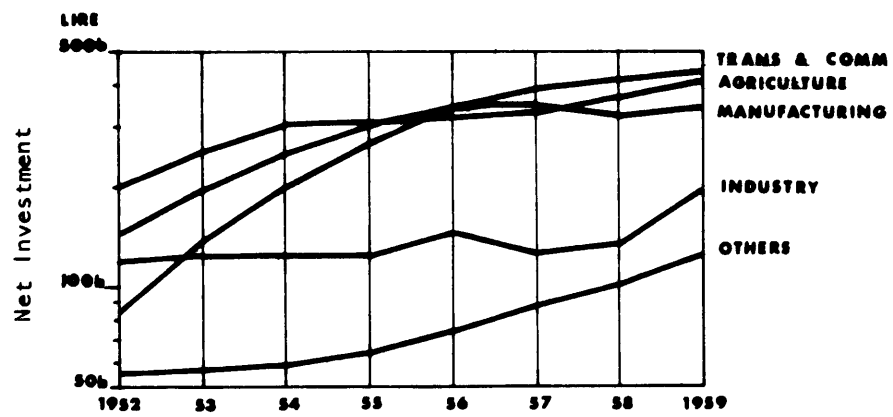
FIGURE IV-8  
 ITALY  
 GROSS FIXED INVESTMENT BY REGION, 1951-1960  
 (current lire)



Source: Table B-13, Appendix B and Table 133, La 'Cassa' E Lo Sviluppo Del Mezzogiorno, Vol. 1, pp. 340 and 341

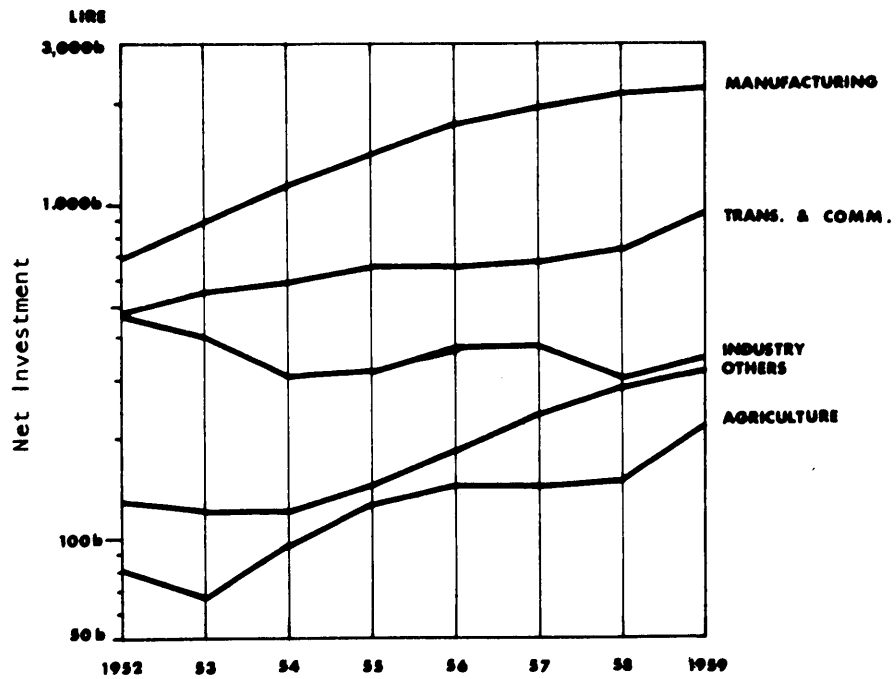


FIGURE IV-9  
ITALY, MEZZOGIORNO  
NET INVESTMENT BY SECTOR, 1951-1960  
(current lire)



Source: Table B-15, Appendix B

FIGURE IV-10  
 ITALY, CENTRO-NORD  
 NET INVESTMENT BY SECTOR, 1951-1960  
 (current lire)



Source: Table B-15, Appendix B

Two hypotheses were set to be tested with the available data on net investment and per capita income. These hypotheses were stated as follows:

Hypothesis A: The rate of growth of per capita gross regional income of Mezzogiorno increases when the rate of growth of net investment increases (Table IV-20).

Hypothesis B: The increase in net investments in Mezzogiorno as a percentage of the North will result in the rise of per capita income of Mezzogiorno as a percentage of per capita income in the North (Table IV-21).

Test of Hypothesis A: A regression analysis was performed. The coefficient of correlation between the two variables: the rate of growth of per capita gross regional income and the rate of growth of net investment for 10 pairs of data (ten years) was found to be  $r = .7536$  which is significant at the .01 level.<sup>17</sup> The result is obviously significant considering only one period lag (one year) between the investment and per capita income in the short time interval. In other words, the investment programs have made an immediate impact on the regional per capita income of Mezzogiorno.

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<sup>17</sup>The linear regression equation fitted to the values of rate of growth of per capita income (y) and the rate of growth of investment (x) for 1951-1961 is:  $y = 2.3341 + .0621x$ .

FIGURE IV-11

ITALY, MEZZOGIORNO  
RELATION BETWEEN ANNUAL GROWTH RATE OF PER CAPITA  
GROSS INCOME AND RATE OF GROWTH OF NET INVESTMENT

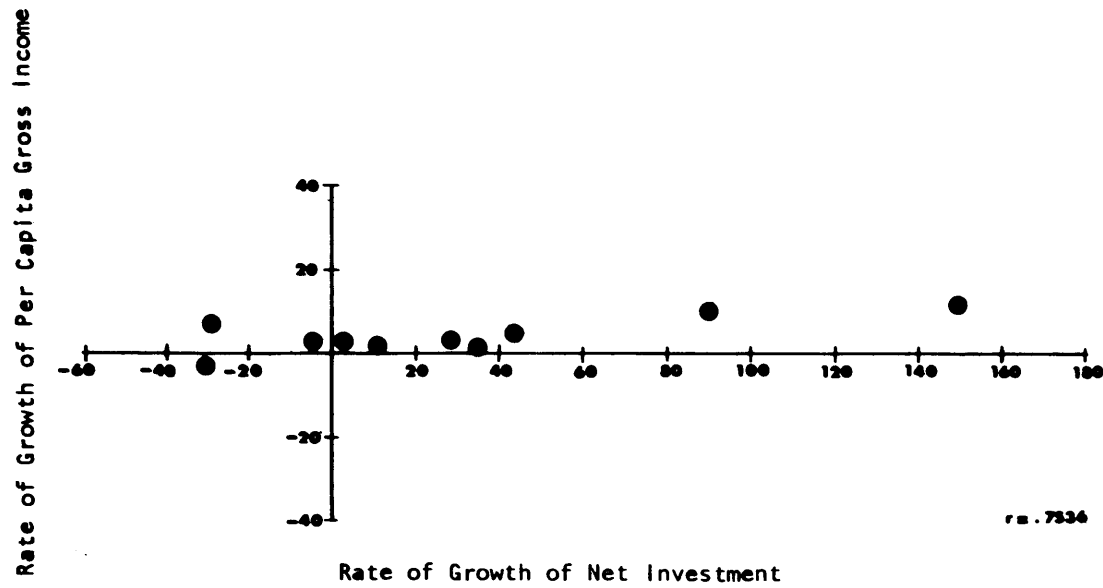


TABLE IV-20

PERCENTAGE ANNUAL GROWTH RATE OF PER CAPITA  
GROSS INCOME AND PERCENTAGE ANNUAL INCREASE  
OF NET INVESTMENT OF MEZZOGIORNO, 1950-1961

| Period    | Per Capita<br>Gross Income<br>Growth Rate | Net Investment<br>Growth Rate |
|-----------|---|-------------------------------|
| 1951/1950 | -   | -14.0                         |
| 1952/1951 | - 3.1                                     | -30.0                         |
| 1953/1952 | 10.2                                      | 90.6                          |
| 1954/1953 | 1.42                                      | 34.3                          |
| 1955/1954 | .70                                       | 11.4                          |
| 1956/1955 | 4.89                                      | 43.6                          |
| 1957/1956 | 7.33                                      | -29.0                         |
| 1958/1957 | 2.48                                      | - 4.0                         |
| 1959/1958 | 3.03                                      | 2.4                           |
| 1960/1959 | 2.94                                      | 28.6                          |
| 1961/1960 | 12.00                                     | 148.8                         |

Source: Prosp. 3, p. 378, Informazioni SVIMEZ, Anno XVI - n. 15 -  
10 aprile 1963 and Prosp. 3, Informazioni SVIMEZ, Anno XVI -  
nn. 9-10 - 27 febbraio - 6 marzo 1963

Test of Hypothesis B: This hypothesis was set up objectively to measure the degree of success of the Vanoni Plan in closing the gap between the regional per capita incomes. The results of findings here, however, are subject to some qualifications. First, half of the period used in statistical analysis belongs to the pre-plan period. Secondly, the second half of the Vanoni Plan (1960-65) is not included in the analysis because of non-availability of data.

The regression analysis yielded a coefficient of correlation,  $r = -.2614$ . The negative correlation obtained is not significant. Therefore the null hypothesis cannot be rejected. The negative value of  $r$  can be attributed entirely to chance.

A third hypothesis was set up to be tested on the data for Gross Fixed Investment and the Incremental Value Added.

Hypothesis C: The incremental value added in Mezzogiorno is a function of gross fixed investment in that region (Table IV-22).

Test of Hypothesis C: A regression analysis was used for the data on gross fixed investment with one-period delay and the incremental value added in Mezzogiorno for the period 1951-1959. The coefficient of correlation was found to be  $r = .5523$  which is not significant. Therefore, the positive association found statistically must be attributed to chance.

The result, however, was predictable, since a large portion of investment in this period was made in the agricultural, transportation and communication, and public works sectors which are essentially long-run investments (see Table B-15, Appendix B).

FIGURE IV-12

ITALY, MEZZOGIORNO  
 RELATION BETWEEN NET INVESTMENT AND PER CAPITA  
 INCOME AS PERCENTAGES OF CENTRO-NORD, 1951-59

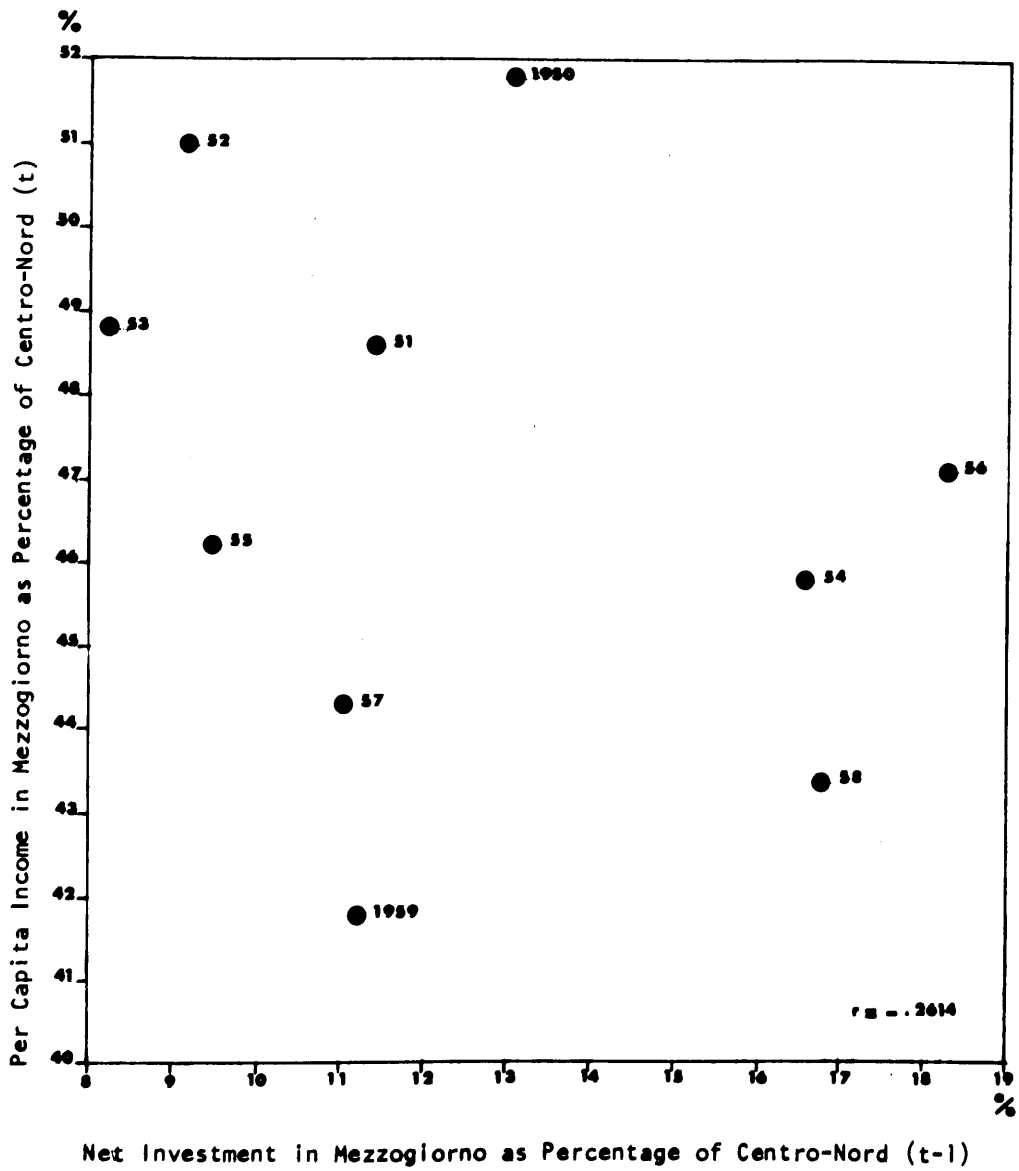
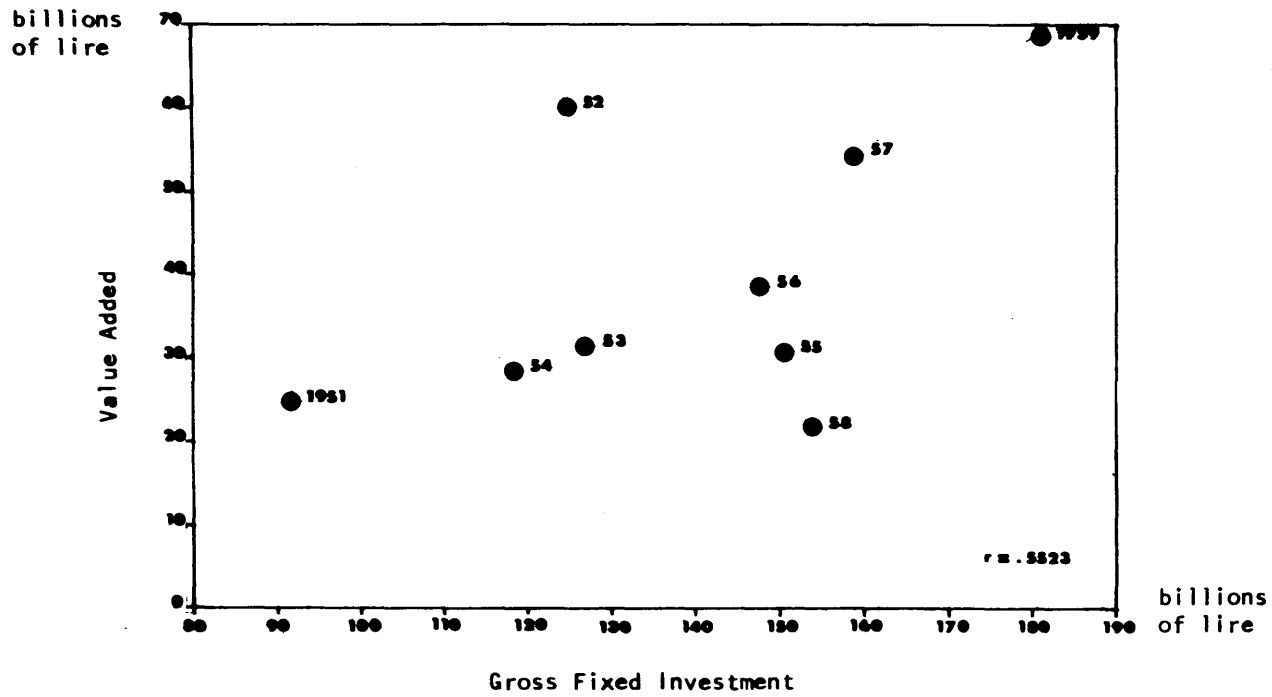


FIGURE IV-13  
 ITALY, MEZZOGIORNO  
 RELATION BETWEEN INCREMENTAL VALUE ADDED AND  
 GROSS FIXED INVESTMENT, 1951-1959



Source: Table IV-22



TABLE IV-21

NET INVESTMENT IN MEZZOGIORNO AND PER CAPITA  
INCOME OF MEZZOGIORNO AS PERCENTAGE OF THE NORTH, 1950-59

| Year | Net Investment in<br>Mezz. as % of the<br>Net Investment in<br>the North | Per Capita Income in<br>Mezz. as Percentage<br>of the Per Capita Income<br>in the North |
|------|--|---|
|      | t-1  | t   |
| 1950 | 13.05  | 51.8  |
| 1951 | 11.41  | 48.6  |
| 1952 | 9.14   | 51.0  |
| 1953 | 8.22   | 48.8  |
| 1954 | 16.54  | 45.8  |
| 1955 | 9.49   | 46.2  |
| 1956 | 18.28  | 47.1  |
| 1957 | 11.02  | 44.3  |
| 1958 | 16.75  | 43.4  |
| 1959 | 11.22  | 41.8  |

Source: Prosp. 7, Informazioni, SVIMEZ, Anno XVI - nn. 9-10 -  
27 febbraio - 6 marzo 1963, p. 235

TABLE IV-22

GROSS FIXED INVESTMENT AND INCREMENTAL  
VALUE ADDED - MEZZOGIORNO, 1951-60

(in billions of lire)

| Year | Gross Fixed<br>Investment<br>t-1 | Incremental<br>Value Added<br>t |
|------|----------------------------------|---------------------------------|
| 1951 | 91.8                             | 24.8                            |
| 1952 | 124.8                            | 60.0                            |
| 1953 | 127.0                            | 31.6                            |
| 1954 | 118.4                            | 28.6                            |
| 1955 | 150.5                            | 30.8                            |
| 1956 | 147.7                            | 38.5                            |
| 1957 | 159.0                            | 54.2                            |
| 1958 | 153.9                            | 21.8                            |
| 1959 | 181.1                            | 68.4                            |
| 1960 | 249.6                            | -                               |

Source: 22 - "Cassa" Per il Mezzogiorno, I, pp. 336 &amp; 337

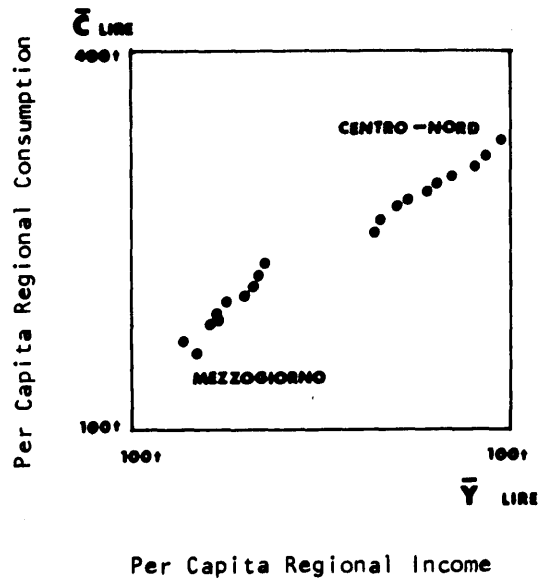
5. Consumption. The data on consumption were analyzed for the period 1951-1960. Table IV-23 shows the marginal and average propensity to consume for Mezzogiorno and the Centro-Nord. The trend in the consumption pattern, as in the case of other variables observed, is symptomatic of the existing dichotomy between the rich and the poor regions. The marginal propensity to consume for Mezzogiorno in the 1950's has been steadily increasing, while that of the North has been decreasing (Table IV-23).

A comparison is made in Table IV-20 between the values of per capita income of Mezzogiorno as a percentage of the North and the corresponding values for per capita consumption for the years 1951-60.

The data reveal that the per capita income of Mezzogiorno as a percentage of per capita income of the North during the decade dropped 10 percent, at the rate of 1.1 percent per annum (compounded). In the same time interval, Mezzogiorno's per capita consumption, as a percentage of per capita consumption of the North, remained relatively the same. The indication is that, while investments in Mezzogiorno could not match the amounts of investment on a per capita basis of the North, and thus close the gap of regional income inequality, it did succeed in keeping the ratio of per capita consumption relatively constant throughout the period. On the other hand, the higher propensity to consume, which is responsible for keeping the latter ratio constant over time, is an obstacle for a rapid growth of the Mezzogiorno. From a social point of view, the constancy of ratio of per capita consumption is desirable, in

FIGURE IV-14

ITALY  
 RELATION BETWEEN PER CAPITA REGIONAL INCOME AND  
 PER CAPITA CONSUMPTION FOR MEZZOGIORNO AND CENTRO-NORD, 1951-61  
 (1954 lire)



Source: Table B-20, Appendix B

TABLE IV-23  
 THE AVERAGE PROPENSITY TO CONSUME  
 BY TWO MAJOR GEOGRAPHIC REGIONS OF ITALY

$$* \frac{C}{Y} = 100$$

| Year    | %           | %           |
|---------|-------------|-------------|
|         | Mezzogiorno | Centro-Nord |
| 1951    | 104.9       | 85.0        |
| 1952    | 114.1       | 86.2        |
| 1953    | 108.5       | 86.4        |
| 1954    | 110.4       | 84.2        |
| 1955    | 111.7       | 80.8        |
| 1956    | 112.3       | 80.7        |
| 1957    | 108.0       | 79.2        |
| 1958    | 109.1       | 74.8        |
| 1959    | 111.6       | 75.6        |
| 1960    | 114.0       | 75.0        |
| 1951-60 | 110.6       | 80.5        |

\*C = Per Capita Consumption  
 Y = Regional Income Per Capita

Source: Table B-20, Appendix B

TABLE IV-24  
 PER CAPITA INCOME AND CONSUMPTION IN  
 MEZZOGIORNO AS PERCENTAGE OF THE CENTRO-NORD

(values in 1954 lire)

| Year    | %<br>Per Capita<br>Income<br>$\frac{\bar{Y}_M}{\bar{Y}_{C-N}}$ | Annual<br>%<br>Change | %<br>Per Capita<br>Consumption<br>$\frac{\bar{C}_M}{\bar{C}_{C-N}}$ | Annual<br>%<br>Change |
|---------|--|-----------------------|---|-----------------------|
| 1951    | 51.8   |                       | 63.9  |                       |
| 1952    | 48.6   | -6.5                  | 64.4  | .7                    |
| 1953    | 51.0   | 4.9                   | 64.0  | - .6                  |
| 1954    | 48.8   | -4.5                  | 64.0  | .0                    |
| 1955    | 45.8   | -6.1                  | 63.3  | -1.0                  |
| 1956    | 46.2   | .8                    | 64.3  | 1.5                   |
| 1957    | 47.1   | 1.9                   | 64.2  | - .1                  |
| 1958    | 44.3   | -5.9                  | 64.6  | .6                    |
| 1959    | 43.4   | -2.0                  | 64.1  | - .7                  |
| 1960    | 41.8   | -3.6                  | 63.6  | - .7                  |
| 1951-60 | 46.6   |                       | 64.1  |                       |

$\bar{Y}_M$  = Per Capita Income in Mezzogiorno

$\bar{Y}_{C-N}$  = Per Capita Income in Centro-Nord

$\bar{C}_M$  = Per Capita Consumption in Mezzogiorno

$\bar{C}_{C-N}$  = Per Capita Consumption in Centro-Nord

Source: Table 138, La 'Cassa' E Lo Sviluppo Del Mezzogiorno, Vol. I,  
 p. 348

spite of the declining ratio of the per capita income. If the Vanoni Plan has not yet been successful in its regional economic objectives (although it may still be too soon to judge), it has, however, already served a regional social objective.

6. Regional Centers. The shift in percentage share between the rural and urban population in Italy has been very slow between the years 1936-51.

On the regional basis, Mezzogiorno in 1936-38 had a 21.8 percent urban and 78.2 percent rural population. These percentage shares by 1951 were 24.1 and 75.9 respectively.

The North had a higher percentage of urban population in 1936-38 with 30.4, and by 1951 it had risen to 33.6 percent of the total population.

The pattern of urban growth and rural decline in Mezzogiorno in the context of Italian urbanization for the years for which data are available reveal most of the characteristics of depressed areas of underdeveloped countries. The highest rates of urbanization in the recent history of Italy belong to the 1930's. (Table IV-25). In 1936-38, the Northern urban areas had 17.7 percent in-migration. In the same period, Mezzogiorno had only 6.6 percent urban in-migration. The percentages show a considerable decline in the years 1947-49, but urban in-migration is still much higher in the North (7.9 percent as compared to 4.8 percent in the South). In 1951, Mezzogiorno had only .9 percent of its total population as migrants to urban centers as compared to 8.6 percent in the North.

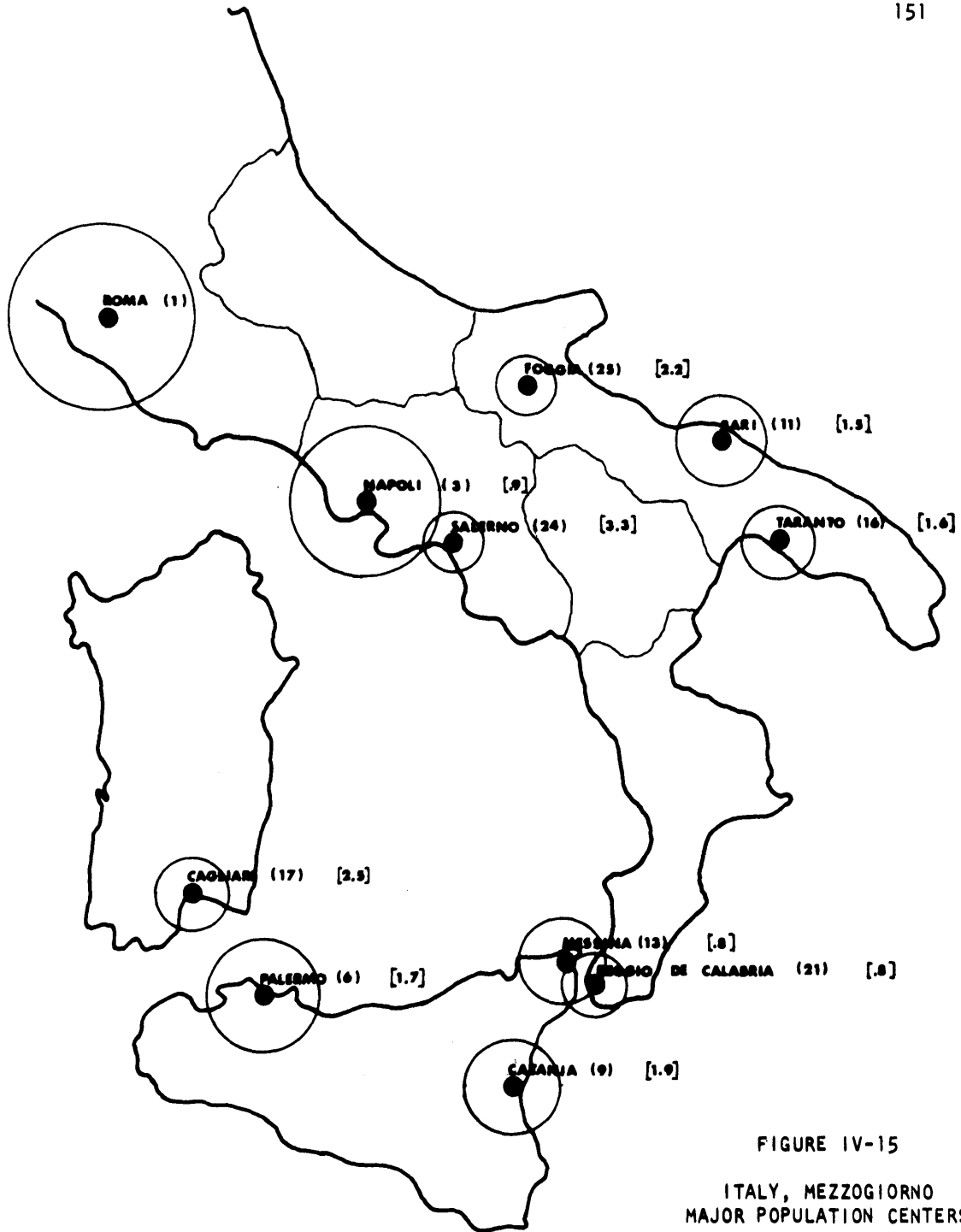


FIGURE IV-15  
 ITALY, MEZZOGIORNO  
 MAJOR POPULATION CENTERS



TABLE IV-25

RATE OF GROWTH OF URBAN AND RURAL POPULATION BY TWO MAJOR  
REGIONS FOR SELECTED YEARS AS PERCENTAGE OF EXISTING POPULATION

|             | Average<br>1936 - 1938 |                |                 | Average<br>1947 - 1949 |                |                 | 1951              |                |                 |
|-------------|------------------------|----------------|-----------------|------------------------|----------------|-----------------|-------------------|----------------|-----------------|
|             | Natural<br>Growth      | Migra-<br>tion | Net<br>Increase | Natural<br>Growth      | Migra-<br>tion | Net<br>Increase | Natural<br>Growth | Migra-<br>tion | Net<br>Increase |
| Mezzogiorno | 12.8                   | - 2.0          | 10.8            | 16.6                   | - 2.1          | 14.4            | 13.7              | - 4.4          | 9.3             |
| Urban       | 10.7                   | + 6.6          | 17.4            | 15.5                   | + 4.8          | 20.3            | 13.4              | + .9           | 14.3            |
| Rural       | 13.4                   | - 4.4          | 9.0             | 16.9                   | - 4.3          | 12.7            | 13.8              | - 6.0          | 7.8             |
| North       | 7.1                    | + 1.3          | 8.4             | 6.8                    | + 1.7          | 8.5             | 4.3               | + .8           | 5.1             |
| Urban       | 4.6                    | +17.7          | 22.4            | 4.7                    | + 7.9          | 12.6            | 3.2               | + 8.6          | 11.8            |
| Rural       | 8.1                    | - 5.7          | 2.4             | 7.9                    | - 1.3          | 6.6             | 4.9               | - 2.8          | 2.1             |
| ITALY       | 9.1                    | + .1           | 9.2             | 10.5                   | + .3           | 10.7            | 7.8               | - 1.1          | 6.7             |
| Urban       | 6.4                    | +14.5          | 20.9            | 7.9                    | + 7.0          | 14.9            | 6.3               | + 6.2          | 12.5            |
| Rural       | 10.1                   | - 5.2          | 4.9             | 11.4                   | - 2.5          | 9.0             | 8.4               | - 4.1          | 4.3             |

Source: SVIMEZ Statistics, Table 69, Wadsted 139 , Table 6A MZ, p. 58

The rate of migration to urban areas, however, should not be mistaken with the rate of growth of urban areas. Mezzogiorno's urban population growth rate was less than the North's in 1936-38 because of a high percentage rate of urban in-migration in the North. In 1947-49, the rate of net increase in urban population in Mezzogiorno was 20.3 percent as against 12.6 percent in the North. Almost 75 percent of this high rate of urban population increase was due to natural growth and only 25 percent could be attributed to the urban in-migration, while almost 40 percent of the net increase in urban population of the North was due to natural growth. In 1951, the situation in Mezzogiorno was worse: 93 percent of the net increase in urban population was caused by a natural increase, and 7 percent by rural-to-urban migration. Meanwhile 43 percent of the natural growth of the rural areas in Mezzogiorno was absorbed by urban areas (7 percent by urban centers within the Mezzogiorno and 36 percent by urban centers outside Mezzogiorno). The natural growth of urban areas as a percent of the total existing population of Mezzogiorno in 1951 was four times the corresponding percentage for the North. And the percentage of migration to urban areas for Mezzogiorno was one tenth of the corresponding percentage for the North.

This pattern of urban growth is similar to what Kingsley Davis has described as "overpopulation" and urbanization not caused by industrialization but merely by the natural growth of existing population in the cities.<sup>18</sup>

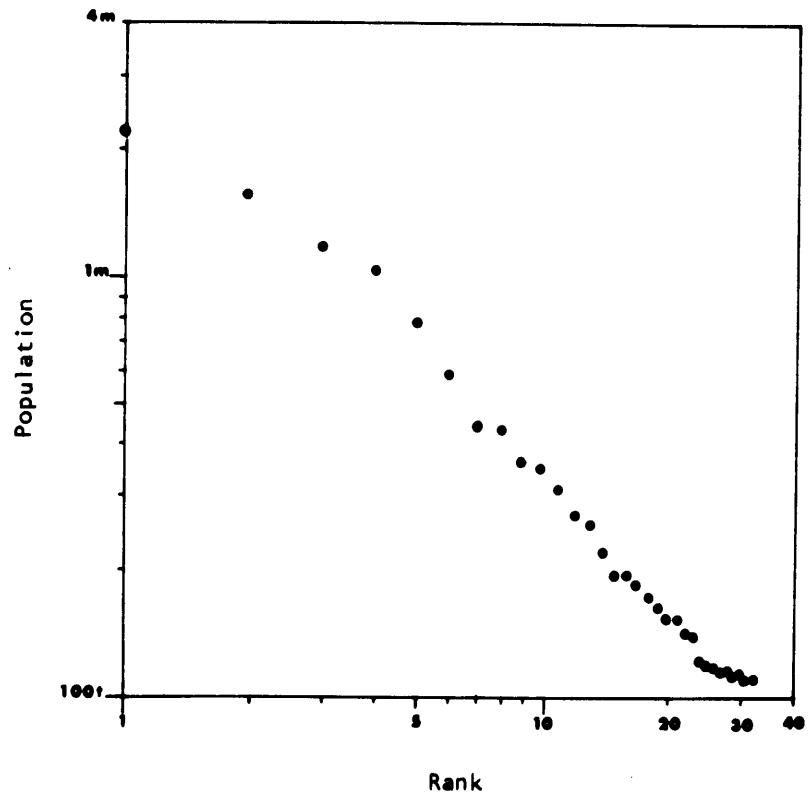
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<sup>18</sup>Davis, 30, pp. 17 and 18.

A rank-size distribution test is performed to observe the pattern of national distribution of cities according to their rank and size (Table B-21, Appendix B). The cities chosen are those with 100,000 or more population. The results of each pair of information (rank and size) plotted on a double-logarithmic scale for each city for the years 1961 and 1965 are shown in Figures 16 and 17. A  $45^\circ$  line with the slope of -1 can be fitted to the plotted rank-size values, indicating a normal distribution of cities in the Italian landscape. If such a line is fitted, Naples, Palermo, Catania and Bari among Southern cities show a higher population share than their corresponding rank values (above the  $45^\circ$  line). Other regional cities with 100,000 or more population are on or below the  $45^\circ$  line. These cities are Messina, Cagliari, Taranto, Reggio di Calabria, Salerno and Foggia.

