

**This dissertation has been
microfilmed exactly as received**

69-8592

**ARMEY, Richard Keith, 1940-
ECONOMIC EXTERNALITIES AND THE THEORIES
OF BALANCED AND UNBALANCED GROWTH.**

**The University of Oklahoma, Ph.D., 1969
Economics, theory**

University Microfilms, Inc., Ann Arbor, Michigan

THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

ECONOMIC EXTERNALITIES AND THE THEORIES OF
BALANCED AND UNBALANCED GROWTH

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

by

RICHARD KEITH ARMEY

Norman, Oklahoma

1969

ECONOMIC EXTERNALITIES AND THE THEORIES OF
BALANCED AND UNBALANCED GROWTH

APPROVED BY

A. J. Kardonand
James E. Hibdon
Joast L. Gray
Paul E. Hickman
Thomas D. Curtis

DISSERTATION COMMITTEE

ACKNOWLEDGMENT

The author would like to extend his appreciation to a number of people without whose assistance this project would not have been possible.

Special appreciation is extended to Dr. Alex J. Kondonassis and the members of my dissertation committee for their valuable assistance in determining the emphasis of this study and for their constructive comments during the preparation of the manuscript.

This study is dedicated to my wife, Jeanine, and to our parents, Mr. and Mrs. Glenn F. Armey and Mr. and Mrs. Irving Strand, for their unselfish help and dedication during undergraduate school, graduate school, and in the preparation of this thesis. Were it not for their encouragement and assistance, this study would not have been completed.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENT	iii
 Chapter	
I. INTRODUCTION	1
II. ECONOMIC EXTERNALITIES	4
Introduction. The Evolution of the Concept. A Definition of Economic Externalities. Measurability of External Effects. The Scope of Economic Externalities in the Theory of Economic Development.	
III. BALANCED GROWTH	41
Introduction. Balance in Supply. Balance in Demand. Sectoral Balance, Sectoral Balance Between Agriculture and Industry, Sectoral Balance Between the Public and Private Sectors, Sectoral Balance Between Production for Export and for Home Consump- tion.	
IV. UNBALANCED GROWTH	69
Introduction. Unbalance in Supply. Unbalance in Demand.	

V.	A REVIEW OF THE CONTROVERSIAL ISSUES IN THE BALANCED VERSUS UNBALANCED GROWTH DEBATE	89
	Introduction. The Meaning of "Balance." The Meaning of the word "Growth." The Internalization of External Effects. Central Planning. The Question of Factor Supplies. Three Different Development Problems. The Problem of Overgeneralization.	
VI.	A SUGGESTED INTERPRETATION	122
	Introduction. Two Types of External Economies and a Possible Synthesis. External Economies, Balance, and Problems of Economic Develop- ment: Economic Dualism. Balance, Imbalance, and External Economies in Rostow's Stages of Economic Growth. Planning or Private Decision making; French Indicative Planning.	
VII.	Summary and Conclusions	160
	BIBLIOGRAPHY	170

ECONOMIC EXTERNALITIES AND THE THEORIES OF BALANCED AND UNBALANCED GROWTH

CHAPTER I

INTRODUCTION

In the past two decades there has been a great deal of discussion in economic development literature over the relative merits of balanced and unbalanced economic growth. Most of this debate has been centered around that formulation of the concept of balanced growth which was presented by Ragnar Nurkse in Problems of Capital Formation in Underdeveloped Countries. Although this was not the first exposition of the general concept of "balance" in economic development it is certainly the most strategic in the tremendous debate which has raged during these years. This debate has been marked by the participation of many well known economists. Among the most notable are: Bela Balassa, Albert O. Hirschman, Charles P. Kindleberger, W. Arthur Lewis, H. W. Singer, and Tibor Scitovsky. These people along with many others have been divided between those that support the concept of "balance" and those that oppose it.

The latter group has generally attempted to substitute a theory of unbalanced growth in place of balanced growth.

In reviewing the various aspects of this controversy it soon becomes evident that there is one common denominator in the various notions of balanced and unbalanced growth. This common denominator is the concept of pecuniary external economies. The concept is new to development literature and was itself developed primarily in the debate over balanced and unbalanced growth. In fact the concepts of balanced and unbalanced growth both depend upon the concept of pecuniary external economies. How then can there be so much disagreement between so many economists?

The answer to this question is found primarily in the fact that there are many ways in which pecuniary external economies may be transmitted. Consequently, the notion of balance itself may mean different things to different people. There is no one single concept of balanced growth. Likewise there is more than one concept of unbalanced growth. This fact, as well as the fact that there has been a considerable amount of theoretical and analytical innovation within the controversy over balanced and unbalanced growth, has resulted in much confusion concerning the relative importance as well as the proper interpretation of the two concepts. This confusion has in turn resulted in what seems to be an irreconcilable conflict between the two concepts. This study hopes to resolve that conflict.

To this end the subject of external economies and the theories of balanced and unbalanced growth will be treated in this study with five general objectives in mind. They are as follows: (1) to review the concepts of balanced and unbalanced growth as they have been formulated in economic development literature, especially by Rosenstein-Rodan, Nurkse, and Hirschman, (2) to examine the role of the one common denominator in the controversy--external economies, (3) to clarify the issues in the debate which has raged over the two concepts, (4) to attempt to reconcile the differences between the concepts of balanced and unbalanced growth while examining the possibility of some more meaningful interpretation of them, and (5) to examine the possibility of synthesizing the concepts of balanced and unbalanced growth into a single instrument of economic development analysis.

Because the concept of pecuniary external economies appears to be the common denominator of both balanced and unbalanced growth, an early discussion of the concept of external economies seems necessary. This is done in Chapter II.

CHAPTER II

ECONOMIC EXTERNALITIES

Introduction

It was indicated in Chapter I that the concept of economic externalities is a key concept in the development of the argument of this study. However, before this concept can be of any analytical value it must be clearly defined. In arriving at such a definition this chapter will review the major sources through which the concept has evolved. This review will be followed by a definition which will attempt to cover the various types and usages of the term.

The second objective of this chapter will be to examine the question of measuring economic externalities. The concept as it has been traditionally used in price and welfare theory has been viewed as non-measurable. However, in recent years the concept has been employed in an altogether different manner and within a completely different context. This change has involved using the concept as a market phenomenon in the theory of economic development. This new concept of economic externalities has been demonstrated to be potentially measurable. Since measurement may take the concept out

of the realm of pure theory and place it within the realm of policy, it is important to have an awareness of how this measurement might be accomplished.

The third objective of this chapter is to investigate the role of economic externalities in the theory of economic growth and development. In this part of the study one main question will be considered. Can it be demonstrated that external effects must be exploited as a prerequisite to economic growth and development?

The Evolution of the Concept

The concept of external economies was introduced to economic literature by Alfred Marshall in his Principles of Economics. Marshall defined the concept of external economies, in contrast to internal economies, with the following passage.

We may divide the economies arising from an increase in the scale of production of any kind of goods, into two classes--firstly, those dependent on the general development of the industry; and secondly, those dependent on the resources of the individual houses of business engaged in it, on their organization and the efficiency of their management. We may call the former external economies, and the latter internal economies.¹

Marshall introduced the concept into a long-run static equilibrium analysis as a means of explaining increasing returns under competitive conditions. Within this context, he points out that: "External

¹Alfred Marshall, Principles of Economics (eighth edition; London: Macmillan and Company, 1964), p. 221.

economies are constantly growing in importance relatively to internal" ¹

Bela Balassa has suggested that Marshall's application of external economies was not so concerned with static, competitive equilibrium as was that of his followers. He states that: "Although he (Marshall) was far from presenting a complete theory of economic growth--his valuable insight into problems relating external economies and economic progress foreshadowed later, modern treatment." ²

Balassa goes on to support this contention with a series of quotes that are worth noting here.

Marshallian external economies are not the bucolic ones of the bee-orchard-honey type but are clearly connected with the development of the economy. They are said to depend on 'the general development of industry', on 'the growth of correlated branches of industry,' on 'the general progress of industrial environment', and on the increase of the size of the market in general. External economies include 'the many various economies of specialized skill and specialized machinery, of localized industries and production on a large scale', the 'increased facilities of communication of all kinds', 'trade knowledge, skilled labour force, etc.' The pervading theme in the discussion of external economies is their interaction with the growth of the economy. ³

¹Ibid., p. 237.

²Bela Balassa, The Theory of Economic Integration (Homewood, Illinois: Irwin, 1961), p. 144.

³Ibid., pp. 144-145. For further support of this contention see: H. W. Arndt, "External Economies in Economic Growth," Economic Record, Vol. XXXI (November, 1955).

This particular insight provided by Balassa is valuable in light of the obscurity of Marshall's discussion of external economies. Marshall gives at best an ambiguous definition and a sketchy, scattered discussion of the concept. This undoubtedly served to delay the systematic treatment of external economies in economic literature. This thought is expressed by Joseph Schumpeter when he says:

At any rate it is understandable that both the leads given by Marshall and the loose ends left by him must have started discussion in any environment that took any interest at all in the foundations of economic theory. The only thing to wonder at is that this discussion took so long to burst into print and to present results to the scientific public at large. For instance, Professor Viner's famous paper on "Cost Curves and Supply Curves" that started from Marshall's analysis . . . appeared only in September 1931.¹

Aside from Schumpeter's reference to Viner, the concept of external economies was re-introduced prior to 1931 by A. C. Pigou in 1920 with the publication of his The Economics of Welfare.² Within the context of static equilibrium and welfare analysis Pigou identifies external economies as the causative factor in the variance between social and private net marginal productivity. In so doing

¹Joseph Schumpeter, History of Economic Analysis (Oxford: Oxford University Press, 1954), p. 1046.

²A. C. Pigou, The Economics of Welfare (fourth edition; London: Macmillan and Company, 1962), especially Part II, Chapters II and IX.

he sets the stage for static equilibrium and welfare discussions concerning the most efficient allocation of the national dividend under conditions of variance between social and private net marginal productivity (utility). But more important for our purposes here, Pigou extends the jurisdiction of the concept of external economies beyond the production function to the consumption function. The resultant welfare and equilibrium analysis is a study for another paper.¹ The immediate purpose of this study is to obtain a full understanding of the concept of external effects.

Pigou's introduction of external economies into equilibrium analysis resulted in a lively discussion of the nature and significance of "empty economic boxes" and increasing cost industries which greatly enhanced our understanding of the concept. Because this discussion did not contribute to an extension of the scope of the concept, it is not of strategic importance to this study except insofar as it firmly established the concept in economic doctrine.²

¹The interested reader can pursue this discussion by beginning with: E. J. Mishan, "Reflections on Recent Developments in the Concept of External Effects," The Canadian Journal of Economics and Political Science, (February, 1965): Reprinted in Mishan's Welfare Economics, (New York: Random House, 1964).

²These articles are reprinted in: A. E. A. Readings in Price Theory edited by G. Stigler and K. Boulding (Homewood: Irwin, 1952), pp. 119-159.

Further clarification and distinction was added to the concept of external economies by Jacob Viner in 1931.¹ Viner defined external economies as "those which accrue to particular concerns as the result of the expansion of output by their industry as a whole, and which are independent of their own individual outputs."² In addition to this rather classic and still limited definition, Viner divides external economies into "technological" and "pecuniary" external economies. Technological economies are those that consist of "reductions of the technological coefficients of production."³ Pecuniary economies are those that are resultant from "reductions in the prices paid for the factors as the result of increases in the amounts thereof purchased."⁴

Howard S. Ellis and William Fellner in 1943 contributed one more point of clarity by reminding us of the existence of not only

¹Jacob Viner, "Cost Curves and Supply Curves," Zeitschrift Fur Nationalokonomie, Vol. III, (1931), pp. 23-46. Reprinted in: Readings in Price Theory, pp. 198-232.

²Ibid., Readings, p. 217.

³Ibid., p. 213.

⁴Ibid.

external economies but of external diseconomies as well.¹

Further clarity was brought to the concept of external economies of the type found in static equilibrium analysis by J. E. Meade in 1952.² Professor Meade distinguished between two types of external effects; "unpaid factors of production" and "the creation of atmosphere."³ The first type is derived from "factors of production for which the individual pays nothing" of the bee-orchard-honey type. The second type is derived from "the fact that the activities of one group of producers may provide an atmosphere which is favourable or unfavourable to the activities of another group of producers."⁴ He gave as an example of this type afforestation schemes in one locality which increase rainfall in that district which in turn is favorable to the production of wheat. Meade's conclusions concerning his two types of external economies are not important to us here. What is important is his precise definition of external economies and diseconomies.

¹Howard S. Ellis and William Fellner, "External Economies and Diseconomies," American Economic Review, Vol. XXXIII, (1943), pp. 493-511. Reprinted in, Readings in Price Theory, op. cit., pp. 242-263.

²J. E. Meade, "External Economies and Diseconomies in a Competitive Situation," Economic Journal, Vol. LXII, (March, 1952), pp. 54-67.

³Ibid., p. 56.

⁴Ibid., p. 62.

Meade defined external economies and diseconomies rigorously by identifying them in a production function where X_1 , the output of a particular good, is equal to $F_1(l_1, c_1; l_2, c_2, X_2)$ and, $X_2 = F_2(l_2, c_2; l_1, c_1, X_1)$.¹ In this definition the existence of external economies is indicated by the presence of the variables to the right of the semicolon. Since this is a production function external economies, according to this definition, are peculiarities of the production function. For that reason they would be classified by Viner as technological external economies.

Thus far we have covered the meaning and significance of the concept of external economies within the jurisdiction of equilibrium and welfare analysis. Still, we have not yet come to the main problem of this study; the significance of the concept of external effects in development economics. As stated by Tibor Scitovsky;

. . . it is becoming increasingly clear that the concept of external economies does duty in two entirely different contexts. One of these is equilibrium theory, the other is the theory of industrialization in underdeveloped countries.²

¹Ibid., p. 67.

²Tibor Scitovsky, "Two Concepts of External Economies," The Journal of Political Economy, Vol. 62, (April, 1954), Reprinted in: The Economics of Underdevelopment, edited by A. N. Agarwala and S. P. Singh, (Oxford, Galaxy, 1963), pp. 295-308, p. 295.

This second context is more particularly the concern of this study. With the possible exception of Marshall's implicit application of the term within a dynamic context, we have not yet examined this aspect of the problem.

The dynamic interpretation of external economies in economic development was first formally introduced to economic literature in 1943 by P. N. Rosenstein-Rodan in his, "Problems of Industrialization of Eastern and South-Eastern Europe."¹ In this article, Rosenstein-Rodan identifies three types of external economies all of which are dynamic in nature. To begin with Rosenstein-Rodan recognizes external economies as the difference between social and private net marginal productivity. He also recognizes, due to the motivational force of profits, that private investment will not produce the necessary capital supply for a successful development program. Therefore he states: "Existing institutions of international investment . . . are inappropriate to the task of industrialization of a whole area. They deal with too small units and do not take full advantage of external economies."²

¹P. N. Rosenstein-Rodan, "Problems of Industrialization in Eastern and South-Eastern Europe," The Economic Journal, Vol. 53, (June-September, 1943). Also reprinted in The Economics of Underdevelopment, Ibid., pp. 245-255.

²Ibid., p. 247. Rosenstein-Rodan relied heavily on a previous article by Allen Young, "Increasing Returns and Economic Progress," Economic Journal, Vol. 38, (December, 1928), in formulating his discussion.

Rosenstein-Rodan defines the first of his three types of external economies in terms of complementarity between industries.¹ This complementarity provides the potential for external economies which will in turn result in successful investment ventures. To that extent they must be classified as dynamic. The point is made, without a definition, by the following example of a shoe factory.

. . . Let us assume that 20,000 unemployed workers in Eastern and Southeastern Europe are taken from the land and put into a large shoe factory. They receive wages substantially higher than their previously meager income in nature. It would be impossible to put them into industry at their previous income standard because they need more foodstuffs than they had in their agrarian semi-employed existence, because these foodstuffs have to be transported to towns and because the workers have to pay for housing accommodations. If the workers spent all of their wages on shoes, a market for the products of their enterprise would arise representing an expansion which does not disturb the pre-existing market, and 90 percent of the problem (assuming 10 percent profit) would be solved. The trouble is that the workers will not spend all their wages on shoes. If instead, one million unemployed workers were taken from the land and put, not into one industry, but into a whole series of industries which produce the bulk of goods on which the workers would spend their wages, what was not true in the case of one shoe factory would become true in the case of a whole system of industries: it would create its own additional market, thus realizing an expansion of world output with a minimum disturbance of the world markets. The industries producing the bulk of the wage goods can therefore be said to be complementary. The planned creation of such a

¹ Complementarities are not external economies. Instead the term "Complementarity" refers to a relationship which exists between economic units and gives rise to a potential for external economies.

complementary system reduces the risk of not being able to sell, and, since risk can be considered a cost, it reduces cost. It is in this sense a special case of "external economies."¹

It will be more clearly shown in Chapter III that this "special case of external economies" is a horizontal transmission of pecuniary external economies through the market for final goods. The concept was not given explicit definition by Rosenstein-Rodan, perhaps because this was its first statement. As such it presented itself as quite different from the second type of external economy cited by Rosenstein-Rodan; "the Marshallian economies external to the firm within a growing industry."² This more familiar type of external economy was extended by Rosenstein-Rodan to include his third type; ". . . economies external to one industry due to the growth of other industries."³

Rosenstein-Rodan goes on then to clarify the role of external economies in the dynamic process of industrialization. He points out again that the existence of external economies gives rise to a divergence between social and private net marginal productivity and

¹Ibid., pp. 249-250.

²Ibid., p. 250.

³Ibid.

that existing institutions of international and national investment, which have as their driving force "the profit expectations of an individual entrepreneur",¹ do not take account of these external economies.

This more dynamic discussion of the role of external economies in economic development was further clarified by Ragnar Nurkse in 1953.² In the now famous Chapter I of his Problems of Capital Formation in Underdeveloped Countries, Nurkse provided Rosenstein-Rodan's first type of external economy with a definition. In so doing, he added some clarity to the concept.

The notion of 'external economies' seems applicable here, though not quite in the sense in which Marshall commonly used it. Each of a wide range of projects, by contributing to an enlargement of the size of the market, can be said to create economies external to the firm. Indeed, it may be that the most important external economies leading to the phenomenon of increasing returns in the course of economic progress are those that take the form of increases in the size of the market, rather than those which economists, following Marshall, have usually had in mind

The external economies in the market sense, just like those of the more conventional type, can create a discrepancy between the private and social marginal productivity of capital.³

¹Ibid.

²Ragnar Nurkse, Problems of Capital Formation in Underdeveloped Countries and Patterns of Trade and Development, (New York: Oxford University Press, 1967).

³Ibid., pp. 14-15.

This dynamic contribution to the concept of external economies is important because it extends the jurisdiction of the concept to include intra-industry transmissions of external economies through the market for final goods. The context within which this contribution was made will be explored further in Chapter III. However, it must be noted here that Nurkse and Rosenstein-Rodan stimulated discussion which in turn contributed toward further clarification of the concept.

This task was immediately taken up by J. Marcus Fleming in his review of Nurkse's book.¹ Fleming raises once again the question of external diseconomies. He points out that external diseconomies result from the competitive nature of economic interdependence and that by emphasizing the complementary nature of economic interdependence, Nurkse and Rosenstein-Rodan fail to give due consideration to external diseconomies while they overemphasize external economies.

Fleming goes on to make a distinction between "horizontal" transmissions of external economies between industries at the same stage of production in different goods and "vertical" transmissions between firms and industries that are related to each other vertically as suppliers and users of each other's outputs.

¹J. Marcus Fleming, "External Economies and the Doctrine of Balanced Growth," The Economic Journal, Vol. 65, (June, 1955): Also reprinted in: The Economics of Underdevelopment, op. cit., pp. 272-294.

There can be little doubt but that the conditions for a 'vertical' transmission of external economies whether forward from supplying industry to using industry, or backward from using industry to supplying industry-- are much more favourable than for a 'horizontal' transmission between industries at the same stage.¹
. . . We have seen, however, that the chances are much better for a 'vertical' propagation of external economies, from customer industry to supplying industry, and especially from supplying industry to customer industry, and that development at different stages in the same 'line' of production are more likely to afford each other mutual support than those in different lines of production.²

It should be noted that Fleming went even further in this classification by separating "vertical" external economies into forward and backward vertical transmissions. Forward transmissions of external economies are those that are transmitted from supplying industries to using industries. Backward transmissions are from using industries to supplying industries. At the same time he indicates that vertical transmissions are more likely to occur than are horizontal transmissions and also that backward vertical transmissions are more likely to occur than are forward vertical transmissions.

The concept of external economies was given further clarity

¹Ibid., p. 285.

²Ibid., pp. 290-291.

by Tibor Scitovsky in his article, "Two Concepts of External Economies."¹ This article is perhaps the most comprehensive article on the subject of external economies.