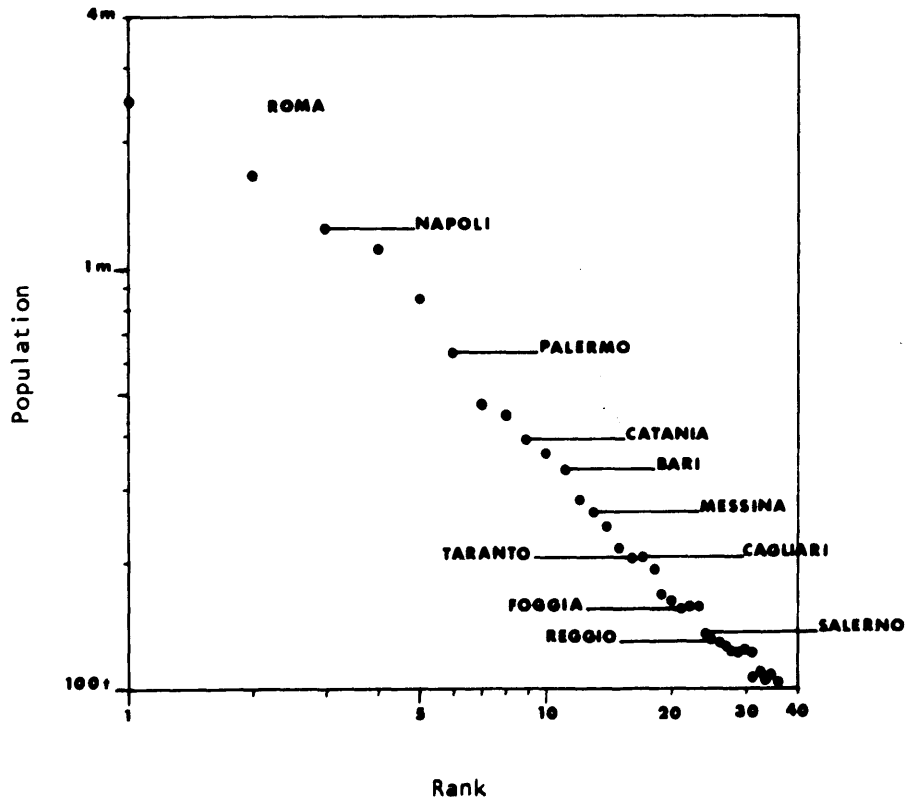
The normalcy of city-size distribution in Italy is due mostly to the high density of population on the land, higher natural increase in the South and short distances between the city centers. It is obvious that rank-size distribution analysis is not an accurate measure of the regional equality and normalcy. And, it is also important to note that a system of cities distributed along a  $45^\circ$  line with a downward slope according to their ranks and sizes is by no means representative of economic equality among regional entities. Nevertheless, rank-size distribution analysis, when made for comparison of the city structure between two countries, would reveal some facts about the stages of economic development,

FIGURE IV-16  
ITALY  
RELATION BETWEEN RANK AND SIZE OF 32 ITALIAN CITIES  
WITH 100,000 OR MORE INHABITANTS, 1961



Source: Table B-21, Appendix B

FIGURE IV-17  
 ITALY  
 RELATION BETWEEN RANK AND SIZE OF 36 ITALIAN CITIES  
 WITH 100,000 OR MORE INHABITANTS, 1965



Source: Table B-21, Appendix B

size and potential of local markets and growth poles in the regions.

7. Regional Migratory Movements. The mobilization of population, as expected, is higher in the North than in the South. In 1960, 3.16 percent of the population of the North emigrated either to the South or to some regional point within the North as against 2.80 percent in the South. But Mezzogiorno, with a lower migratory percentage index, had lost 135 thousand population in absolute numbers to the North in the same year. Within the Mezzogiorno itself, the rates of migration differ among sub-regions.

A test is performed to consider percentage emigration of the population to the North as an index of regional prosperity. Explicitly, the hypothesis states that a region is more prosperous, if it has a lower percentage of emigrants to the North. The general observation is that the variation in the ranks given to the percentages of emigrants to the North in Table IV-26 is tentatively in the same direction of variation of index of regional prosperity shown in Table IV-7, although the rank correlation coefficient is not found to be significant.

A second hypothesis postulates that the larger the per capita migratory movement is for each region, the lower the migration to the North and consequently the more prosperous the region will be.

The observation of the data, with some exceptions, proved the opposite. Five out of seven regions showed almost the same rank for per capita migratory movements in 1960 and percentage of migration to the North. In other words, the higher the per capita migratory

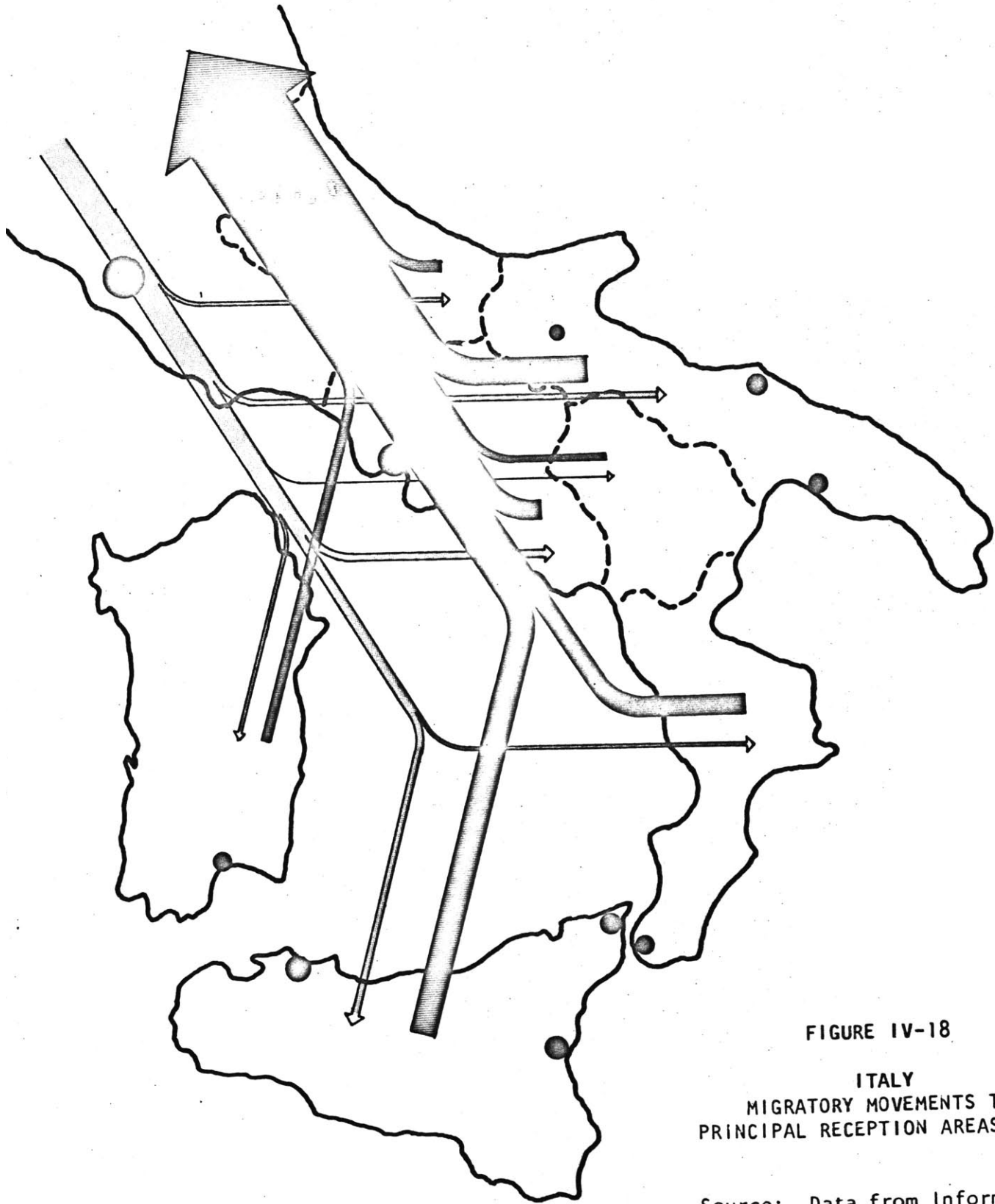
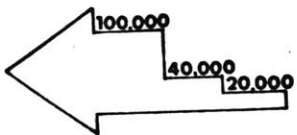


FIGURE IV-18

ITALY  
MIGRATORY MOVEMENTS TO  
PRINCIPAL RECEPTION AREAS, 1960

Source: Data from Informazioni  
SVIMEZ, 1963, p. 609



- ▬ Migrants to the North
- ▬ Migrants to the South

TABLE IV-26

MIGRATORY MOVEMENTS TO THE NORTH AND WITHIN  
MEZZOGIORNO AS PERCENTAGE OF TOTAL REGIONAL  
EMIGRATIONS BY SUB-REGIONS OF MEZZOGIORNO

|                  | Total | North | South |
|------------------|-------|-------|-------|
| Abruzzi & Molise | 100.0 | 34.83 | 65.17 |
| Campania         | 100.0 | 21.63 | 78.37 |
| Puglia           | 100.0 | 37.39 | 62.61 |
| Basilic          | 100.0 | 30.84 | 69.16 |
| Calabria         | 100.0 | 33.20 | 66.80 |
| Sicilia          | 100.0 | 23.88 | 76.12 |
| Sardegna         | 100.0 | 19.73 | 80.27 |

Source: Table 4, Informazioni SVIMEZ, Anno XIII - n. 19 -  
11 maggio 1960, p. 378



movements were, the higher the regional percentage of migration to the North. The two exceptional regions were Sardegna, with the lowest percentage of migratory movements to the North, but with the highest per capita mobility of population, and Puglia, with the second highest rank in the percentage migration to the North and the lowest per capita migratory movements.

#### D. SUMMARY OF FINDINGS AND CONCLUSIONS

The summary of the statistical analyses and the conclusions reached in this Chapter can be listed as follows:

- 1) A large size of population and a higher rate of natural growth in the South does not seem to be helping the development of the region. With the introduction of structural and technological changes in the Southern economy, however, the large size of population in the future may provide a large enough market for Mezzogiorno's products.
- 2) The level of production in the North is based on past production and years of massive and gradual investment in capital goods. A short-run investment program with all its natural limitations would not affect the productivity of the South, to close the gap of regional inequalities between the South and the North.
- 3) The planning experiments in Mezzogiorno during the 1950 decade were in a sense unsuccessful, since the percentage

share of income relative to the percentage share in population for the South declined, while it improved slightly for the North and to a higher degree for the central region. The same was true of the regional per capita incomes. It was suggested that the growth of the Central region may have a spatial implication, namely, that any investment in a depressed region which is geographically remote from an already highly developed area, would increase the rate of growth of a third region located between the two regions.

- 4) Per capita income of Mezzogiorno as a percentage of the North during 1951-60 declined. This is considered as evidence of failure of the Vanoni Plan to close the regional per capita income gap. It also points to the fact that prevailing economies of concentration and gravitational forces of existing market places are often underestimated by politicians. A policy of decentralization of economic activities must be supported with extraordinary and massive amounts of investment in capital goods as well as in human resources to reverse past trends, if this is considered to be a desirable goal. The Vanoni Plan with \$1 billion investment funds for ten years seems to be unproportional to the magnitude of the problems in Mezzogiorno.

The objective of regional equalization, if unsuccessful on a nation-wide basis, was successful in Mezzogiorno itself.

- 5) There were tremendous shifts in the sectoral structure of Mezzogiorno's economy in favor of industry, commerce and transportation. Mezzogiorno during 1951-60, showed the highest rate of growth in manufacturing because of large public and private investment (induced by the government). It holds the promise of bringing structural change to Mezzogiorno's economy. Among all sectors, only agriculture showed an absolute advantage over the North.
- 6) The investment in the South, even in the short-run, has caused the rise in per capita income. But the net investment in Mezzogiorno, as a percentage of the North has not increased the per capita income of Mezzogiorno as a percentage of the North. The conclusion may be drawn that, although investments did not satisfy the objective of regional equalization of income, they did help to raise the regional per capita income of the South in absolute terms, which in the absence of such investment, may have worsened.

The correlation between the gross fixed investment and the incremental value added was found to be non-significant because of the long-run nature of investments in the agriculture, transportation and communication and public works sectors. It is important to note that, when the objectives of an economic plan are on a long-term basis, statistical analysis of short-run trends may be quite misleading.

7) It was shown that investment in Mezzogiorno kept the region's per capita consumption constant as a percentage of the North during the 1950's, while the percentage of per capita income dropped. The conclusion was that the development program, although it has not achieved its economic goals, has at least served a social objective. It has kept the consumption level as a percentage of the North from falling.<sup>19</sup>

8) The Mezzogiorno contains several population centers of 100,000 and more inhabitants. Among ten top-ranked Italian metropolitan areas, three are in the Mezzogiorno: Naples (rank 3), Palermo (rank 6) and Catania (rank 9).

The urban centers of the South, within the Italian systems of cities, show relatively normal distribution when plotted according to their size and rank on a double-logarithmic paper. This normal distribution, however, is not representative of any kind of regional equality between the South and the North. Any industrialization policy based on urban-industrial expansion, as was the one accepted by the Italian government, must recognize the potentials of regional centers as competitive economic entities in the

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<sup>19</sup>Note that in this particular analysis and also in other types of analyses made in Chapter IV, the change of variables are considered mostly in relation to the North rather than absolute regional changes.

national market. For example, in choosing a center for industrial expansion in the South, one must follow the procedure of selecting a city with the closest rank to a major industrial center in the North, other factors (such as availability of resources) being equal.

- 9) The interregional migratory movement shows that the South, during the 1950's, still had not developed enough industrial activities to absorb unemployed labor. The more prosperous regions were generally those with lower percentage out-migration. The dispersion of economic activities over the entire Southern territory may have been responsible for the fact that during 1950-60, no strong regional center emerged to curb the out-migration of the labor force from Mezzogiorno and divert it toward Southern regional centers. The conclusion may be drawn that it is to the advantage of the South, at initial stages of development, to promote the rapid expansion of industries in cities such as Naples, Palermo, Catania and Bari, which already stand above the normal distribution line.<sup>20</sup>

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<sup>20</sup>The industrial development Areas and Nuclei already chosen far exceed the number suggested above. They are: Latina, Pescara, Caserta, Naples, Salerno, Bari, Brindisi, Taranto, Catania, Siracusa, Palermo and Cagliari. EIU, 135, p. 10.

In closing, we must reiterate our belief that, within the economic system of a developed country which suffers from regional inequalities, the strategy of concentrated decentralization proves to be the most practical solution for a rapid change in the regional economic structure, leading to rapid growth and a reduction of inequalities. The Italian experience has clearly shown the tendency of economic planning toward this strategy.

## CHAPTER V

### THE VENEZUELAN EXPERIENCE WITH THE STRATEGY OF CONCENTRATED DECENTRALIZATION - GUAYANA PROGRAM

#### A. INTRODUCTION

The development program for the Guayana region is a unique venture in many respects. The Guayana region has not been a highly populated or a depressed region. The rich natural endowments of the region have played a crucial role in its selection by the planning authorities for developmental programming. Therefore, the basic question in the case of Guayana to be answered, is whether the selection of any other region may have served the objectives of the plan better.

In this case study, the economic structure of the Guayana region is of no interest to us, since there have not been much development or sub-regional differentials within the Guayana region. Instead, our main objective, which is reflected throughout the investigation procedure of this Chapter, is to picture the Venezuelan economic structure in a regional context prior to the Guayana program.

The demographic and economic data from 1926 to 1965 are analyzed to answer the following questions:

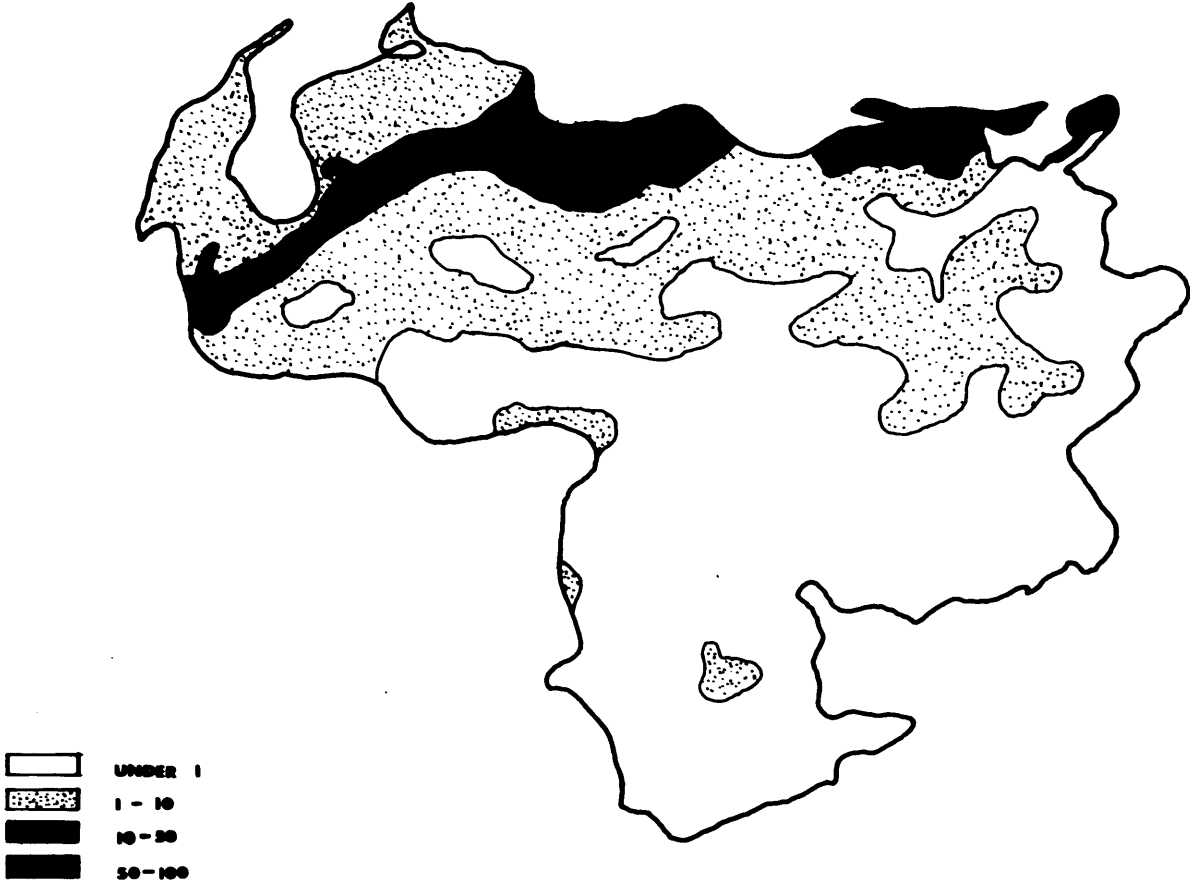
1. What forces have created the existing structure of Venezuelan economy? Has the historical pattern of concentration of population and economic activities in a few places and sectors served the development objectives?
2. What overall growth strategy prompted the Venezuelan planning authorities to choose the Guayana region for development?
3. What kind of regional standards have emerged from the historical development path? Have the regional differentials widened?
4. Is the Guayana program designed to be more responsive to the national growth objectives or to the specific regional goals? Would it help to close the gap among the regions?
5. Where does the Guayana program stand in the spectrum of 'balanced' vs. 'unbalanced' growth? Is the strategy of 'concentrated decentralization' in the Venezuelan case synonymous to 'unbalanced' growth?
6. Does the Guayana program serve the employment objective?
7. Would Ciudad Guayana be capable of competing with large established metropolitan centers of Venezuela for the absorption of people and economic activities?

## B. THE HISTORY OF REGIONAL ECONOMIC DEVELOPMENT IN GUAYANA

1. A Brief Review of the Historical Background. The history of Venezuela and her largest region, Guayana, both begin in the sixteenth century when Spanish explorers came to seek mineral wealth



FIGURE V-1  
VENEZUELA  
POPULATION DENSITY  
NUMBER OF INHABITANTS PER SQUARE KILOMETER



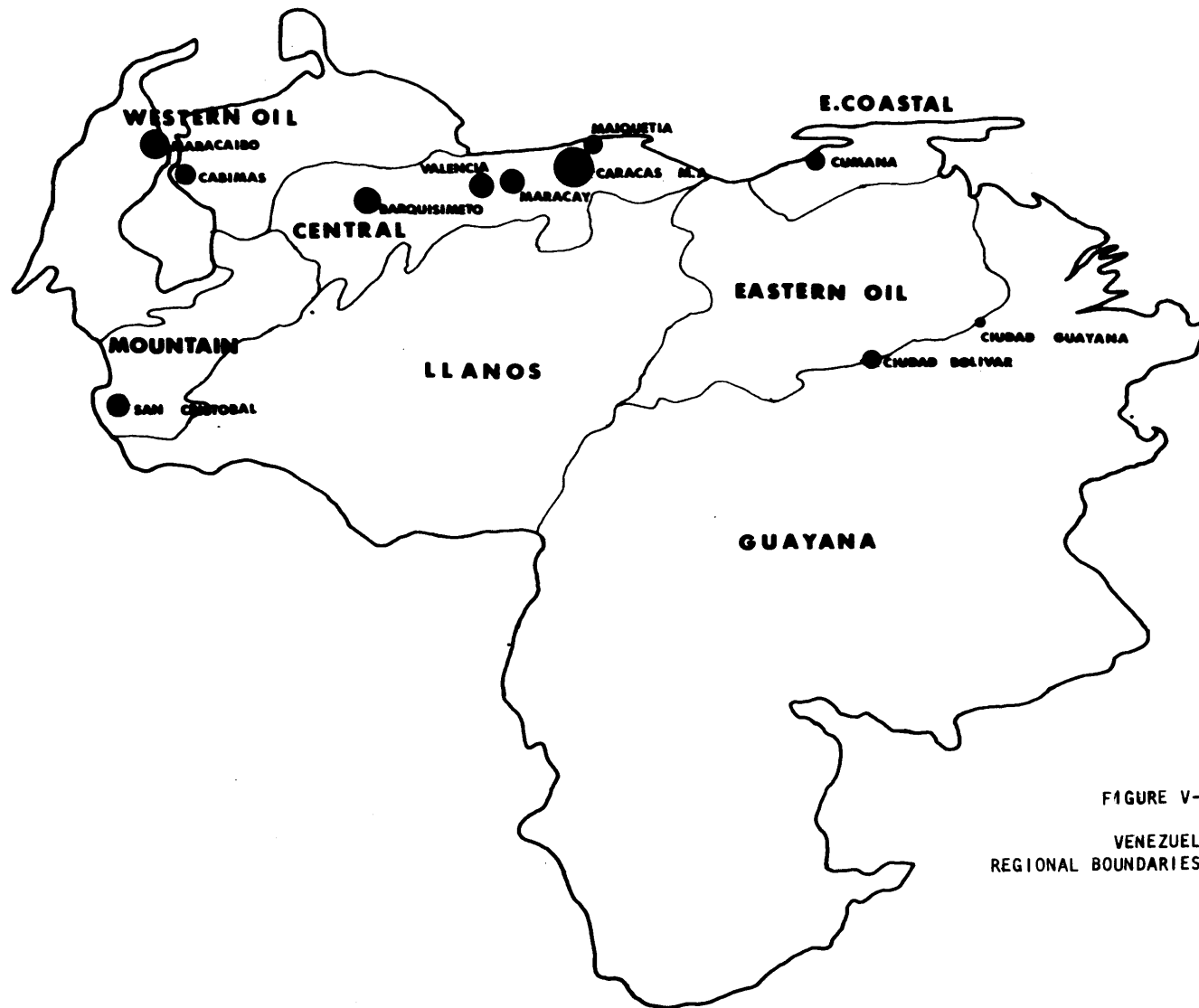


FIGURE V-2  
 VENEZUELA  
 REGIONAL BOUNDARIES AND CENTERS

in the mountains. In Guayana, the attraction of riches in unknown territories was highlighted by the search for the fabled region of El Dorado.<sup>1</sup> Whereas many lost their lives in the search and attempts at settlement failed in Guayana in the sixteenth and seventeenth centuries, other areas of Venezuela, after initial hopes of finding precious minerals had also faded, were successful in founding permanent settlements of farmers and ranchers, along the belt of fertile agricultural land in northern and northwestern Venezuela.<sup>2</sup>

In the face of unyielding topography and tropical climate, the Guayana region remained relatively inactive and by the middle of the 1700's could count only 8,000 population, with settlements along the lower course of the Orinoco, in the general area of Santo Tome de Guayana, along the lower Caroni and upper Cuyuni river basins, and at Upata, the only truly Spanish community, founded by civil authorities in 1762.<sup>3</sup> By 1825, the population had risen to 21,000. There was a surge of activity and growth after 1829, when commercial gold mining operations were begun in Callao, south of Upata, but after 50 years' operation, the mines closed. The population in 1890, partly reflecting the impact of the Callao mining activities was 56,000.<sup>4</sup>

Other regions of Venezuela, which had been developing a more

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<sup>1</sup>Friedmann, John, 39, p. 170.

<sup>2</sup>Ibid., p. 127.

<sup>3</sup>Ibid., pp. 173-174.

<sup>4</sup>Ibid., p. 174.

substantial, if still primitive agrarian society in the rich western mountain country in the seventeenth and eighteenth centuries, also developed town centers as points of access, distribution centers, instruments of colonization, and sub-centers for political authority.<sup>5</sup> Having first been founded as mining centers, or if on the coast, as port centers, these towns by the middle of the twentieth century have grown to be among the largest urban centers in Venezuela. Among them are Caracas, Maracaibo, Barquisimeto, Valencia, San Cristobal, Valera, Merida, and Puerto Cabello.<sup>6</sup>

By the end of the nineteenth century, Venezuela was still sparsely settled with a total population under three million, it had an agrarian economy with isolated centers of commerce, distribution, and administration, produced sugar, tobacco, hides, cacao, and coffee for export, and had a long political history of strong dictatorships arising from feudal control of land by wealthy land owners.<sup>7</sup>

A turning point in the economic development of Venezuela came at the close of World War I, when European and American oil companies began to invest in and develop oil producing areas. By 1925, the "boom" had begun, and the impact on Venezuelan society

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<sup>5</sup> ibid., pp. 145-146.

<sup>6</sup> ibid., p. 145.

<sup>7</sup> ibid., p. 129.

was strongly evident by the mid-1940's. Urban areas had grown, the agricultural sector had declined, and census figures for 1950 showed a total population of 5 million.<sup>8</sup> The pressures arising from an unequal distribution of wealth, however, forced a change in governmental structure in 1958, and with a more democratic form of government, a new system of national economic planning was initiated.<sup>9</sup> It is worth noting that Venezuela, having been an agricultural society for at least four centuries, counted in its 1961 census, 4.3 million people, nearly 60 percent of the total population, living in 128 cities throughout the country.<sup>10</sup>

Although not untouched by the oil-based growth and prosperity of Venezuela as a whole, the Guayana region has, however, staked its future economic development on different primary sources -- iron ore and water power.<sup>11</sup> In the early 1950's, commercial iron ore mining was begun at El Pao and Cerro Bolivar by Venezuelan subsidiaries of Bethlehem Steel and U.S. Steel. The Venezuelan government not only gave assistance, but enlarged the scope of the economic program, so that by 1958, when the major change in

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<sup>8</sup> Ibid., p. 236.

<sup>9</sup> Ibid., p. 123.

<sup>10</sup> Ibid., p. 133. A city is defined as containing 5,000 or more inhabitants.

<sup>11</sup> Ibid., p. 175.

the national government had taken place, the following programs had already commenced: the first of a series of hydroelectric dams, a nationally-owned steel plant on the Orinoco, the dredging of a deep channel for ocean-going vessels through the Orinoco delta, and narrow-gauge railways leading into the two iron ore mining areas.<sup>12</sup> The program and projects have since been expanded and were incorporated in 1960 under the title of the Corporación Venezolana de Guayana (CVG).

2. Recent Development Planning Activities. The Alliance for Progress prompted most of the Latin American countries to adopt some kind of national planning policies not only to achieve strictly economic goals, but to bring democracy and equality to the nations of a fast-growing continent.

Venezuela's Plan de la Nación was one example of these planning activities and probably the most ambitious one.<sup>13</sup>

The Guayana regional program was designed as an integrated part of the national economic plan. The main objective of the Guayana program, in general, was to help achieve a certain national rate of growth, and in particular, to create a base for heavy industry in the region as a first step toward sectoral diversification. The program was also designed to create a new regional economic pole away from the existing large centers of population, and decentralize

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<sup>12</sup> Ibid., pp. 175-176.

<sup>13</sup> Blanco and Ganz, 14, p. 60.

the already over-concentrated demographic and economic system.

Of the above objectives, heavy weight must be assigned to the strong desire of a new breed of politicians and economists in Venezuela, to shift the source of foreign exchange earnings of the country from oil to other industries, if not wholly, then by as much of a balance as can be reached. Sectoral diversification, however, cannot be meaningfully justified on the grounds of raising the national growth rate, since the Venezuelan economy prior to 1960 had always enjoyed a high rate of growth. The desire for diversification and balanced growth can only be described in terms of political realities of the world as viewed by politicians.

The Plan de la Nación, 1963-1966 and the Plan de la Nación, 1965-1968 have set the targets at the national level. Production of goods and services are planned to rise 7 percent per annum. Such a rate of growth would mean a tripling of the per capita gross income of the country by 1980.<sup>14</sup> The long-run sectoral objectives of the plans for the growth rates in the period 1965-80 are:

- 1) to raise the rate of growth of agricultural production to twice that of population growth,
- 2) to curtail the rate of growth of mining and petroleum to slightly more than one-third of the rate achieved in the period 1936-58, (9.1),
- 3) to increase the rate of growth of manufacturing to 10.8 percent

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<sup>14</sup>Blanco and Ganz, 14, p. 62.

per annum, one and one half times the rate of growth in 1936-58, and

- 4) to keep the rate of growth of construction, power, commerce and service sectors slightly lower than the 1936-1958 period, at 7.4 percent per annum.

The highest rate of growth in employment is planned for manufacturing, 6.1 percent per year for the period 1964-1980. The national average rate of growth in employment for the same period is set at 3.6 percent per year.<sup>15</sup>

The Guayana program's objectives are dramatic only with respect to the percentage share of the region in total manufacturing products, 21.0 percent in 1980, and the percentage share in exports, 23.5 percent in the same year.

The gross product per worker in Guayana will be more than three times that of the nation by 1980. But Guayana will employ only a minute fraction of the national labor force, 2.3 percent by 1980. Thus, the Guayana regional program will primarily serve the national objectives. Although it contributes more to the regional income than its proportional share of the national income, it should, however, be considered mostly as a sectoral development program rather than a regional program.

### C. STATISTICAL ANALYSIS OF THE DATA

1. Growth of Population and Product. The population of Guayana was 3.0 percent of the national population in 1936. In 1961, this

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<sup>15</sup>Blanco and Ganz, 14, Table 3.2 and 3.3, p. 63.



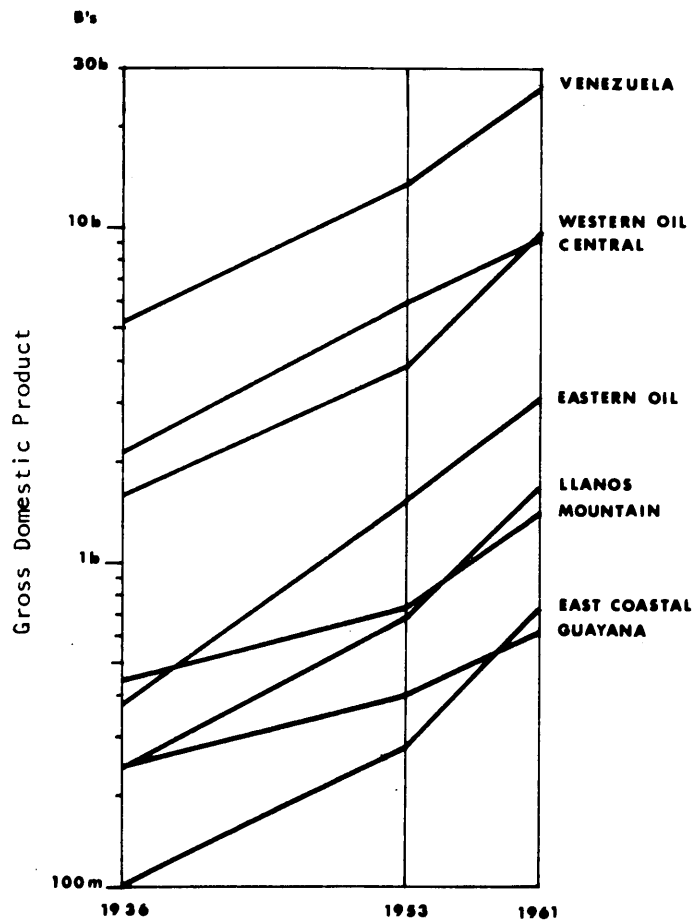
TABLE V-1  
 POPULATION OF SEVEN MAJOR REGIONS  
 OF VENEZUELA FOR SELECTED YEARS

(in thousands)

|              | 1936  | 1953  | 1961  | Annual Rate of Growth |            |            |
|--------------|-------|-------|-------|-----------------------|------------|------------|
|              |       |       |       | 36-53<br>%            | 53-61<br>% | 36-61<br>% |
| Western Oil  | 490   | 913   | 1,260 | 3.7                   | 4.1        | 3.8        |
| Mountain     | 640   | 856   | 1,000 | 1.8                   | 2.0        | 1.8        |
| Central      | 1,220 | 2,165 | 3,100 | 3.4                   | 4.6        | 3.8        |
| Llanos       | 350   | 560   | 780   | 3.8                   | 4.2        | 3.3        |
| East Coastal | 340   | 421   | 490   | 1.3                   | 1.9        | 1.5        |
| Eastern Oil  | 220   | 462   | 630   | 4.5                   | 3.9        | 4.3        |
| Guayana      | 100   | 169   | 260   | 3.2                   | 5.5        | 3.9        |
| Venezuela    | 3,360 | 5,546 | 7,520 | 3.0                   | 3.9        | 3.3        |

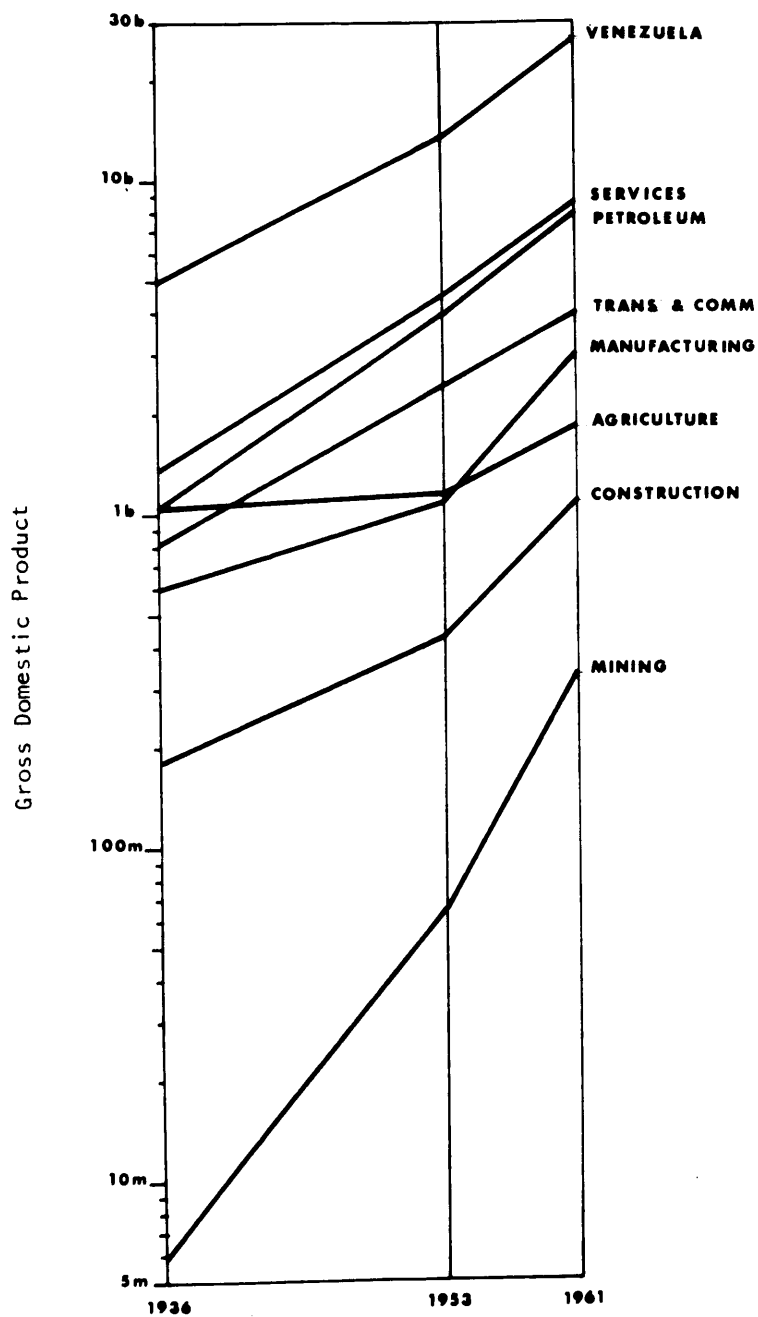
Source: For 1936 and 1961, Friedman 39.  
 1953 population figures are derived by extrapolation of 1950 data (given by Friedmann as the national total and regional percentage distribution) by applying the rate of growth for regional population between 1936 - 1961.