Scitovsky begins with an allegation that: "Definitions of external economies are few and unsatisfactory."² He goes on then to point out that the discussions on the subject are varied and dissimilar because " . . . the concept of external economies does duty in two entirely different contexts."³ These two entirely different contexts are equilibrium theory and the theory of industrialization in underdeveloped countries. According to Scitovsky, it is necessary to have "two entirely different definitions of external economies, one much wider than the other."⁴ He argues further that "external economies as defined in the theory of industrialization include, but go far beyond, the external economies of equilibrium theory."⁵

¹Tibor Scitovsky, "Two Concepts of External Economies," The Journal of Political Economy, Vol. 62, (April, 1954): Also reprinted in The Economics of Underdevelopment, op. cit., pp. 295-308.

²Ibid., p. 295.

³Ibid.

⁴Ibid., p. 296.

⁵Ibid.

In discussing that type of external economy which is found in equilibrium theory, Scitovsky points out that such external economies are the product of economic interdependence. More specifically, they are the result of "direct" economic interdependence.

Equilibrium theory, . . . is a static theory, concerned with the economic system when it is in equilibrium. Most of its conclusions are based on the assumptions of (1) perfect competition on both sides of every market and (2) perfect divisibility of all resources and products. These assumptions underlie the main conclusions of general equilibrium theory, viz., that the market economy leads to a situation of economic optimum (in Pareto's sense) provided that every economic influence of one person's (or firm's) behavior on another person's well-being (or firm's profit) is transmitted through its impact on market prices. Expressed differently, equilibrium in a perfectly competitive economy is a situation of Paretian optimum, except when there is interdependence among members of the economy that is direct, in the sense that it does not operate through the market mechanism. In general equilibrium theory, then, direct interdependence is the villain of the peace and the cause for conflict between private profit and social benefit.¹

This expression of external economies as found in equilibrium analysis by itself brings a great deal of clarity to the subject. However, Scitovsky goes on to distinguish five types of direct interdependence from which external economies might arise. These are:

(1) "Interdependence of consumer's satisfaction" where the individual's satisfaction may depend not only on his consumption and service activities but also on the satisfaction of other persons. (2) Producer-consumer interdependence, where the person's satisfaction may be

¹Ibid.

influenced by the activities of producers not only through their demand for his services and supply of the products he buys but also in ways that do not operate through the market. Scitovsky calls these the producer's "direct" influence on personal satisfaction. The best known example of this, according to Scitovsky, is the factory which inconveniences its neighborhood with fumes and noise which emanate from it. (3) Consumer-producer's interdependence, where the producer's output may be influenced by the actions of persons more directly and in other ways than through their offer of services used in production and their demand for the firm's output. The main instance of this, in the opinion of Scitovsky, is the invention which facilitates production and becomes available to all producers free of charge. (4) "Direct interdependence among producers," the counter-part of case (1), where the output of one producer may depend not only on his input of productive resources but also on the activities of other firms. (5) Social-private interdependence, where society provides social services through community action and makes them available free of charge to all persons and firms. The best example of this type would be public education, public roads and other "social overhead capital."¹

¹Ibid., pp. 296-297.

Of these five cases, cases (1) and (5) are of particular importance to the study of welfare economics. It is because of the existence of these two types of externalities that, according to Scitovsky, welfare economists are so reluctant to make any statements concerning personal welfare criteria.¹ Scitovsky points out that the remaining three cases, (2), (3), and (4) are related to production and seem to be exceptional and unimportant in equilibrium theory. Cases (2) and (3) are exceptional because instances of these types are eliminated through zoning ordinances and industrial regulation for case (2) and by patent laws for case (3). Case (4) seems unimportant because there are so few examples of this case in equilibrium theory.²

Scitovsky goes on to say that there are many examples of economic interdependence among producers (case 4), but that "most of these are not examples of direct interdependence among producers, which ~~is~~ the only meaning that can be attributed to the term "external economies" within the context of equilibrium theory."³

¹Ibid., p. 297.

²Ibid.

³Ibid., p. 298.

Most of the examples of economic interdependence among producers to which he is making reference are not found as much in equilibrium theory as in the theory of the industrialization of underdeveloped countries.

Scitovsky points out that those types of external economies which arise out of direct economic interdependence are "technological" external economies, the only kind found in equilibrium theory. His statement follows:

. . . For this reason it is convenient to call them "technological external economies" while this will distinguish them from another category of external economies to be introduced presently, we must bear in mind that technological external economies are the only external economies that can arise because of direct interdependence among producers and within the framework of general equilibrium theory.¹

Scitovsky then takes up the types of external economies which are found in development literature. After pointing out that he has been "unable to find a definition of the concept in the literature dealing with underdeveloped countries."² He attempts his own definition which he adapts from Meade.

It seems that external economies are invoked whenever the profits of one producer are affected by the actions of other

¹Ibid., p. 298.

²Ibid., p. 299.

producers. . . . We can express this in symbols by the function $P_1 = G(x_1, l_1, c_1, . . . ; x_2, l_2, c_2, . . .)$, which shows that the profits of the firm depend not only on its own output and factor inputs but also on the output and factor inputs of other firms; and we shall say that in the context of underdeveloped countries external economies are said to exist whenever the variables to the right of the semicolon are present.¹

Scitovsky further points out that the above definition includes both direct and non-direct interdependence among producers. Non-direct interdependence acts through the market mechanism and therefore these types of externalities are called "pecuniary external economies" to distinguish them from the "technological external economies" of direct economic interdependence.

After introducing the concept of pecuniary external economies, Scitovsky then goes on to give five examples of different types of pecuniary external economies arising out of non-direct market interdependence.² These are as follows: (1) When investment in industry A results in a decrease in the cost of A which is an input for industry B, industry B then receives a reduction in cost and/or an increase in profits resultant from the forward transmission of pecuniary external economies from supplier to user. (2) Expansion in industry A may also

¹Ibid., p. 300.

²Ibid., pp. 304-305.

give rise to profits in an industry that produces a factor used in industry A. This is a backward transmission of external economies along vertical lines. (3) An industry whose product is complementary in use to the product of industry A may enjoy the benefits of external economies from the expansion of output in industry A. (4) An industry whose product is a substitute for a factor used in industry A may receive pecuniary external economies from expansion in industry A. (5) An industry whose product is consumed by persons whose incomes are raised by the expansion of industry A will also enjoy the effects of pecuniary external economies from expansion of industry A. This type of pecuniary external economy was classified as "horizontal" by Fleming and is the effect which is emphasized by Nurkse and Rosenstein-Rodan in the "theory" of balanced economic growth.

Thus far, in this chronological discussion of the evolution of the concept of external effects, the all-pervasiveness of the concept has been observed. Also, it has been suggested that there is no single work which gives a completely comprehensive and detailed discussion of external economies in all their different forms and usages. The article by Scitovsky seems to be the most definitive article currently available. Yet there still does not seem to be a truly definitive discussion of this concept. Therefore, by way of synthesizing the

contributions found in the preceding articles, an attempt will be made in the next few pages to bring a greater degree of clarity to the subject of economic externalities.

A Definition of Economic Externalities

Scitovsky's most significant contribution to the theory of external economies was perhaps his pointing out that they are the product of economic interdependence. There can be no doubt about the all-pervading fact of interdependence between participants and functions of the economy. Whether dealing with an abstract micro-economic model in which a single producer produces a narrow selection of goods with primitive methods or a complex macroeconomic description of an actual economy with its diversified and complex industrial networks, one must be cognizant of the existence of economic interdependence. This relationship exists in all economic activity and it is universally known and understood by economists. However, it is generally given only implicit recognition. Thus, it may be appropriate to conclude that the theory of economic externalities is an explicit account of the existence of economic interdependence.

Since economic interdependence is so all-encompassing and since economic externalities are derived from economic interdependence, a good definition of external effects should perhaps be general enough

to cover all types of interdependence. In this regard the following definition is offered. Economic externalities are the forces which cause one individual's, firm's, or industry's profitability, productive efficiency, or utility to be increased or decreased by the activities of some other individual, firm, or industry which affect the former directly or indirectly. For the sake of further clarity it is necessary to analyze the above definition.

First, it must be understood that external effects can be transmitted between and among individuals, firms, and industries. The number of possible combinations is limited only by the number of separate entities in the economy. There can be; consumer-consumer, consumer-producer, producer-consumer, producer-producer, inter-industrial and inter-sectoral transmissions of external economies, to name only a few. The relationship can exist between supply and demand, the public and private sector, and between buyers and sellers. No aspect of economic activity is free from the effects of external economies or diseconomies.

Second, external effects can be positive or negative. Positive external effects are called external economies which cause an individual's, firm's or industry's profitability, productive efficiency or satisfaction to be greater because of the actions of

some other individual, firm or industry. Negative external effects are called external diseconomies which cause an individual's, firm's or industry's profitability, productive efficiency or satisfaction to be lessened because of the actions of some other individual, firm or industry.

Third, there are two aspects of economic interdependence; competition and complementarity. Activities which result in the transmission of external economies between individuals, firms, or industries which are complementary to each other will result in transmissions of external diseconomies between those that are competitive in their relationship. For example: An increase in output and consequent decrease in the price of coffee may result in external economies to the dairy industry whose product (cream) is used in conjunction with coffee. This same action, on the other hand, may result in the transmission of external diseconomies to the tea industry which competes with coffee.

Fourth, economic interdependence may be direct or indirect. Direct economic interdependence results in the transmission of economic externalities in ways other than through the market. For that reason these external effects are called technological or non-pecuniary. Indirect economic interdependence results in the transmission of

external effects through the market. Therefore they are referred to as pecuniary external effects. Most of the discussion in economic literature has centered on the concept of technological external effects. This is the only type of external effect that can be treated under the assumptions of static, microeconomic, equilibrium and welfare analysis. However, dynamic macroeconomic analysis must include both technological and pecuniary external effects.

Fifth, the elements of an economy, especially firms and industries, may be related to each other horizontally when at the same stage of production, usually at the final goods stage, and vertically as suppliers and users of each others inputs or outputs. It is useful, therefore, to divide economic externalities along these lines. Because of this, we may speak of horizontal transmissions of external effects between firms or industries that are indirectly related to each other through the market for final goods. We may also speak of vertical transmissions among firms or industries that are directly related to each other as suppliers and users of each others inputs and products.

Vertical transmissions may be further divided into forward and backward transmissions of external effects. Forward transmissions of vertical external economies and diseconomies are from supplier

to user, industry or firm. Backward transmissions are from user to supplying industries or firms.

Horizontal transmissions of external effects are pecuniary in nature. The reason for this is that the transmitting and receiving firms or industries are related only through the market for final goods. Vertical transmissions of external effects may be technological or pecuniary. The reason for this is that there is not only a direct interdependence through production functions but also there may be, in some instances, indirect interdependence through the market for their outputs or inputs.