FIGURE V-3  
 VENEZUELA  
 GROSS DOMESTIC PRODUCT BY  
 REGION, 1936, 1953, 1961  
 (1957 bolivares)



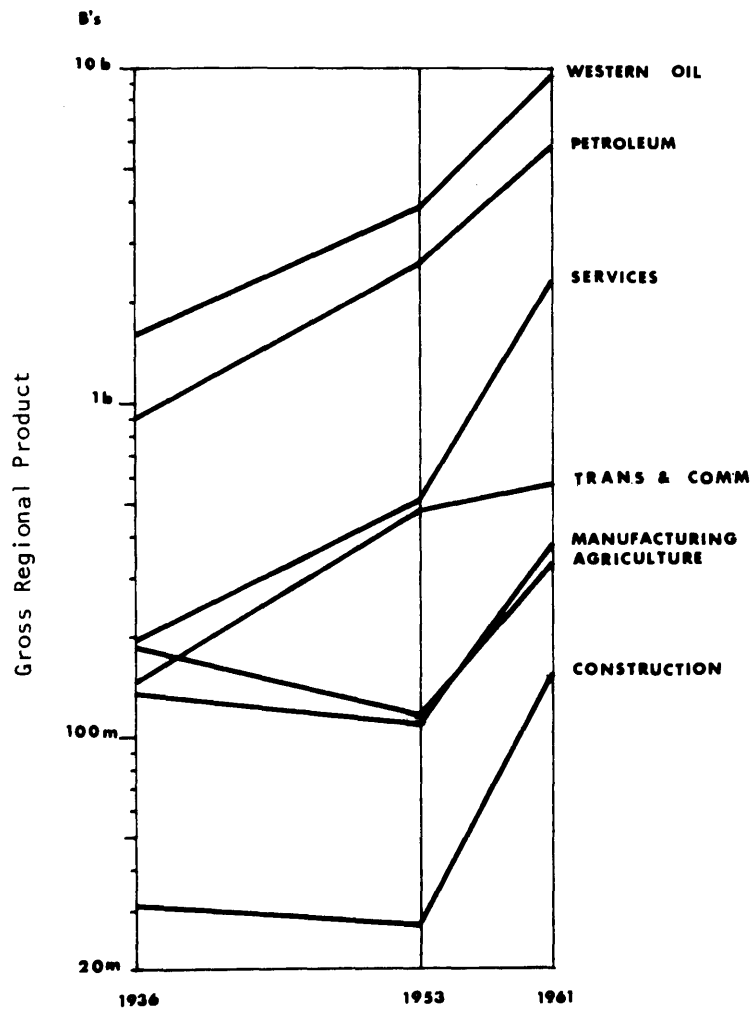
Source: Tables C-4, C-5 and C-6, Appendix C

FIGURE V-4  
 VENEZUELA  
 GROSS DOMESTIC PRODUCT BY SECTOR, 1936, 1953, 1961  
 B's (1957 bolivares)



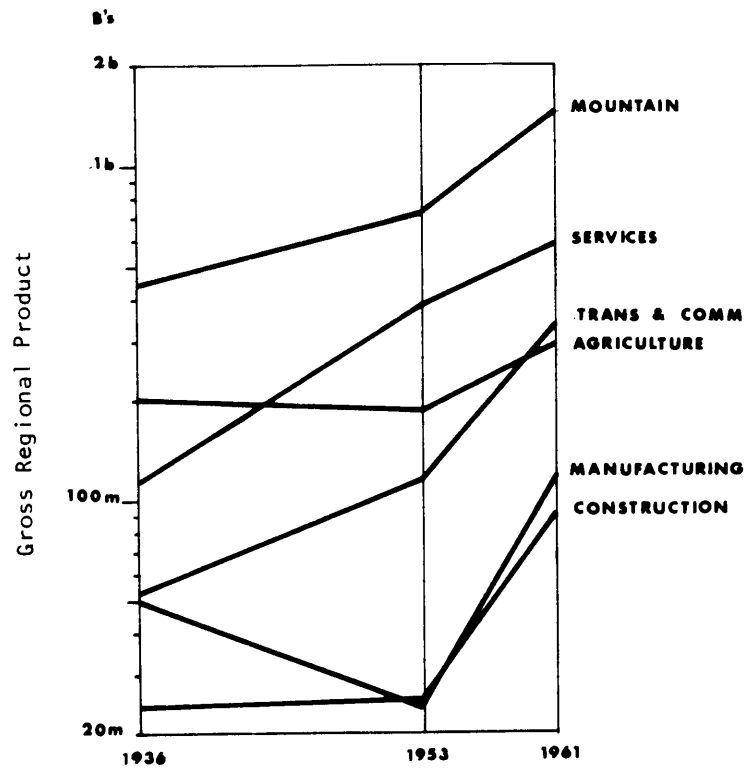
Source: Tables C-4, C-5 and C-6, Appendix C

FIGURE V-5  
 VENEZUELA, WESTERN OIL  
 GROSS REGIONAL PRODUCT BY SECTOR, 1936, 1953, 1961  
 (1957 bolivares)



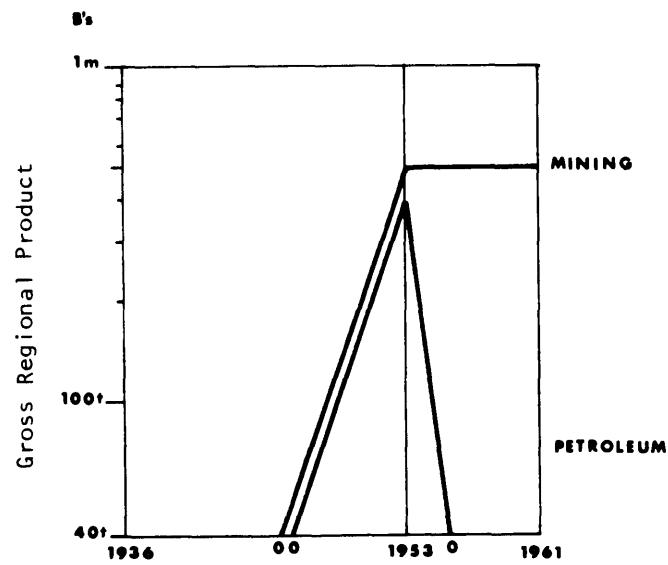
Source: Tables C-4, C-5 and C-6, Appendix C

FIGURE V-6  
 VENEZUELA, MOUNTAIN  
 GROSS REGIONAL PRODUCT BY SECTOR, 1936, 1953, 1961  
 (1957 bolivares)



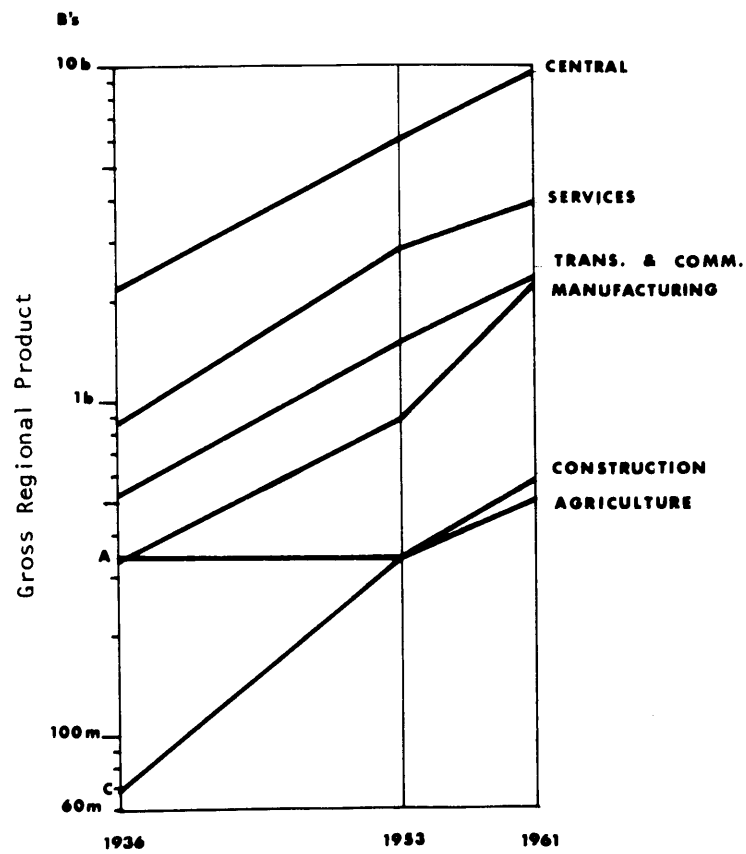
Source: Tables C-4, C-5 and C-6, Appendix C

FIGURE V-6a  
VENEZUELA, MOUNTAIN  
GROSS REGIONAL PRODUCT BY SECTOR, 1936, 1953, 1961  
(1957 bolivares)



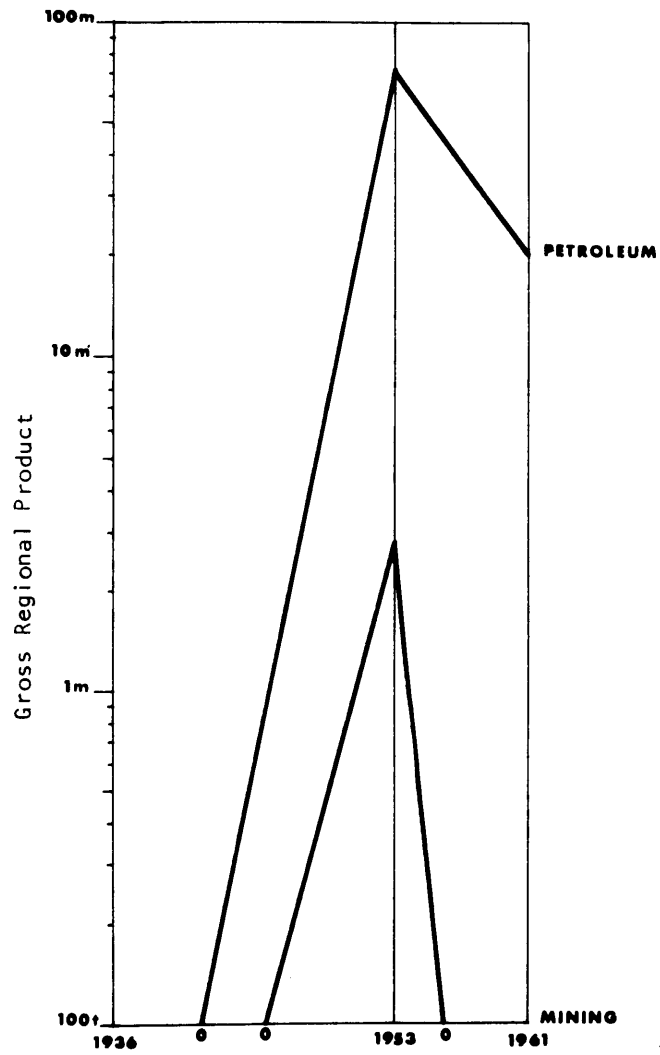
Source: Tables C-4, C-5 and C-6, Appendix C

FIGURE V-7  
 VENEZUELA, CENTRAL  
 GROSS REGIONAL PRODUCT BY SECTOR, 1936, 1953, 1961  
 (1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C

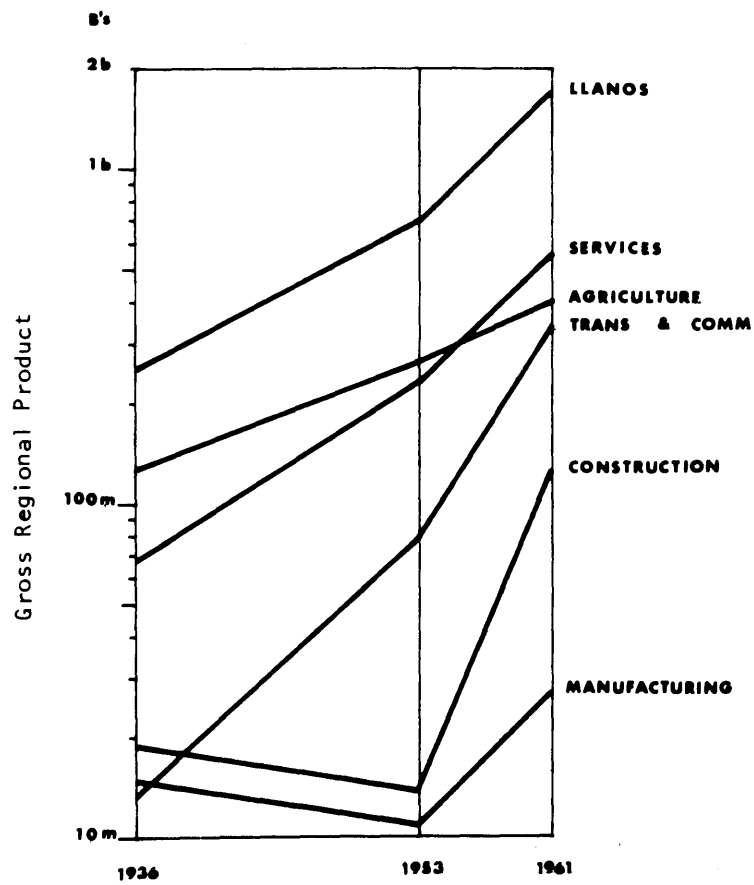
FIGURE V-7a  
 VENEZUELA, CENTRAL  
 GROSS REGIONAL PRODUCT BY SECTOR, 1936, 1953, 1961  
 (1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C

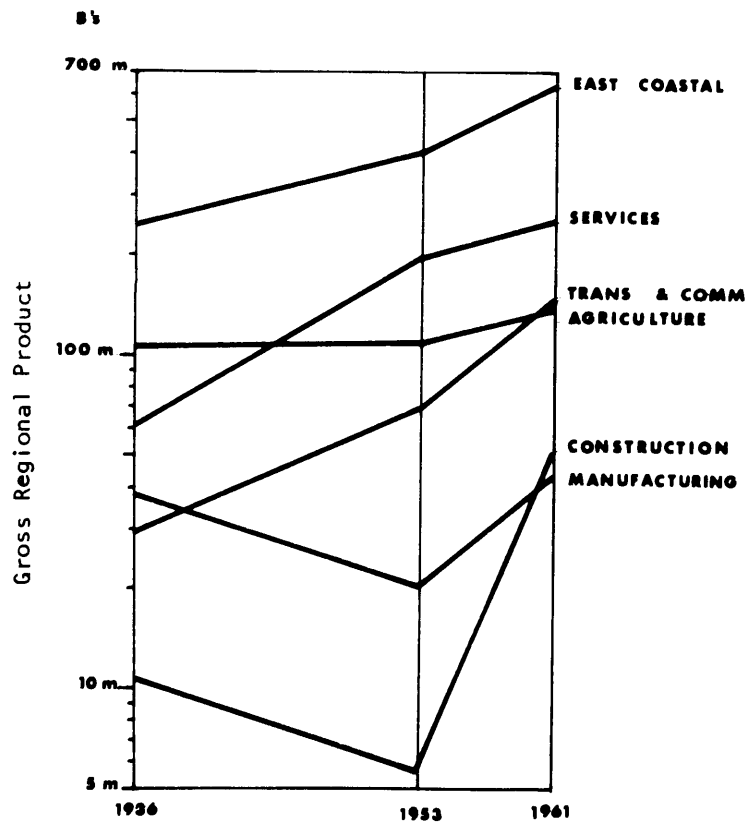


FIGURE V-8  
 VENEZUELA, LLANOS  
 GROSS REGIONAL PRODUCT BY SECTOR, 1936, 1953, 1961  
 (1957 bolivares)



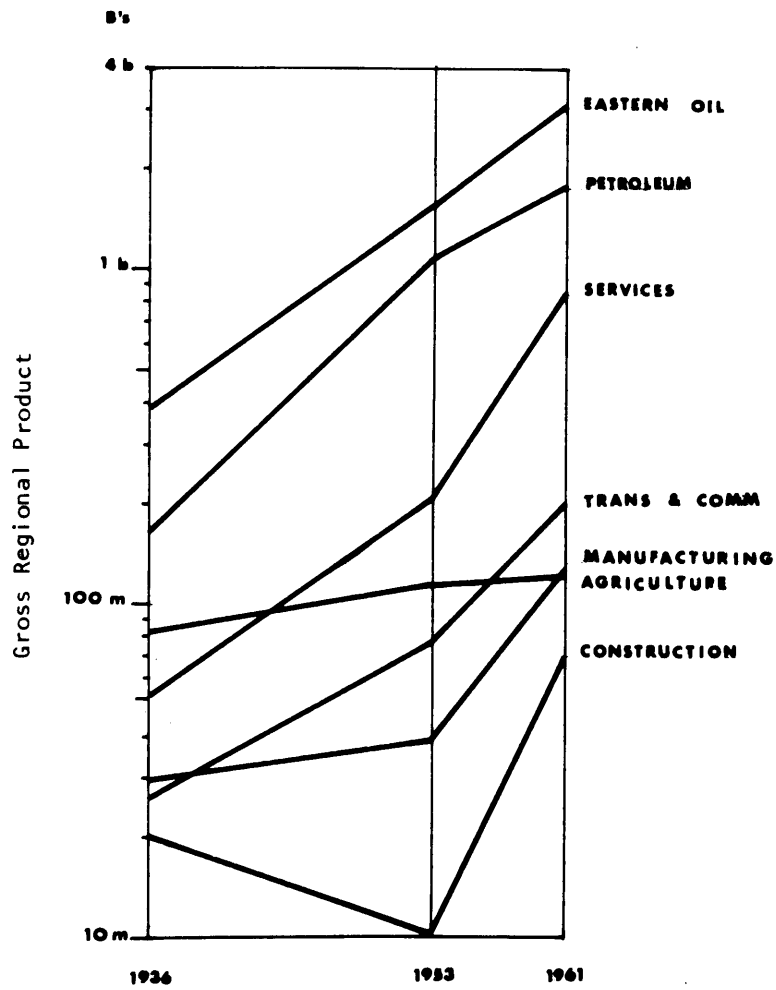
Source: Tables C-4, C-5 and C-6, Appendix C

FIGURE V-9  
 VENEZUELA, EAST COASTAL  
 GROSS REGIONAL PRODUCT BY SECTOR, 1936, 1953, 1961  
 (1957 bolivares)



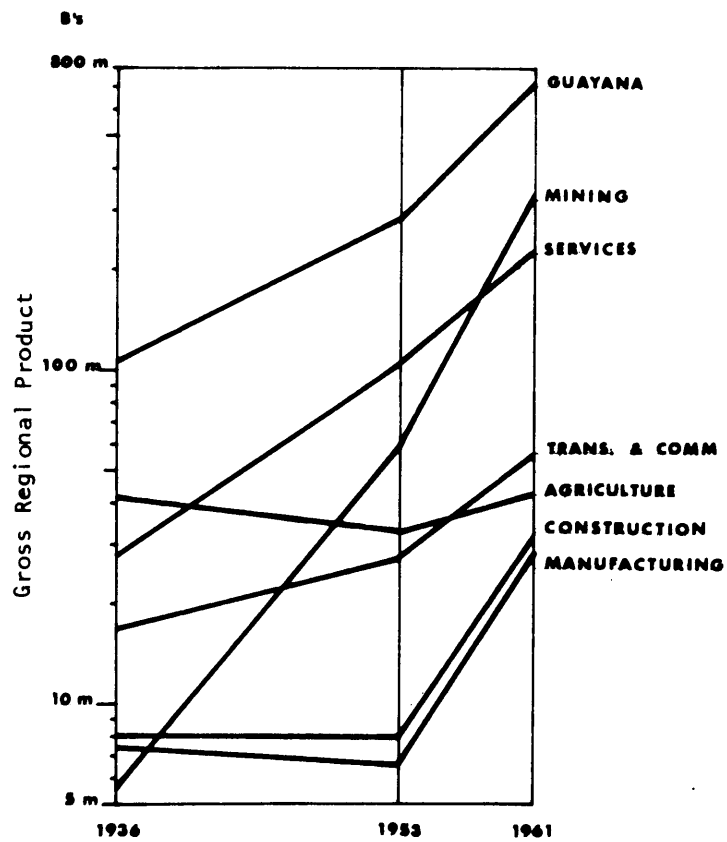
Source: Tables C-4, C-5 and C-6, Appendix C

FIGURE V-10  
 VENEZUELA, EASTERN OIL  
 GROSS REGIONAL PRODUCT BY SECTOR, 1936, 1953, 1961  
 (1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C

FIGURE V-11  
 VENEZUELA, GUAYANA  
 GROSS REGIONAL PRODUCT BY SECTOR, 1936, 1953, 1961  
 (1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C

percentage rose to 3.5, and an increase occurred between 1953 and 1961. Therefore, Guayana has never had a population problem with respect to congestion or unemployment of the labor force. The region has been thinly settled and still is.

The shift in share of population, however, has been more dramatic for the other regions of Venezuela. In general, two oil states and the Central region of which Caracas is a part, have gained between 2-5 percent of the total population within a quarter of a century. The Llanos region had the same percentage share in 1961 as it did in 1936. The two other states, Mountain and the East Coastal, were the only losers of population during 1936-61 (Table V-2).

During the period 1936-53, the Eastern Oil region grew at the highest rate, 4.5 percent per annum. The Western Oil, the Central and the Guayana regions all grew at a higher rate than the national average. The Mountain, the East Coastal and the Llanos Regions increased their population at rates lower than the national average (Table V-1).

During 1953-61, all the regions with the exception of Eastern Oil grew at rates higher than the previous time interval. Guayana with the smallest percentage share in total population had the highest rate of growth in the nation, 5.5 percent. Next in ranking was the Central region with a 4.6 percent rate of growth per year. The Central region accounted for 41.1 percent of the total national population in 1961, the highest ever. If there has been any apparent problem with regard to population growth in Venezuela, the trend

TABLE V-2  
PERCENTAGE DISTRIBUTION OF POPULATION  
BY SEVEN MAJOR REGIONS OF VENEZUELA,  
FOR SELECTED YEARS, 1936, 1953 and 1961

| Region       | 1936 | 1953 | 1961 |
|--------------|------|------|------|
| Western Oil  | 14.6 | 16.5 | 16.8 |
| Mountain     | 19.1 | 15.4 | 13.3 |
| Central      | 36.3 | 39.1 | 41.1 |
| Llanos       | 10.4 | 10.1 | 10.4 |
| East Coastal | 10.1 | 7.6  | 6.5  |
| Eastern Oil  | 6.5  | 8.3  | 8.4  |
| Guayana      | 3.0  | 3.0  | 3.5  |

Source: Table V-1

toward high concentration in the Central region can be counted as the most important one. The closest regions to the Central in terms of regional population growth rates (excluding Guayana) in the period 1953-61 were Western Oil and Llanos. The geographical proximity of the Llanos states to the Central states can partially explain the fast growth of the former.

The high rate of population growth of Guayana, which is undoubtedly a direct result of investment in the Guayana project, may not have any effect on the pattern of population distribution in the rest of Venezuela, even in the long-run.

The pattern of regional income distribution of Venezuela has changed slightly over 25 years, from 1936-1961. In 1936, the Central region produced 41.4 percent of the gross national product. Its share in 1953 was 44.2 percent. During 1953-61, the regional share of the Central states dropped from 44.2 percent to 35.4 percent, which, with regard to the increase of population of the Central region, can be considered as a sign of a diminishing return at the center.

The Guayana region, whose percentage share of national income remained unchanged between 1936-53, increased its percentage share from 2.1 to 2.7 percent during 1953-61. The Mountain and the East Coastal regions experienced a continuous decline from 1936 to 1961. The Western Oil region showed a large shift in the percentage share of income, surpassing the Central region for the first time. Its share in total national income increased from 30.9 percent in 1953 to 36.2 percent in 1961. The Eastern Oil states' income share

during the same period increased slightly (Table V-3).

The regional income growth from 1936 to 1961 has been correlated with the rate of population growth. The rate of increase of regional income during 1936-53 was at least one and one half times the rate of population growth, for the Mountain states, and was at most double the rate of population growth for the Eastern Oil region.

In the period 1953-61, the gross product of Venezuela increased by 9.1 percent per year. Some of the regions' incomes grew at rates three times the rate of population growth (Guayana, Llanos and Western Oil, and East Coastal). The Mountain states' income grew four times faster than its population (Table V-4).

The ratio of percentage income share by regions to the percentage regional population shares, called the index of prosperity, is shown for each region and for the years 1936, 1953 and 1961 in Table V-5. The results are accurate indicators of the regional economic changes over the 25-year period, 1936-1961.

According to the index, the Western Oil region has been the most prosperous region throughout the period 1936-61, with a low point in 1953.

The Central region, which in 1936, had a higher percentage share of income than population, had reversed its condition in 1961. Its index has steadily decreased since then.

The Eastern Oil region, ranked third in 1936, rose to the second rank in 1953 and remained so in 1961, although the value of the index decreased during 1953-1961.



TABLE V-3  
PERCENTAGE DISTRIBUTION OF INCOME BY  
SEVEN MAJOR REGIONS OF VENEZUELA,  
FOR SELECTED YEARS, 1936, 1953 and 1961

| Region       | 1936 | 1953 | 1961 |
|--------------|------|------|------|
| Western Oil  | 31.1 | 28.5 | 36.2 |
| Mountain     | 8.6  | 5.5  | 5.3  |
| Central      | 41.4 | 44.2 | 35.4 |
| Llanos       | 4.8  | 5.2  | 6.3  |
| East Coastal | 4.8  | 3.0  | 2.4  |
| Eastern Oil  | 7.2  | 11.5 | 11.7 |
| Guayana      | 2.1  | 2.1  | 2.7  |

Source: Tables V-8, V-9 and V-10

TABLE V-4  
 THE RATES OF GROWTH OF GROSS PRODUCT  
 FOR SEVEN MAJOR REGIONS OF VENEZUELA  
 FOR 1936-53, 1953-61 and 1936-61 PERIODS

| Region       | 1936-53<br>% | 1953-61<br>% | 1936-61<br>% |
|--------------|--------------|--------------|--------------|
| Western Oil  | 5.8          | 11.2         | 7.5          |
| Mountain     | 3.0          | 8.7          | 4.8          |
| Central      | 5.9          | 6.8          | 6.2          |
| Llanos       | 6.2          | 11.8         | 8.0          |
| East Coastal | 3.0          | 5.9          | 3.9          |
| Eastern Oil  | 9.0          | 8.8          | 8.9          |
| Guayana      | 4.0          | 16.4         | 8.0          |
| Venezuela    | 5.8          | 9.1          | 6.8          |

Source: Computed from Tables V-14 & V-15 and Tables C-4 & C-6,  
 Appendix C

Of four regions with values below one (unity), the Mountain states have been deteriorating, although they have shown some sign of improvement from 1953 to 1961; the Llanos has been steadily improving and occupied the fifth rank among the seven regions in 1961; the East Coastal region has been declining over this 25 year period, holding the lowest value for the index in 1961. Finally, the Guayana region, ranked fourth in 1936, has kept its rank in 1961 with slight improvement in the index value (Table V-5).

A regression line was fitted to each set of paired data on percentage share regional income and percentage share regional population for each of the three years 1936, 1953 and 1961.<sup>16</sup>

The coefficients of correlations were found for the three sets of data. The results are as follows:

$$r_{1936} = .8274 \quad (\text{the null hypothesis is rejected at the } .025 \text{ level of significance})$$

$$r_{1953} = .8744 \quad (\text{the null hypothesis is rejected at the } .01 \text{ level of significance})$$

$$r_{1961} = .7874 \quad (\text{the null hypothesis is rejected at the } .025 \text{ level of significance})$$

The improvement of the coefficient of correlation in 1953 relative to 1936 can be interpreted as a tendency toward regional income

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<sup>16</sup>The regression equations fitted to the percentage values of income share (y) and the percentage values of population share (x) for 1936, 1953 and 1961 are:

$$1936: \quad y = 2.2663 + 1.1586x$$

$$1953: \quad y = 2.2905 + 1.1603x$$

$$1961: \quad y = .8863 + .9379x$$

TABLE V-5  
INDEX OF PROSPERITY FOR SEVEN MAJOR  
REGIONS OF VENEZUELA FOR 1936, 1953 AND 1961

| Region       | 1936 | 1953 | 1961 |
|--------------|------|------|------|
| Western Oil  | 2.13 | 1.87 | 2.15 |
| Mountain     | .45  | .35  | .39  |
| Central      | 1.14 | 1.07 | .86  |
| Llanos       | .46  | .51  | .60  |
| East Coastal | .47  | .39  | .36  |
| Eastern Oil  | 1.10 | 1.43 | 1.39 |
| Guayana      | .70  | .53  | .77  |

Source: Computed from Tables V-1 and V-3.  
For the formula, see Section F-3 of Chapter III.

FIGURE V-12, FIGURE V-13 AND FIGURE V-14

VENEZUELA  
RELATION BETWEEN PERCENTAGE  
SHARE OF REGIONAL INCOME  
AND PERCENTAGE SHARE OF  
REGIONAL POPULATION

FIGURE V-12  
1936

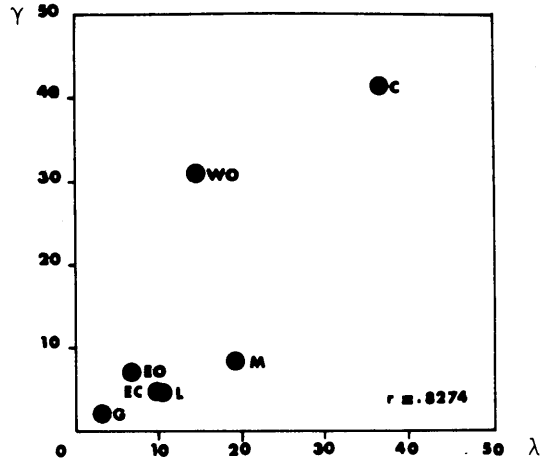


FIGURE V-13  
1953

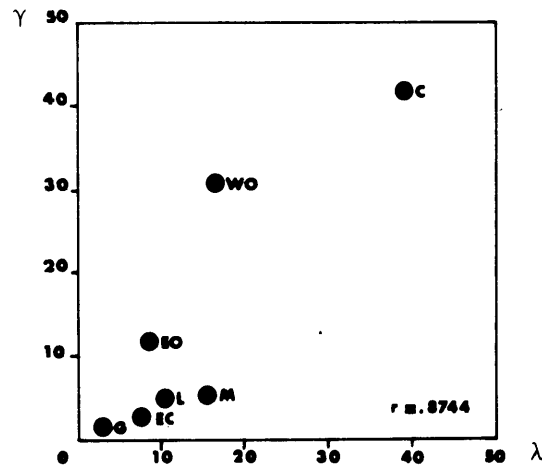
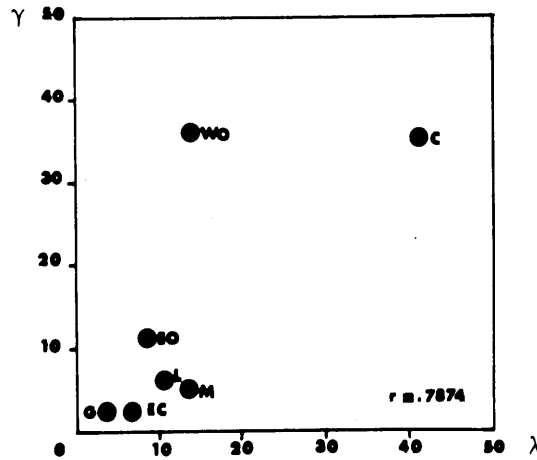


FIGURE V-14  
1961



Source: Friedmann, 39

equalization. The worsening of the coefficient in 1961, in the same way, can be attributed to three major factors: 1) deliberate national economic policy of the government favoring further exploitation of already high-income regions such as Western Oil, 2) deterioration of the economic conditions at the center - Central region, and 3) lack of a national policy to deal with the problem of depressed areas such as the Mountain and East Coastal regions.

2. Per Capita Income. The per capita income<sup>17</sup> of the Guayana region increased at the lowest rate in the nation during the period 1936-53. It increased at the highest rate in the nation during the years 1953-61 (Table V-6). In absolute terms, however, the Guayana region ranked fourth among seven regions of Venezuela, after Western Oil, Eastern Oil and the Central states, and it amounted to two thirds of the per capita income in the Central region, and almost one third of the highest per capita income region, Western Oil.

Although the two relatively depressed regions, Mountain and East Coastal, enjoyed a higher rate of per capita income growth than the Central states during the 1953-61 period, they nevertheless, remained the poorest in the nation in absolute values of per capita income.

The Central states' per capita income grew at the lowest rate in the period 1953-61, which might be an indication of the persisting

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<sup>17</sup> Per capita income =  $\frac{\text{Regional income}}{\text{Regional population}}$

TABLE V-6  
 PER CAPITA GROSS PRODUCT BY  
 SEVEN MAJOR REGIONS OF VENEZUELA

| Region       | 1936  | 1953  | 1961  | Annual Rate of Growth |       |       |
|--------------|-------|-------|-------|-----------------------|-------|-------|
|              |       |       |       | 36-53                 | 53-61 | 36-61 |
| Western Oil  | 3,273 | 4,547 | 7,712 | 1.9                   | 6.8   | 3.5   |
| Mountain     | 696   | 860   | 1,431 | 1.2                   | 6.6   | 2.9   |
| Central      | 1,752 | 2,604 | 3,066 | 2.3                   | 2.0   | 2.3   |
| Llanos       | 712   | 1,240 | 2,178 | 3.3                   | 7.3   | 4.6   |
| East Coastal | 725   | 960   | 1,300 | 1.7                   | 3.9   | 2.4   |
| Eastern Oil  | 1,690 | 3,481 | 5,012 | 4.3                   | 4.6   | 4.4   |
| Guayana      | 1,070 | 1,286 | 2,816 | 1.1                   | 10.2  | 4.0   |
| Venezuela    | 1,536 | 2,425 | 3,574 | 2.7                   | 5.0   | 3.4   |

Source: Computed from Table V-2 and Tables C-4, C-5 and C-6,  
 Appendix C

flow of migrants to the Central region, despite a policy of decentralization of economic activities.

In the long-run analysis of the trend of per capita income growth, (for the period 1936-61), the Llanos region had the highest rate of growth, while the Central states showed the lowest in the nation. The ranking of the regions according to their long-run rates of per capita income growth are shown in Table V-7.

TABLE V-7  
RANKING OF REGIONS BY THE RATE OF  
PER CAPITA INCOME GROWTH

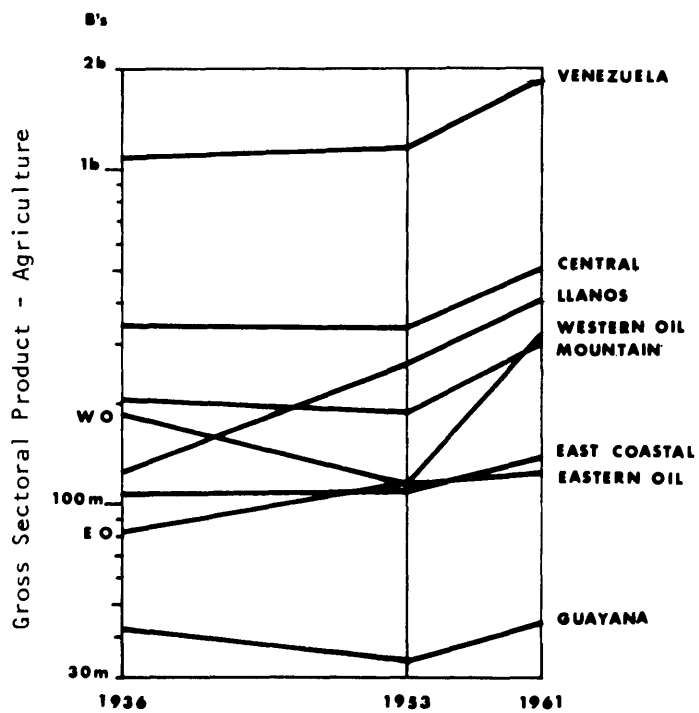
| <u>Rank</u> | <u>Region</u> | <u>Rate of Growth<br/>1936-61</u> |
|-------------|---------------|-----------------------------------|
| 1           | Llanos        | 4.6                               |
| 2           | Eastern Oil   | 4.4                               |
| 3           | Guayana       | 4.0                               |
| 4           | Western Oil   | 3.5                               |
| 5           | Mountain      | 2.9                               |
| 6           | East Coastal  | 2.4                               |
| 7           | Central       | 2.3                               |

Source: Table V-6

3. Sectoral Structure of the Regional Economies. The major shifts in sectoral composition of the Venezuelan economy occurred between 1936-1953. The share of agriculture in the total gross



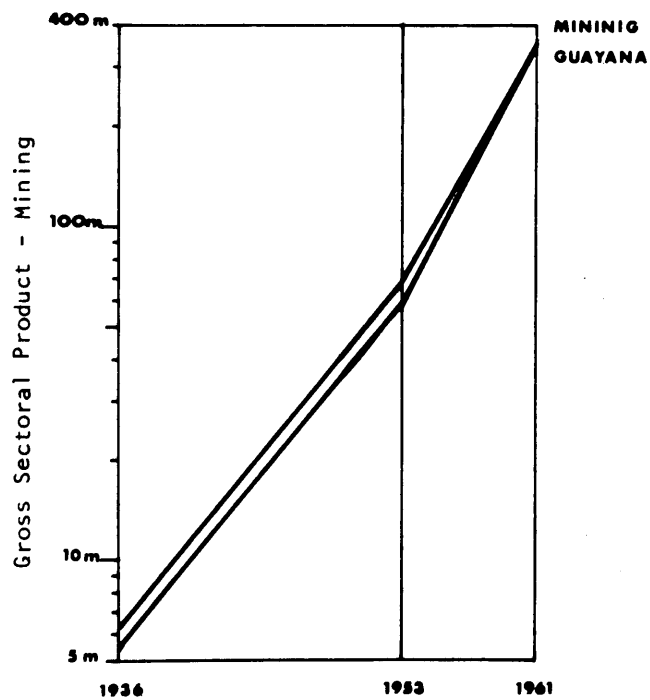
FIGURE V-15  
 VENEZUELA  
 GROSS SECTORAL PRODUCT - AGRICULTURE -  
 BY REGION, 1936, 1953, 1961  
 (1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C

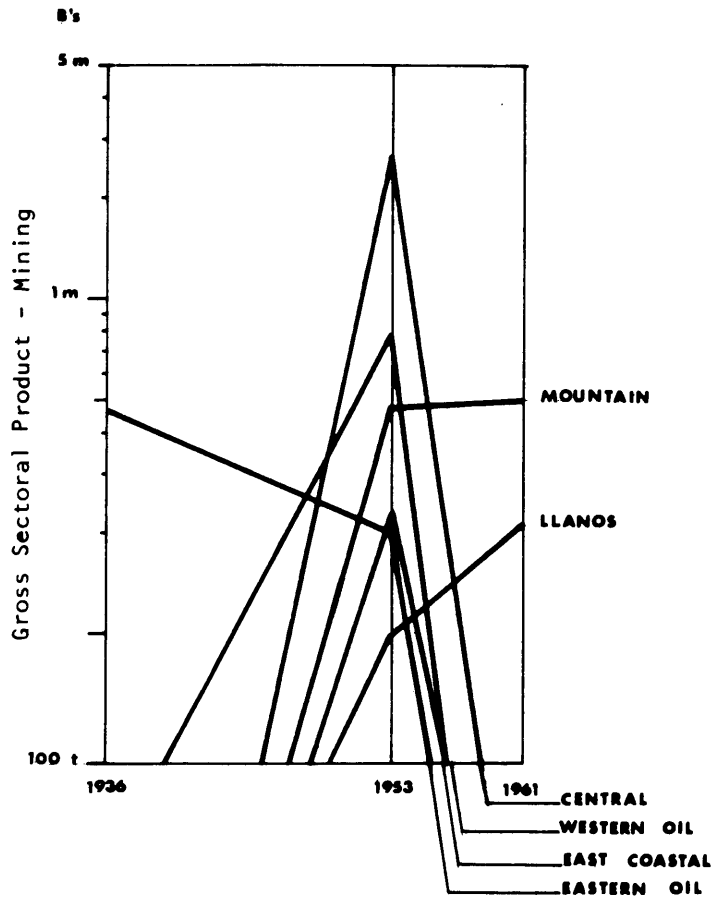
FIGURE V-16

VENEZUELA  
GROSS SECTORAL PRODUCT - MINING -  
BY REGION (GUAYANA ONLY), 1936, 1953, 1961  
(1957 bolivares)



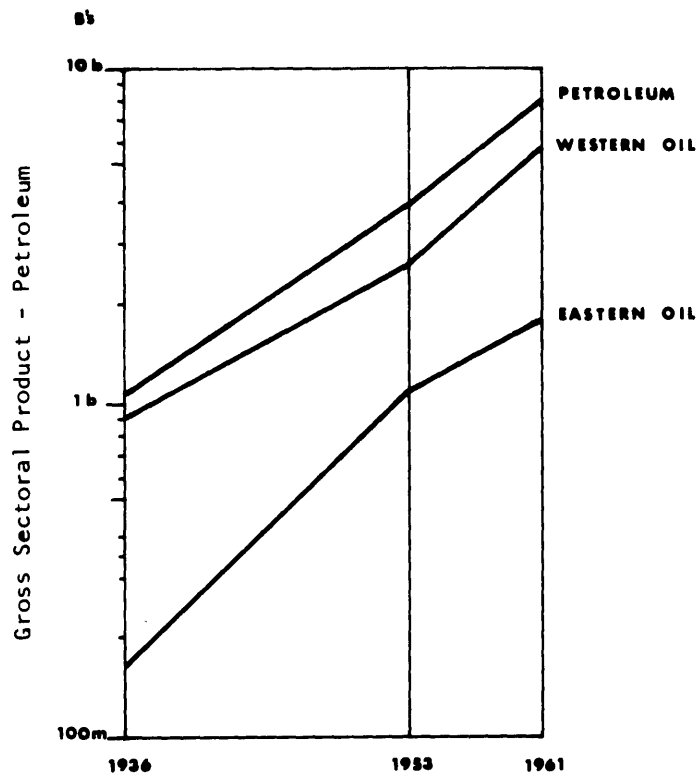
Source: Tables C-4, C-5 and C-6, Appendix C

FIGURE V-16a  
 VENEZUELA  
 GROSS SECTORAL PRODUCT - MINING -  
 BY REGION, 1936, 1953, 1961  
 (1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C

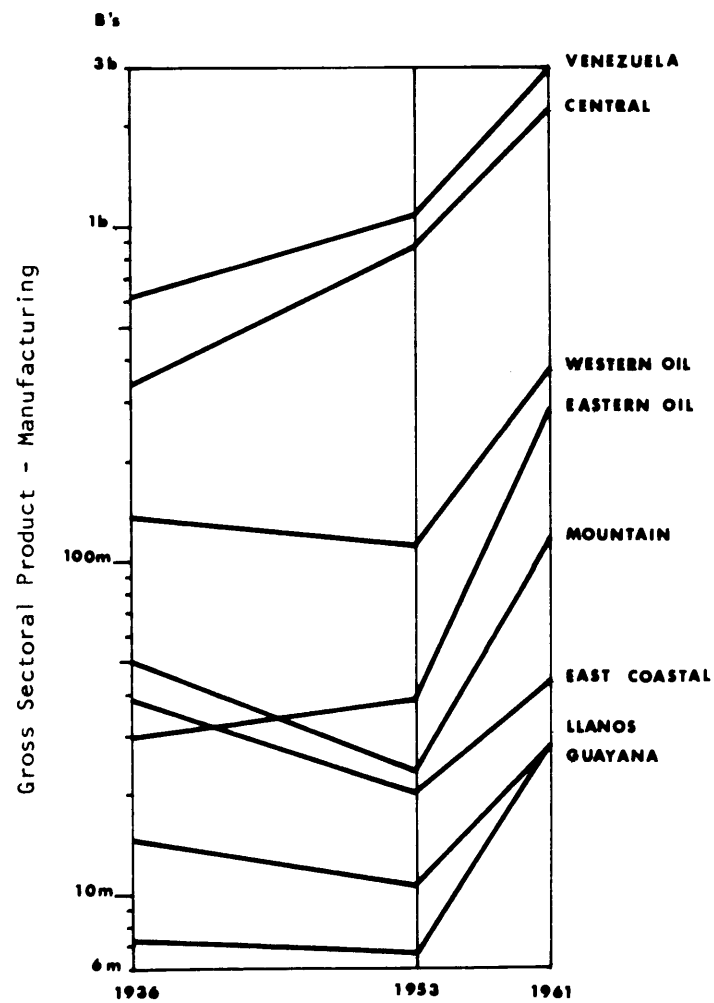
FIGURE V-17  
 VENEZUELA  
 GROSS SECTORAL PRODUCT - PETROLEUM -  
 BY REGION, 1936, 1953, 1961  
 (1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C

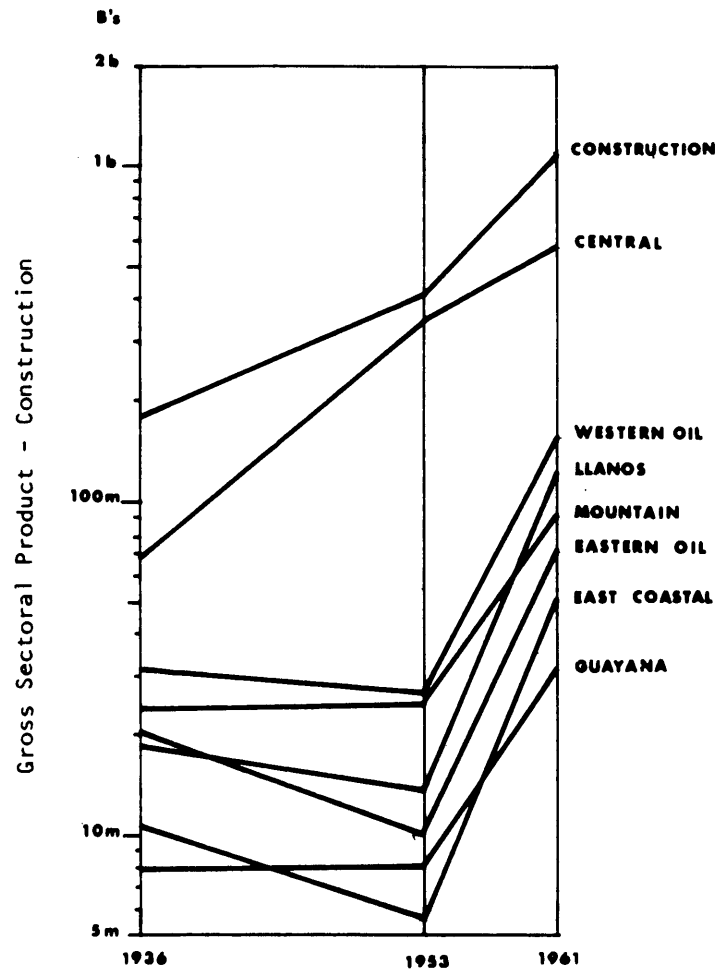
FIGURE V-18

VENEZUELA  
GROSS SECTORAL PRODUCT - MANUFACTURING -  
BY REGION, 1936, 1953, 1961  
(1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C

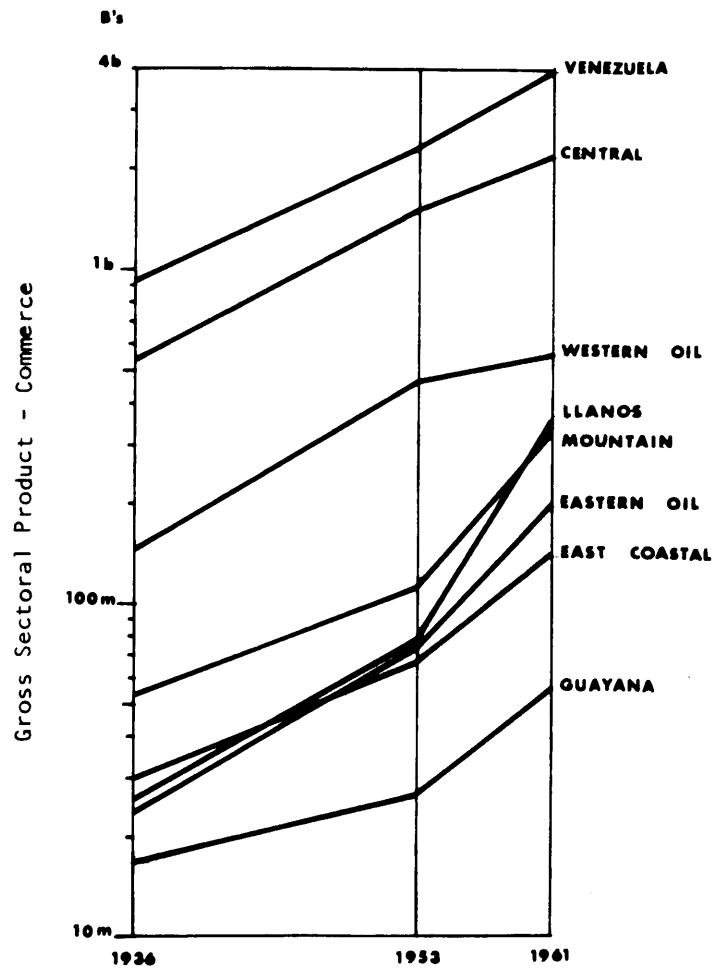
FIGURE V-19  
 VENEZUELA  
 GROSS SECTORAL PRODUCT - CONSTRUCTION -  
 BY REGION, 1936, 1953, 1961  
 (1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C

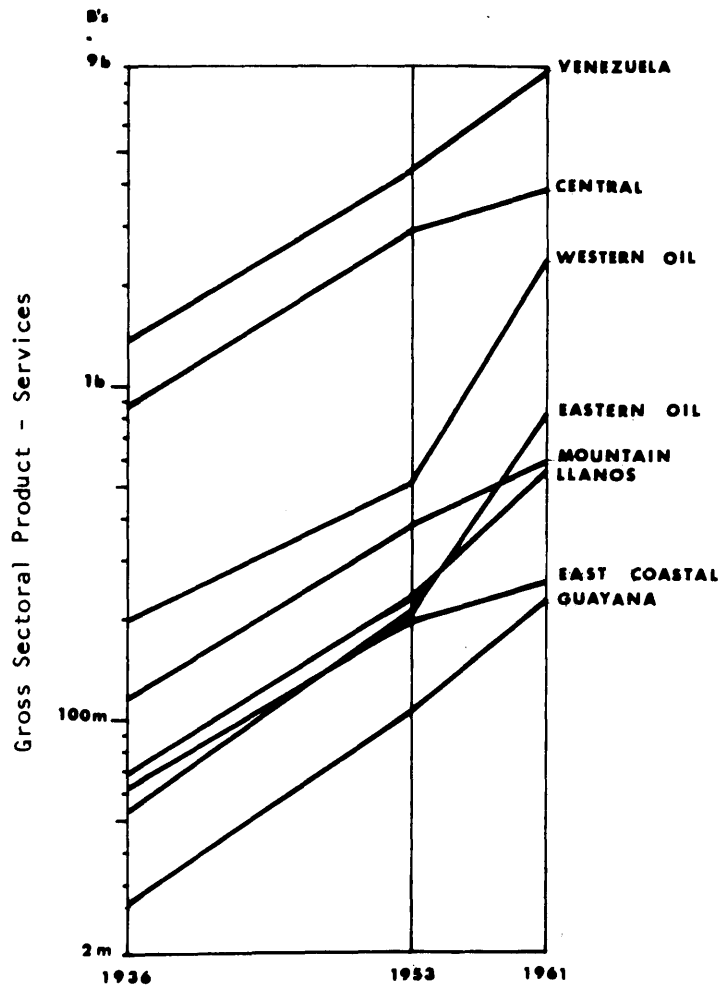
FIGURE V-20

GROSS SECTORAL PRODUCT - COMMERCE - BY REGION, 1936, 1953, 1961  
(1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C

FIGURE V-21  
 VENEZUELA  
 GROSS SECTORAL PRODUCT - SERVICES -  
 BY REGION, 1936, 1953, 1961  
 (1957 bolivares)



Source: Tables C-4, C-5 and C-6, Appendix C



domestic product, which counted for 21 percent in the year 1936, dropped to 8.6 percent in 1953 (Tables V-8 and V-9). The petroleum industries, a major contributory sector of the national economy, increased its share during this period from 20.7 percent to 29.7 percent. Manufacturing with 11.7 percent of the total GDP in 1936, dropped to 8.0 percent in 1953. Meanwhile, the services increased their share from 26.8 percent in 1936 to 33.1 percent in 1953.

In 1961, the agricultural sector showed further decline. Manufacturing reached the level of percentage share held in 1936. The commerce sector declined by 3 percent in total share. Mining increased at a high rate, but as a percentage of the total national gross output amounted to only slightly more than one percent in 1961 (Table V-10).

The regional shift in percentage share for agriculture followed the national trend. All regions' shares in agricultural production dropped in varying degrees during the period 1936-53. The share of agriculture decreased further during 1953-61, for all regions except Western Oil. The ranking of the regions according to their percentage share in agricultural production is shown in Table V-11.

TABLE V-8

REGIONAL - SECTORAL COEFFICIENTS FOR  
GROSS PRODUCT OF VENEZUELA, 1936

|              | Agri. | Min.   | Petroleum | Mfg.   | Const. | Commerce<br>(or Trade) | Services | Total  |
|--------------|-------|--------|-----------|--------|--------|------------------------|----------|--------|
| Western Oil  | .0354 | .0000  | .1761     | .0265+ | .0061  | .0284+                 | .0378+   | .3106  |
| Mountain     | .0395 | -      | -         | .0097  | .0046  | .0101                  | .0223+   | .0863+ |
| Central      | .0662 | -      | -         | .0638+ | .0129  | .1032                  | .1679    | .4141+ |
| Llanos       | .0242 | -      | -         | .0028  | .0036  | .0045                  | .0130    | .0482+ |
| East Coastal | .0204 | -      | -         | .0074+ | .0020+ | .0057                  | .0119+   | .0477+ |
| Eastern Oil  | .0160 | .0000  | .0310+    | .0056+ | .0039+ | .0049+                 | .0102    | .0720  |
| Guayana      | .0081 | .0010+ | -         | .0014  | .0015  | .0032                  | .0053+   | .0207  |
| Venezuela    | .2101 | .0011  | .2072     | .1175  | .0349  | .1602+                 | .2687+   | 1.0000 |

Source: Table C-4, Appendix C

TABLE V-9

REGIONAL - SECTORAL COEFFICIENTS FOR  
GROSS PRODUCT OF VENEZUELA, 1953

|              | Agri.  | Min.   | Petroleum | Mfg.   | Const. | Commerce<br>(or Trade) | Services | Total  |
|--------------|--------|--------|-----------|--------|--------|------------------------|----------|--------|
| Western Oil  | .0085  | .0000  | .1934     | .0082+ | .0020  | .0352+                 | .0382    | .2858  |
| Mountain     | .0140  | .0000  | .0000     | .0017+ | .0018+ | .0084+                 | .0285+   | .0547+ |
| Central      | .0251+ | .0002  | .0052     | .0648  | .0254  | .1121+                 | .2089+   | .4420  |
| Llanos       | .0196+ | .0000  | .0071     | .0007+ | .0010  | .0058                  | .0171+   | .0516  |
| East Coastal | .0080+ | .0001+ | -         | .0015  | .0004  | .0051                  | .0147    | .0300  |
| Eastern Oil  | .0083  | .0000  | .0815     | .0028+ | .0007  | .0056+                 | .0155+   | .1147+ |
| Guayana      | .0024+ | .0044+ | .0029     | .0004+ | .0005+ | .0020                  | .0079+   | .0209+ |
| Venezuela    | .0862  | .0049+ | .2902+    | .0805  | .0320+ | .1746                  | .3312+   | 1.0000 |

Source: Table C-5, Appendix C

TABLE V-10

REGIONAL - SECTORAL COEFFICIENTS FOR  
GROSS PRODUCT OF VENEZUELA, 1961

|              | Agri.  | Min.  | Petroleum | Mfg.   | Const. | Commerce<br>(or Trade) | Services | Total              |
|--------------|--------|-------|-----------|--------|--------|------------------------|----------|--------------------|
| Western Oil  | .0127  | -     | .2211+    | .0135  | .0057+ | .0213                  | .0870    | .3615              |
| Mountain     | .0109+ | .0000 | -         | .0043+ | .0034  | .0124                  | .0219+   | .0532              |
| Central      | .0186  | -     | .0007+    | .0855+ | .0211  | .0843                  | .1431    | .3535+             |
| Llanos       | .0150  | .0000 | .0087+    | .0010  | .0046  | .0129                  | .0208    | .0632              |
| East Coastal | .0050+ | -     | -         | .0016  | .0019+ | .0054                  | .0095+   | .0237              |
| Eastern Oil  | .0045  | -     | .0669     | .0047+ | .0026+ | .0075                  | .0310+   | .1174+             |
| Guayana      | .0015+ | .0127 | -         | .0010  | .0012  | .0021                  | .0085+   | .0272 <sup>-</sup> |
| Venezuela    | .0686  | .0127 | .2976     | .1118  | .0408  | .1460                  | .3222    | 1.0000             |

Source: Table C-6, Appendix C

TABLE V-11

RANKING OF REGIONS BY THEIR PERCENTAGE SHARE  
IN AGRICULTURE, 1936, 1953, 1961

| <u>Region</u> | <u>Rank</u> |             |             |
|---------------|-------------|-------------|-------------|
|               | <u>1936</u> | <u>1953</u> | <u>1961</u> |
| Central       | 1           | 1           | 1           |
| Mountain      | 2           | 3           | 4           |
| Western Oil   | 3           | 4           | 3           |
| Llanos        | 4           | 2           | 2           |
| East Coastal  | 5           | 6           | 5           |
| Eastern Oil   | 6           | 5           | 6           |
| Guayana       | 7           | 7           | 7           |

Source: Tables V-8, V-9 and V-10.

In the mining sector, only Guayana showed some percentage share in 1936. Mining activities expanded to other regions, namely, Central and East Coastal, during 1936-53, but the level of production between 1953-61 was low enough to show no percentage share for these latter regions in 1961.

The petroleum industries in 1936, accounted for 20 percent of gross domestic product produced by two regions, Western and Eastern Oil. In 1961, Eastern Oil had doubled its share of petroleum production. Western Oil had an increase of 30 percent during the same period. The Central and the Llanos regions also showed some percentage share in the

petroleum industries in 1961.

Manufacturing, over 25 years (1936-61), showed no change in its percentage share in the gross domestic product of Venezuela. A drive for an expansion of manufacturing in Venezuelan economic plans stems mostly from a long-time neglect in the development of this sector. In this sense, the objective of the Plan de la Nacion, somehow favors the unbalanced growth of manufacturing in the present stage of development, for the achievement of long-run balance.

The shift in the ranking of regions with respect to the percentage share in manufacturing production is shown in Table V-12.

TABLE V-12  
RANKING OF REGIONS BY THEIR PERCENTAGE SHARE  
IN MANUFACTURING, 1936, 1953, 1961

| <u>Region</u> | <u>Rank</u> |             |             |
|---------------|-------------|-------------|-------------|
|               | <u>1936</u> | <u>1953</u> | <u>1961</u> |
| Central       | 1           | 1           | 1           |
| Western Oil   | 2           | 2           | 2           |
| Mountain      | 3           | 4           | 4           |
| East Coastal  | 4           | 5           | 5           |
| Eastern Oil   | 5           | 3           | 3           |
| Llanos        | 6           | 6           | 6           |
| Guayana       | 7           | 7           | 7           |

Source: Tables V-8, V-9, and V-10.

The construction sector has shown a slight increase in percentage share over the period 1936-61. It increased at the national level from

3.5 percent in 1936, to 4.0 percent in 1961. In all three observation years, 1936, 1953 and 1961, the Central region has had the highest percentage share and Guayana the lowest (with the exception of 1953) in the nation.

The commerce (or trade) sector accounted for 16.0 percent of the gross domestic product in 1936, 17.4 percent in 1953 and 14.6 percent in 1961.

The ranking of the regional shares in each of the three years are shown in Table V-13.

TABLE V-13

RANKING OF REGIONS BY THEIR PERCENTAGE SHARE  
IN COMMERCE (TRADE), 1936, 1953, 1961

| <u>Region</u> | <u>Rank</u> |             |             |
|---------------|-------------|-------------|-------------|
|               | <u>1936</u> | <u>1953</u> | <u>1961</u> |
| Central       | 1           | 1           | 1           |
| Western Oil   | 2           | 2           | 2           |
| Mountain      | 3           | 3           | 4           |
| East Coastal  | 4           | 6           | 6           |
| Eastern Oil   | 5           | 5           | 5           |
| Llanos        | 6           | 4           | 3           |
| Guayana       | 7           | 7           | 7           |

Source: Tables V-8, V-9 and V-10.

The extreme shifts in the regional ranking in trade are shown in Table V-13 for the East Coastal and Llanos regions.

In the case of Llanos, the shifts in the ranking of the percentage share in commerce and agriculture show a high correlation with the index of prosperity calculated for the region over the time interval, 1936-1961.

The decline of the East Coastal in the index of prosperity was also highly correlated with the falling rank of the region in manufacturing and the commerce sectors.

The Social Overhead Capital Sectors comprised of Electricity, Gas, Transportation and Communication, and the Urban Housing sector in the data analyzed here, are combined with the sectors under Services. Analysis of the variation of the percentage share of such an aggregate sector did not seem to be an accurate way of measuring the regional differentials. Therefore it was avoided.

An exposition of the operational capability of the static decision-making model presented in Section C of Chapter III, is made by calculating the rates of growth of economic sectors for each region for two periods, 1936-53 and 1953-61.

The 1936-53 Growth Rates Matrix, actually presented as an example in Chapter III, and a new matrix for the period 1953-61, are presented to observe the shift in the selection of the sectors and the regions, if only past performances of the sectors within the regions are regarded as the determinant factor.

According to the simple criterion established in Chapter III, namely, that each industry and region, showing a higher rate of growth than the average, at the sectoral-regional and the national-sectoral



respectively, would receive priority for expansion, Table V-14 would recommend the expansion of the Central, Llanos and the Eastern Oil regions. The sectors to be developed in these regions, according to this criterion, would be manufacturing, construction, commerce and services in the Central states, agriculture, commerce and services in Llanos, and petroleum, commerce and services in the Eastern Oil states.

Table V-15, showing the rates of growth for the period 1953-61, would recommend the selection of Western Oil, Llanos and the Guayana for further expansion. The sectors within the regions to be expanded are petroleum, manufacturing, construction, commerce and services in the Western Oil states, all sectors, except agriculture, in Llanos, and mining, manufacturing, construction and services in the Guayana.

Although the exposition of the results is obvious evidence of the failure of the technique for proper selection of the regions and sectors for development, it brings up at least two important points: 1) a deliberate policy of shifting the composition of the sectoral and regional output can succeed even in a decade, and 2) the shift in the composition of sectoral share in output is more difficult than the shift in composition of the regional shares in total output.

4. Investment. The characteristics of the Venezuelan economy are best reflected in the degree of sectoral accumulation of capital stock. In 1950, agriculture accounted for 18.6 percent of the

TABLE V-14

REGIONAL - SECTORAL GROWTH RATES OF  
GROSS PRODUCT, 1936 - 1953

|              | Agri. | Min. | Petroleum | Mfg. | Const. | Commerce<br>(or Trade) | Services | Total |
|--------------|-------|------|-----------|------|--------|------------------------|----------|-------|
| Western Oil  | -1.9  | *    | 6.4       | -1.0 | - .8   | 7.1                    | 5.9      | 5.8   |
| Mountain     | - .5  | *    | *         | -2.5 | .2     | 4.7                    | 7.3      | 3.0   |
| Central      | - .1  | *    | *         | 5.9  | 10.1   | 6.3                    | 7.2      | 5.9   |
| Llanos       | 4.5   | *    | *         | -1.4 | - 1.5  | 7.4                    | 7.5      | 6.2   |
| East Coastal | .2    | *    | 12.0      | -2.3 | - 2.4  | 5.0                    | 7.1      | 3.0   |
| Eastern Oil  | 1.8   | -2.7 | -         | 1.6  | - 2.4  | 6.6                    | 8.4      | 9.0   |
| Guayana      | -1.1  | 15.1 | 7.9       | - .7 | .1     | 3.0                    | 8.3      | 4.0   |
| Venezuela    | .4    | 15.3 |           | 3.5  | 5.3    | 6.3                    | 7.1      | 5.8   |

Source: Tables C-4 and C-5, Appendix C

TABLE V-15

REGIONAL - SECTORAL GROWTH RATES OF  
GROSS PRODUCT, 1953 - 1961

|              | Agri. | Min. | Petroleum | Mfg. | Const. | Commerce<br>(or Trade) | Services | Total |
|--------------|-------|------|-----------|------|--------|------------------------|----------|-------|
| Western Oil  | 14.6  | *    | 10.9      | 15.9 | 24.0   | 2.4                    | 21.0     | 11.2  |
| Mountain     | 5.7   | .3   | *         | 22.0 | 17.8   | 14.3                   | 5.5      | 8.7   |
| Central      | 5.1   | *    | - 7.0     | 12.9 | 6.5    | 5.2                    | 3.9      | 6.8   |
| Llanos       | 5.4   | 10.4 | 11.8      | 12.4 | 32.0   | 21.0                   | 11.7     | 11.8  |
| East Coastal | 2.9   | *    | -         | 9.9  | 33.0   | 9.9                    | 3.3      | 5.9   |
| Eastern Oil  | 1.0   | *    | 6.4       | 16.1 | 28.0   | 13.0                   | 18.8     | 8.8   |
| Guayana      | 3.2   | 24.0 | *         | 19.8 | 19.0   | 9.5                    | 10.0     | 16.4  |
| Venezuela    | 5.9   | 23.0 | 9.3       | 13.6 | 12.4   | 6.6                    | 8.6      | 9.1   |

Source: Tables C-5 and C-6, Appendix C

total capital stock as against 17.4 percent in goods producing sectors, 51.2 percent in Social Overhead Capital sectors and 12.8 percent in commerce and services (Table V-16).

The main objective of the national economic plans was an increase in the level of activities of the commodity producing sectors. This objective, at the end of the 1950's decade, has been achieved at the expense of the agricultural and the Social Overhead Capital sectors. The capital stock for the latter sectors, indeed, was very high in 1950, but the agricultural sector suffered most.

The net capital stock during 1953-60, increased at the highest rate, 24.0 percent per annum, in the Guayana and at the lowest rate, 4.8 percent per year for the Eastern Oil region. The Llanos enjoyed the second highest rate next to Guayana, at 12.2 percent per year (Table V-17).

The Output-Capital ratios computed for 1960 show the Guayana region as the least efficient region, which is quite normal with regard to the newness of the investment projects in the region. The ranked-ordered list of the regions, according to their efficiency in 1960, is presented in Table V-18.

TABLE V-16  
 PERCENTAGE DISTRIBUTION OF CAPITAL STOCK  
 BY ECONOMIC SECTORS, 1950-1959

| Year | Total | Agri. | Commodity<br>Production<br>Sectors | Social<br>Overhead<br>Capital<br>Sectors | Commercial<br>&<br>Services |
|------|-------|-------|------------------------------------|--|-----------------------------|
| 1950 | 100   | 18.6  | 17.4                               | 51.2                                     | 12.8                        |
| 1951 | 100   | 17.4  | 18.3                               | 50.3                                     | 14.0                        |
| 1952 | 100   | 16.5  | 19.3                               | 49.4                                     | 14.8                        |
| 1953 | 100   | 15.6  | 19.5                               | 49.6                                     | 15.3                        |
| 1954 | 100   | 15.1  | 19.6                               | 50.4                                     | 14.9                        |
| 1955 | 100   | 14.7  | 20.0                               | 50.6                                     | 14.7                        |
| 1956 | 100   | 14.3  | 21.1                               | 50.2                                     | 14.4                        |
| 1957 | 100   | 14.0  | 22.8                               | 48.5                                     | 14.7                        |
| 1958 | 100   | 13.6  | 23.4                               | 48.3                                     | 14.7                        |
| 1959 | 100   | 13.4  | 23.7                               | 47.5                                     | 15.4                        |

Source: Table 22-16, Cuentas Nacionales, Banco Central De Venezuela

TABLE V-17  
 NET CAPITAL STOCK  
 (in millions of bolivares - 1957 prices)

| Regions      | 1953<br>$K_{53}$ | 1960<br>$K_{60}$ | $\Delta K = K_{60} - K_{53}$ | $\frac{\Delta K}{K_{53}}$ | Compounded Annual<br>Rate of Growth<br>of Capital Stock |
|--------------|------------------|------------------|------------------------------|---------------------------|---|
| Western Oil  | 9,842            | 16,024           | 6,182                        | 62.8                      | 7.2   |
| Mountain     | 2,082            | 3,779            | 1,697                        | 81.5                      | 8.9   |
| Central      | 11,070           | 21,379           | 10,309                       | 93.1                      | 9.9   |
| Llanos       | 1,826            | 4,078            | 2,252                        | 123.3                     | 12.2  |
| East Coastal | 1,023            | 1,717            | 694                          | 67.8                      | 7.6   |
| Eastern Oil  | 4,115            | 5,706            | 1,591                        | 38.6                      | 4.8   |
| Guayana      | 582              | 2,559            | 1,977                        | 339.6                     | 24.0  |

Source: Ganz, Unpublished Data

TABLE V-18  
OUTPUT-CAPITAL RATIO BY REGION

| <u>Region</u> | <u>1960</u> |              | <u>1980<sup>1</sup></u> |              |
|---------------|-------------|--------------|-------------------------|--------------|
|               | <u>Rank</u> | <u>Value</u> | <u>Rank</u>             | <u>Value</u> |
| Western Oil   | 1           | .57          | 4                       | .44          |
| Eastern Oil   | 2           | .56          | 2                       | .46          |
| Central       | 3           | .44          | 3                       | .45          |
| Mountain      | 4           | .39          | 5                       | .37          |
| Llanos        | 5           | .39          | 6                       | .34          |
| East Coastal  | 6           | .37          | 7                       | .33          |
| Guayana       | 7           | .33          | 1                       | .51          |

<sup>1</sup>Projection made by Alexander Ganz.

Source: Ganz, unpublished data.

An index of sectoral capital intensity<sup>18</sup> is computed for four major sectoral categories of the Venezuelan economy. The results are presented in Table V-19. According to the indices shown in this Table, the trend in the 1950's has been toward less capital intensive agriculture and SOC sectors and more capital intensive activities in the sectors producing goods and services.