Finally it must be recognized that the existence of external economies and diseconomies gives rise to a divergence between the social and private net marginal productivity or utility which is resultant from any given economic activity. For that reason, most of the traditional criteria used in judging economic efficiency must be amended when the general economic welfare is considered rather than that of an individual. The criteria of economic efficiency should be amended to include at least an intuitive awareness of the effects of economic externalities. Such an awareness should assure greater general economic welfare. This is especially true when the criteria are applied in such a vital subject as industrialization in underdeveloped economies.

Measurability of External Effects

The more or less traditional concept of external effects which is found, for example, in the works of Marshall, Pigou, Viner, and Meade has been widely accepted as not subject to empirical verification. The primary reason for this condition is that the traditional concept of external effects is the notion of technological economic externalities. The reader will recall that technological externalities are transmitted directly between the transmitting and receiving agents. That is to say, they are not transmitted through the market.

Economic calculation is made in terms of prices and costs which involve market transactions. Therefore, transmissions of external effects that take place outside of the market cannot be calculated except as the marginal difference under the ceteris paribus assumption. True, the ceteris paribus assumption is of unquestionable usefulness in pure theory. Measurement on the other hand involves, and demands, more realistic assumptions. Therefore, it must be conceded that no more than an intuitive measurement of technological external effects is likely to be accomplished.

This "intuitive measure" of external effects has been present throughout the discussion of external effects. It is found in Pigou's classification of increasing and decreasing cost industries and

especially in welfare literature where it is assumed, for example, that a factory in a residential area disseminates net external diseconomies. The intuitive measure of external effects is also found in policy as it is implied, for example, in zoning ordinances and other public policy.¹

Personal and interpersonal transmissions of external effects, wherein an individual's utility function is affected, are not subject to empirical verification. To do this would involve the use of cardinal utility measures which are generally thought to be impossible. However, it is not uncommon to find intuitive estimates of external effects on individual preference and utility functions.

Pecuniary external effects on the other hand are transmitted through markets. For that reason there is a much greater likelihood that, with enough statistical information and the right econometric instruments, this type of external effect could be measured. In fact, a great deal of work has been done in this area by H. B. Chenery

¹For further examples of when this intuitive measure has been used, see: R. H. Coase, "The Problem of Social Cost," The Journal of Law and Economics, Vol. III, (October 1960), pp. 1-40.

and others.¹

These econometric studies have attempted to measure pecuniary external economies especially in their application as investment criteria in development programs. It is worth noting here that these studies began with the concept as used and developed in the works of Nurkse, Rosenstein-Rodan, Fleming, and Scitovsky. The studies were based on a great deal of statistical data and econometric methodology. The method used is primarily input-output analysis, particularly as applied to major sectors of the economies studied.

A conservative evaluation of the success of these attempts must recognize that in most cases a great deal of economic interdependence was discovered to exist between most industries and sectors of the economies which were studied. These results led

¹See; H. B. Chenery, "Overcapacity and the Acceleration Principle," Econometrica, Vol. 20, (January 1952). H. B. Chenery, "The Application of Investment Criteria," The Quarterly Journal of Economics, Vol. 67, (February, 1953). H. B. Chenery, "The Role of Industrialization in Development Programs," American Economic Association: Papers and Proceedings, Vol. 45, (May, 1955). H. B. Chenery and Kenneth S. Kretschmer, "Resource Allocation for Economic Development," Econometrica, Vol. 24, (October, 1956). H. B. Chenery and T. Watanabe, "International Comparisons of the Structure and Production," Econometrica, Vol. 26, (October, 1958). H. B. Chenery, "The Interdependence of Investment Decisions," The Allocation of Economic Resources, Edited by Moses Abramovits and others, (Stanford, California: Stanford University Press, 1959), pp. 82-120.

to a reinforcement of the contention that in a dynamic setting maximum efficiency of investment allocation might best be obtained through coordinated investment programs. Chenery and Watanabe were also able to rank industries and sectors according to the magnitude of external economies transmitted by them. In addition, Chenery has succeeded under simplifying assumptions in measuring and assigning numerical coefficients to external economies.

After these studies it is difficult to deny that pecuniary external effects are in some way measurable. Furthermore, it is difficult to deny the possibility of extending the accuracy of this measurement in the future. In the end it may be concluded that pecuniary external economies are not only potentially measurable, but that a great deal has been done by way of actually demonstrating this.

As a result of this potential measurability, the concept of external effects may some day be considered as more than an abstract reality but as one more of the significant criteria to be used in making investment decisions. These new criteria would be particularly relevant to the problem of industrialization in under-developed countries.

The Scope of Economic Externalities in the
Theory of Economic Development

There is little reason to doubt the all-encompassing nature of economic interdependence. At the same time, as demonstrated by Scitovsky, there is little reason to doubt that economic externalities are derived from economic interdependence. A question remains, however, concerning the scope of the concept of economic externalities in the theory of economic development. Are economic externalities as all-encompassing as economic interdependence? At least a partial answer to this question can be derived by examining a lesser question. Can it be demonstrated that external effects must be exploited as a prerequisite to economic development?

Many economists believe that the exploitation of external economies is strategic to the process of economic development. According to John H. Adler, external economies are "an essential prerequisite for an acceleration of the rate of economic development."¹ He goes on to say that the present differences in the stages of economic development of various countries can perhaps be explained

¹John H. Adler, "The Fiscal and Monetary Implementation of Development Programs," American Economic Association, Papers and Proceedings, Vol. 42, (May, 1952), pp. 584-600.

more adequately by investigating why in some countries external economies were existent while in others they did not materialize.¹

External economies affect both supply and demand according to Rosenstein-Rodan:

Social overhead capital is the most important instance of indivisibility and hence external economies on the supply side. Its services are indirectly productive and become available only after long gestation periods. Its most important products are investment opportunities created in other industries. Social overhead capital comprises all those basic industries like power, transport, or communication which must precede the more quickly yielding, directly productive investments, and which constitute the framework or infrastructure and the overhead cost of the economy as a whole . . . a high initial investment in social overhead capital must either precede or be known to be certainly available in order to pave the way for additional more quickly yielding directly productive investments.²

Nurkse had the following comments to make about Rosenstein-Rodan's statement concerning the need to exploit the external economies potential to social overhead capital.

To me, the most important substantive point, stressed in the paper, before us, is that public overhead investment creates investment opportunities in directly productive activities. . . . Overhead investment lays down

¹Ibid., p. 587.

²P. N. Rosenstein-Rodan, "Notes on the Theory of the Big Push" printed in Economic Development for Latin America, edited by H. S. Ellis, (London: Macmillan and Company, 1961), pp. 60-61.

the essential framework for miscellaneous economic activity. It represents a non-specific, initiatory, pioneering type of investment. The demand for the basic services it provides may be totally inadequate to start with. Overhead capital may have to build ahead of demand. Since it provides inducements for directly productive investments, it tends eventually to create its own demand. A structure of public overheads causes economic activity to grow up around it and creates in this way an increasingly full and profitable demand for the services which it provides.¹

With this statement, Nurkse indicates that he is in agreement with Rosenstein-Rodan concerning the need to exploit external economies through social overhead capital as a solution to the supply dilemma. In addition, he indicates the effectiveness of social overhead capital in providing external economies from the demand side of the issue.

Further testimony to the effect that external economies are strategic in the development process is supplied by Hans W. Singer. In the following passage, Singer not only emphasizes the need for external economies but he also identifies social overhead capital as a primary provider of external effects.

The most productive form of development is the systematic creation of external economies in economic production, especially in the fields of transport and power. The soundest type of development is the one requiring you to

¹Ragnar Nurkse, "Further Comments on Professor Rosenstein-Rodan's Paper," Economic Development for Latin America, Ibid., p. 75.

cast your bread upon the waters by expending an enormous amount of capital in the creation of external economies without immediate return. It would be much easier if it were the other way round, if one could start off with light investments bringing immediate returns which could then be utilized for heavier investments, gathering strength in the process. But it is not so. Hence, underdeveloped countries with the modest resources at their disposal and with a natural impatience for results, are under constant temptation to skip the necessary external economies and engage in premature projects which fail to attain their full productivity for lack of external economies, or else to sit back hopelessly and do nothing.¹

W. W. Rostow also indicates the need to exploit external economies through social overhead capital in his discussion of the "preconditions stage." He says, for example:

Where data exists on the level and pattern of capital formation in pre-take-off societies--and for the take-off as well--it is clear that a very high proportion of total investment must go into transport and other social overhead outlays. . . . the profits from social overhead capital often return to the community as a whole--through indirect chains of causation--rather than directly to the initiating entrepreneurs.²

Rostow's use of the word "indirect" is an implicit recognition of economic interdependence and hence economic externalities. The significance of this word is that even though he does not come right out with the term external economies, it nevertheless appears to be

¹Hans W. Singer, "Economic Progress in Underdeveloped Countries," Social Research, Vol. 16, (March, 1949), p. 6.

²W. W. Rostow, The Stages of Economic Growth (London and New York: Cambridge University Press, 1963), pp. 24-25.

the subject to which he is referring.

Norman S. Buchanan, too, recognizes the importance of external economies when he says: "transportation, communication and marketing are perhaps the most productive form that real capital formation can initially assume in the low income areas."¹ Kindleberger, on the same ground, also mentions his "predilection for transport and education as top priorities."² It is also on this ground that several economists insist that the concept of investment in underdeveloped countries must include such expenditures as cost of technical training, health service and other social overhead capital.³

Nurkse often stressed that the lack of basic services such as transport, power and water supply is a serious bottleneck in poor countries, and is unfavorable to private investment. But, according to Nurkse the lack of domestic demand was the main reason

¹Norman S. Buchanan, "Deliberate Industrialization for Higher Incomes," Economic Journal, Vol. 56, (December 1946), p. 541.

²Charles P. Kindleberger, Economic Development, Op. cit., p. 166.

³See for example, Adler, "The Fiscal and Monetary Implementation of Development Programs", Op. cit., p. 585 and Richard Goode, "Adding to the Stock of Physical Human Capital," A.E.A., Papers and Proceedings, Vol. 49, (May 1959), pp. 147-148.

why the private foreign investment of advanced countries in underdeveloped countries has been mainly confined to extractive industries and not to industries catering to the domestic markets of underdeveloped countries. This lack of domestic demand represents a lack of external economies which would provide incentive to private investment.¹ Pursuing the same line of argument on the supply side, Adler says:

It is the lack of external economies which presumably is more responsible than any other factor for the limited volume of small and medium sized foreign investment in underdeveloped countries; or conversely, it may be considered as one of the main causes for the fact that private foreign investment has been concentrated in large-scale enterprises which compensate for the lack of external economies of the industry through the horizontal and vertical integration of the processes of production.²

It follows from an understanding of the importance of external economies as an important factor determining the rate of economic growth that their relative insignificance in underdeveloped economies may slow down the rate of capital formation and hence economic development. The existence of external economies is ,

¹Ragnar Nurkse, "The Problem of International Investment Today in Light of the Nineteenth Century Experience," Economic Journal, Vol. 64, (December 1954), pp. 744-58.