In terms of employment objectives, Table V-19 may serve as a decision matrix. A sector which employs the same percentage of the

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<sup>18</sup>The formula is given in Section F-3 of Chapter III.

TABLE V-19  
INDEX OF SECTORAL CAPITAL INTENSITY<sup>1</sup>

| Year | Agri. | Commodity<br>Production<br>Sectors | Social<br>Overhead<br>Capital<br>Sectors | Commerce<br>&<br>Services |
|------|-------|------------------------------------|--|---------------------------|
| 1950 | .42   | .80                                | 4.37                                     | .56                       |
| 1951 | .39   | .86                                | 4.19                                     | .60                       |
| 1952 | .38   | .86                                | 4.18                                     | .63                       |
| 1953 | .36   | .89                                | 4.03                                     | .64                       |
| 1954 | .36   | .88                                | 4.06                                     | .62                       |
| 1955 | .35   | .93                                | 4.01                                     | .59                       |
| 1956 | .35   | .93                                | 4.08                                     | .58                       |
| 1957 | .35   | .97                                | 3.97                                     | .58                       |
| 1958 | .35   | 1.02                               | 3.83                                     | .56                       |
| 1959 | .35   | 1.03                               | 3.74                                     | .57                       |

<sup>1</sup>For formula, see Section F-3 of Chapter III.

Source: Cuentas Nacionales, Banco Central De Venezuela, Table 22-16 and 22-18



total labor force as its percentage share in capital stock, satisfies the employment objective more than a sector which employs a lower percentage of labor force, relative to its share in total capital stock. A naive interpretation of the ratio may be that, as the percentage share of capital in a sector increases and its labor share decreases, the sector becomes more capital intensive. The ratio does not imply efficiency at all. Both a capital intensive and a labor-intensive sector can be efficient or inefficient. The Table shows low coefficients for Agriculture and Commerce and Services sectors, implying that with a lower level of capital stock, a higher level of employment can be achieved. The Social Overhead Capital sectors coefficients reveal that, relative to the capital requirement in these sectors, the employment share is the lowest among all sectors.

The ratio of the percentage distribution of the gross fixed investment to the percentage distribution of gross product by economic sectors shown in Table V-20, clearly explains the conflict between the choice of the most efficient sector and the one which satisfies the objective of a higher level of employment. According to this Table, the Agriculture and the Social Overhead Capital sectors are the most inefficient sectors in terms of rate of return to investment. The sectors producing goods and services are the most efficient sectors.

Of these two latter sectors, only the commerce and services sector satisfies the employment objective as well as the investment

TABLE V-20

RATIOS OF PERCENTAGE DISTRIBUTION OF GROSS  
FIXED INVESTMENT TO PERCENTAGE DISTRIBUTION  
OF GROSS PRODUCT BY ECONOMIC SECTORS ( $\tau$ )<sup>1</sup> 1950-1959

| Year | Agri. | Commodity<br>Production<br>Sectors | Social<br>Overhead<br>Capital<br>Sectors | Commerce<br>&<br>Services |
|------|-------|------------------------------------|--|---------------------------|
| 1950 | 1.40  | .64                                | 1.73                                     | .92                       |
| 1951 | 1.13  | .65                                | 1.97                                     | .88                       |
| 1952 | 1.08  | .68                                | 2.02                                     | .80                       |
| 1953 | 1.10  | .59                                | 2.00                                     | .80                       |
| 1954 | 1.52  | .56                                | 2.51                                     | .51                       |
| 1955 | 1.57  | .61                                | 2.38                                     | .56                       |
| 1956 | 1.58  | .73                                | 2.26                                     | .47                       |
| 1957 | 1.61  | .86                                | 1.67                                     | .67                       |
| 1958 | 1.36  | .76                                | 2.07                                     | .58                       |
| 1959 | 1.68  | .71                                | 1.61                                     | .86                       |

<sup>1</sup>The formula for  $\tau$  is given in Section F-5 of Chapter III.

Source: Cuentas Nacionales, Banco Central De Venezuela, Tables 22-4  
and 22-15

efficiency criterion. This fact by itself, is an explanation of the flow of population to the large metropolitan areas with a high concentration of tertiary activities. In 1961, 64.3 percent of the total gross product of the Central region was from commerce and services.

5. Regional Centers. The distribution of urban population in the seven major regions of Venezuela is not unusual, if the large size of the country, small size of population, the lineal stretch of fertile agricultural land and the spotty regional development around the oil fields and mineral resources are considered altogether. In 1936, in the Central region, 60 percent of population was urban. This percentage has declined over the period 1936-61, rather than increased. The changes in the percentage distribution of urban population for the regions are shown in Table V-21.

The large cities of Venezuela are mostly clustered in the Northeast-Southwest agricultural belt. Only a few cities, such as Santo Tomas De Guayana (Ciudad Guayana), Cabruta and Maracaibo are exceptions, the former two on the banks of the Orinoco River, and the latter on the shore of Lago de Maracaibo. The foundation of these cities dates back from as far back as 1500 to the end of the 16th century. The ranks of the cities, according to population for the top four cities, has remained almost unchanged. Most of the extreme shifts in city ranks, between 1926-1961, have occurred among cities ranked 5 to 10 in 1926. Table V-22 shows the ranking of the ten largest cities of Venezuela from 1926 to 1961.

TABLE V-21  
 DISTRIBUTION OF URBAN POPULATION BY  
 GROUPS OF STATES 1936, 1950, 1961  
 (in thousands)

| Regions      | 1936 |         | 1959  |         | 1961  |         |
|--------------|------|---------|-------|---------|-------|---------|
|              | No.  | Percent | No.   | Percent | No.   | Percent |
| Western Oil  | 145  | 19.5    | 379   | 17.9    | 801   | 18.5    |
| Mountain     | 50   | 6.7     | 159   | 7.5     | 297   | 6.9     |
| West Central | 63   | 8.5     | 155   | 7.3     | 321   | 7.4     |
| East Central | 382  | 51.4    | 1,012 | 47.7    | 2,046 | 47.2    |
| Llanos       | 8    | 1.1     | 115   | 5.4     | 256   | 5.9     |
| East Coastal | 57   | 7.7     | 112   | 5.3     | 160   | 3.6     |
| Eastern Oil  | 17   | 2.3     | 143   | 6.7     | 319   | 7.4     |
| Guayana      | 21   | 2.8     | 46    | 2.2     | 133   | 3.1     |

Source: Friedmann, 39

TABLE V-22

RANKING OF THE TEN LARGEST VENEZUELAN CITIES  
ACCORDING TO THEIR POPULATION SIZE

| <u>Cities</u> | <u>1926</u> | <u>1936</u> | <u>1950</u> | <u>1961</u> |
|---------------|-------------|-------------|-------------|-------------|
| Caracas       | 1           | 1           | 1           | 1           |
| Maracaibo     | 2           | 2           | 2           | 2           |
| Valencia      | 3           | 3           | 4           | 4           |
| Barquisimeto  | 4           | 4           | 3           | 3           |
| C. Bolivar    | 5           | 8           | -           | 10          |
| Cumana        | 6           | 7           | 7           | 9           |
| S. Cristobal  | 7           | 6           | 6           | 6           |
| Muiquencia    | 8           | -           | 9           | 8           |
| Coro          | 9           | -           | -           | -           |
| Maracay       | 10          | 5           | 5           | 5           |

- Indicates dropping of the city from the Top Ten list in that year.

Source: Friedmann, 39.

The data on population growth of urban centers for the period 1950-1960, reveal that cities with over 100,000 population gained less than 100 percent, and the cities which gained more than 100 percent, were in the range of 7-64 thousand in population size (Table V-23).

A rank-size distribution test was performed for the major urban centers of Venezuela for the years 1926, 1936, 1950 and 1961.

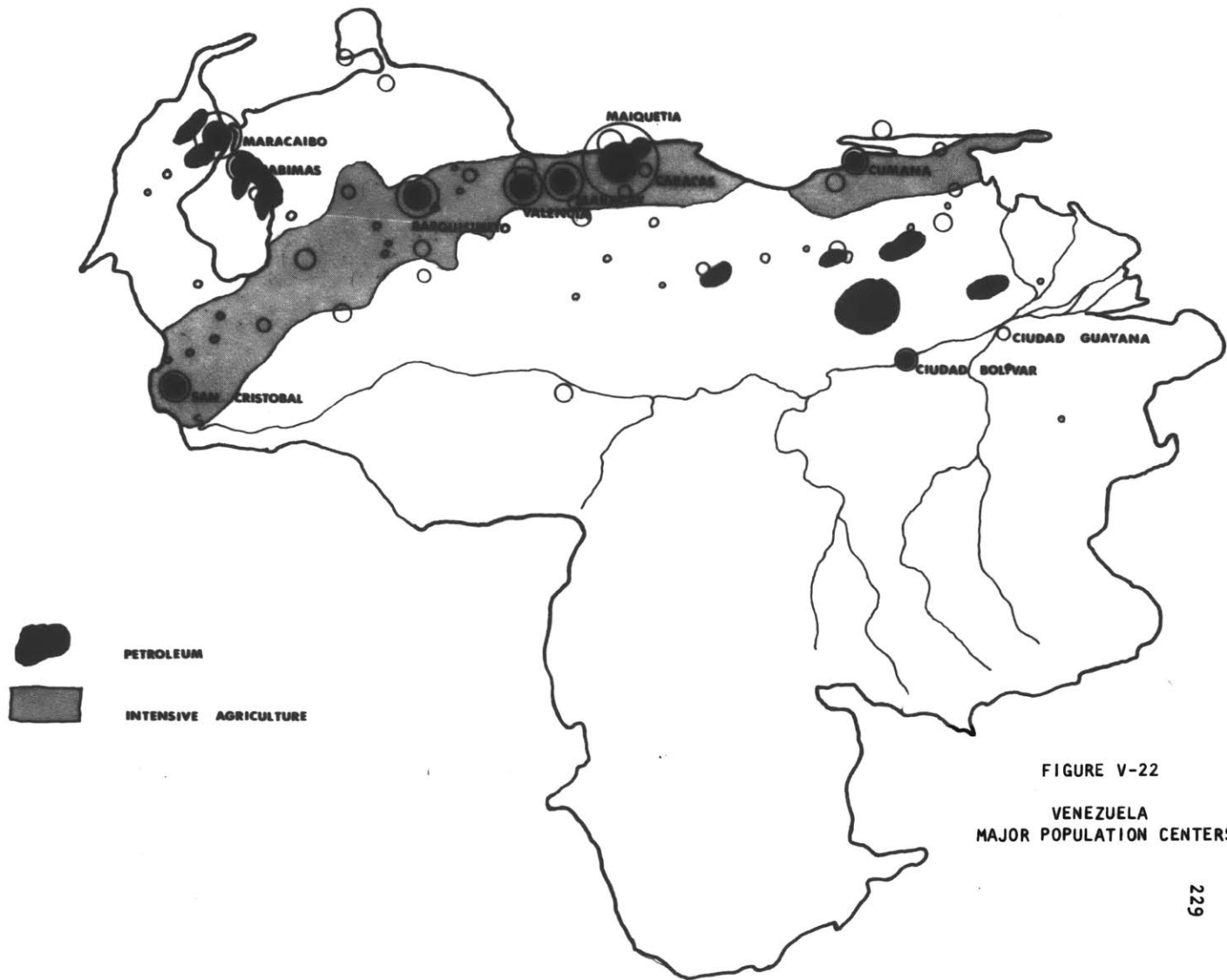


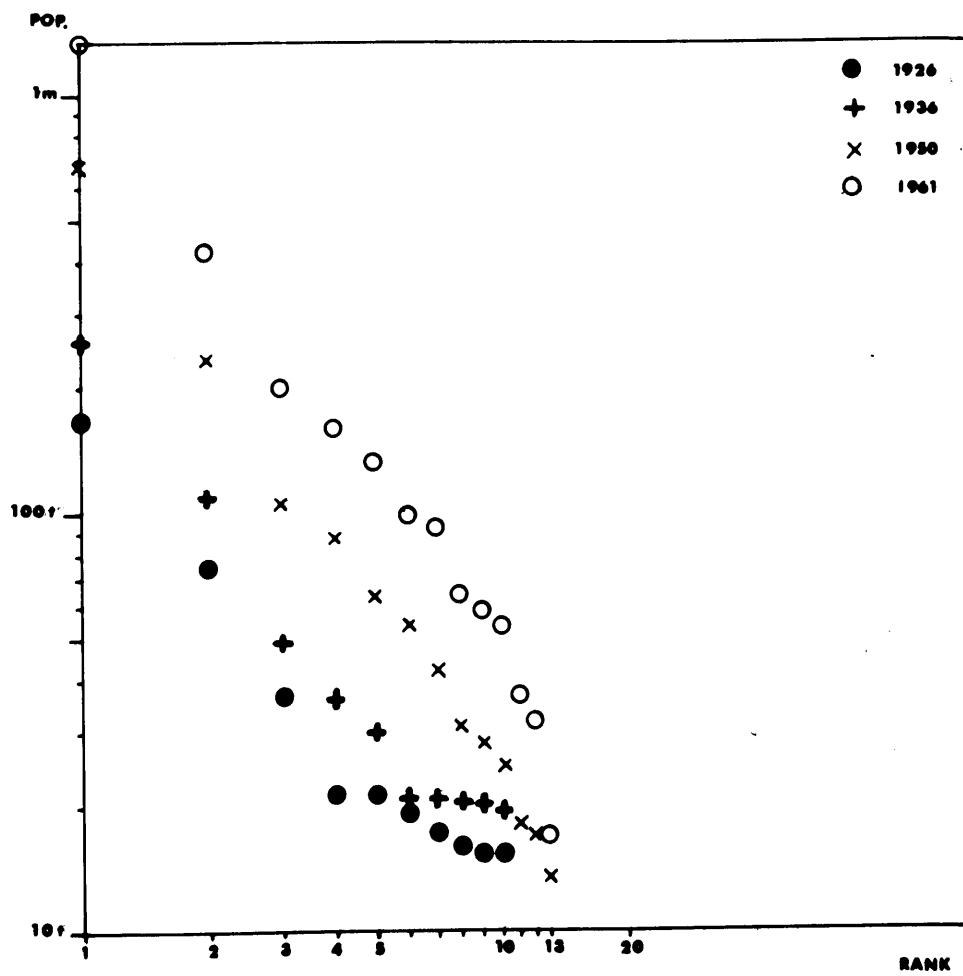
FIGURE V-22  
 VENEZUELA  
 MAJOR POPULATION CENTERS

TABLE V-23  
 TYPICAL CITY EXPANSIONS, 1950-1961  
 (in thousands)

| Cities                    | Population |       | Percent<br>Gain |
|---------------------------|------------|-------|-----------------|
|                           | 1950       | 1960  |                 |
| Maraciabo                 | 235        | 421   | 79.1            |
| Cabimas                   | 42         | 93    | 121.4           |
| San Carlos Del Zulia      | 7          | 14    | 100.0           |
| San Cristobal             | 54         | 99    | 83.3            |
| Barquisimeta              | 105        | 200   | 90.5            |
| Valencia                  | 89         | 164   | 84.3            |
| Maracay                   | 64         | 135   | 110.9           |
| Caracas Metropolitan Area | 694        | 1,336 | 92.5            |
| Acarigua                  | 16         | 31    | 93.7            |
| San Juan De Los Morros    | 14         | 37    | 164.2           |
| Puerto La Cruz            | 28         | 59    | 110.7           |
| Maturin                   | 25         | 54    | 116.0           |
| Ciudad Bolivar            | 31         | 64    | 106.4           |

Source: Friedmann, 39

FIGURE V-23  
 VENEZUELA  
 RELATION BETWEEN RANK AND SIZE OF CITIES WITH  
 10,000 OR MORE INHABITANTS, 1926, 1936, 1950, 1961



Source: Friedmann, 39



The results are shown in Fig. V-23. A curve, which would be convex to the origin, can be fitted to the plotted information pairs for 1926.

The 1936 city distribution shows a skewed and linear distribution of the five largest cities, while showing a straight horizontal line for the other five cities. In 1950, the distribution pattern shows more linearity for the total number of cities in the sample, but the distribution is more skewed. Finally, the 1961 plotted information on the rank and size of the thirteen largest cities shows a concave curve for eleven cities, and only the two largest cities, Caracas and Maracaibo, have grown much in size relative to the others.

It is also possible to fit a straight line to the points on the graph for 1961, which passes from the point showing the rank and size of the largest city, Caracas. If this is done, Maracaibo, Barquisimeto, and San Carlos Del Zulia fall below the line and other cities are either on or above the line. The steepness of the regression line is characteristic of underdeveloped countries with the historical pattern of a center-periphery relationship.

6. Regional Migratory Movements. Among seven major Venezuelan regions, the Mountain, East Coastal and Guayana have lost population to other regions between 1936-1950. If the losses of the West Central region are included, 64.4 percent of the total losses by the regions is absorbed by the East Central region (Table V-24). Caracas and the East Central region have received a large portion of their in-migration from foreign countries, which is not reflected

TABLE V-24  
INTERNAL AND FOREIGN MIGRATION,  
VENEZUELA 1936 - 1950

(in thousands)

| Province And<br>Region | (1)<br>Out<br>Migration | (2)<br>In<br>Migration | (3)<br>Net<br>Internal<br>Migration | (4)<br>Foreign<br>Immigration | (5)<br>(3) + (4)<br>Total |
|------------------------|-------------------------|------------------------|-------------------------------------|-------------------------------|---------------------------|
| Western Oil            | 57                      | 95                     | 38                                  | 17                            | 55                        |
| Mountain               | 119                     | 17                     | - 102                               | 16                            | - 86                      |
| West Central           | 76                      | 14                     | - 62                                | 6                             | - 56                      |
| East Central           | 112                     | 274                    | 161                                 | 106                           | 268                       |
| Llanos                 | 45                      | 43                     | - 2                                 | 8                             | 6                         |
| East Coastal           | 69                      | 2                      | - 67                                | 1                             | - 66                      |
| Eastern Oil            | 29                      | 79                     | 50                                  | 8                             | 58                        |
| Guayana                | 25                      | 8                      | - 17                                | 3                             | - 14                      |
| Venezuela              | 532                     | 532                    | 0                                   | 165                           | 165                       |

Source: Friedmann, 39

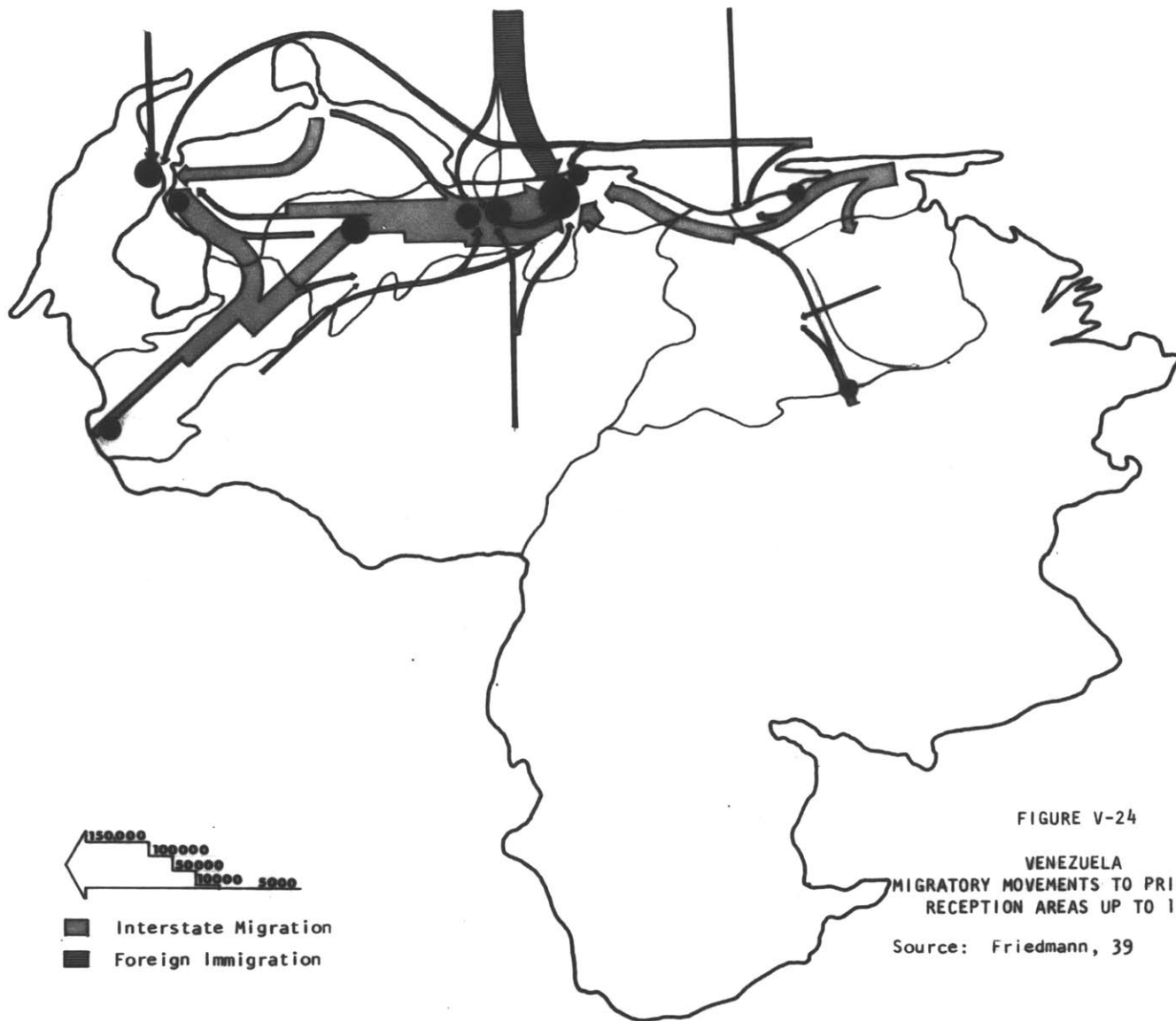


FIGURE V-24

VENEZUELA  
MIGRATORY MOVEMENTS TO PRINCIPAL  
RECEPTION AREAS UP TO 1950

Source: Friedmann, 39

reflected in the percentage shown above. The second and the third poles of population absorption during the period 1936-50 were the Eastern Oil and Western Oil states. There are high correlations between the economic decline of the Mountain states and the East Coastal region on one hand, and the rate of out-migration on the other.

#### D. SUMMARY OF FINDINGS AND CONCLUSIONS

The findings and conclusions of the statistical analysis can be summarized as follows:

- 1) The rate of population growth for Venezuela has been quite high, 3.3 percent per year for over a quarter of a century. There have been regional differentials in terms of population growth rates, ranging between 1.3 - 5.5 percent increase per year. The differential rates of population growth have been a function of economic performances of the regions. This is especially true for Guayana, where the high rate of investment has resulted in the highest regional rate of population increase during 1953-1961.
- 2) Venezuela has experienced a high level of concentration of population and economic activities in the Central region and in its center, Caracas. In spite of an absolute increase in the share of the Central region in the national income, the region has been subject to progressive retardation, since its percentage share in

population is increasing more than its percentage share in income. On economic grounds, therefore, a policy of decentralization of economic activities seems quite justified and promising.

On the basis of existing economic potentials, as late as 1961, the Western Oil and the Eastern Oil states, should have received priorities for development over the Guayana region. But in view of the fact that Venezuela, in the late 1950's, was determined to diversify its economic activities and especially, to shift its source of foreign exchange earnings from oil to other industries, the selection of the Guayana region with its rich iron-ore resources seems to have been an inevitable choice. Geographic proximity of the Guayana development region to the Eastern Oil states may create some degree of interregional flow of people, goods and services. But the most important impact of the Guayana project, if pursued objectively in the future, is the creation of strong economic links between the Guayana industrial complex on one hand, and the regional economies of the Llanos states and the Eastern Oil on the other.<sup>19</sup>

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<sup>19</sup> It is important to remember that the impact of the Guayana project will be felt more on the regional economies of the neighboring states rather than the Guayana region as a whole, because of the marginal location of the Guayana development region in relation to the entire region.

The contribution of the Guayana project to the Venezuelan economy as a whole, unquestionably will be significant in the long-run, especially in manufacturing, which is projected to produce 21.0 percent of Venezuela's manufacturing product and 23.5 percent of Venezuela's total export by the year 1980.<sup>20</sup>

- 3) The trend in 1953-60, prior to the Guayana program, has been toward more per capita income inequality among the regions than existed between 1936-1953. One reason for this trend is the heavy reliance of Venezuela's expanding economy on oil, as a source of foreign exchange earnings, which forces the Venezuelan government to expand oil industries in already high-income regions - Western and Eastern Oil. Deterioration of economic conditions at the center and the lack of a national policy to deal with the problem of depressed areas (the Mountain and the East Coastal), can be counted as additional factors responsible for the trend toward regional inequality in the 1953-61 period.

This sacrifice, however, is of a temporary nature, and it is obviously the price the Venezuelan economy ought to pay for the diversification of its sectoral activities.

As for the Guayana region itself, the investments made, even prior to the development programming, have had a

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<sup>20</sup>Blanco and Ganz, 14.

positive effect, raising the growth rate of the regional per capita income.

- 4) The regional growth of the Venezuelan economy has been more in balance than the sectoral growth. If the two-point observation of data (1936 and 1961) for all major sectors of the Venezuelan economy are connected with straight lines (showing a linear long-run trend of sectoral growth),<sup>21</sup> it could be observed that the sectoral 'unbalanced' growth has, indeed, been the prevailing characteristic of the Venezuelan economy from 1936-1961.

Petroleum and mining have grown at a far greater rate than any other sector in the economy. Agriculture has grown at a rate far below the national growth rate in gross product (which for Venezuela is quite high) and even below the population growth rate.

Manufacturing and construction show a balanced growth pattern in the long period 1936-61, but when they are broken down into two periods, 1936-53 and 1953-61, the pattern of "unbalanced" growth is again evident. The slow growth of these two sectors during 1936-53 is compensated with high growth rates during 1953-61. The Plan de la Nación, 1963-1966 and the Plan de la Nación, 1965-1968 has obviously aimed at achieving a sectoral 'balanced' growth

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<sup>21</sup> See Figure V-4.

pattern. The sectoral growth may even approach the von Neumann balanced growth type for many sectors of the economy in the future. Although it is quite unlikely that in the near future, Venezuela will be able to curtail the rapid growth of some sectors, such as petroleum and mining, nevertheless, in the short-run, the strategy of the Venezuelan government in developmental planning may well be described in the conceptual framework of the 'concentrated decentralization' strategy. The Plan de la Nación, 1963-1966, made a firm commitment to the concept of concentrated decentralization growth strategy by "calling for 10 percent of the nation's investment, public and private,"<sup>22</sup> to be made in developing a region at the periphery.

The difference between the "balanced" and "unbalanced" growth strategies in this case, is actually the difference between the long-run objective of sectoral balanced growth and the short-run strategy of rapid expansion of one sector over the other.

- 5) A higher level of employment can be achieved by expansion of agriculture, commerce and services, which show lower capital-requirement with respect to employment opportunities. The Guayana program has not been concerned with a strict employment objective, such as to use a capital-intensity

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<sup>22</sup>Blanco and Ganz, 114.



index as a criterion for the selection of the sectors for development.

It was found that the commerce and services sectors satisfy both the employment objective and the investment efficiency criterion, providing adequate reason for a migration of labor force to the large metropolitan areas with a high concentration of tertiary activities. Whether Ciudad Guayana, as a metropolitan area with its basic industries, will be able to generate a market large enough for tertiary activities, to be competitive with other metropolitan areas, is indeed beyond the scope of this dissertation. But, it can generally be said, that Ciudad Guayana needs to develop those economic sectors which would satisfy the higher level of employment objectives, in order to become a major population magnet.

- 6) The rank-size distribution of the thirteen largest Venezuelan cities, from 1926 to 1961, showed a tendency toward linearity. The slope of the line fitted to the plotted rank-size values for 1961 - the last observation, is quite steep, a fact that is often considered an abnormality in the distribution of cities. But another way of interpreting the steepness of the line is that a fast-growing economy with small population size, such as that of Venezuela, requires skewed rank-size distribution of cities in order to sustain its normal function. Therefore,

it is inconceivable that the existing pattern of population distribution among urban areas change drastically in the near future. The newly expanded growth poles such as Ciudad Guayana, would at most reduce the rate of out-migration of the labor force in their spatial realm of influence.

## CHAPTER VI

COMPARISON OF THE REGIONAL PROBLEMS AND THEIR SOLUTIONS  
IN ITALY AND VENEZUELA

## A. INTRODUCTION

The objectives of this Chapter are: 1) to provide a statistical comparison of the two case studies with respect to all economic variables used in data analysis, 2) to sketch the differences in the social and political settings of the two countries observed, and interpret their corresponding planning styles accordingly, and 3) to make general observations on the major topics of this dissertation, namely the derivation of planning objectives in relation to the different stages of development, the tendency of the regional and sectoral economies toward 'balance' or 'imbalance' as a result of developmental programming in different phases of economic development, and the performance of the strategy of concentrated decentralization at work and in a normative perspective.

## B. STATISTICAL DIFFERENTIALS

1. Population and Product. In 1961, Italy had a population of 50 million, while Venezuela contained 7.5 million.

The Mezzogiorno counted for two fifths of the total population of Italy. In contrast, the Guayana had 3.4 percent of the national population in 1961. The simple population differentials between the two regions for which the development projects were designed, explains the particularities of planning activities of each country, with respect to the emphasis on regional objectives and the degree of integration of each program in the context of their respective national plans. Mezzogiorno's development program, while being a part of the national plan, was designed specifically to solve numerous regional problems. The Guayana program essentially, was not directed to solve regional problems, since they were non-existent at the time of initiation of the project.

The gross national product of Italy in 1961 was about 30 billion dollars, that of Venezuela about 8 billion. The Mezzogiorno's share in GNP was 20 percent, while the share of the Guayana region was about 2.7 percent in 1961.

The objective of regional equalization of income has obviously been one of the main concerns of the Mezzogiorno's development program. This could not logically be an objective in the Guayana program as a strictly regional goal, although it might have been considered as a national objective.

## 2. Per Capita Income.

The per capita GNP of Venezuela in 1961 was substantially higher than that of Italy (\$1066 vs. \$600). The per capita gross regional product for Mezzogiorno and Guayana were lower than their

respective national averages. But Mezzogiorno showed greater differential with Italy's average than Guayana's, relative to Venezuela's average (\$312 for Mezzogiorno and \$846 for Guayana). Although the per capita disposable income of the two countries was substantially lower than the per capita GNP, it kept the same proportion as the latter (\$350 for Italy vs. \$600 for Venezuela). Both indices, as is well known, do not reveal the real picture of development in the two countries. The available data for income distribution in the Mezzogiorno region in 1948 (not presented or analyzed in this work) shows 54 percent of families in the low-income bracket (under 390 lire) and 31.8 percent in the lower-middle. The situation is roughly the same in Venezuela.

By setting up specific employment objectives for the masses of the unemployed, Mezzogiorno's development program has come close to incorporating the objective of more equal distribution of income into its planning framework. The Guayana program, at its initial stages of implementation, could not rigorously pursue such an objective because of two major reasons: 1) The choice of technology of production as the most modern and capital intensive,<sup>1</sup> which reduces the capacity of projects as major sources of job opportunities and 2) the low level of existing skill in the region, which is not compatible with the labor requirements of a heavy industry complex.

In the Mezzogiorno case, extensive labor market studies were actually responsible for the development of particular projects for specific locations.

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<sup>1</sup> Blanco and Ganz, 14, p. 66.

### 3. Differences in Sectoral Structures of the Two Economies.

According to 1951-1960 averages, agriculture counted for 20 percent of the net national product in Italy. Industry, transportation and communication, and manufacturing have respectively, a 50, 6 and 3.5 percent share in the total net national product, and 20.5 percent counted for other activities. In comparison, the sectoral share of agriculture, in 1961, was 6.8 percent of the gross domestic product of the Venezuelan economy. Industry accounted for 35 percent of the GDP, including a 30 percent share of oil industry. Transportation and communication had a share of 3.8 percent, and manufacturing counted for 11.1 percent. A large share of the total product counted for other economic activities, including commerce and services.

To be meaningfully compared, the structural differences in the sectoral composition of the two economies need a thorough analysis at a higher level of industrial disaggregation, which is not within the scope of this study. Generally speaking, the high concentration of Venezuelan sectoral activities on the oil and commerce and services sectors is the apparent difference between the two economies.

The availability of untapped resources in Venezuela, a condition non-existent in Italy, is a major directive of the development programs in Venezuela. The classification of Tinbergen is closely applicable to the planning efforts of the two countries in relation to sectoral expansion. Venezuela is at the 'middle phase' of development, trying to concentrate on the development of a few

sectors within a few regions in order to compensate for past sectoral imbalances. Italy, entering the "microphase," is planning micro-regional plans based on project by project evaluation to deal with detailed and complex regional-sectoral problems.

The analysis of the regional shares in total sector activities of the two countries arrives at the same conclusion as above. In 1961, the Central region in Venezuela had 35.35 percent share in total national sectoral products, the region of Western Oil and Eastern Oil counted each for 36.15 and 11.74 percent of gross domestic product respectively. The four other regions held a share of 16.76 percent of total product.

In Italy, for the same year 1961, the Northern region had a share of 40.73 percent, the Central region 38.89 and the South 20.38 percent in the gross national product.

The planning problem in Italy is concerned with the redistribution of income among regions. In Venezuela, the problem is opening new frontiers in an expanding economy.

4. Investment. The rate of return to investment is higher in Italy than in Venezuela. Although the ratio of net investment to net product for both Mezzogiorno and the Centro-Nord during the period 1951-1960 have been rising (Table VI-1), they are still lower than the ratio for the Venezuelan economy: in 1950, 25.64 percent and in 1959, 26.05 percent.

TABLE VI-1

THE RATIO OF NET INVESTMENT TO NET PRODUCT  
FOR MEZZOGIORNO AND CENTRO-NORD,  
1951-1953 and 1958-1960

| <u>Years</u> | <u>Mezzo-<br/>giorno</u> | <u>Centro-<br/>Nord</u> |
|--------------|--------------------------|-------------------------|
| 1951-53      | 15.11                    | 10.47                   |
| 1958-60      | 19.77                    | 13.50                   |

At initial years of investment, when output targets have not yet materialized, developmental projects by their very nature are to some extent responsible for the increase of ratios in both countries, but the lower increase for Venezuela may be attributed to the tendency of an economy toward a more efficient usage of investments. On the percentage distribution of gross fixed investment among sectors, the two countries show remarkable similarities.

TABLE VI-2

PERCENTAGE DISTRIBUTION OF GROSS FIXED INVESTMENT  
BY ECONOMIC SECTORS FOR  
Italy (1960) and Venezuela (1959)

|                | <u>Agri-<br/>cul-<br/>ture</u> | <u>Industry<br/>(including<br/>Mfg.)</u> | <u>SOC<br/>Sectors</u> | <u>Commerce<br/>and<br/>Services</u> |
|----------------|--------------------------------|--|------------------------|--------------------------------------|
| Italy 1960     | 9.5                            | 39.7                                     | 33.0                   | 17.8                                 |
| Venezuela 1959 | 10.6                           | 34.9                                     | 33.7                   | 20.8                                 |



##### 5. Differences in the System of Regional Centers.

The differences in the system of regional centers between the two countries stem from several factors: 1) the difference in the population size, 2) the differences in topography and climate and 3) regional economic forces.

In 1965, there were 36 cities in Italy with more than 100,000 population as against 7 cities in Venezuela. Of these 36 cities, 10 were in Mezzogiorno, and none of the seven Venezuelan cities were in the Guayana region.

The rank-size distribution pattern for both countries showed a tendency toward linearity with a steeper slope for Venezuelan cities, which can be interpreted as a necessary condition for supporting the domestic economy by the creation of large market centers.