²Adler, "The Fiscal and Monetary Implementation of Development Programs," op. cit., p. 591.

as pointed out by Paul Baran, "not a sufficient condition of economic growth,"¹ but it seems that without them rapid economic growth can hardly take place. This thought is given expression by Adler in the following passage:

. . . If the rate of economic growth of underdeveloped countries is to be accelerated, main reliance has to be placed on the creation of external economies through the availability of social overhead capital.²

After this discussion it is difficult to deny that the concept of external economies has a strategic position in development analysis. In fact, this thought can be carried even further to the point of saying that it is difficult to deny the proposition that the development of external economies might represent a key force in the process of economic development. Consequently, it should not be difficult to understand why attempts have been made to construct theories, and especially partial theories of economic development, on the basis of exploitation of the external economic effects which naturally arise out of economic interdependence.

¹Paul A. Baran, The Political Economy of Growth (New York: Monthly Review Press, 1957), p. 191.

²Adler, op. cit., p. 590.

CHAPTER III

BALANCED GROWTH

Introduction

Charles P. Kindleberger in his book, Economic Development, discusses three meaningful interpretations of balanced growth.¹ He classifies balanced growth concepts which have relevance to economic development as: (1) balance in supply, (2) balance in consumer demand, and (3) sectoral balance. It must be pointed out that balance by sectors is a concept which overlaps the other two. Balance through supply and balanced consumer demand are more easily compared because one of them, balance through supply, is concerned with the vertical interdependence between firms and industries, while the other one, balance through consumer demand, relates to the horizontal relationship between firms and industries.

Kindleberger goes on to point out that: "like many distinctions in economics, that between horizontal and vertical ordering of

¹Charles P. Kindleberger, Economic Development, 2nd edition (New York: McGraw-Hill, 1965), pp. 201, 204, 216.

industry breaks down in practice."¹ Thus, he recognizes the problem of oversimplification which accompanies his classification of balance in supply (vertical balance) and balance in demand (horizontal balance). Nevertheless, the concept of balanced growth does deal with two aspects of economic activity; supply and demand. Consequently it is useful to retain the classification.

This same distinction is made by P. P. Streeten, a foremost critic of balanced growth, in the following statement.

Balanced growth has a horizontal and a vertical aspect. It implies a balance between, say, shoes, food and clothing but also between agricultural raw materials and manufacturing production, between capital goods and consumer's goods, between public utilities and other investment, between exports and production for the home market, etc. The case for balanced growth rests upon the relation of complementarity between wants, between factors and products at various stages of production.²

Balance in Supply

Perhaps it is because Rosenstein-Rodan is aware of the supply as well as the demand case for balanced growth that S. K. Nath

¹Ibid., p. 202.

²P. P. Streeten, "Unbalanced Growth," Oxford Economic Papers, Vol. II, (June, 1959), pp. 167-190, p. 171.

labels Rosenstein-Rodan's concept as "the most fruitful and suggestive."¹ Not only is Rosenstein-Rodan's work definitive for both balance in supply and balance in demand but it seems to be the most analytically definitive treatment of balance in supply. Perhaps that is why Kindleberger associates the concept of balance in supply with Rosenstein-Rodan.²

Rosenstein-Rodan's treatment of balanced growth is found in his theory of the "Big Push". Rosenstein-Rodan's balanced growth is built on three different indivisibilities and their subsequent external economies.³ These include: (1) Indivisibility in the production function, especially in the supply of social overhead capital (lumpiness of capital), (2) indivisibility of demand (complementarity of demand), and (3) indivisibility (kink) in the supply of saving.⁴ The first and third indivisibility relate to balance in supply and will

¹S. K. Nath, "The Theory of Balanced Growth," Oxford Economic Papers, Vol. 14, (June, 1963), pp. 138-153, p. 138.

²Kindleberger, Economic Development, Op. cit., p. 202.

³Indivisibilities are not external economies. Rather their existence presents an opportunity for the propagation of external economies which if left unexploited could result in barriers to economic development.

⁴Rosenstein-Rodan, "Notes on the theory of the big push", Op. cit., p. 59.

therefore, be discussed at this time. The second indivisibility relates to and is fundamental to balance in demand and will be discussed later under that heading.

According to Rosenstein-Rodan, indivisibility in the production function is fundamental. If it did not exist, the others would not arise. He comments further that linear homogeneous production functions are completely unrealistic. He says:

They imply no economies of scale or of agglomeration, no entrepreneurship, no phenomenon of minimum quantum or threshold, . . . In reality there are indivisibilities in the production function. They create not only non-constant returns but also risks of investment and imperfect markets which give rise to the indivisibility (complementarity) of demand.¹

According to Rosenstein-Rodan, "social overhead capital is the most important instance of indivisibility and hence external economies on the supply side."² He points out that the services of social overhead capital of transportation and education are indirectly productive. He also contends that the most important product of social overhead capital is investment opportunities created in other industries.

According to Rosenstein-Rodan, social overhead capital is

¹Ibid., p. 60.

²Ibid.

characterized by four indivisibilities: (1) it is indivisible (irreversible) in time, it must precede other, directly productive investments, (2) its equipment has a high minimum durability. Lesser durability is either technically impossible or much less efficient therefore it must be lumpy, (3) a minimum social overhead capital mix is a condition for getting a development plan started and (4) it has long gestation periods.¹ These indivisibilities give rise to external economies. Consequently, the exploitation of indivisible capital such as social overhead capital can be quite stimulating to economic growth.

The argument for balance in supply depends upon these indivisibilities and the divergence between social and private net marginal productivity arising out of their subsequent external economies. According to Rosenstein-Rodan's analysis, the "Big Push" is a prescription for the dilemma an underdeveloped country finds itself in. Namely, that economic development is impossible without the external effects of social overhead capital and the private profitability of social overhead capital is so small as to virtually preclude any private investment. The solution to this dilemma is to undertake social investment in those industries with

¹Ibid., p. 61.

high indivisibilities, low private profitability and extensive potential for economic externalities. Once this is done there should be a vertical transmission of external economies of both a technological and a pecuniary nature.

It might easily happen that any one enterprise would not be profitable enough to guarantee payment of sufficient interest or dividend out of its own profits. But the creation of such an enterprise, e.g., production of electric power, may create new investment opportunities and profits elsewhere, e.g., in an electrical equipment industry. If we create a sufficiently large investment unit by including all the new industries of the region, external economies will become internal profits out of which dividends may be paid easily.¹

The object of the "Big Push," then, is to invest in a wide variety of areas including social overhead capital as well as other, more directly productive areas. The impact of such investments, in spite of their inherent indivisibilities and low profitability, will be a vertical transmission of both technological and pecuniary external economies among the separate industries. The result will be each of the separate industries contributing to the profitability of the others. In this way, a joint investment program can cause successful development where uncoordinated investment would never get off "dead-end."

¹Rosenstein-Rodan, "Problems of Industrialization of Eastern and South-Eastern Europe," Op. cit., p. 251.

This impact is necessary not only from the pecuniary, profitability viewpoint but also from the point of view of technical complementarity and indivisibility of production coefficients. From the point of view of strictly material balances it is difficult to have an electrical equipment industry without an electrical transmitting industry and vice versa. In short, from the supply side of technical production coefficients it is difficult to have one sector without the other.¹ On the other hand, the simultaneous expansion of several industries or sectors in the economy makes each separate industry or sector possible.

Although balance in supply as formulated by Rosenstein-Rodan emphasizes forward transmissions of pecuniary external economies from supplying to using industries, it also includes others. These are forward and backward transmissions of technological external economies and backward transmissions of pecuniary external economies from using to supplying industries.

Rosenstein-Rodan uses the concept of indivisibility in the supply of savings to reinforce his concept of balance in supply.

¹This analysis includes the importation of necessary materials as an additional sector, the import sector. It, too, would be interdependent with other, domestic, sectors and therefore subject to essentially the same analysis.

His analysis implies a purely pecuniary transmission of external economies from investment to saving. Thus he says:

In the first stage when income is increased due to an increase in investment which mobilizes additional latent resources, mechanisms must be provided which assure that in the second stage the marginal rate of saving is very much higher than the average rate of saving. . . . A zero (or very low) price elasticity of the supply of saving and a high income elasticity of savings thus constitutes the third indivisibility.¹

The pecuniary external economy which must be exploited in this case arises out of the indirect economic interdependence between saving and investment. Successful investment activity results in increased income which results in increased saving and hence increased capital supply. Since, in Rosenstein-Rodan's context the initial capital investment comes from borrowing, investment comes before saving, and transmission of external economies can therefore be classified as pecuniary and forward-vertical. Balance is necessary here to assure that investment will be successful and that increased incomes and hence saving may be resultant.

Balance in Demand

The foundation for the theory of balance in demand was presented in Allen Young's article, "Increasing Returns and Economic

¹Rosenstein-Rodan, "Notes on the theory of the 'Big Push'," Op. cit., p. 65.

Progress."¹ Young begins with an adaptation of Adam Smith's contention that the division of labor is limited by the extent of the market. Young restates this as the inducement to investment being limited by the size of the market. This is the first discussion of what was later to be identified as horizontal transmissions of pecuniary external economies.

. . . Adam Smith's famous theorem that the division of labour depends upon the extent of the market . . . one of the most illuminating and fruitful generalizations which can be found anywhere in the whole literature of economics . . . In the use of machinery and the adoption of indirect processes there is a further division of labour, the economics of which are again limited by the extent of the market . . . , Of course, there are economies of what might be called a secondary order. . . . The economies of round about methods . . . depend upon the extent of the market . . . Taken a country's economic endowment as given, however, the most important single factor in determining the effectiveness of its industry appears to be the size of the market. . . . The rate at which any one industry grows is conditioned by the rate at which other industries grow, but since the elasticities of demand and of supply will differ for different products, some will grow faster than others.²

The operation of horizontal transmissions of pecuniary external economies can be illustrated easily with a simple example. Suppose an investment is made in industry A which produces final

¹Allen Young, "Increasing Returns and Economic Progress," Economic Journal, Vol. 38, (December, 1928), pp. 527-542.