In the Mezzogiorno's development program, the already existing population and activity centers can be developed further, to become competitive entities with the strong industrial centers of the North. But in the case of Guayana, the regional center, Ciudad Guayana, will have a limited effect on the reorientation of population distribution in Venezuela.

6. The Differences in the Regional Migratory Movements. There is a tremendous degree of population mobility in Italy, most probably one of the main reasons for the achievement of the highest rate of growth among European nations after World War II. In 1960 only one million of the population of the North migrated, either within the North itself or to the South. In the same year, half a million

population in the South moved within or outside the South. Eighty-four percent of the North's migrants moved within the region as against 71 percent of the Southerners, who moved within the South. In absolute figures, in 1960, Mezzogiorno lost 135 thousand of its population to the North.

One of the objectives of the planning programs for Mezzogiorno is the reduction of outmigration, although plans have even been suggested to encourage migration to the North, in order to create a balance between the regional population and income share.<sup>2</sup>

In Venezuela, data for the 1936-1950 period show net gains for the regions of Central, Western Oil and Eastern Oil, and net loss for the other four regions.

The Guayana project at most, can hope to add one region to the list of gaining regions. But it would not drastically affect the state of the migration pattern within the national boundaries.

#### C. DIFFERENCES IN THE SOCIAL AND POLITICAL SETTING AND PLANNING STYLE

The social and political settings of the countries are greatly responsible for the formulation of national and regional objectives. Should the formulation of goals follow the diagnostic stage, then the role of social groups and political organizations is quite important in bringing the problems to the surface. A benevolent dictator, by

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<sup>2</sup>Rosenstein-Rodan, 117, p. 13.

by the use of highly qualified experts, may diagnose the national problems and take remedial action toward their solutions, and his effort may well serve the public interests. A nation may also formulate its national objectives and priorities by a wide range of social participation in the different forms provided in a democratic system.

To be sure, the list of priorities established by the two political systems described above, will be somewhat different, both in terms of their content and in view of the strategies chosen for the implementation of plans for remedial action. But there are plenty of reasons why such a gap in practice is not as wide as it may theoretically seem to be. The most important reason is that there are no black and white type contrasts between the prevailing social and political systems in the world. The social and economic problems are fairly well diagnosed under any political system, but the channels of transmission of information, which leads to diagnosis of the problems, may differ from country to country.

When the problems are recognized, the body of knowledge and intelligence, internationally available, is adequate to seek their solutions. If enough resources can be mobilized to solve the problems, there remains only one major difference between the eventual outcomes of the two planning styles: the establishment of priority orders and the degree of public support each item in the list may receive.

The responsiveness of the masses to developmental programs are

usually overlooked at the time of the establishment of global and aggregative targets. We have indeed, some vague knowledge about how a Burmese farmer responds to the use of fertilizer in agriculture as against a Japanese or an Indian farmer. But we still need more knowledge on the psychology of masses who have lived under repressive or liberal regimes and their reactions toward certain developmental projects, which have significant social repercussions.

The economic data available to social researchers, such as those used in the previous two case studies, do not adequately represent the differences among the countries with regard to social attitudes, collective responses, and psychological behavior of masses.

Even indicators, such as per capita regional incomes, are crude economic measures for a comparative study of the well-being of populations of two regions or two nations. There is no shortage of technique and methodology for the evaluation of the impact of a developmental program on a society, but there is simply a lack of data.

Therefore, our purpose here, is confined to a descriptive comparison of the Italian and Venezuelan social and political system and their respective effects on the choice of strategy for economic development.

Italy has experienced an extreme shift from regionalism to centralism as a result of unification. At the present time, only 4 out of 19 regional entities enjoy local autonomy and have separate regional parliaments. Of these four, Sicilia and Sardegna are in the South, and the other two are ethnic minority states of Italy.

For all practical purposes, however, the Italian system of government is highly centralized. Regions are run by prefecteurs who are appointed by the Central government.

The political parties in Italy have always been critical of the regional differentials and the high rate of unemployment in the South. But, in spite of their unanimity on the necessity to seek solutions to the problems of the South, no concrete results were reached until recent years, because of ideological differences among the parties. For a long time, the alliance of the Communists and Socialists was a block toward the formation of a government of the moderate left, making effective planning impossible. The failure of the Vanoni plan is mostly attributable to the party conflicts prior to the formation of Aldo Moro's coalition government.<sup>3</sup>

The problem of the South has been widely discussed for years. There has been a nation-wide awareness of the difficulties. Political parties, labor unions and middle class urban groups, all have been active in transmitting the demand for reform to the central government. At the same time, the central government also had recognized the necessity for action in the South. There was a reciprocal relationship between the demands of the South and the desire of the central government to do something about them. This situation has been a major burden on the performance of the regional programs, because it created competition among local authorities for the limited development

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<sup>3</sup>Hanson, 52, p. 130.

funds. The over-participation of local authorities in the central decision-making process, eventually resulted in more control of the central planning authorities in the allocation of funds. It was an obvious choice for the central government to be more selective in the choice of location and the degree of concentration of investment in the South.

Venezuela for centuries, has had a highly centralized government system and still has. None of the 23 provinces of Venezuela enjoys political independence. The 1958 revolution of middle-class city dwellers in alliance with the army, brought down the dictatorship of Colonel Marcos Perez Jimenez.<sup>4</sup> The revolution, among other things, brought about ideas of economic planning in general, and regional planning in particular. The national plan, however, was not formed by the participation of all segments of the society. Although the men in power had changed, the traditional way of planning from 'above' remained intact as a revolutionary practice.

The CORDIPLAN, a national planning agency created in 1958, was supposed to follow the stated national goals set up by the central government as follows: "the greatest possible welfare for all Venezuelans, to be achieved through full employment of the labor force and through an equitable distribution of wealth, using the expanding resources of the several regions of the country in the most efficient way possible; and economic independence, through an adequate

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<sup>4</sup>Friedmann, 39, p. 152.

diversification of the economy and an optimal growth of the national product, especially on the basis of the best possible utilization of the income obtained from the just participation of the nation in the extractive industries."<sup>5</sup>

The national goals to be followed by a national economic plan for development was nothing but a two-player game played by one person. The achievement of the targets was assumed to be 100 percent and the satisfaction of the public was guaranteed.

The policy of decentralization of economic activities, combined with sectoral diversification, singled out a region for development which was sparsely populated, and encountered opposition from more populated regions. The rivalry among the regions has become a common political exercise after the Guayana regional development.

Although the Guayana program is hardly a response to the immediate regional needs, it has had the effect of persuading other regions to participate more actively in the decision-making process, and applying more pressure in obtaining their share of investment funds. Thus, a more dynamic play of forces in the Venezuelan social and political arena is anticipated.

#### D. CONCLUDING REMARKS

We have deliberately chosen two countries with different historical, social and political backgrounds at different stages of economic development. Our main objective was to explore the differences in the

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<sup>5</sup>Friedmann, 39, p. 156.

way regional development objectives are formed, the relationship of these objectives to the phases of national economy, and the strategies they use under different circumstances and constraints to achieve these objectives. The results of our findings may be summarized as follows:

1. The planning objectives at the middle-phase of development (Venezuela) are arrived at on the national level. The so-called regional plans in this phase are actually 'regionalized' programs, designed primarily to achieve national goals. There is limited citizen participation in the entire planning process, from diagnosis of the problems to implementation of the plans. The goals are stated strictly in economic terms, and the evaluation criteria used for assessment of the degree of achievement of the plans are mostly based on the measurement of the absolute or percentage changes in the growth of the national or regional economy.

In the micro-phase, regional differentials have reached a saturation level (Italy), probably as a direct result of the general strategy followed by most underdeveloped countries at the middle phase.

If the country has followed the rules of the market, shaped by the private sector, the need for planning and government intervention is felt momentarily. The social pressures may reach a point of explosion. Even if the direct participation of the masses in the decision-making process is not practiced, the public, through various democratic channels, would let the authorities know of its



grievances and its expectations from the central government. The regional problems, such as a low level of per capita disposable income, or a high rate of unemployment, may be excellent campaign issues for political parties from the extreme left to the extreme right, but it helps, nevertheless, to build up pressure on the central administration for planning and action.

The problems, brought to public attention in this fashion, would result in the formulation of national priorities and regional objectives, which are more responsive to the immediate needs of the communities, rather than to long-range, global goals.

The main objective of the regional development programming in this phase, is redistribution of the national wealth among all people of the regions.

2. The course of development followed in the middle-phase widens the regional and sectoral imbalances. In spite of the fact that national planning objectives, in the Venezuelan case, explicitly sought a way out of sectoral imbalances, the necessity for financing the programs made it obligatory to expand still further the more developed sectors, such as petroleum and mining. The regional imbalances are also expected to grow larger, as long as the regional resources are exploited to achieve the national objectives, rather than being employed to benefit the regions. Some benefits, nonetheless, may still accrue to the regions.

Since the projects in the micro-phase are designed to solve some of the urgent problems of the regions, a reduction of social

tensions and even a betterment of economic indicators may result. But the strong forces of regions already developed to higher standards, will make the process of regional equalization of income, long and tedious. The Italian experience showed that, although the standards of life are improving in the South, they do not keep pace with the rate of improvement in the North. In other words, the gap is still widening.

3. The adoption of the strategy of "concentrated decentralization" is a way out of the development dilemma, exposed in both cases of middle phase and micro-phase planning. This strategy does not suggest the pursuance of a market mechanism to augment the degree of concentration of economic activities in already developed areas, but suggests rather, a simulation of the processes responsible for the growth of these areas in new and potential regions, in creating competitive markets for labor and commodities within the existing centers.

The development processes of developed economies in the past have shown the importance of the large market areas or metropolitan centers. The strategy of concentrated decentralization proposes metropolitan planning as the spatial system superimposed over the national plan.

The Guayana regional project with great emphasis on the creation of Ciudad Guayana as a new competitive market area, is a daring attempt toward realization of the decentralization of economic activities. While Ciudad Guayana may encounter some

difficulties in the achievement of such an ambitious goal, the large metropolitan centers of the Mezzogiorno would have less difficulty in becoming competitive with the centers of the North, if the degree of concentration of investments were to become greater than what it is in actuality.

It is true that a policy of concentrated decentralization in the micro-phase, and in an environment characterized by more democratic participation, would tend to be discriminatory, consequently building up regional tensions. There are, therefore, limitations in the degree of spatial concentration which may be exercised. Thus, the strategy of concentrated decentralization has a special political dimension, which ought to be incorporated into a spatial economic plan.

## APPENDIX A

Income Distribution Objective and The Rate of Growth and The Strategy of Concentration

We start by introducing Harrod-Domar model in which:

$Y$  = income (output)

$S$  = saving

$I$  = investment

$s = \frac{S}{Y}$  = the savings ratio

$k = \frac{I}{\Delta Y}$  = the marginal capital-output ratio

and the rate of growth of income  $g = \frac{\Delta Y}{Y}$

then:  $g = \frac{s}{k}$  because ex post  $S = I$ .

If  $S = I$ ,

then  $I = sY$  and since  $g = \frac{s}{k}$ , we can write (1)  $I = gk Y$

Now, we introduce Kaldor's model of income distribution. In his model

$Y = W + P$

$I = S$

$S = S_w + S_p$

where

$W$  = wage bill

$P$  = profit

$S_w$  = saving out of wage income

$S_p$  = saving out of profit income, and

$S_w = s_w W$

$$S_p = s_p P$$

where

$s_w$  = average propensity to save of wage-earners and

$s_p$  = average propensity to save of profit recipients.

If we substitute 1 in Eq. 1 of Harrod-Domar model with its equivalent in Kaldor's model, we will have

$$s_w W + s_p P = gkY$$

or

$$\frac{s_w W + s_p P}{Y} = gk$$

or

$$s_w \frac{W}{Y} + s_p \frac{P}{Y} = gk$$

and subsequently

$$(2) \quad g = \frac{1}{k} \left[ s_w \frac{W}{Y} + s_p \frac{P}{Y} \right]$$

If  $k = \text{constant}$ , then the variation in  $g$  is a function of wage-output ratio, profit-output ratio and the propensities to save for the wage-earners and the profit recipients.

Equation (2) describes that:

1) The high rate of growth in some of the underdeveloped countries is partially due to the low capital-output ratio.

2) If the initial share of labor from the national income is lower than the share of the capitalist's profit, and the average propensity to save is higher for capitalists,  $s_p > s_w$ , it would lead to a higher growth rate, if the investment causes the share of profit

from income to rise. Usually in underdeveloped countries, the average propensity to save for capitalists is greater than that of wage-earners, suggesting that in the initial stages of development, it is desirable to choose development policies which further increase the relative share of capitalists in the national income to attain a high rate of growth.

3) Two extreme strategies can be adopted in order to achieve a certain rate of growth:

If at the initial stage  $\frac{W}{Y} < \frac{P}{Y}$  and  $s_w < s_p$ : Strategy 1:

Invest in sectors and regions in which the share of profit and the propensity to save by capitalists is already higher, and further increase them.

Strategy 2:

Introduce a radical structural change to reverse the relative shares, so that, even with constant propensities, the growth rate is equal to that of Strategy 1 or higher.

A numerical example may help to illustrate the impact of the two strategies.

Let us assume that  $k = \text{constant} = 3$ . We assume also for the initial stage:

$$\frac{W}{Y} = .40, \frac{P}{Y} = .60, s_w = .075, \text{ and } s_p = .25$$

then according to Eq. (2)

$$g = \frac{1}{3} [.075 \times .40 + .25 \times .60] = 6\%$$

According to Strategy 1, the development plan aims at changing the relative share still further in favor of the capitalists. At the

same time, such an atmosphere of entrepreneurial opportunities creates a tendency for a higher rate of savings for the capitalists.

Let us assume that this strategy will change the initial conditions as follows:

$$\frac{W}{Y} = .30, \frac{P}{Y} = .70, s_w = .075, \text{ and } s_p = .30$$

then

$$g = \frac{1}{3} [.075 \times .30 + .30 \times .70] = 7.75\%$$

The radical changes suggested by strategy 2, if implemented successfully may result in the following conditions:

$$\frac{W}{Y} = 1.0, \frac{P}{Y} = 0.0, s_w = .075 \text{ and } s_p = .25$$

then

$$g = \frac{1}{3} [.075 \times 1.0 + .25 \times 0] = 2.5\%$$

This example shows that by eliminating profits entirely, with an unchanged propensity to save by the wage-earners, the rate of growth drops from 6 to 2.5 percent. In order to keep the growth rate at the 6 percent level, the average propensity to save for the wage-earners must rise from 7.5 percent to 18 percent.

It is conceivable that the low-level of consumption in the pre-planning period for wage-earners in underdeveloped countries would result in higher consumption rather than higher savings in the case of Strategy 2. The profits, however, in Strategy 2 ought not to be eliminated. In other words, not all the national income must be distributed among the population. An economic system may consider P

in Eq. (2), as profit accrued to the public sector. And by strict planning, the savings rate for the public sector may be kept adequately high. This is essentially what the socialist economy is all about. In the initial stages of development the wage earners' share is as low as in a developing capitalist economy. But in the long run, the transfer of public profits to the producers seems to be an easier task than transferring the profits of private corporations to wage-earners. A capitalist system such as that of the U. S. may claim that through a progressive tax system the transfer problem can easily be solved, without hampering the entrepreneurial incentives for investment. In most underdeveloped countries, however, the administration of a sound tax system is very difficult. This is probably one of the reasons that some underdeveloped countries would rather adopt socialist economic principles rather than administer a tax system, in order to solve their income distribution problem, while maintaining a certain rate of growth.

In our analysis, equation (2) can be valid for capitalist as well as non-capitalist economies. The difference is only in the ownership of capital. The point shared in either system is the initial emphasis on a "concentrated growth" strategy. In the long run both systems tend to have more equal distribution of income. Theoretically if  $s_w = s_p$  with constant  $k$  (capital-output ratio), any transfer from  $\frac{W}{Y}$  to  $\frac{P}{Y}$  or vice versa would not affect the rate of growth  $g$  [see Eq. (2)]. The fact that some developed capitalist economies have a low rate of growth can be explained partially by the higher relative share of the wage-earners in the national income and their higher propensity to consume (i.e. a lower savings ratio).



APPENDIX B

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## ITALY

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TABLE B-1  
 POPULATION BY THREE MAJOR REGIONS OF ITALY, 1951-61

| Year | Italy                     | Regions |        |        |
|------|---------------------------|---------|--------|--------|
|      |                           | I       | II     | III    |
|      | Absolute values in 1000's |         |        |        |
| 1951 | 47,397                    | 11,716  | 17,290 | 18,391 |
| 1952 | 47,656                    | 11,775  | 17,360 | 18,521 |
| 1953 | 47,933                    | 11,837  | 17,414 | 18,682 |
| 1954 | 48,262                    | 11,921  | 17,483 | 18,858 |
| 1955 | 48,582                    | 12,015  | 17,540 | 19,027 |
| 1956 | 48,852                    | 12,105  | 17,589 | 19,158 |
| 1957 | 49,094                    | 12,204  | 17,632 | 19,258 |
| 1958 | 49,372                    | 12,351  | 17,693 | 19,328 |
| 1959 | 49,715                    | 12,541  | 17,788 | 19,386 |
| 1960 | 50,067                    | 12,752  | 17,889 | 19,426 |
| 1961 | 50,438                    | 13,004  | 18,017 | 19,417 |

Source: Informazioni SVIMEZ, Anno XVI - n. 15 - 10 aprile 1963

TABLE B-2  
 GROSS TOTAL INCOME OF THREE MAJOR  
 REGIONS OF ITALY, 1951-61  
 (in 1954 constant prices)

| Year                                | Italy  | Regions |       |       |
|-------------------------------------|--------|---------|-------|-------|
|                                     |        | I       | II    | III   |
| Absolute values in billions of lire |        |         |       |       |
| 1951                                | 10,511 | 4,084   | 4,016 | 2,411 |
| 1952                                | 10,719 | 4,194   | 4,169 | 2,356 |
| 1953                                | 11,480 | 4,433   | 4,423 | 2,624 |
| 1954                                | 12,027 | 4,689   | 4,666 | 2,672 |
| 1955                                | 12,860 | 5,088   | 5,042 | 2,730 |
| 1956                                | 13,413 | 5,369   | 5,174 | 2,870 |
| 1957                                | 14,280 | 5,719   | 5,465 | 3,096 |
| 1958                                | 14,832 | 5,902   | 5,783 | 3,197 |
| 1959                                | 16,088 | 6,472   | 6,316 | 3,298 |
| 1960                                | 17,258 | 7,135   | 6,726 | 3,397 |
| 1961                                | 18,663 | 7,602   | 7,257 | 3,804 |

Source: Informazioni SVIMEZ, Anno XVI - n. 15 - 10 aprile 1963

TABLE B-3  
NET PRODUCT BY PRIVATE AND PUBLIC SECTOR, 1951-61  
(in millions of lire - 1954 constant prices)

|                  | 1951      |       | 1961       |       | % Increase<br>1951-61 |
|------------------|-----------|-------|------------|-------|-----------------------|
|                  | Millions  | %     | Millions   | %     |                       |
| North            | 4,771,500 | 58.5  | 8,180,200  | 57.3  | +71.4                 |
| Central          | 1,416,200 | 17.3  | 2,713,000  | 19.0  | +91.6                 |
| South            | 1,314,000 | 16.1  | 2,246,400  | 15.7  | +71.0                 |
| Islands          | 658,300   | 8.1   | 1,140,400  | 8.0   | +73.2                 |
| <br>             |           |       |            |       |                       |
| Nord             | 6,187,700 | 75.8  | 10,893,200 | 76.3  | +76.0                 |
| Mezz.            | 1,972,300 | 24.2  | 3,386,800  | 23.7  | +71.7                 |
| ITALY            | 8,160,000 | 100.0 | 14,280,000 | 100.0 | +75.0                 |
| <br>             |           |       |            |       |                       |
| Campania         | 533,800   | 6.6   | 951,300    | 6.7   | +78.2                 |
| Abruzzi & Molise | 180,700   | 2.2   | 292,300    | 2.0   | +61.8                 |
| Puglia           | 353,700   | 4.3   | 616,200    | 4.3   | +74.2                 |
| Basilicata       | 57,700    | 0.7   | 97,300     | 0.7   | +68.6                 |
| Calabria         | 188,100   | 2.3   | 289,300    | 2.0   | +53.8                 |
| Sicilia          | 481,400   | 5.9   | 864,700    | 6.1   | +79.6                 |
| Sardegna         | 176,900   | 2.2   | 275,700    | 1.9   | +55.9                 |

Source: Informazioni SVIMEZ, Anno XVI - n. 4 - 23 gennaio 1963

TABLE B-4  
 PERCENTAGE COMPOSITION OF REGIONAL INCOME  
 BY MAJOR SECTORS IN 1961

|                  | Ag. &<br>Forestry | Industry,<br>Commerce,<br>Trans., etc. | Other<br>Sectors | Public<br>Admin. | Total |
|------------------|-------------------|--|------------------|------------------|-------|
| Nord             | 13.6              | 67.1                                   | 9.0              | 10.3             | 100.0 |
| Mezz.            | 29.0              | 44.8                                   | 9.8              | 16.4             | 100.0 |
| ITALY            | 17.2              | 61.8                                   | 9.2              | 11.8             | 100.0 |
| Campania         | 21.0              | 52.8                                   | 10.0             | 16.2             | 100.0 |
| Abruzzi & Molise | 38.4              | 39.5                                   | 7.9              | 14.2             | 100.0 |
| Puglia           | 33.7              | 40.4                                   | 9.8              | 16.1             | 100.0 |
| Basilicata       | 47.9              | 31.6                                   | 6.8              | 13.7             | 100.0 |
| Calabria         | 35.9              | 40.0                                   | 6.9              | 17.2             | 100.0 |
| Sicilia          | 27.2              | 44.5                                   | 10.9             | 17.4             | 100.0 |
| Sardegna         | 27.5              | 44.1                                   | 11.5             | 16.9             | 100.0 |

Source: Informazioni SVIMEZ, Anno XVI - n. 4 - 23 gennaio 1963

TABLE B-5

NET INCOME BY PRIVATE SECTOR AND PUBLIC ADMINISTRATION  
1951-1961 REGIONAL PERCENTAGES

| Entities         | Regional Percentages |       |       |       |       |       |       |       |       |       |       |
|------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                  | 1951                 | 1952  | 1953  | 1954  | 1955  | 1956  | 1957  | 1958  | 1959  | 1960  | 1961  |
| North            | 58.5                 | 58.0  | 56.4  | 56.2  | 57.0  | 56.7  | 56.5  | 56.8  | 57.2  | 58.1  | 57.3  |
| Central          | 17.3                 | 18.3  | 18.1  | 18.8  | 19.0  | 18.8  | 18.7  | 19.2  | 19.4  | 19.0  | 19.0  |
| South            | 16.1                 | 15.8  | 16.6  | 16.3  | 15.7  | 16.0  | 16.2  | 15.7  | 15.3  | 15.2  | 15.7  |
| Islands          | 8.1                  | 7.9   | 8.9   | 8.7   | 8.3   | 8.5   | 8.6   | 8.3   | 8.1   | 7.7   | 8.0   |
| Nord             | 75.8                 | 76.3  | 74.5  | 75.0  | 76.0  | 75.5  | 75.2  | 76.0  | 76.6  | 77.1  | 76.3  |
| Mezzogiorno      | 24.2                 | 23.7  | 25.5  | 25.0  | 24.0  | 24.5  | 24.8  | 24.0  | 23.4  | 22.9  | 23.7  |
| ITALY            | 100.0                | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Campania         | 6.6                  | 6.4   | 6.4   | 6.4   | 6.4   | 6.6   | 6.7   | 6.6   | 6.3   | 6.5   | 6.7   |
| Abruzzi & Molise | 2.2                  | 2.3   | 2.3   | 2.2   | 2.2   | 2.1   | 2.0   | 2.0   | 2.0   | 1.9   | 2.0   |
| Puglia           | 4.3                  | 4.3   | 4.8   | 4.8   | 4.3   | 4.4   | 4.6   | 4.3   | 4.3   | 4.3   | 4.3   |
| Basilicata       | 0.7                  | 0.7   | 0.7   | 0.7   | 0.7   | 0.7   | 0.7   | 0.7   | 0.7   | 0.6   | 0.7   |
| Calabria         | 2.3                  | 2.1   | 2.4   | 2.2   | 2.1   | 2.2   | 2.2   | 2.1   | 2.0   | 1.9   | 2.0   |
| Sicilia          | 5.9                  | 5.6   | 6.6   | 6.4   | 6.1   | 6.3   | 6.5   | 6.2   | 6.1   | 5.8   | 6.1   |
| Sardegna         | 2.2                  | 2.3   | 2.3   | 2.3   | 2.2   | 2.2   | 2.1   | 2.1   | 2.0   | 1.9   | 1.9   |

Source: Informazioni SVIMEZ, Anno XVI - n. 4 - 23 gennaio 1963, p. 108



TABLE B-6

NET INCOME PRODUCED BY PRIVATE SECTOR & PUBLIC ADMINISTRATION  
AS PERCENTAGE OF TOTAL REGIONAL INCOME - MEZZOGIORNO

|                  | 1951   | 1952   | 1953   | 1954   | 1955   | 1956   | 1957   | 1958   | 1959   | 1960   | 1961   |
|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Mezzogiorno      | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Campania         | 27.06  | 27.20+ | 24.97+ | 25.35+ | 26.56  | 26.86  | 26.95+ | 27.30+ | 27.07  | 28.32+ | 28.08+ |
| Abruzzi & Molise | 9.16   | 9.66+  | 8.93+  | 8.84+  | 9.08   | 8.77+  | 8.06+  | 8.53   | 8.63   | 8.40+  | 8.63   |
| Puglia           | 17.93+ | 17.98+ | 18.71+ | 19.06+ | 17.91+ | 17.96  | 18.63  | 18.15+ | 18.40+ | 18.54+ | 18.19  |
| Basilicata       | 2.91+  | 2.91   | 3.00+  | 3.06+  | 2.97   | 3.02   | 2.81   | 2.76   | 2.73+  | 2.56+  | 2.87   |
| Calabria         | 9.53+  | 9.03   | 9.27   | 8.76   | 8.98   | 8.81   | 8.81   | 8.54+  | 8.65   | 8.47+  | 8.54   |
| Sicilia          | 24.40  | 23.67+ | 26.03+ | 25.68+ | 25.55  | 25.58  | 26.07  | 25.98  | 25.87  | 25.09+ | 25.53+ |
| Sardegna         | 8.96+  | 9.51   | 9.05   | 9.21+  | 8.92   | 8.97+  | 8.65   | 8.70+  | 8.62   | 8.57   | 8.14   |

Source: Computed from Prosp. 7 - Informazioni SVIMEZ, Anno XVI - n. 4 - 23 gennaio 1963

TABLE B-7  
GROSS INCOME BY THREE MAJOR REGIONS OF ITALY, 1951-61

| Year                                 | Italy  | Regions |       |       |
|--------------------------------------|--------|---------|-------|-------|
|                                      |        | I       | II    | III   |
| Absolute amounts in billions of lire |        |         |       |       |
| 1951                                 | 10,511 | 4,084   | 4,016 | 2,411 |
| 1952                                 | 10,719 | 4,194   | 4,169 | 2,356 |
| 1953                                 | 11,480 | 4,433   | 4,423 | 2,624 |
| 1954                                 | 12,027 | 4,689   | 4,666 | 2,672 |
| 1955                                 | 12,860 | 5,088   | 5,042 | 2,730 |
| 1956                                 | 13,413 | 5,369   | 5,174 | 2,870 |
| 1957                                 | 14,280 | 5,719   | 5,465 | 3,096 |
| 1958                                 | 14,882 | 5,902   | 5,783 | 3,197 |
| 1959                                 | 16,088 | 6,472   | 6,318 | 3,298 |
| 1960                                 | 17,258 | 7,135   | 6,726 | 3,397 |
| 1961                                 | 18,663 | 7,602   | 7,257 | 3,804 |

Source: Informazioni SVIMEZ, Anno XVI - n. 15 - 10 aprile 1963

TABLE B-8  
 PER CAPITA GROSS INCOME BY THREE  
 MAJOR REGIONS OF ITALY, 1951-61

(in 1954 prices)

| Year                                  | Regions |       |       |       |
|---------------------------------------|---------|-------|-------|-------|
|                                       | Italy   | I     | II    | III   |
| a) absolute amounts in 1000's of lire |         |       |       |       |
| 1951                                  | 222     | 349   | 232   | 131   |
| 1952                                  | 225     | 356   | 240   | 127   |
| 1953                                  | 239     | 374   | 254   | 140   |
| 1954                                  | 249     | 393   | 267   | 142   |
| 1955                                  | 265     | 423   | 287   | 143   |
| 1956                                  | 275     | 443   | 294   | 150   |
| 1957                                  | 291     | 469   | 310   | 161   |
| 1958                                  | 301     | 478   | 327   | 165   |
| 1959                                  | 324     | 516   | 355   | 170   |
| 1960                                  | 345     | 559   | 376   | 175   |
| 1961                                  | 370     | 585   | 403   | 196   |
| b) index numbers, 1951 = 100.0        |         |       |       |       |
| 1951                                  | 100.0   | 100.0 | 100.0 | 100.0 |
| 1952                                  | 101.4   | 102.0 | 103.4 | 96.9  |
| 1953                                  | 107.7   | 107.2 | 109.5 | 106.9 |
| 1954                                  | 112.2   | 112.6 | 115.1 | 108.4 |
| 1955                                  | 119.4   | 121.2 | 123.7 | 109.2 |
| 1956                                  | 123.9   | 126.9 | 126.7 | 114.5 |
| 1957                                  | 131.1   | 134.4 | 133.6 | 122.9 |
| 1958                                  | 135.6   | 137.0 | 140.9 | 126.0 |
| 1959                                  | 145.9   | 147.9 | 153.0 | 129.8 |
| 1960                                  | 155.4   | 160.2 | 162.1 | 133.6 |
| 1961                                  | 166.7   | 167.6 | 173.7 | 149.6 |

Source: Informazioni SVIMEZ, Anno XVI - n. 15 - 10 aprile 1963, p. 378

TABLE B-9  
 NET INCOME PER CAPITA, 1951-61  
 (constant prices - 1954 lire)

|                  | Absolute Amount |         |
|------------------|-----------------|---------|
|                  | 1951            | 1961    |
| North            | 225,601         | 362,465 |
| Central          | 163,198         | 290,917 |
| South            | 110,204         | 180,516 |
| Islands          | 114,208         | 186,207 |
| <br>             |                 |         |
| Nord             | 207,412         | 341,545 |
| Mezz.            | 111,512         | 182,393 |
| ITALY            | 171,717         | 282,982 |
| <br>             |                 |         |
| Campania         | 122,814         | 200,015 |
| Abruzzi & Molise | 107,308         | 184,442 |
| Puglia           | 109,835         | 180,699 |
| Basilicata       | 91,731          | 150,161 |
| Calabria         | 92,023          | 141,438 |
| Sicilia          | 107,280         | 183,546 |
| Sardegna         | 138,608         | 195,077 |

Source: Informazioni SVIMEZ, Anno XVI - n. 4 - 23 gennaio 1963

TABLE B-10  
 PER CAPITA INCOME BY REGIONS, 1952-58  
 (annual percentage variation)

|                     | 53/52 | 54/53 | 55/54 | 56/55 | 57/56 | 58/57 | 1952-58<br>Annual Rate |
|---------------------|-------|-------|-------|-------|-------|-------|------------------------|
| North               | 7.2   | 5.4   | 8.3   | 8.0   | 4.0   | 6.5   | 6.5                    |
| Central             | 7.6   | 9.8   | 9.5   | 6.8   | 4.7   | 7.3   | 7.6                    |
| South               | 15.1  | 5.0   | 4.8   | 7.3   | 10.2  | 5.4   | 7.9                    |
| Islands             | 26.1  | 3.6   | 3.4   | 8.4   | 10.0  | 4.2   | 9.0                    |
| Nord                | 7.2   | 6.3   | 8.8   | 7.3   | 4.3   | 6.5   | 6.8                    |
| Mezz.               | 18.3  | 4.8   | 3.7   | 8.0   | 9.9   | 5.2   | 8.1                    |
| Italy               | 9.2   | 6.2   | 7.4   | 7.9   | 5.5   | 6.0   | 7.0                    |
| Abruzzi &<br>Molise | 8.7   | 5.0   | 7.6   | 5.3   | 1.6   | 12.5  | 6.8                    |
| Campania            | 7.4   | 5.9   | 10.2  | 9.3   | 10.0  | 6.3   | 8.1                    |
| Puglia              | 23.2  | 7.5   | -4.0  | 8.1   | 15.1  | 2.1   | 8.4                    |
| Basilicata          | 21.6  | 7.7   | 0.0   | 10.3  | 1.8   | 4.5   | 7.5                    |
| Calabria            | 21.7  | -2.0  | 7.2   | 5.6   | 11.7  | 1.9   | 7.6                    |
| Sicilia             | 30.4  | 2.8   | 3.6   | 8.7   | 11.2  | 4.3   | 9.8                    |
| Sardegna            | 10.8  | 8.1   | 1.5   | 8.1   | 6.1   | 4.5   | 6.4                    |

Source: Prosp. 4, p. 26, Informazioni SVIMEZ, Anno XIII - n. 1. - 6 genn.