²Ibid., pp. 529, 530, 531, 532, 534.

goods unrelated to the production of final goods in industry B. The incomes derived from the expansion of industry A will be used to increase demand for the output of industry B. On the other hand, the resultant expansion in the output of industry B will result in increased incomes with which increased demand will be exerted for the output of industry A. In addition, increased incomes derived from the increased output of both industries A and B can result in some expansion of the demand for industry C's output. In this way expansion can result through the complementarity of the demand for final goods enjoyed by all industries. Also, in this way, "change becomes progressive and propagates itself in a cumulative way."¹

In essence the employees of all the firms in each industry become each other's customers. Through the complementary demand relationship which each has with each other, expansion in each industry results in market externalities which are appropriable to each other industry. The pattern which is followed in these transmissions is similar to that in the operation of the simple Keynesian multiplier.

Rosenstein-Rodan's second indivisibility is related to this

¹Ibid., p. 533.

same analysis. The indivisibility of demand is the foundation for Rosenstein-Rodan's theory of balance in demand. In discussing this indivisibility, Rosenstein-Rodan makes the following statements.

Relatively few investments are made in the small market of an under-developed country. If all investment projects were independent (which they are not) and if their numbers grew, the risk of each investment project would decline by simple actuarial rules. . . . In reality, however, various investment decisions are not independent. Investment projects have high risks because of uncertainty as to whether their products will find a market.¹

On the basis of this indivisibility (complementarity) of demand, Rosenstein-Rodan argued for a spreading of investment funds throughout a variety of basic industries in a manner which is consistent with demand and supply elasticities. A single industry cannot be relied on to furnish all the demand for its product out of its own production alone. On the other hand, if a wide variety of industries are developed simultaneously there is a greater likelihood that together they will furnish a complementary demand for their total output. Rosenstein-Rodan uses his example of the shoe industry to illustrate this relationship.²

¹Rosenstein-Rodan, "Notes on the theory of the 'Big Push'," Op. cit., pp. 61-62.

²See Chapter II, p. 13.

This recognition of horizontal transmissions of pecuniary external economies and the complementary interdependence of all industries through the demand for their final products is the foundation of the concept of balanced economic development through demand. Producing only one good will result in a deficiency of demand and failure of the industry. Production of a variety of goods, provided that it is consistent with probable consumption patterns, will result in an adequate demand for all industries and hence successful economic development.

The most controversial formulation of balance in demand was developed by Ragnar Nurkse in Chapter I of Problems of Capital Formation in Underdeveloped Countries.¹ Nurkse's formulation of balanced growth is primarily balance in demand and it depends to a great extent on the foundations built by Allen Young and Rosenstein-Rodan. Nurkse's formulation of balanced growth is a special response to problems of capital formation and investment incentives. This is illustrated by the title of Chapter I, "The Size of the Market and the Inducement to Invest." However, Nurkse does not overlook the supply side of the problems of capital formation. In fact, he admits

¹Nurkse, Problems of Capital Formation in Underdeveloped Countries, Op. Cit.

that these problems which are generally given the bulk of attention by economists are deserving of that attention.

Nurkse begins his analysis of underdeveloped countries with a discussion of "vicious circles of poverty." He points out that there are actually two vicious circles. One of these is related to the supply of capital and the other is related to the demand for capital. The latter is discussed below.

. . . On the demand side, the inducement to invest may be low because of the small buying power of the people, which is due to their small real income, which again is due to low productivity. The low level of productivity, however, is a result of the small amount of capital used in production, which in its turn may be caused at least partly by a small inducement to invest.¹

According to Nurkse, even if it were possible to break the more important capital-saving circle of poverty, the underdeveloped country would still be faced with the second circular relationship, that of investment incentives. For that reason, this circular relationship must be understood. Before any theory of economic development can be complete it must provide an explanation of how to break this circular relationship.

Nurkse begins his analysis of the demand for capital with the same modern variant of Adam Smith's proposition that the division of

¹Ibid., p. 5.

labor is limited by the size of the market which is found in the works of Young and Rosenstein-Rodan. The basic foundation of his analysis is that the inducement to invest is limited by the size of the market. This proposition is consistent with the commonly accepted notion that the demand for capital, or any factor of production, is a derived demand and that it depends upon the demand for the final output. Businesses will not usually employ additional capital unless they expect their investment to be profitable. This profitability depends largely on increased sales.

The crucial determinant of the size of the market, according to Nurkse, is the volume of production. He makes this point in the following way.

. . . The size of the market is not only determined but actually defined, by the volume of production. . . . We are here in the classical world of Say's law. In under-developed areas there is generally no 'deflationary gap' through excess savings. Production creates its own demand, and the size of the market depends upon the volume of production. In the last analysis, the market can be enlarged only through an all-round increase in productivity. Capacity to buy means capacity to produce.¹

He goes on to explain that the volume of production depends upon the level of capital-intensity of production and that for every individual entrepreneur the use of capital is inhibited by the size

¹Ibid., pp. 8-9.

of the market.

Nurkse then uses Rosenstein-Rodan's example of the shoe factory to illustrate his point that even though, in underdeveloped areas, Say's Law is valid in the sense of no deflationary gap, it is not valid in the sense that any newly created industry can create its own demand out of its own production alone. The basic problem which inhibits a single-industry expansion of the market is seen by Nurkse as the "inevitable inelasticity of demand at low real income levels."¹ A second problem recognized by Nurkse is referred to as "technical discontinuities in capital formation." By this he refers to what Rosenstein-Rodan discussed as the indivisibility of capital.

Since there is a lumpiness in social overhead investments, there are some difficulties in attempting to make the investment size fit the size of the market. Thus it is necessary that there be "jumps" in the rate of investment in social overhead capital. The necessity of these "jumps" adds to the risk of investment in these areas by private enterprise. Therefore, there is a compounding of the basic lack of incentive to invest which is characteristic of underdeveloped areas.

This summarizes Nurkse's analysis of the vicious circle of

¹Ibid., p. 9.

poverty as it is derived from the demand for capital. Nurkse is not pessimistic about this circular relationship. In fact he suggests that once the circle is broken the same relationships that make it vicious can make it beneficent in terms of sustained, cumulative, growth.¹

Nurkse goes on to point out that the concept of balance is inherent in the Classical Law of Markets (Say's Law).

John Stuart Mill's formulation appears to be that,

Every increase of production, if distributed without miscalculation among all kinds of produce in the proportion which private interest would dictate, creates or rather constitutes its own demand.²

According to Nurkse, an increase in the production of one good alone may not result in an equal increase in the demand for that good. An increase in the production of a wide range of goods consistent with consumption demands should, however, successfully create an equal amount of demand. Consider further that with a given labor force and given techniques of production and natural resources, it is only through the use of more capital that such an

¹Ibid., p. 11.

²J. S. Mill, Essays on Some Unsettled Questions of Political Economy (London School of Economics Reprint, 1948), p. 73. This writer quotes from: Nurkse, Ibid., pp. 11-12.

increase in production can be brought about. Thus balanced growth is seen by Nurkse as an essential means of enlarging the size of the market and creating an inducement to invest. This in turn is resultant from horizontal transmissions of pecuniary external economies.

Thus far we have seen how the exploitation of vertical and horizontal external economies can operate through a "Big Push" or balanced growth. What we have not discussed is how this balance is to be brought about. It is at this point that Nurkse begins to become rather vague. He begins this discussion by pointing out that ordinary price incentives may bring it about in small degrees but that their effectiveness would be seriously inhibited by technical discontinuities and the results would not be great enough to meet the needs of an underdeveloped country.

Nurkse goes on to say: "Schumpeter's theory seems to me to provide the mold which we might use . . ."¹ After summarizing the Schumpeterian analysis, he points out the need in his own theory for the creative entrepreneur. What is needed is a considerable number of entrepreneurs with faith in the future to initiate investments in a

¹Ibid., p. 12.

wide variety of industries at one time. He restricts these newly created industries by the condition that they should all grow at a rate consistent with supply and demand elasticities and yet with some consistency so as to preserve the vital complementarity of demand which each provides for the others. There must be an internally consistent overall growth in the market.

It is at this point that "external economies in the market sense" create a divergence between private and social net marginal productivity. Even though the private inducement to invest in a single industry may be very small, the private inducement to invest as a part of a comprehensive program of coordinated industries may be very great. It is up to Schumpeter's creative entrepreneurs to see this and to move forward on a broad front. "Their act of faith is crowned with commercial success."¹

Although Rosenstein-Rodan had no doubts about the need for central planning and coordination by the state in order to achieve the "Big Push," Nurkse was not so certain. Even though he recognized the role of the state and its historical significance he seemed to prefer the private forces as in Schumpeter's system. However he makes a strong point of his opinion that the choice between state or private

¹Ibid., p. 15.

action is merely a matter of administrative expediency. He says, for example:

The nature of the solution is what I have tried to indicate. The question of method must be decided on the grounds of broader considerations. . . . The economist, as an economist, has no categorical imperatives to issue on the subject.¹

Nurkse points out that the theory of balanced growth is often contrary to the theory of comparative advantage and international specialization. However, he also points out that he is concerned with the demand for capital and that this demand is dependent upon increases in the size of the market. He further indicates that the terms and patterns of trade in the modern world are not designed to cultivate domestic markets in the underdeveloped countries. And finally, he points out that the export goods of most underdeveloped countries face a highly inelastic demand. Therefore, attempts to increase exports will be highly unsuccessful as measures to increase the size of the market.

According to Nurkse, if the underdeveloped country is to attract foreign capital it must build an internal market which can provide a profitable investment environment. Such capital will not be forthcoming for a stagnate economy. There must be some signs of

¹Ibid., p. 16.

growth and expansion of the market before foreign investors will risk their capital.

Finally, Nurkse recapitulates his original point that there are two basic "vicious circles of poverty". These are: that vicious circle of poverty which is found on the supply side and is derived from a limited capital base, and; that vicious circle of poverty found on the demand side and derived from low real income and hence limited levels of effective demand. He stresses his original point, that to find the solution to one circular relationship does not insure that development will follow. There must be a break in both vicious circles. Thus he says:

There is no suggestion here that, by taking care of the demand side alone, any country could, as it were, lift itself up by its bootstraps. We have been considering one particular facet of our subject. The more fundamental difficulties that lie on the supply side have so far been kept off-stage merely for the sake of orderly discussion.¹

This final statement tells us one more thing about the theory of balanced growth as formulated by Nurkse. It was formulated within a very special context, namely, the assumption of completely elastic capital supplies. "The more fundamental difficulties that lie on the supply side have so far been kept off-stage. . ."²

¹Ibid., p. 30.

²Ibid.

This important point will be discussed in Chapter V.

Sectoral Balance

A number of writers discuss the subject of balanced growth by way of explaining policy suggestions concerning the relationship between sectors of the economy. This is quite often done by economists who wish to emphasize some often neglected sector of the economy or those who wish to avoid too heavy reliance on a particular sector of the economy. This application of balanced growth is known as "sectoral balance" and it is most often used to emphasize the interdependence that exists between the agricultural, industrial, public, and international sectors of the economy.