TABLE B-11  
 INCOME DISTRIBUTION BY REGIONS AND PROVINCES  
 (1961-1964 average)

|                  | Percentage<br>Distribution<br>Mezz. = 1.00 | Total<br>bn Lire | Per Head<br>000 Lire | Reg'l<br>Per Head<br>as % of<br>Mezz's Av. | Reg'l<br>Per Head<br>as % of<br>Italy's Av. |
|------------------|--|------------------|----------------------|--|---|
| Italy            |  | 19491.0          | 378                  |  |   |
| Total Mezz.      | 1.0000                                     | 4820.4           | 244                  |  |   |
| Campania         | .2648                                      | 1276.9           | 263                  | 1.07                                       | .69   |
| Caserta          |  |                  | 206                  | .84  | .54   |
| Naples           |  |                  | 311                  | 1.27                                       | .82   |
| Salerno          |  |                  | 241                  | .98  | .63   |
| Abruzzi & Molise | .0817                                      | 394.1            | 383                  | 1.56                                       | 1.01  |
| Pescara          |  |                  | 301                  | 1.23                                       | .79   |
| Apulia           | .1818                                      | 876.5            | 253                  | 1.03                                       | .66   |
| Bari             |  |                  | 281                  | 1.15                                       | .74   |
| Brindisi         |  |                  | 224                  | .91  | .59   |
| Taranto          |  |                  | 242                  | .99  | .64   |
| Basilicata       | .0267                                      | 128.8            | 196                  | .80  | .51   |
| Calabria         | .0809                                      | 390.3            | 190                  | .77  | .50   |
| Sicily           | .2504                                      | 1207.3           | 254                  | 1.04                                       | .67   |
| Catania          |  |                  | 238                  | .97  | .62   |
| Palermo          |  |                  | 271                  | 1.11                                       | .71   |
| Siracusa         |  |                  | 376                  | 1.54                                       | .99   |
| Sardinia         | .0800                                      | 386.1            | 296                  | 1.21                                       | .78   |
| Cagliari         |  |                  | 292                  |  |   |
| Lower Lazio      | .0332                                      | 160.4            | 205                  | .84  | .54   |
| Latina           |  |                  | 278                  | 1.13                                       | .73   |

Source: E.I.U. Report, Investment Conditions in Southern Italy,  
 The Economist Intelligence Unit

TABLE B-12  
PERCENTAGE DISTRIBUTION OF THE  
GROSS FIXED INVESTMENT BY GEOGRAPHIC REGIONS

| Year | Mezzogiorno | Centro - Nord |
|------|-------------|---------------|
| 1951 | 20.8        | 79.2          |
| 1952 | 23.8        | 76.2          |
| 1953 | 25.9        | 74.1          |
| 1954 | 25.2        | 74.8          |
| 1955 | 25.7        | 74.3          |
| 1956 | 24.5        | 75.5          |
| 1957 | 24.1        | 75.9          |
| 1958 | 23.9        | 76.1          |
| 1959 | 23.3        | 76.7          |
| 1960 | 27.7        | 75.3          |

Source: Table 114, La 'Cassa' E Lo Sviluppo Del Mezzogiorno,  
Vol. I, p. 307

TABLE B-13  
THE GROSS FIXED INVESTMENT BY  
GEOGRAPHIC AREAS, 1951-60

(in billions of current lire)

| Year    | Absolute Values |                    |              | % Annual Change |
|---------|-----------------|--------------------|--------------|-----------------|
|         | Mezz.<br>(1)    | Centro-Nord<br>(2) | %<br>(1)/(2) |                 |
| 1951    | 388.1           | 1471.9             | .26          |                 |
| 1952    | 500.5           | 1600.5             | .31          | 19              |
| 1953    | 584.7           | 1669.3             | .35          | 12+             |
| 1954    | 619.2           | 1834.8             | .33+         | -6              |
| 1955    | 709.0           | 2041.0             | .34+         | 3               |
| 1956    | 746.6           | 2299.4             | .32          | -6              |
| 1957    | 828.6           | 2605.4             | .31+         | -3              |
| 1958    | 834.8           | 2616.2             | .31+         | 0               |
| 1959    | 884.0           | 2902.0             | .30          | -3              |
| 1951-59 | 6095.5          | 19070.5            | .31+         |                 |
| 1960    | 1087.8          | 3322.2             | .32+         |                 |
| 1951-60 | 7183.2          | 22392.7            | .32          |                 |

Annual Compounded Rate of Change 1951-59 1.8%

Source: Derived from Table 133, La 'Cassa' E Lo Sviluppo Del Mezzogiorno, Vol. 1, pp. 340 & 341



TABLE B-14

FIXED INVESTMENT BY SECTORS OF ECONOMIC  
ACTIVITIES, REGIONAL PERCENTAGE - ITALY = 100

| Investment Sectors     | 1951  |             | 1960  |             |
|------------------------|-------|-------------|-------|-------------|
|                        | Mezz. | Centro-Nord | Mezz. | Centro-Nord |
| Agriculture            | 32.1  | 67.9        | 40.9  | 59.1        |
| Industry               | 13.0  | 87.0        | 20.5  | 79.5        |
| Trans. & Comm.         | 20.0  | 80.0        | 24.8  | 75.2        |
| Housing                | 14.4  | 85.6        | 17.8  | 82.2        |
| Public Works           | 47.3  | 52.7        | 36.6  | 63.4        |
| Others                 | 21.7  | 78.3        | 23.5  | 76.5        |
| Total Fixed Invest.    | 20.8  | 79.2        | 24.7  | 75.3        |
| Variation              | 24.0  | 76.0        | 19.9  | 80.1        |
| Total Gross Investment | 21.2  | 78.8        | 24.3  | 75.7        |

Source: Table 131, La 'Cassa' E Lo Sviluppo Del Mezzogiorno,  
Vol. I, p. 339

TABLE B-15

## NET PRODUCT AND NET INVESTMENT BY SECTORS OF ECONOMIC ACTIVITIES AND BY TWO MAJOR REGIONS, 1951-60 - 3 YEAR AND 5 YEAR AVERAGES

(in billions of current lire)

| Periods       | Agriculture |             | Industry    |             | Trans. & Comm. |             | Mfg.        |
|---------------|-------------|-------------|-------------|-------------|----------------|-------------|-------------|
|               | Net Product | Net Invest. | Net Product | Net Invest. | Net Product    | Net Invest. | Net Product |
| Mezzogiorno   |             |             |             |             |                |             |             |
| 1951-52-53    | 2,384.5     | 198.3       | 1,609.7     | 119.8       | 392.3          | 143.1       | 139.9       |
| 1952-53-54    | 2,515.8     | 255.6       | 1,776.7     | 124.1       | 438.2          | 193.7       | 165.2       |
| 1953-54-55    | 2,689.3     | 304.5       | 1,939.9     | 124.7       | 491.3          | 247.9       | 189.8       |
| 1954-55-56    | 2,707.8     | 305.0       | 2,077.1     | 122.8       | 545.4          | 308.4       | 234.2       |
| 1955-56-57    | 2,850.7     | 322.0       | 2,210.8     | 144.8       | 601.5          | 346.9       | 301.5       |
| 1956-57-58    | 2,972.6     | 331.1       | 2,360.8     | 125.8       | 646.1          | 345.9       | 374.3       |
| 1957-58-59    | 3,049.9     | 377.2       | 2,484.8     | 133.8       | 679.8          | 325.1       | 435.0       |
| 1958-59-60    | 2,948.2     | 412.7       | 2,651.3     | 197.7       | 737.7          | 345.3       | 490.4       |
| 1951-55       | 4,159.9     | 411.8       | 2,945.9     | 200.4       | 735.0          | 329.7       | 273.2       |
| 1956-60       | 4,919.5     | 623.4       | 4,170.7     | 289.0       | 1,157.5        | 590.4       | 719.8       |
| 1951-60       | 9,079.4     | 1,035.2     | 7,116.6     | 489.4       | 1,892.5        | 920.1       | 993.0       |
| Centro - Nord |             |             |             |             |                |             |             |
| 1951-52-53    | 4,412.5     | 81.7        | 8,617.3     | 469.2       | 1,080.7        | 472.9       | 297.1       |
| 1952-53-54    | 4,585.2     | 66.4        | 9,197.3     | 405.9       | 1,202.8        | 555.5       | 363.8       |
| 1953-54-55    | 4,855.7     | 95.5        | 10,060.1    | 308.3       | 1,333.7        | 595.3       | 431.2       |
| 1954-55-56    | 4,865.2     | 128.0       | 10,920.9    | 319.2       | 1,486.6        | 647.8       | 552.8       |
| 1955-56-57    | 4,860.3     | 145.0       | 11,876.2    | 379.2       | 1,638.5        | 648.1       | 742.5       |
| 1956-57-58    | 4,896.4     | 144.0       | 12,718.2    | 381.0       | 1,778.9        | 673.1       | 1,029.7     |
| 1957-58-59    | 5,092.1     | 151.8       | 13,735.2    | 306.2       | 1,904.2        | 739.9       | 1,273.0     |
| 1958-59-60    | 5,342.8     | 221.3       | 14,993.7    | 251.3       | 2,085.3        | 955.7       | 1,500.6     |
| 1951-55       | 7,703.1     | 157.2       | 15,608.1    | 657.6       | 2,014.0        | 888.5       | 602.8       |
| 1956-60       | 8,478.5     | 321.6       | 23,194.3    | 538.0       | 3,232.5        | 1,409.6     | 2,074.2     |
| 1951-60       | 16,181.6    | 478.8       | 38,802.4    | 1,195.6     | 5,246.5        | 2,298.1     | 2,677.0     |

Source: Table 125, La 'Cassa' E Lo Sviluppo Del Mezzogiorno, Vol. I, pp. 324 &amp; 325

|         | Others   |         | Total    |         | Total    |          |
|---------|----------|---------|----------|---------|----------|----------|
|         |          |         | Net      | Net     | Regional |          |
| Net     | Net      | Net     | Product  | Invest. | Income   | Net      |
| Invest. | Product  | Invest. | Private  | In      | At       | Invest.  |
|         |          |         | Sector   | Public  | Market   |          |
|         |          |         |          | Works   | Prices   |          |
| 84.2    | 977.4    | 55.7    | 5,121.3  | 601.1   | 6,330.2  | 956.5    |
| 138.9   | 1,076.5  | 56.3    | 5,518.8  | 768.6   | 6,830.7  | 1,106.8  |
| 200.2   | 1,165.7  | 57.9    | 5,970.3  | 935.2   | 7,408.5  | 1,327.8  |
| 269.6   | 1,240.2  | 62.6    | 6,257.8  | 1,068.4 | 7,879.0  | 1,459.6  |
| 340.4   | 1,328.0  | 73.7    | 6,704.6  | 1,227.8 | 8,497.0  | 1,623.4  |
| 389.4   | 1,439.9  | 88.4    | 7,162.0  | 1,279.8 | 9,124.2  | 1,670.6  |
| 419.0   | 1,541.8  | 101.7   | 7,527.3  | 1,356.8 | 9,644.5  | 1,757.8  |
| 434.7   | 1,673.7  | 123.8   | 7,808.5  | 1,514.2 | 10,100.4 | 1,997.3  |
| 242.0   | 1,774.7  | 95.3    | 7,169.0  | 1,279.2 | 11,382.3 | 1,895.3  |
| 685.2   | 2,597.7  | 177.9   | 12,465.3 | 2,365.9 | 16,004.0 | 3,097.0  |
| 927.2   | 4,372.4  | 273.2   | 19,634.3 | 3,645.1 | 27,386.3 | 4,992.3  |
| 692.8   | 3,538.6  | 128.3   | 16,590.7 | 1,844.9 | 22,001.8 | 2,305.5  |
| 899.1   | 3,818.5  | 120.7   | 17,619.2 | 2,047.6 | 23,513.3 | 2,359.4  |
| 1,151.8 | 4,104.3  | 121.1   | 19,087.7 | 2,273.0 | 25,503.5 | 2,799.4  |
| 1,422.4 | 4,494.8  | 143.4   | 20,463.2 | 2,661.8 | 27,619.0 | 3,238.6  |
| 1,725.6 | 4,920.0  | 185.3   | 22,046.4 | 3,084.2 | 29,881.0 | 3,744.6  |
| 1,939.6 | 5,353.1  | 233.6   | 23,619.0 | 3,373.2 | 32,100.8 | 4,025.4  |
| 2,136.0 | 5,762.2  | 277.3   | 25,458.7 | 3,612.2 | 34,578.5 | 4,433.2  |
| 2,225.3 | 6,054.3  | 324.2   | 27,690.5 | 3,978.8 | 37,526.6 | 5,067.7  |
| 1,550.0 | 6,388.3  | 215.7   | 29,756.8 | 3,469.0 | 39,668.7 | 4,324.9  |
| 3,467.8 | 9,658.3  | 462.1   | 42,817.6 | 6,199.1 | 58,130.0 | 7,688.0  |
| 5,017.8 | 16,046.6 | 677.8   | 75,574.4 | 9,668.1 | 97,798.7 | 12,012.9 |

TABLE B-16

NET INVESTMENT BY SECTORS AND BY GEOGRAPHIC AREAS  
1951-1960

(amounts in billions of lire)

| Year          | Agriculture | Industry | Trans.<br>& Comm. | Mfg.  | Others | Public<br>Works | Total   | Variation | Gross<br>Total |
|---------------|-------------|----------|-------------------|-------|--------|-----------------|---------|-----------|----------------|
| Mezzogiorno   |             |          |                   |       |        |                 |         |           |                |
| 1951          | 44.9        | 22.8     | 34.2              | 13.2  | 19.4   | 76.6            | 211.1   | + 53.7    | 264.8          |
| 1952          | 62.4        | 52.9     | 47.6              | 28.6  | 18.0   | 100.4           | 309.9   | - 7.2     | 302.7          |
| 1953          | 91.0        | 44.1     | 61.3              | 42.4  | 18.3   | 124.3           | 381.4   | + 7.6     | 389.0          |
| 1954          | 102.2       | 27.1     | 84.8              | 67.9  | 20.0   | 104.4           | 406.4   | + 8.7     | 415.1          |
| 1955          | 111.3       | 53.5     | 101.8             | 89.9  | 19.6   | 102.2           | 478.3   | + 45.4    | 523.7          |
| 1956          | 91.5        | 42.2     | 121.8             | 111.8 | 23.0   | 104.9           | 495.2   | + 25.6    | 520.8          |
| 1957          | 119.2       | 49.1     | 123.3             | 138.7 | 31.1   | 96.8            | 558.2   | + 20.7    | 578.9          |
| 1958          | 120.4       | 33.7     | 100.8             | 138.9 | 43.3   | 120.2           | 548.3   | + 22.6    | 570.9          |
| 1959          | 137.6       | 51.0     | 101.0             | 141.4 | 36.3   | 109.1           | 576.4   | + 31.6    | 608.0          |
| 1960          | 154.7       | 113.0    | 143.5             | 154.4 | 53.2   | 135.6           | 754.4   | + 64.0    | 818.4          |
| Centro - Nord |             |          |                   |       |        |                 |         |           |                |
| 1951          | 46.1        | 159.2    | 136.8             | 167.8 | 47.6   | 74.4            | 631.9   | +169.3    | 801.2          |
| 1952          | 15.6        | 190.1    | 155.4             | 230.3 | 47.0   | 88.6            | 727.1   | - 2.8     | 724.3          |
| 1953          | 20.0        | 119.9    | 180.7             | 294.6 | 33.7   | 108.7           | 757.6   | + 22.4    | 780.0          |
| 1954          | 30.8        | 95.9     | 219.4             | 374.1 | 40.0   | 108.6           | 868.8   | + 26.3    | 895.1          |
| 1955          | 44.7        | 92.5     | 196.2             | 483.1 | 47.4   | 115.8           | 979.7   | +144.6    | 1,124.3        |
| 1956          | 52.5        | 130.8    | 233.2             | 565.2 | 56.0   | 102.1           | 1,139.8 | + 79.4    | 1,219.2        |
| 1957          | 47.8        | 155.9    | 219.7             | 677.3 | 81.9   | 155.2           | 1,337.8 | + 63.3    | 1,401.1        |
| 1958          | 44.6        | 94.3     | 221.2             | 697.1 | 95.7   | 179.8           | 1,332.7 | + 72.4    | 1,405.1        |
| 1959          | 59.4        | 56.0     | 300.0             | 761.6 | 99.7   | 232.9           | 1,509.6 | +117.4    | 1,627.0        |
| 1960          | 117.3       | 101.0    | 435.5             | 766.6 | 128.8  | 228.4           | 1,777.6 | +258.0    | 2,035.6        |

Source: Table 120, La 'Cassa' E Lo Sviluppo Del Mezzogiorno, Vol. I, p. 317

TABLE B-17

MARGINAL CAPITAL-PRODUCT RATIO BY SECTORS OF ECONOMIC  
ACTIVITIES AND BY GEOGRAPHIC AREAS - COMPUTED TRIANNUALLY

(absolute values in 1954 lire)

| Period<br>(not the<br>same as<br>the yrs.<br>of act.<br>invest. | Agriculture                   |                               | Transportation<br>& Communication |                               | Industry                      |                               | Trade, Credit,<br>Services & Others |                               | Total Excl.<br>Housing        |                               | Housing                       |                               |
|---|-------------------------------|-------------------------------|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|   | $\frac{K_1(t-1)}{\Delta Q_t}$ | $\frac{K_2(t-1)}{\Delta Q_t}$ | $\frac{K_1(t-1)}{\Delta Q_t}$     | $\frac{K_2(t-1)}{\Delta Q_t}$ | $\frac{K_1(t-1)}{\Delta Q_t}$ | $\frac{K_2(t-1)}{\Delta Q_t}$ | $\frac{K_1(t-1)}{\Delta Q_t}$       | $\frac{K_2(t-1)}{\Delta Q_t}$ | $\frac{K_1(t-1)}{\Delta Q_t}$ | $\frac{K_2(t-1)}{\Delta Q_t}$ | $\frac{K_1(t-1)}{\Delta Q_t}$ | $\frac{K_2(t-1)}{\Delta Q_t}$ |
| Mezzogiorno   |                               |                               |                                   |                               |                               |                               |                                     |                               |                               |                               |                               |                               |
| 1951-53   | 6.77                          | 11.35                         | 5.84                              | 8.65                          | 2.95                          | 3.91                          | 1.25                                | 1.79                          | 3.48                          | 5.08                          | 9.77                          | 12.94                         |
| 1952-54   | 2.82                          | 4.81                          | 5.71                              | 8.59                          | 3.07                          | 4.00                          | 1.45                                | 1.88                          | 3.01                          | 4.42                          | 13.30                         | 12.25                         |
| 1953-55   | -                             | -                             | 4.58                              | 7.10                          | 4.35                          | 5.48                          | 2.39                                | 3.01                          | 8.99                          | 12.92                         | 8.31                          | 7.93                          |
| 1954-56   | 4.26                          | 6.54                          | 6.30                              | 11.12                         | 1.88                          | 2.28                          | 1.58                                | 1.92                          | 2.83                          | 3.89                          | 6.03                          | 7.31                          |
| 1955-57   | 5.19                          | 7.62                          | 10.54                             | 14.96                         | 3.70                          | 4.37                          | 1.27                                | 1.50                          | 4.18                          | 5.48                          | 6.67                          | 7.86                          |
| 1956-58   | 7.56                          | 11.35                         | 22.37                             | 29.48                         | 4.02                          | 4.74                          | 1.48                                | 1.75                          | 5.10                          | 6.66                          | 8.44                          | 10.18                         |
| 1957-59   | -                             | -                             | 8.00                              | 10.00                         | 3.42                          | 3.98                          | 1.43                                | 1.67                          | 9.67                          | 12.04                         | 11.17                         | 13.03                         |
| Centro - Nord   |                               |                               |                                   |                               |                               |                               |                                     |                               |                               |                               |                               |                               |
| 1951-53   | 3.87                          | 4.69                          | 6.24                              | 6.95                          | 3.77                          | 3.94                          | 1.27                                | 1.37                          | 3.46                          | 3.76                          | 14.48                         | 15.64                         |
| 1952-54   | 2.17                          | 2.66                          | 6.18                              | 7.01                          | 2.28                          | 2.39                          | 1.26                                | 1.36                          | 2.44                          | 2.67                          | 17.58                         | 19.00                         |
| 1953-55   | -                             | -                             | 6.36                              | 7.24                          | 2.65                          | 2.79                          | 1.05                                | 1.13                          | 3.38                          | 3.70                          | 12.56                         | 13.54                         |
| 1954-56   | -                             | -                             | 6.44                              | 7.29                          | 2.43                          | 2.53                          | 1.01                                | 1.08                          | 3.12                          | 3.38                          | 9.51                          | 10.16                         |
| 1955-57   | -                             | -                             | 8.47                              | 9.50                          | 3.60                          | 3.76                          | 1.25                                | 1.34                          | 4.27                          | 4.62                          | 7.59                          | 8.11                          |
| 1956-58   | 3.73                          | 4.37                          | 9.11                              | 10.93                         | 2.38                          | 2.50                          | 1.24                                | 1.33                          | 2.70                          | 2.94                          | 9.36                          | 10.04                         |
| 1957-59   | 3.17                          | 3.63                          | 6.96                              | 8.15                          | 2.03                          | 2.16                          | 1.29                                | 1.40                          | 2.39                          | 2.63                          | 11.14                         | 12.02                         |

Source: Table 128, La 'Cassa' E Lo Sviluppo Del Mezzogiorno, Vol. I, pp. 332 and 333

TABLE B-18

COEFFICIENTS OF CAPITAL PER WORKER AND PER PRODUCT BY  
TWO MAJOR GEOGRAPHIC REGIONS OF ITALY, 1951-60

|               | (1)        | (2)        | (3)        | (4)                             | (5)                                 | (6)                             | (7)                                 | Annual Rate of Increase |          |       |
|---------------|------------|------------|------------|---------------------------------|-------------------------------------|---------------------------------|-------------------------------------|-------------------------|----------|-------|
|               | $\Delta K$ | $\Delta L$ | $\Delta Q$ | $\frac{\Delta K_t}{\Delta L_t}$ | $\frac{\Delta K_{t-1}}{\Delta Q_t}$ | $\frac{\Delta Q_t}{\Delta L_t}$ | $\frac{\Delta Q_t}{\Delta K_{t-1}}$ | of VA                   | of VA    | of VA |
|               | bn of      | 1000       | bn of      | mn of                           | 1954 lire                           | mn of                           | 1954 lire                           | in Ind.                 | in Other | of VA |
|               | 1954 lire  | units      | 1954 lire  | 1954 lire                       | 1954 lire                           | 1954 lire                       | 1954 lire                           | in Ind.                 | Act.     | Total |
| Mezzogiorno   |            |            |            |                                 |                                     |                                 |                                     |                         |          |       |
| 1951          | 91.8       |            |            |                                 |                                     |                                 |                                     |                         |          |       |
| 1952          | 124.8      |            | 24.8       |                                 | 3.70                                |                                 | 0.27                                | 4.00                    | 5.72     | -2.84 |
| 1953          | 127.0      |            | 60.0       |                                 | 2.08                                |                                 | 0.48                                | 9.31                    | 17.63    | 15.00 |
| 1954          | 118.4      |            | 31.6       |                                 | 4.01                                |                                 | 0.24                                | 4.48                    | -0.87    | 0.73  |
| 1955          | 150.5      | 107        | 28.6       | 1.406                           | 4.14                                | 0.267                           | 0.24                                | 3.88                    | -1.23    | 0.36  |
| 1956          | 147.7      | -4         | 30.8       |                                 | 4.88                                |                                 | 0.20                                | 4.02                    | 5.09     | 4.75  |
| 1957          | 159.0      | 178        | 38.5       | 0.893                           | 3.83                                | 0.216                           | 0.26                                | 4.83                    | 9.86     | 8.25  |
| 1958          | 153.9      | 183        | 54.2       | 0.840                           | 2.93                                | 0.296                           | 0.34                                | 6.49                    |          | 1.98  |
| 1959          | 181.1      | 107        | 21.8       | 1.692                           | 7.05                                | 0.203                           | 0.14                                | 2.45                    | 2.61     | 2.56  |
| 1960          | 249.6      | 45         | 68.4       | 5.546                           | 2.64                                | 0.152                           | 0.37                                | 7.51                    | 1.12     | 3.19  |
| 1951-60       | 1,503.8    | 616        | 358.7      | 2.441                           | 3.49                                | 0.393                           | 0.28                                | 5.21                    | 2.96     | 3.64  |
| Centro - Nord |            |            |            |                                 |                                     |                                 |                                     |                         |          |       |
| 1951          | 609.2      |            |            |                                 |                                     |                                 |                                     |                         |          |       |
| 1952          | 645.2      |            | 9.2        |                                 | 66.21                               |                                 | 0.01                                | 0.27                    | 6.19     | 3.24  |
| 1953          | 608.0      |            | 267.0      |                                 | 2.41                                |                                 | 0.41                                | 7.93                    | 6.47     | 7.17  |
| 1954          | 631.6      |            | 217.4      |                                 | 2.79                                |                                 | 0.35                                | 5.98                    | 2.38     | 4.13  |
| 1955          | 681.5      | 275        | 339.4      | 2.478                           | 1.86                                | 1.234                           | 0.53                                | 8.81                    | 5.50     | 7.14  |
| 1956          | 756.3      | 79         | 164.2      | 9.573                           | 4.15                                | 2.078                           | 0.24                                | 3.91                    | 3.31     | 3.62  |
| 1957          | 828.0      | 454        | 346.5      | 1.823                           | 2.18                                | 0.763                           | 0.45                                | 7.95                    | 4.88     | 6.43  |
| 1958          | 795.1      | 133        | 117.8      | 5.978                           | 7.02                                | 0.885                           | 0.14                                | 2.50                    | 7.89     | 5.13  |
| 1959          | 831.9      | 130        | 532.2      | 6.399                           | 1.49                                | 4.093                           | 0.66                                | 11.04                   | 5.85     | 8.44  |
| 1960          | 971.4      | 213        | 554.6      | 4.560                           | 1.50                                | 2.603                           | 0.66                                | 10.36                   | 5.97     | 8.22  |
| 1951-60       | 7,358.2    | 1,284      | 2,548.3    | 5.730                           | 2.50                                | 1.335                           | 0.39                                | 6.48                    | 5.36     | 5.94  |

Source: 22 - CASSA per il Mezzogiorno, I., pp. 336 &amp; 337

TABLE B-19

PUBLIC AND PRIVATE CONSUMPTION  
BY GEOGRAPHIC REGIONS, 1951-60

(amounts in billions of lire)

| Year          | Current Lire       |                         | 1954 Lire          |                         | %<br>Incremental<br>Change |
|---------------|--------------------|-------------------------|--------------------|-------------------------|----------------------------|
|               | Absolute<br>Values | Indices<br>(1951 = 100) | Absolute<br>Values | Indices<br>(1951 = 100) |                            |
| Mezzogiorno   |                    |                         |                    |                         |                            |
| 1951          | 2,180.7            | 100                     | 2,341.4            | 100                     |                            |
| 1952          | 2,405.3            | 110                     | 2,474.2            | 106                     | 5.67                       |
| 1953          | 2,594.2            | 119                     | 2,626.3            | 112                     | 6.14                       |
| 1954          | 2,716.6            | 124                     | 2,716.6            | 116                     | 3.43                       |
| 1955          | 2,891.7            | 133                     | 2,797.8            | 119                     | 2.98                       |
| 1956          | 3,167.7            | 145                     | 2,951.6            | 126                     | 5.49                       |
| 1957          | 3,331.8            | 153                     | 3,075.4            | 131                     | 4.19                       |
| 1958          | 3,491.3            | 160                     | 3,198.3            | 137                     | 3.99                       |
| 1959          | 3,683.2            | 169                     | 3,354.2            | 143                     | 5.03                       |
| 1960          | 3,936.3            | 181                     | 3,546.7            | 151                     | 5.73                       |
| 1951-60       |                    |                         |                    |                         | 4.68                       |
| Centro - Nord |                    |                         |                    |                         |                            |
| 1951          | 5,747.3            | 100                     | 6,166.6            | 100                     |                            |
| 1952          | 6,279.7            | 109                     | 6,455.8            | 105                     | 4.68                       |
| 1953          | 6,769.8            | 118                     | 6,867.7            | 111                     | 6.38                       |
| 1954          | 7,066.4            | 123                     | 7,066.4            | 115                     | 2.89                       |
| 1955          | 7,564.3            | 132                     | 7,344.2            | 119                     | 3.93                       |
| 1956          | 8,121.3            | 141                     | 7,613.4            | 123                     | 3.66                       |
| 1957          | 8,603.2            | 150                     | 7,924.6            | 129                     | 4.08                       |
| 1958          | 9,121.7            | 159                     | 8,204.7            | 133                     | 3.53                       |
| 1959          | 9,554.8            | 166                     | 8,672.8            | 141                     | 5.70                       |
| 1960          | 10,315.7           | 179                     | 9,254.3            | 150                     | 6.70                       |
| 1951-60       |                    |                         |                    |                         | 4.68                       |

Source: Table 137, La 'Cassa' E Lo Sviluppo Del Mezzogiorno, Vol. I, p. 347

TABLE B-20

REGIONAL PER CAPITA INCOME AND CONSUMPTION (PUBLIC & PRIVATE)  
BY TWO MAJOR GEOGRAPHIC REGIONS, 1951-60

(in 1954 lire)

| Year          | Regional Income<br>Per Capita |                     | Per Capita<br>Consumption |                     | Average<br>Propensity<br>to Consume<br>$\frac{C}{Y} = 100$ |
|---------------|-------------------------------|---------------------|---------------------------|---------------------|--|
|               | 1,000's<br>of lire            | Annual<br>Increment | 1,000's<br>of lire        | Annual<br>Increment |  |
| Mezzogiorno   |                               |                     |                           |                     |  |
| 1951          | 126.3                         |                     | 132.6                     |                     | 104.9  |
| 1952          | 121.7                         | - 3.64              | 138.9                     | 4.75                | 114.1  |
| 1953          | 134.5                         | 10.51               | 145.9                     | 5.03                | 108.5  |
| 1954          | 135.1                         | 0.44                | 149.2                     | 2.26                | 110.4  |
| 1955          | 136.1                         | 0.74                | 152.0                     | 1.87                | 111.7  |
| 1956          | 141.5                         | 3.96                | 158.9                     | 4.53                | 112.3  |
| 1957          | 151.9                         | 7.34                | 164.1                     | 3.27                | 108.0  |
| 1958          | 155.5                         | 2.36                | 169.7                     | 3.41                | 109.1  |
| 1959          | 158.3                         | 1.80                | 176.6                     | 4.06                | 111.6  |
| 1960          | 162.5                         | 2.65                | 185.3                     | 4.62                | 114.0  |
| 1951-60       | 142.6                         | 2.87                | 157.8                     | 3.81                | 110.6  |
| Centro - Nord |                               |                     |                           |                     |  |
| 1951          | 243.8                         |                     | 207.2                     |                     | 85.0   |
| 1952          | 250.2                         | 2.62                | 215.6                     | 4.05                | 86.2   |
| 1953          | 263.5                         | 5.31                | 227.8                     | 5.65                | 86.4   |
| 1954          | 276.4                         | 4.89                | 232.8                     | 2.19                | 84.2   |
| 1955          | 297.1                         | 7.48                | 240.1                     | 3.13                | 80.8   |
| 1956          | 306.1                         | 3.02                | 247.1                     | 2.91                | 80.7   |
| 1957          | 322.4                         | 5.32                | 255.4                     | 3.35                | 79.2   |
| 1958          | 350.9                         | 8.83                | 262.6                     | 2.81                | 74.8   |
| 1959          | 364.1                         | 3.76                | 275.3                     | 4.83                | 75.6   |
| 1960          | 338.1                         | 6.59                | 291.0                     | 5.70                | 75.0   |
| 1951-60       | 305.6                         | 5.29                | 246.0                     | 3.81                | 80.5   |

Source: Table 139, La 'Cassa' E Lo Sviluppo Del Mezzogiorno, Vol. I,  
p. 349



TABLE B-21  
 RANKING OF CITIES WITH 100,000 AND  
 MORE INHABITANTS, 1961 AND 1965

| City                | Rank |      | Population |           | Annual<br>Rate Of<br>Growth |
|---------------------|------|------|------------|-----------|-----------------------------|
|                     | 1961 | 1965 | 1961       | 1965      |                             |
| Roma                | 1    | 1    | 2,188,160  | 2,484,737 |                             |
| Milano              | 2    | 2    | 1,582,534  | 1,669,536 |                             |
| Napoli              | 3    | 3    | 1,182,815  | 1,228,092 | + .9                        |
| Torino              | 4    | 4    | 1,025,822  | 1,111,669 |                             |
| Genova              | 5    | 5    | 784,194    | 845,427   |                             |
| Palermo             | 6    | 6    | 587,985    | 628,102   | +1.7                        |
| Bologna             | 7    | 7    | 444,872    | 481,527   |                             |
| Firenze             | 8    | 8    | 436,616    | 454,858   |                             |
| Catania             | 9    | 9    | 363,928    | 391,709   | +1.9                        |
| Venezia             | 10   | 10   | 347,347    | 361,980   |                             |
| Bari                | 11   | 11   | 312,023    | 332,486   | +1.5                        |
| Trieste             | 12   | 12   | 272,723    | 280,534   |                             |
| Messina             | 13   | 13   | 254,715    | 263,254   | + .8                        |
| Verona              | 14   | 14   | 221,221    | 242,320   |                             |
| Pudova              | 15   | 15   | 197,680    | 212,944   |                             |
| Taranto             | 16   | 16   | 194,609    | 207,536   | +1.6                        |
| Cagliari            | 17   | 17   | 183,784    | 203,304   | +2.5                        |
| Brescia             | 18   | 18   | 172,744    | 192,381   |                             |
| Livorno             | 19   | 19   | 161,077    | 169,036   |                             |
| Reggio Di Calabria  | 20   | 21   | 153,380    | 158,222   | + .8                        |
| Ferrara             | 21   | 22   | 152,654    | 157,907   |                             |
| Parma               | 22   | 20   | 141,203    | 161,813   |                             |
| Modena              | 23   | 23   | 139,183    | 154,928   |                             |
| La Spezia           | 24   | 26   | 121,923    | 128,878   |                             |
| Foggia              | 25   | 25   | 118,603    | 130,464   | +2.2                        |
| Salerno             | 26   | 24   | 117,363    | 133,592   | +3.3                        |
| Reggio Nell' Emilia | 27   | 29   | 116,445    | 123,104   |                             |
| Ravenna             | 28   | 28   | 115,525    | 125,276   |                             |
| Bergamo             | 29   | 30   | 114,907    | 120,640   |                             |
| Perugia             | 30   | 31   | 112,511    | 119,959   |                             |
| Prato               | 31   | 27   | 111,285    | 125,596   |                             |
| Ancona              | 32   | 32   | 100,485    | 105,550   |                             |
| Vicenza             |      | 33   |            | 105,514   |                             |
| Rimini              |      | 34   |            | 105,387   |                             |
| Pescara             |      | 35   |            | 102,582   |                             |
| Terni               |      | 36   |            | 101,587   |                             |

Source: United Nations Demographic Yearbooks 1963 - 1967

TABLE B-22  
INTERREGIONAL INTERNAL MIGRATORY  
MOVEMENTS (1957)

| From/To | North   | South  | Total   |
|---------|---------|--------|---------|
| North   | 220,649 | 39,924 | 260,573 |
| South   | 120,261 | 37,250 | 157,511 |
| Total   | 340,910 | 77,174 | 418,084 |

Source: Informazioni SVIMEZ, Anno XIII - n. 19 - 11 maggio 1960,  
p. 377

TABLE B-23

## INTERREGIONAL MIGRATORY MOVEMENTS BY ORIGINS AND DESTINATIONS 1957

| Entities              | Total<br>(1) | North<br>(2) | Central<br>(3) | South<br>(4) | Islands<br>(5) | (2) & (3)<br>North | (4) & (5)<br>South |
|-----------------------|--------------|--------------|----------------|--------------|----------------|--------------------|--------------------|
| Piemonte              | 128,860      | 112,110      | 2,950          | 3,159        | 1,641          | 124,060            | 4,800              |
| Valle d'Aosta         | 2,455        | 2,249        | 98             | 73           | 35             | 2,347              | 108                |
| Liguria               | 34,272       | 28,378       | 3,129          | 1,629        | 1,136          | 31,507             | 2,765              |
| Lombardia             | 202,444      | 192,827      | 4,621          | 3,400        | 1,596          | 197,448            | 4,996              |
| Trentino-Alto Adige   | 18,353       | 16,743       | 841            | 498          | 271            | 17,584             | 769                |
| Veneto                | 136,110      | 129,276      | 4,251          | 1,571        | 1,012          | 133,527            | 2,583              |
| Friuli-Venezia Giulia | 31,577       | 28,331       | 1,643          | 998          | 605            | 29,974             | 1,603              |
| Emilia-Romagna        | 144,718      | 134,101      | 6,866          | 2,391        | 1,360          | 140,967            | 3,751              |
| Marche                | 51,798       | 7,255        | 42,132         | 1,843        | 568            | 49,387             | 2,411              |
| Toscana               | 97,224       | 12,243       | 80,341         | 2,871        | 1,769          | 92,584             | 4,640              |
| Umbria                | 24,625       | 1,836        | 21,629         | 828          | 332            | 23,465             | 1,160              |
| Lazio                 | 64,201       | 8,765        | 45,098         | 7,904        | 2,434          | 53,863             | 10,338             |
| Campania              | 102,220      | 11,540       | 10,576         | 78,170       | 1,934          | 22,116             | 80,104             |
| Abruzzi & Molise      | 44,082       | 5,411        | 9,943          | 28,195       | 533            | 15,354             | 28,728             |
| Puglia                | 75,540       | 22,048       | 6,196          | 45,758       | 1,538          | 28,244             | 47,296             |
| Basilicata            | 15,783       | 3,284        | 1,584          | 10,717       | 198            | 4,868              | 10,915             |
| Calabria              | 49,521       | 12,158       | 4,281          | 31,029       | 2,053          | 16,439             | 33,082             |
| Sicilia               | 107,374      | 18,063       | 7,581          | 5,369        | 76,361         | 25,644             | 81,730             |
| Sardegna              | 38,503       | 4,341        | 3,255          | 1,171        | 29,736         | 7,596              | 30,596             |
| North                 | 698,789      | 653,015      | 24,399         | 13,719       | 7,656          | 677,414            | 21,375             |
| Central               | 237,848      | 30,099       | 189,200        | 13,446       | 5,103          | 219,299            | 18,549             |
| South                 | 287,146      | 54,441       | 32,580         | 193,869      | 6,256          | 87,021             | 200,125            |
| Islands               | 145,877      | 22,404       | 10,836         | 6,540        | 106,097        | 33,240             | 112,637            |
| North                 | 936,637      | 683,114      | 213,599        | 27,165       | 12,759         | 896,713            | 39,924             |
| South                 | 433,023      | 76,845       | 43,416         | 200,409      | 112,353        | 130,261            | 312,261            |
| ITALY                 | 1,369,660    | 759,959      | 257,015        | 227,574      | 125,112        | 1,016,974          | 352,686            |