All applications of the concept of sectoral balance must be founded either on the analysis of balance in supply, balance in demand, or both. Kindleberger points this out concerning the concept of sectoral balance between agriculture and industry when he says the following:

A particular illustration of the balanced-growth problem, and historically an important one, is presented by sectoral balance between industry and agriculture. This can be regarded as a problem of balance in demand, if attention is paid to the income-elasticities which imply that one must produce more food in the early stages of growth because of high income-elasticity of demand for food, or as balance in supply, if one regards food as

an intermediate good needed for capital formation in social overhead or industry.¹

W. A. Lewis also makes a case for sectoral balance between agriculture and industry when he says: "Smooth economic development requires that industry and agriculture should grow together."²

Lewis explains the reasons for putting forth programs of sectoral balance in the statement below:

The conclusion of this analysis is not very startling; it is that in development programmes 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. Though this is rather an obvious conclusion, it conforms neither to current practice nor to current recommendation. There is, for example, a whole school of 'liberal' economists in the industrial countries who urge upon the agricultural countries, usually in lofty moral tones, that they should concentrate upon agriculture, and do nothing to advance their industry. The same school also extols the virtues of exporting, and is horrified by programmes which have the effect of reducing dependence on foreign trade. The follies of this school have their match in Marxist and nationalist dogmas, according to which the road to economic progress lies through concentrating upon industrialization. In the heat of the passions aroused by these controversies it seems almost cowardly to take the line that the truth is that all sectors should be expanded simultaneously, but the logic of this proposition is as unassailable as its simplicity.³

¹Kindleberger, Economic Development, Op. cit., p. 213.

²W. A. Lewis, The Theory of Economic Development, (Homewood, Illinois: Richard D. Irwin, 1955), p. 277.

³Ibid., p. 283.

Some of these applications of balance by sectors will be examined in order to observe the manner in which the two analytical cases for balanced growth have been put to work. In addition, this review of the various concepts of balance by sectors will give some indication of the reasons why such proposals have been presented. And finally, it will give further evidence of the kinds of externalities which may be propagated through balanced growth.

Sectoral Balance Between Agriculture and Industry

As indicated by Lewis, the reasons for advocating sectoral balance between agriculture and industry are found in the tendency for some to overemphasize agriculture while they neglect industry and for others to emphasize industry while neglecting agriculture.¹ At any rate, this is certainly the most important instance of debate over the need for balance. For that reason, it will be treated first and with a great deal more detail than the other popular cases of sectoral balance.

The types of external economies that are to be derived from sectoral balance between agriculture and industry can be identified by examining the role of agriculture in economic development.

¹Ibid.

W. W. Rostow discusses these vital roles of agriculture in the "preconditions stage."¹ The fact that this discussion centers upon the role of agriculture does not limit it to an analysis of sectoral balance as it aids or depends upon the agricultural sector alone. Recall that we are dealing with economic interdependence and the external effects which will be discussed are transmitted from industry to agriculture as well as from agriculture to industry. Here, then, are the three vital roles of agriculture which give rise to the need for sectoral balance based upon both balance in supply and balance in demand.

The first vital role of agriculture, according to Rostow, is as a supplier of food, that is as a supplier of productive inputs offering forward, vertical transmissions of external economies to the industrial sector. The output of agriculture provides inputs for industry. This can be more readily understood when one considers that this entails not only food and raw materials, such as

¹W. W. Rostow, The Stages of Economic Development (Cambridge, Massachusetts: Cambridge University Press, 1960), pp. 22-23. The fact that Rostow's thesis is often considered to be more compatible to the theory of unbalanced growth than to the theory of balanced growth should not deter its use at this time. In fact, its use at this time is a good indication of the direction in which we are heading. For it will be demonstrated that the theories of balanced and unbalanced growth are really just two different names for the same thing.

cotton and wool with which to supply the textile industry, but that increased productivity in agriculture enables more people to be fed by fewer people in agriculture. Therefore, more people are released for employment in the industrial sector.

These same external effects will be transmitted to agriculture by the industrial sector. It is a supplier of factor inputs to agriculture. Thus, by a simultaneous expansion of agriculture and industry, both can be the recipient of forward transmissions of vertical external economies. This type of external effect has primary significance to the theory of balance in supply.

The second vital role of agriculture has already been indicated. That is, it must be a market for the output of the industrial sector. This is the counter-part to the first vital role. Through the market which it provides for industrial outputs to be used as agricultural inputs there is a backward transmission of vertical external economies. This is a secondary effect of balance in supply.

Finally, the third vital role of agriculture is essential to the transmission of horizontal pecuniary external economies which are characteristic in the concept of balance in demand. Rising incomes derived from increasing productivity and production in agriculture provide increased demand for the industrial sector. By

the same token, increased incomes derived from rising production in the industrial sector provide increased demand for the increased agricultural output.

When these effects are taken together there is a manifestation of both balance in supply and balance in demand. Increased productivity in agriculture results in an increase in the factors of production for industry. At the same time, the agricultural sector is better able to provide food for the urban workers because of the utilization of capital equipment produced in urban industry. Finally, increased sales of agricultural output increase incomes for rural areas with which to purchase final goods from urban industry.

Sectoral Balance Between the Public and Private Sectors

The second most frequent application of the concept of balanced growth is the notion of sectoral balance between the public and private sectors of the economy. This specific application was emphasized by Rosenstein-Rodan and it is given extensive treatment by Albert O. Hirschman in his criticism of balanced growth.¹

The discussion of sectoral balance between public and private goods usually centers around the need for balance between

¹Albert O. Hirschman, The Strategy of Economic Development (New Haven and London: Yale University Press, 1958), pp. 82-98.

social overhead capital which must be provided by the public sector and the directly productive activities of the private sector. The simultaneous expansion of both sectors is expected to result in the transmission of forward and backward, vertical external economies as well as horizontal pecuniary external economies. The analysis is the same as that of sectoral balance between agriculture and industry. Once again, both balance in supply and balance in demand is relevant.

Balance Between Production for Export

And for Home Consumption

Balance is often considered to be undesirable because it is felt to be incompatible with the theory of comparative advantage. This is particularly true of Nurkse's formulation of the concept. This incompatibility does exist. However, balanced growth has been presented as an alternative to comparative advantage. It was never meant to be compatible. In fact, Nurkse was partially motivated in his formulation of the concept of balanced growth by his conviction that modern patterns of trade and international investment are no longer compatible with the theory of comparative advantage. This point can be observed in the following quotation.

. . . It is no longer so certain that the less developed countries can rely on economic growth being induced from the outside through an expansion of world demand for their exports of primary commodities. In these circumstances reliance on induced expansion through international trade cannot provide a solution to the problem of economic development. It is not surprising therefore that countries should be looking for other solutions. It is important to keep these things in mind, because they form the background to the case for balanced growth which is now so much in vogue.¹

In light of the changing patterns of trade in the Twentieth Century it is necessary to inquire into the compatibility of these patterns of trade with international specialization. If the outlook seems gloomy, as Nurkse has suggested, it is necessary to search elsewhere for a solution to development problems. It is at this point that balance enters into the picture not to replace international trade but to reinforce weak patterns of trade. Again, the case for balance between the domestic and foreign sectors of the economy depends upon the analytical groundwork of balance in supply and balance in demand. All three cases of external economies are potential to sectoral balance between the domestic and foreign sectors just as they are to the other two cases of sectoral balance.

¹Ragnar Nurkse, "The Conflict Between 'Balance Growth' and International Specialization," Equilibrium and Growth in the World Economy, edited by G. Haberler and Robert M. Stern (Cambridge, Massachusetts: Harvard University Press, 1961), pp. 246-47.

CHAPTER IV

UNBALANCED GROWTH

Introduction

Unbalanced growth theories have dominated economic development theory since the publication of Adam Smith's Wealth of Nations and the beginning of modern economic analysis. The first incidence of such a theory can be found in the classical theory of comparative advantage and international trade theory. This theory emphasized the importance of benefits to be derived, in the process of economic development, from a leading export sector. Two other historically important cases for unbalanced growth can be found in Schumpeter's innovations theory of growth and Rostow's "leading sectors."

In the more recent controversy to which this study is directed the two main unbalanced growth theories are Albert O. Hirschman's "linkages"¹ and P. P. Streeten's "anabolism of wants."² Although Hirschman writes primarily in response to weaknesses which he

¹Albert O. Hirschman, The Strategy of Economic Development, Op. cit.

²Paul P. Streeten, "Unbalanced Growth," Op. cit.

detects in Nurkse's balance in demand, his response stresses the need for unbalance in supply. He shows how the supply of a new input, or the demand for a new output, induces entrepreneurs to expand their activities.

According to Hirschman, this process is often one-way, in the sense that a unit of investment in A may transmit external economies to B but not vice versa. So a given initial investment devoted solely to A should create more final output than would a balanced distribution of that investment between A and B. Short-term excess capacity in some areas of production may focus entrepreneurial attention on crucial bottlenecks in other areas and hence encourage long-term growth.

Streeten's case for unbalanced growth concentrates on the demand side of the issue: in particular on the "anabolism of wants."¹ Therefore, it can be classified as a theory which concentrates on unbalance in demand. Streeten accepts Nurkse's argument that lack of effective demand is a major restraint on investment incentives.² He questions, however, whether simultaneous expansion

¹Ibid., p. 174. Anabolism of wants refers to the capacity of wants to be self generating. That is, as certain wants are satisfied the act of such satisfaction automatically creates new wants.

²Ibid.

of many industries is the best way to remove that restraint. According to Streeten, certain "key" wants, once satisfied, engender new wants. Therefore investment should be concentrated on these "key" wants with faith that the market will automatically be extended to new wants once these are satisfied.¹

These two concepts of unbalanced growth are perhaps the two main responses to balanced growth as formulated by Nurkse and Rosenstein-Rodan. It is for that reason that they are given special treatment in this study. Both Hirschman and Streeten write with the intention of not only disproving balanced growth but also of substituting unbalanced growth. It is for that reason that their theories must be considered in the current controversy over balanced and unbalanced growth.

Unbalance in Supply

Hirschman begins his discussion of unbalance in supply by stating that he was motivated to develop a theory of unbalanced growth because of his disagreement with the current balanced growth theories. He states:

Before setting out I think it only fair to warn the reader that I heartily disagree with the "balanced growth"

¹Ibid.

doctrine. In fact . . . it was the experience of finding myself instinctively so much at variance with this theory that made me aware of having acquired a distinct outlook on development problems. . . .¹

Hirschman's particular criticism of the balanced growth theories will be discussed in greater detail in Chapter V. The purpose of this chapter is to examine his formulation of the theory of unbalanced growth and to interpret that formulation in light of the particular external economies which it emphasizes.