Source: Informazioni SVIMEZ, Anno XIII - n. 19 - 11 maggio 1960, p. 378

TABLE B-24

## INTERNAL MIGRATORY MOVEMENTS BY REGIONS, 1960

| Entities              | Out-<br>Migration | In-<br>Migration | Result   | N → S  | S → N   | Result   |
|-----------------------|-------------------|------------------|----------|--------|---------|----------|
| Piemonte              | 131,774           | 196,163          | + 64,389 | 5,988  | 48,659  | + 42,671 |
| Valle d'Aosta         | 2,353             | 2,898            | + 545    | 109    | 515     | + 406    |
| Liguria               | 38,041            | 57,159           | + 19,118 | 3,435  | 14,797  | + 11,362 |
| Lombardia             | 233,877           | 300,994          | + 67,117 | 7,374  | 45,438  | + 38,064 |
| Trentino Alto Adige   | 19,671            | 19,356           | - 315    | 812    | 1,303   | + 491    |
| Veneto                | 149,005           | 110,850          | - 38,155 | 3,408  | 4,957   | + 1,549  |
| Friuli-Venezia Giulia | 32,666            | 31,011           | - 1,655  | 1,693  | 2,683   | + 990    |
| Emilia-Romagna        | 157,352           | 155,408          | - 1,944  | 4,584  | 10,547  | + 5,963  |
| Marche                | 51,586            | 42,319           | - 9,267  | 2,600  | 2,999   | + 399    |
| Toscana               | 100,820           | 106,807          | + 5,987  | 5,313  | 14,501  | + 9,188  |
| Umbria                | 26,260            | 21,166           | - 5,094  | 1,251  | 1,588   | + 337    |
| Lazio                 | 71,552            | 105,844          | + 34,292 | 11,720 | 35,318  | + 23,598 |
| Campania              | 118,307           | 100,381          | - 17,926 | 11,464 | 30,624  | - 19,160 |
| Abruzzi & Molise      | 47,580            | 34,934           | - 12,646 | 5,690  | 18,133  | - 12,443 |
| Puglia                | 97,045            | 61,777           | - 35,268 | 9,450  | 45,253  | - 35,803 |
| Basilicata            | 20,520            | 11,593           | - 8,927  | 1,259  | 8,804   | - 7,545  |
| Calabria              | 59,870            | 36,324           | - 23,546 | 4,685  | 26,682  | - 21,997 |
| Sicilia               | 127,645           | 100,492          | - 27,153 | 11,656 | 40,513  | - 28,857 |
| Sardegna              | 49,280            | 39,728           | - 9,552  | 4,083  | 13,296  | - 9,213  |
| Nord                  | 1,014,957         | 1,149,975        | +135,018 | 48,287 | 183,305 | +135,018 |
| Sud                   | 520,247           | 385,229          | -135,018 | 48,287 | 183,305 | -135,018 |
| ITALIA                | 1,535,204         | 1,535,204        |          | 48,287 | 183,305 |          |

Source: Informazioni SVIMEZ, Anno XVI - nn. 26-27 - 26 giugno - 3 luglio 1963, p. 609

TABLE B-25  
 QUOTIENTS OF INTERNAL IMMIGRATION 1957

| Entities              | Immigrants Per 1000 Pop. of the City |                           |                     |
|-----------------------|--------------------------------------|---------------------------|---------------------|
|                       | Of The<br>Town                       | Of The<br>Same<br>Regions | Of Other<br>Regions |
| Piemonte              | 34.8                                 | 27.5                      | 7.3                 |
| Valle d'Aosta         | 24.8                                 | 13.2                      | 11.6                |
| Liguria               | 20.9                                 | 12.6                      | 8.3                 |
| Lombardia             | 29.3                                 | 24.3                      | 5.0                 |
| Trentino-Alto Adige   | 24.0                                 | 15.5                      | 8.5                 |
| Veneto                | 34.9                                 | 19.9                      | 15.0                |
| Friuli-Venezia Giulia | 25.3                                 | 15.3                      | 10.0                |
| Emilia-Romagna        | 39.9                                 | 30.7                      | 9.2                 |
| Marche                | 37.6                                 | 25.5                      | 12.1                |
| Toscana               | 29.9                                 | 23.2                      | 6.7                 |
| Umbria                | 30.0                                 | 18.1                      | 11.9                |
| Lazio                 | 17.6                                 | 10.7                      | 6.9                 |
| Campania              | 22.0                                 | 15.4                      | 6.6                 |
| Abruzzi & Molise      | 26.0                                 | 15.0                      | 11.0                |
| Puglia                | 22.1                                 | 11.5                      | 10.6                |
| Basilicata            | 24.0                                 | 9.9                       | 14.1                |
| Calabria              | 23.1                                 | 13.0                      | 10.1                |
| Sicilia               | 22.7                                 | 16.0                      | 6.7                 |
| Sardegna              | 27.6                                 | 20.9                      | 6.7                 |
| North                 | 23.4                                 | 14.9                      | 8.5                 |
| Central               | 26.1                                 | 18.0                      | 8.1                 |
| South                 | 22.8                                 | 13.5                      | 9.3                 |
| Islands               | 23.8                                 | 17.1                      | 6.7                 |
| Nord                  | 30.2                                 | 21.8                      | 8.4                 |
| Sud                   | 23.1                                 | 14.7                      | 8.4                 |
| ITALY                 | 27.5                                 | 19.1                      | 8.4                 |

Source: Informazioni SVIMEZ, Anno XIII - n. 19 - 11 maggio 1960,  
 p. 376

TABLE B-26

## IMMIGRANTS TO THE LARGE CITIES (OVER 100,000 POP.) IN 1957 (TOTAL, SOUTH)

| Cities                      | Total Imm. | Southern Imm. | Ab. & Molise | Camp. | Puglia | Basilic. | Calabria | Sicilia | Sard. |
|-----------------------------|------------|---------------|--------------|-------|--------|----------|----------|---------|-------|
| Roma                        | 43,219     | 16,672        | 3,834        | 3,814 | 2,574  | 454      | 2,195    | 2,611   | 1,190 |
| Milano                      | 39,115     | 8,638         | 559          | 1,362 | 3,925  | 246      | 755      | 1,536   | 255   |
| Torino                      | 50,389     | 15,455        | 490          | 1,387 | 6,377  | 957      | 2,130    | 3,351   | 763   |
| Genova                      | 17,241     | 4,840         | 243          | 789   | 832    | 167      | 937      | 1,409   | 463   |
| Firenze                     | 13,393     | 1,923         | 155          | 469   | 326    | 85       | 145      | 554     | 189   |
| Bologna                     | 17,639     | 1,973         | 202          | 381   | 464    | 61       | 250      | 469     | 146   |
| Venezia                     | 7,318      | 918           | 84           | 232   | 227    | 16       | 92       | 190     | 77    |
| Trieste                     | 3,977      | 711           | 37           | 159   | 213    | 10       | 47       | 200     | 45    |
| Verona                      | 6,461      | 440           | 32           | 111   | 107    | 5        | 47       | 87      | 51    |
| Padova                      | 5,287      | 453           | 35           | 79    | 110    | 5        | 56       | 130     | 38    |
| Livorno                     | 4,108      | 868           | 73           | 174   | 183    | 20       | 62       | 227     | 129   |
| Brescia                     | 4,929      | 437           | 45           | 87    | 98     | 16       | 36       | 135     | 20    |
| Ferrara                     | 4,075      | 259           | 37           | 49    | 54     | 2        | 36       | 63      | 18    |
| Parma                       | 4,727      | 327           | 47           | 70    | 71     | 10       | 31       | 67      | 31    |
| Modena                      | 4,066      | 321           | 47           | 73    | 66     | 10       | 28       | 63      | 34    |
| La Spezia                   | 4,704      | 869           | 34           | 178   | 287    | 20       | 83       | 146     | 121   |
| Bergamo                     | 3,045      | 286           | 31           | 48    | 73     | 13       | 40       | 66      | 15    |
| Reggio Emilia               | 2,943      | 165           | 14           | 41    | 26     | 12       | 22       | 39      | 11    |
| Perugia                     | 4,111      | 330           | 71           | 53    | 50     | 14       | 36       | 51      | 55    |
| Ravenna                     | 4,498      | 320           | 54           | 73    | 57     | 22       | 27       | 62      | 25    |
| Cities With                 |            |               |              |       |        |          |          |         |       |
| over 500,000 inhabitants    | 149,964    | 45,605        | 5,126        | 7,352 | 13,708 | 1,824    | 6,017    | 8,907   | 2,671 |
| 200,001-500,000 inhabitants | 42,327     | 5,525         | 478          | 1,241 | 1,230  | 172      | 534      | 1,413   | 457   |
| 100,001-200,000 inhabitants | 52,954     | 5,075         | 520          | 1,036 | 1,182  | 149      | 504      | 1,136   | 548   |
| over 100,000 inhabitants    | 245,245    | 56,205        | 6,124        | 9,629 | 16,120 | 2,145    | 7,055    | 11,456  | 3,676 |

Source: Informazioni SVIMEZ, Anno XIII -  
n. 19 - 11 maggio 1960, p. 380

to the cities:  
over 500,000  
200,000-500,000  
100,000-200,000  
over 100,000

% of the Southern imm.  
over the total imm.  
30.4  
13.1  
9.6  
22.9

APPENDIX C

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## VENEZUELA

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TABLE C-1

NET NATIONAL INCOME, DISPOSABLE INCOME AND  
PER CAPITA DISPOSABLE INCOME OF VENEZUELA, 1950-1959

(millions of bolivares)

|         | Net<br>National<br>Income<br>(absolute values) | Annual<br>Growth<br>Rate<br>% | Disposable<br>Income | Annual<br>Growth<br>Rate<br>% | Per Capita<br>Disposable<br>Income<br>(in bolivares) | Annual<br>Growth<br>Rate<br>% |
|---------|--|-------------------------------|----------------------|-------------------------------|--|-------------------------------|
| 1950    | 8,607  |                               | 6,828                |                               | 1,350  |                               |
| 1951    | 9,547  | 10.9                          | 7,328                | 7.3                           | 1,396  | 3.4                           |
| 1952    | 10,236   | 7.2                           | 7,802                | 6.4                           | 1,432  | 2.5                           |
| 1953    | 10,903   | 6.5                           | 8,514                | 9.1                           | 1,497  | 4.5                           |
| 1954    | 12,154   | 11.4                          | 9,402                | 10.4                          | 1,584  | 5.8                           |
| 1955    | 13,057   | 7.4                           | 9,909                | 5.3                           | 1,598  | .8                            |
| 1956    | 14,712   | 12.6                          | 10,962               | 10.6                          | 1,697  | 6.1                           |
| 1957    | 16,782   | 14.0                          | 11,979               | 9.2                           | 1,781  | 4.9                           |
| 1958    | 18,279   | 8.9                           | 13,162               | 9.8                           | 1,892  | 6.2                           |
| 1959    | 18,689   | 2.2                           | 14,100               | 7.1                           | 1,957  | 3.4                           |
| 1950-59 |  | 9.0                           |                      | 8.4                           |  | 4.2                           |

Source: Cuentas Nacionales, Banco Central De Venezuela, p. 72,  
Table 19-2

TABLE C-2  
NET NATIONAL INCOME PER CAPITA IN CURRENT PRICES  
(in bolivares)

| Year | Net National Income<br>Per Capita | Percent<br>Change |
|------|-----------------------------------|-------------------|
| 1950 | 1,702                             |                   |
| 1951 | 1,819                             | 7                 |
| 1952 | 1,878                             | 3                 |
| 1953 | 1,917                             | 2                 |
| 1954 | 2,048                             | 7                 |
| 1955 | 2,105                             | 4                 |
| 1956 | 2,277                             | 8                 |
| 1957 | 2,495                             | 10                |
| 1958 | 2,627                             | 5                 |
| 1959 | 2,594                             | - 1               |

Source: Cuentas Nacionales, Banco Central De Venezuela, Table 22-22

TABLE C-3  
PERCENTAGE DISTRIBUTION OF NATIONAL INCOME  
(between two factors of production: labor and capital)

| Year | Labor | Capital |
|------|-------|---------|
| 1950 | 60    | 40      |
| 1951 | 58    | 42      |
| 1952 | 55    | 45      |
| 1953 | 58    | 42      |
| 1954 | 57    | 43      |
| 1955 | 56    | 44      |
| 1956 | 55    | 45      |
| 1957 | 52    | 48      |
| 1958 | 54    | 46      |
| 1959 | 60    | 40      |

Source: Cuentas Nacionales, Banco Central De Venezuela, Table 22-21

TABLE C-4

GROSS PRODUCT BY SEVEN MAJOR REGIONS  
AND BY MAJOR ECONOMIC SECTORS, 1936

|              | Agri.     | Min.  | Petroleum | Mfg.    | Const.  | Commerce<br>(or Trade) | Services  | Total     |
|--------------|-----------|-------|-----------|---------|---------|------------------------|-----------|-----------|
| Western Oil  | 182.931   | .002  | 909.500   | 137.182 | 31.683  | 146.910                | 195.571   | 1,603.779 |
| Mountain     | 204.089   | -     | -         | 50.138  | 23.906  | 52.290                 | 115.425   | 445.928   |
| Central      | 342.102   | -     | -         | 329.844 | 66.767  | 532.860                | 867.014   | 2,138.587 |
| Llanos       | 125.357   | -     | -         | 14.629  | 18.795  | 23.240                 | 67.228    | 249.249   |
| East Coastal | 105.571   | -     | -         | 38.545  | 10.740  | 29.880                 | 61.950    | 246.686   |
| Eastern Oil  | 82.786    | .468  | 160.500   | 29.197  | 20.406  | 25.730                 | 52.921    | 372.008   |
| Guayana      | 41.990    | 5.514 | -         | 7.405   | 7.876   | 16.600                 | 27.641    | 107.026   |
| Venezuela    | 1,084.826 | 5.984 | 1,070.000 | 606.940 | 180.253 | 827.510                | 1,387.750 | 5,163.263 |

Source: Ganz, Unpublished Data

TABLE C-5

GROSS PRODUCT BY SEVEN MAJOR REGIONS  
AND BY MAJOR ECONOMIC SECTORS, 1953

|              | Agri.    | Min.  | Petroleum | Mfg.     | Const. | Commerce<br>(or Trade) | Services | Total     |
|--------------|----------|-------|-----------|----------|--------|------------------------|----------|-----------|
| Western Oil  | 114.70   | .80   | 2,601.90  | 111.30   | 27.00  | 474.60                 | 514.40   | 3,844.70  |
| Mountain     | 188.50   | .50   | .40       | 23.60    | 25.00  | 114.20                 | 384.60   | 736.80    |
| Central      | 338.40   | 2.90  | 70.30     | 872.10   | 342.00 | 1,509.10               | 2,811.40 | 5,946.20  |
| Llanos       | 264.50   | .10   | 96.10     | 10.70    | 13.70  | 78.60                  | 231.00   | 694.70    |
| East Coastal | 108.80   | 2.40  | -         | 20.50    | 5.60   | 68.90                  | 198.10   | 404.30    |
| Eastern Oil  | 111.90   | .20   | 1,097.00  | 38.70    | 10.00  | 76.20                  | 209.70   | 1,543.70  |
| Guayana      | 33.30    | 60.00 | 39.40     | 6.50     | 8.00   | 27.50                  | 107.30   | 282.00    |
| Venezuela    | 1,160.10 | 66.90 | 3,905.10  | 1,083.40 | 431.30 | 2,349.10               | 4,456.50 | 13,452.40 |

Source: Ganz, Unpublished Data

TABLE C-6

GROSS PRODUCT BY SEVEN MAJOR REGIONS  
AND BY MAJOR ECONOMIC SECTORS, 1961

|              | Agri.    | Min    | Petroleum | Mfg.     | Const.   | Commerce<br>(or Trade) | Services | Total     |
|--------------|----------|--------|-----------|----------|----------|------------------------|----------|-----------|
| Western Oil  | 342.68   | -      | 5,945.39  | 363.27   | 155.57   | 573.36                 | 2,339.82 | 9,718.09  |
| Mountain     | 295.43   | .51    | -         | 117.28   | 92.59    | 334.18                 | 591.18   | 1,431.17  |
| Central      | 501.21   | -      | 20.50     | 2,300.19 | 567.43   | 2,267.39               | 3,848.19 | 9,504.91  |
| Llanos       | 403.79   | .22    | 235.35    | 27.38    | 124.32   | 348.70                 | 559.77   | 1,699.44  |
| East Coastal | 136.76   | -      | -         | 43.60    | 53.38    | 146.08                 | 257.36   | 637.18    |
| Eastern Oil  | 121.78   | -      | 1,799.26  | 127.88   | 71.47    | 202.25                 | 835.27   | 3,157.91  |
| Guayana      | 42.82    | 342.07 | -         | 27.58    | 32.34    | 56.94                  | 230.44   | 732.19    |
| Venezuela    | 1,844.50 | 342.80 | 8,000.50  | 3,007.20 | 1,097.10 | 3,926.90               | 8,662.03 | 26,880.89 |

Source: Ganz, Unpublished Data

TABLE C-7

PERCENTAGE COMPOSITION OF GROSS PRODUCT BY  
MAJOR SECTORS FOR SEVEN REGIONS OF VENEZUELA, 1960

(absolute values in millions of bolivares, 1957 prices)

| Regions      | Total | Agri. | Mining | Petro-<br>leum | Mfg. | Const-<br>ruction | Trade | Services |
|--------------|-------|-------|--------|----------------|------|-------------------|-------|----------|
| Western Oil  | 35.0  | 17.0  | 0      | 72.6           | 11.6 | 15.0              | 13.7  | 27.0     |
| Mountain     | 5.3   | 15.7  | .1     | 0              | 3.8  | 9.3               | 8.4   | 6.8      |
| Central      | 35.8  | 31.0  | 0      | .2             | 76.3 | 55.1              | 58.9  | 44.4     |
| Llanos       | 6.0   | 19.7  | .4     | 2.9            | .8   | 10.2              | 8.1   | 6.5      |
| East Coastal | 2.4   | 7.7   | 0      | 0              | 1.5  | 4.4               | 3.9   | 3.0      |
| Eastern Oil  | 12.2  | 7.1   | 0      | 24.2           | 4.5  | 4.4               | 5.5   | 9.6      |
| Guayana      | 3.2   | 1.9   | 99.6   | 0              | 1.4  | 1.6               | 1.6   | 2.7      |
| Total        | 99.9  | 100.1 | 100.1  | 99.9           | 99.9 | 100.0             | 100.1 | 100.0    |

Source: Ganz, Unpublished Data

TABLE C-8

GROSS FIXED INVESTMENT, DEPRECIATION AND  
NET INVESTMENT FOR VENEZUELAN ECONOMY, 1950-59

(in millions of bolivares - 1957 prices)

| Year | Gross Fixed       | Depreciation | Net       | Rate of Growth |                   |
|------|-------------------|--------------|-----------|----------------|-------------------|
|      | Investment<br>(1) |              |           | (2)            | Investment<br>(3) |
| 1950 | 3,263,881         | 990,811      | 2,273,070 |                |                   |
| 1951 | 3,471,430         | 1,081,854    | 2,389,576 | 6.3            | 5.1               |
| 1952 | 4,358,198         | 1,240,758    | 3,117,440 | 25.5           | 30.4              |
| 1953 | 4,784,269         | 1,407,061    | 3,377,308 | 9.7            | 8.3               |
| 1954 | 5,465,987         | 1,565,182    | 3,900,805 | 14.2           | 15.5              |
| 1955 | 5,160,599         | 1,712,789    | 3,447,810 | - 6.0          | -12.0             |
| 1956 | 5,596,546         | 1,858,858    | 3,737,688 | 8.4            | 8.4               |
| 1957 | 5,950,283         | 2,014,250    | 3,936,033 | 6.3            | 5.3               |
| 1958 | 6,098,458         | 2,203,257    | 3,895,201 | 2.4            | - 2.0             |
| 1959 | 6,788,870         | 2,394,237    | 4,394,633 | 11.3           | 12.8              |

Source: Cuentas Nacionales, Banco Central De Venezuela, Table 22-9



TABLE C-9

GROSS FIXED INVESTMENT, DEPRECIATION AND  
NET INVESTMENT AS PERCENTAGE OF GROSS PRODUCT

| Year | Gross Fixed<br>Investment | Depreciation | Net<br>Investment |
|------|---------------------------|--------------|-------------------|
| 1950 | 25.64                     | 7.79         | 17.86             |
| 1951 | 24.43                     | 7.61         | 16.82             |
| 1952 | 28.58                     | 8.14         | 20.44             |
| 1953 | 29.55                     | 8.69         | 20.86             |
| 1954 | 30.80                     | 8.82         | 21.98             |
| 1955 | 26.70                     | 8.86         | 17.84             |
| 1956 | 26.19                     | 8.70         | 17.49             |
| 1957 | 24.95                     | 8.45         | 16.51             |
| 1958 | 25.24                     | 9.12         | 16.12             |
| 1959 | 26.05                     | 9.18         | 16.86             |

Source: Cuentas Nacionales, Banco Central De Venezuela, Table 22-9

TABLE C-10  
 PERCENTAGE DISTRIBUTION OF GROSS FIXED  
 INVESTMENT BY ECONOMIC SECTORS, 1950-59

| Year | Total | Agri. | Commodity<br>Production<br>Sectors | Social<br>Overhead<br>Capital<br>Sectors | Commerce<br>&<br>Services |
|------|-------|-------|------------------------------------|--|---------------------------|
| 1950 | 100   | 11.2  | 30.2                               | 35.2                                     | 23.4                      |
| 1951 | 100   | 9.3   | 31.0                               | 37.1                                     | 22.6                      |
| 1952 | 100   | 8.8   | 33.3                               | 37.9                                     | 20.0                      |
| 1953 | 100   | 8.7   | 28.0                               | 44.7                                     | 18.6                      |
| 1954 | 100   | 11.0  | 26.8                               | 48.8                                     | 13.4                      |
| 1955 | 100   | 11.0  | 29.8                               | 44.8                                     | 14.4                      |
| 1956 | 100   | 10.8  | 36.7                               | 40.3                                     | 12.2                      |
| 1957 | 100   | 10.2  | 43.0                               | 28.7                                     | 18.1                      |
| 1958 | 100   | 8.9   | 37.1                               | 38.2                                     | 15.8                      |
| 1959 | 100   | 10.6  | 34.9                               | 33.7                                     | 20.8                      |

Source: Cuentas Nacionales, Banco Central De Venezuela, Table 22-14

TABLE C-11  
 GROSS FIXED INVESTMENT BY ECONOMIC SECTORS  
 (millions of bolivares, in 1957 prices)

| Year | Total | Agri. | Commodity<br>Production<br>Sectors | Social<br>Overhead<br>Capital<br>Sectors | Commerce<br>&<br>Services |
|------|-------|-------|------------------------------------|--|---------------------------|
| 1950 | 3,264 | 365   | 985                                | 1,150                                    | 764                       |
| 1951 | 3,472 | 322   | 1,076                              | 1,290                                    | 784                       |
| 1952 | 4,359 | 383   | 1,450                              | 1,652                                    | 874                       |
| 1953 | 4,784 | 417   | 1,340                              | 2,138                                    | 889                       |
| 1954 | 5,466 | 603   | 1,464                              | 2,667                                    | 732                       |
| 1955 | 5,161 | 570   | 1,538                              | 2,314                                    | 739                       |
| 1956 | 5,597 | 605   | 2,055                              | 2,258                                    | 679                       |
| 1957 | 5,950 | 608   | 2,560                              | 1,707                                    | 1,075                     |
| 1958 | 6,099 | 540   | 2,263                              | 2,330                                    | 966                       |
| 1959 | 6,789 | 719   | 2,369                              | 2,289                                    | 1,412                     |

Source: Cuentas Nacionales, Banco Central De Venezuela, Table 22-9

TABLE C-12  
 GROSS FIXED INVESTMENT AS A PERCENTAGE  
 OF GROSS PRODUCT, 1950 - 1959

| Year | Total | Commodity<br>Production<br>Sectors<br>(incl. Agri.) | Social<br>Overhead<br>Capital<br>Sectors | Commerce<br>&<br>Services |
|------|-------|---|--|---------------------------|
| 1950 | 25.6  | 19.5  | 39.3                                     | 26.6                      |
| 1951 | 24.4  | 17.7  | 41.8                                     | 24.4                      |
| 1952 | 28.6  | 21.2  | 51.6                                     | 25.6                      |
| 1953 | 29.6  | 19.9  | 59.3                                     | 23.8                      |
| 1954 | 30.8  | 21.4  | 69.4                                     | 17.3                      |
| 1955 | 26.7  | 19.7  | 56.8                                     | 16.3                      |
| 1956 | 26.2  | 22.0  | 52.8                                     | 13.6                      |
| 1957 | 24.9  | 23.7  | 37.1                                     | 18.2                      |
| 1958 | 25.2  | 21.1  | 46.5                                     | 16.4                      |
| 1959 | 26.0  | 21.5  | 42.0                                     | 22.5                      |

Source: Cuentas Nacionales, Banco Central De Venezuela, Table 22-17

TABLE C-13  
 PERCENTAGE DISTRIBUTION OF ACTIVE  
 POPULATION BY ECONOMIC SECTORS, 1950-1959

| Year | Total | Agri. | Commodity<br>Production<br>Sectors | Social<br>Overhead<br>Capital<br>Sectors | Commerce<br>&<br>Services |
|------|-------|-------|------------------------------------|--|---------------------------|
| 1950 | 100.0 | 44.0  | 21.7                               | 11.7                                     | 22.6                      |
| 1951 | 100.0 | 43.7  | 21.2                               | 12.0                                     | 23.1                      |
| 1952 | 100.0 | 42.6  | 22.4                               | 11.8                                     | 23.2                      |
| 1953 | 100.0 | 42.2  | 21.9                               | 12.3                                     | 23.7                      |
| 1954 | 100.0 | 41.4  | 22.2                               | 12.4                                     | 24.0                      |
| 1955 | 100.0 | 41.3  | 21.4                               | 12.6                                     | 24.7                      |
| 1956 | 100.0 | 40.3  | 22.6                               | 12.3                                     | 24.8                      |
| 1957 | 100.0 | 39.3  | 23.4                               | 12.2                                     | 25.1                      |
| 1958 | 100.0 | 38.5  | 22.9                               | 12.6                                     | 26.0                      |
| 1959 | 100.0 | 37.8  | 22.8                               | 12.7                                     | 26.7                      |

Source: Cuentas Nacionales, Banco Central De Venezuela, Table 22-18

TABLE C-14  
CAPITAL STOCK IN MAJOR SECTORS  
(billions of bolivares - 1957 prices)

| Year | Totals | Agri. | Petro-<br>leum | Mining | Mfg.  | Const-<br>ruction | Elec-<br>tricity | Trans-<br>portation | Comm. | Comm-<br>erce | Service | Gov't | Urban<br>Housing |
|------|--------|-------|----------------|--------|-------|-------------------|------------------|---------------------|-------|---------------|---------|-------|------------------|
|      | (1)    | (2)   | (3)            | (4)    | (5)   | (6)               | (7)              | (8)                 | (9)   | (10)          | (11)    | (12)  | (13)             |
| 1950 | 18,131 | 2,313 | 864            | 39     | 745   | 54                | 73               | 1,362               | 2     | 1,598         | 1,043   | 6,316 | 3,722            |
| 1951 | 19,872 | 2,396 | 1,029          | 105    | 815   | 57                | 99               | 1,720               | 2     | 1,872         | 1,230   | 6,451 | 4,096            |
| 1952 | 21,799 | 2,472 | 1,247          | 200    | 887   | 49                | 134              | 1,880               | 2     | 2,178         | 1,429   | 6,793 | 4,527            |
| 1953 | 23,837 | 2,568 | 1,450          | 211    | 953   | 44                | 136              | 2,038               | 3     | 2,504         | 1,584   | 7,194 | 5,152            |
| 1954 | 26,128 | 2,673 | 1,417          | 434    | 1,037 | 55                | 214              | 2,554               | 4     | 2,645         | 1,742   | 7,732 | 5,621            |
| 1955 | 28,314 | 2,809 | 1,524          | 623    | 1,101 | 61                | 255              | 3,014               | 5     | 2,729         | 1,940   | 8,174 | 6,079            |
| 1956 | 30,973 | 3,074 | 1,749          | 792    | 1,180 | 71                | 313              | 3,702               | 5     | 2,795         | 2,097   | 8,524 | 6,671            |
| 1957 | 33,480 | 3,279 | 2,010          | 1,093  | 1,318 | 130               | 434              | 3,816               | 6     | 2,982         | 2,409   | 8,866 | 7,137            |
| 1958 | 36,019 | 3,422 | 2,268          | 1,055  | 1,469 | 132               | 890              | 3,883               | 6     | 3,161         | 2,627   | 9,230 | 7,876            |
| 1959 | 38,957 | 3,579 | 2,785          | 1,169  | 1,746 | 123               | 1,024            | 3,956               | 7     | 3,316         | 3,166   | 9,547 | 8,539            |

Source: Cuentas Nacionales, Banco Central De Venezuela, Table 22-7

TABLE C-15

STRUCTURE AND PRODUCTIVITY OF INVESTMENT  
IN THE GUAYANA REGION AND IN VENEZUELA

|                               | Guayana <sup>1</sup>                     |                            |                                     | Venezuela                                |                            |                                     |
|-------------------------------|--|----------------------------|-------------------------------------|--|----------------------------|-------------------------------------|
|                               | Investment 1964-70<br>Millions<br>of bs. | Percentage<br>Distribution | Output Per<br>Unit of<br>Investment | Capital Stock 1962<br>Millions<br>of bs. | Percentage<br>Distribution | Output Per<br>Unit of<br>Investment |
| Total                         | 7,857                                    | 100.0                      | 0.60                                | 57,672                                   | 100.0                      | 0.50                                |
| I. Resource Development       | 1,921                                    | 24.5                       | 0.49                                | 19,047                                   | 33.0                       | 0.61                                |
| A. Energy                     | 845                                      | 10.8                       | 0.65                                | 9,026                                    | 15.7                       | 1.03                                |
| B. Mining                     | 817                                      | 10.4                       | 0.38                                | 1,475                                    | 2.6                        | 0.21                                |
| C. Agriculture                | 259                                      | 3.3                        | 0.30                                | 8,546                                    | 14.8                       | 0.23                                |
| II. Industry                  | 2,695                                    | 34.3                       | 0.73                                | 4,971                                    | 8.6                        | 0.89                                |
| A. Heavy Industry             | 2,488                                    | 31.7                       | 0.61                                | 1,788                                    | 3.1                        | 0.68                                |
| 1. Basic Metals               | 1,631                                    | 20.8                       | 0.45                                | 1,104                                    | 1.9                        | 0.57                                |
| 2. Heavy Machinery            | 328                                      | 4.2                        | 1.60                                |  |                            |                                     |
| 3. Chemicals                  | 222                                      | 2.8                        | 0.50                                | 257                                      | 0.4                        | 0.96                                |
| 4. Construction Materials     | 138                                      | 1.8                        | 0.33                                | 388                                      | 0.7                        | 0.71                                |
| 5. Pulp & Paper               | 169                                      | 2.2                        | 0.50                                | 39                                       | 0.1                        | 1.62                                |
| B. Light Industry             | 74                                       | 0.9                        | 0.75                                | 2,814                                    | 4.9                        | 0.74                                |
| C. Construction               | 132                                      | 1.7                        | 3.00                                | 369                                      | 0.6                        | 3.13                                |
| III. Infra-Structure          | 3,241                                    | 41.2                       | 0.56                                | 33,654                                   | 58.4                       | 0.38                                |
| A. Public Utilities & Comm.   | 212                                      | 2.7                        | 1.70                                | 90                                       | 0.1                        | 1.72                                |
| B. Commerce                   | 508                                      | 6.5                        | 1.00                                | 3,940                                    | 6.8                        | 1.03                                |
| C. Urban Transport            | 166                                      | 2.1                        | 1.25                                | 7,154                                    | 12.4                       | 1.27                                |
| D. Regional Transport         | 700                                      | 8.9                        | 0.27                                |  |                            |                                     |
| E. Gov't & Other Service Fac. | 393                                      | 5.0                        | 0.33                                | 13,470                                   | 23.4                       | 0.33                                |
| F. Housing                    | 1,262                                    | 16.1                       | 0.35                                | 9,000                                    | 15.6                       | 0.35                                |

<sup>1</sup>Includes electric power, mining, agricultural and regional transport investment outside Ciudad Guayana

TABLE C-16  
 REGIONAL STRUCTURE OF THE VENEZUELAN  
 ECONOMY OUTPUT - CAPITAL<sup>1</sup> RATIO BY REGIONS

| Regions      | 1960<br>Actual | 1980<br>Projection |
|--------------|----------------|--------------------|
| Western Oil  | .57            | .44                |
| Mountain     | .39            | .37                |
| Central      | .44            | .45                |
| Llanos       | .39            | .34                |
| East Coastal | .37            | .33                |
| Eastern Oil  | .56            | .46                |
| Guayana      | .33            | .51                |
| Total        | .48            | .44                |

<sup>1</sup>Net Capital

Source: Ganz, Unpublished Data



TABLE C-17  
PERCENT CHANGE OF POPULATION OF MAJOR  
CITIES OF VENEZUELA FOR SELECTED PERIODS

| City          | 1926-1936 | 1936-1950 | 1950-1961 |
|---------------|-----------|-----------|-----------|
| Caracas       | 54.1      | 167.9     | 92.5      |
| Maracaibo     | 46.6      | 114.5     | 78.8      |
| Valencia      | 32.4      | 81.6      | 84.2      |
| Barquisimeto  | 56.5      | 191.6     | 90.4      |
| Cumana        | 15.7      | 109.0     | 52.1      |
| San Cristóbal | 46.6      | 145.4     | 83.3      |
| Maracay       | 172.7     | 113.3     | 110.9     |

Source: Friedmann, 39

TABLE C-18

RANK AND SIZE OF POPULATION OF SEVEN LARGEST  
VENEZUELAN CITIES, 1961, 1963, 1964, 1965 and 1966

| City          | Rank |      | 1961      | 1963      | Population |           |           | Annual<br>Rate of<br>Growth<br>1961-1966 |
|---------------|------|------|-----------|-----------|------------|-----------|-----------|--|
|               | 1961 | 1966 |           |           | 1964       | 1965      | 1966      |  |
| Caracas       | 1    | 1    | 1,336,119 | 1,507,188 | 1,589,411  | 1,674,728 | 1,764,274 | 5.7                                      |
| Maraciabo     | 2    | 2    | 427,166   | 476,445   | 502,693    | 530,182   | 558,953   | 5.8                                      |
| Barquisimeto  | 3    | 3    | 199,691   | 218,778   | 227,357    | 235,905   | 244,793   | 4.1                                      |
| Valencia      | 4    | 4    | 163,601   | 177,199   | 183,505    | 189,933   | 196,411   | 3.7                                      |
| Maracay       | 5    | 5    | 135,353   | 147,898   | 153,724    | 159,671   | 165,763   | 4.1                                      |
| San Cristobal | 6    | 6    | 98,777    | 110,473   | 116,176    | 122,047   | 128,220   | 5.4                                      |
| Cabimas       | 7    | 7    | 92,656    | 105,311   | 111,382    | 117,734   | 124,420   | 6.1                                      |

Source: United Nations Demographic Yearbooks 1963-1967

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