Hirschman presents two separate arguments for unbalanced growth. The central focal-point of both arguments is the introduction of a new definition of induced investment. This new definition is derived from complementarities and their resultant external economies as the statement below shows.

The complementary effect provides us with a new concept of induced investment which is more meaningful for under-developed economies than the conventional one. . . . At this point we may, however, revert to our earlier discussion of external economies: it was then shown that new projects often appropriate external economies created by preceeding ventures and create external economies that may be utilized by subsequent ones. . . . We can then define our concept of induced investment by the provision that the projects that fall into this category must be net beneficiaries of external economies.²

In his theory of unbalanced growth, Hirschman contends that, in

¹Albert O. Hirschman, The Strategy of Economic Development Op. cit., p. 50.

²Ibid., pp. 70-71.

the application of investment priorities, preference should be given to those alternatives which will provide the greatest "inducement" to other ventures. He argues as follows:

On these premises, the measurement of what has been called the "social marginal productivity" (SMP) of different projects--essentially a more or less sophisticated benefit-cost ratio--becomes the instrument that should in theory permit us to rank different projects in the order of their expected contribution to output and therefore to further growth.¹

In formulating the first of his two arguments for unbalanced growth, Hirschman goes on to apply his analysis to the problem of priorities between investment in "social overhead capital" (SOC) and "directly productive activities" (DPA). In this analysis, he makes two explicit stipulations concerning social overhead capital and directly productive activities. These stipulations are necessary because of a scarcity of entrepreneurial capacity which is, according to Hirschman, the chief characteristic of underdeveloped countries. These stipulations are contained in the following quotation.

. . . Our principal assumption throughout this essay is that the real scarcity in underdeveloped countries is not the resources themselves but the ability to bring them into

¹Ibid., p. 77. Hirschman cites one of H. B. Chenery's articles here.

play. We now apply this notion by stipulating:

1. That SOC and DPA cannot be expanded at one and the same time; and
2. that preferences should go to that sequence of expansion steps which maximizes "induced" decision-making.¹

The first stipulation has the effect of forcing unbalanced growth upon the underdeveloped country. One of the two sectors of the economy must precede the other. The second stipulation provides the method by which it should be decided how priorities should be established in this unbalanced growth. More specifically, the second stipulation tells how to decide to what extent investment in social overhead capital should lead or follow investment in directly productive activities.

Two principal types of sequences are envisioned. The first sequence is referred to as development via excess capacity of social overhead capital. In this sequence development begins with the social overhead capital which provides "inducements" to subsequent development in directly productive activities. The second possible sequence is referred to as development via shortage of social overhead capital. In this sequence development begins with directly productive activity which provides incentive to social

¹Ibid., p. 88.

overhead capital. Both sequences are characterized by Hirschman as yielding an extra dividend of "induced", "easy to take", or "compelled" decisions resulting in additional investment and output.¹ He adds:

Excess capacity of SOC, "building ahead of demand," is expected to create this demand by making a country, region, or city attractive to DPA investors. If, on the other hand, DPA is allowed to or is made to run ahead of SOC, strong pressures are set up for the provision of SOC in a subsequent period.²

This new concept of "inducements," upon which Hirschman's first argument for unbalanced growth depends, is derived from the concept of complementarity and external economies. The question which now must be answered is; is this concept, in fact, a special case of external economies? If the answer to this question is affirmative, a different concept of external economies must be presented. For this special case of external economies seems to extend the jurisdiction of the concept of external economies to the time dimension. It might be classified, in this case, as an intertemporal transmission of pecuniary external economies. In one case there is a forward transmission through time from the early to the later sectors.

¹Ibid., p. 89.

²Ibid.

This case is found in development via excess capacity. In the second case, development via shortage, it can be said that there is a transmission of external economies backward through time from the later to the earlier sectors.

Hirschman's better known argument for unbalanced growth depends upon more clearly defined concepts of external economies. Hirschman calls these external effects "linkages" and they are, in effect, the forward and backward vertical transmissions of external economies discussed by Fleming and Scitovsky.¹ The analysis of these effects is the next topic of discussion.

Hirschman presents the idea of judicious unbalancing as a substitute for the "unrealistic frontal attack" of balanced growth.² The need for this approach is derived from a recognition that balanced growth is impossible in a world of scarce factor supplies and especially in a world of scarce entrepreneurial talent. Consequently it is necessary to approach the problem of economic development with a sophisticated system of investment priorities. This system of priorities should be designed to take maximum advantage of vertical external

¹See Chapter II, pp. 14-15, 21.

²Albert O. Hirschman, The Strategy of Economic Development Op. cit., p. 62.

economies or "linkages". In Hirschman's growth scheme these "linkages" provide the basis for the establishment of investment priorities.

Hirschman's linkages are pecuniary external economies which are transmitted directly between firms through their supplier-user interdependence. This conclusion can be drawn not only from the general character of linkages but from the fact that Hirschman introduces the concept within a discussion of external economies. At one point he says, for example: "but when we speak of external economies and complementarities we think at least as much of these uncertain linkages as of the far more certain."¹ Linkages are specific "inducement mechanisms" which work in the directly productive areas to overcome the shortage of entrepreneurial talent. There are forward linkages (vertical external economies) which are transmitted from supplier firms to user firms. These are primarily supply oriented external economies. There are also backward linkages (vertical external economies) which are transmitted from user firms to supplier firms. These are closely related to the concepts of derived demand and induced investment. Hirschman adds:

¹Ibid., p. 103.

Thus in close analogy to the alternative between development via shortage and development via excess capacity which we described for the SOC-DPA situation, two inducement mechanisms may be considered to be at work within the DPA sector:

1. The input provision, derived demand, or backward linkage effects, i.e., every non-primary activity, will induce attempts to supply through domestic production the inputs needed in that activity.
2. The output utilization or forward linkage effects, i.e., every activity that does not by its nature cater exclusively to final demands, will induce attempts to utilize its outputs as inputs in some new activities.¹

The object of unbalanced growth is to assign investment priorities to those industries which are the greatest transmitters of linkage effects.

The object, according to Hirschman, is to undertake those industries with the highest combined linkage effects first.

Hirschman also has preference for one type of linkage effect over the other. He says that:

We attribute more importance to backward than to forward linkages, we place industries with high backward and low forward linkage ahead of those that have the inverse characteristic.²

From this we can see that Hirschman places more emphasis on those external economies that give rise to derived demand and hence

¹Ibid., p. 100.

²Ibid., p. 107. Fleming also makes this point. See p. 17.

"induced" investment than he does on those that are supply oriented. This is consistent with his "principal assumption" that the strategic scarcity in underdeveloped countries is a scarcity of entrepreneurial talent.

By way of recognizing the importance of demand as an inducement to investment, Hirschman points out that "industrialization can of course start only with industries that deliver to final demand, since ex hypothesi no market exists as yet for intermediate goods."¹ Because of this condition, forward linkage can never occur exclusively. It must always be accompanied by backward linkage, which is the result of the "pressure of demand." In other words, the existence or anticipation of demand is a condition for the transmission of forward linkage effects. Hirschman goes on, however, to point out the importance of forward linkage to the development process even in spite of this restriction. He argues as follows:

While forward linkage cannot therefore be regarded as an independent inducement mechanism, it acts as an important and powerful reinforcement to backward linkage . . . Investment decisions that are taken as a result of both backward and forward linkage are caught, as it were, in a pincer movement and must be prized by us since they are sure to be particularly easy-to-take ones.²

¹Ibid., p. 111.

²Ibid., p. 117.

Hirschman presents an example of the significance of linkages to the establishment of investment priorities in a section of his book which he entitles "A Mental Experiment." This example is adapted from a study which was conducted by H. B. Chenery and T. Watanabe in 1956.¹ In this study, the economies of Japan, Italy, and the United States are divided into four major sectors and each sector, along with the member industries within each sector, is ranked according to the degree to which the two types of linkages are transmitted to other sectors. A summary of Hirschman's major rankings, along with the first industry in each sector, follows:

1. "Intermediate Manufacture" (backward and forward linkage both high), iron and steel with a backward linkage coefficient of 66 and a forward linkage coefficient of 78 giving a total linkage coefficient of 144.²

2. "Final Manufacture" (backward linkage high, forward linkage low), grain mill products with a backward linkage coefficient of 89 and a forward linkage coefficient of 42 giving a total linkage coefficient of 131.³

¹H. B. Chenery and T. Watanabe, "International Comparisons of the Structure of Production," Op. cit. See also p. 32.

²Albert O. Hirschman, The Strategy of Economic Development Op. cit., pp. 106-107; See Table.

³Ibid.

3. "Intermediate Primary Production" (forward linkage high, backward linkage low), metal mining with a backward linkage coefficient of 21 and a forward linkage coefficient of 93 giving a total linkage coefficient of 114.¹

4. "Final Primary Production" (backward and forward linkage both low), fishing with a backward linkage coefficient of 24 and a forward linkage coefficient of 36 giving a total linkage coefficient of 60.²

Unfortunately it is easy for the careless reader to consider this to be Hirschman's final statement on the ranking of industries by linkage effects. It is all too easy to treat this list as one of final truth for all countries at all stages of economic development. This mistaken interpretation does not do justice to Hirschman but more important, it results in a serious misunderstanding and an erroneous application of the notion of linkages.

In order to avoid this dilemma, one must understand from where this particular set of rankings is derived. This ranking is specific in terms of its national and temporal origin. It is also a static model as all input-output models must be.

¹Ibid.

²Ibid.

Hirschman himself points out the limitation of the model as a general ranking with the following condition concerning its application to other countries.

. . . on the condition that we expect the commodity composition of the underdeveloped country's output to bear eventually some resemblance to that of the country on whose input-output statistics we perform.¹

It must also be remembered that this particular ranking is an average of the linkage transmissions that occur in Japan, Italy, and the United States all of which were at different stages of economic development during the time of the study. At the same time, each country had a different commodity composition. Therefore one must ask how effective this "averaged" ranking of industries can be as a general ranking rather than as an example of the manner in which linkages might be employed.

It is also necessary to consider the proposition that as development proceeds different sectors of the economy will emerge as the leading sectors through an increase in their transmission of external economies (linkages) to other sectors. For example, each of the four sectors listed by Hirschman appears as a leading sector in

¹Ibid., p. 105.

different stages of Rostow's stages of economic growth.¹ The first class, "Intermediate Manufacture," is the leading sector in Rostow's "Take-off" Stage. The second class, "Final Manufacture," is the leading sector in Rostow's "Drive to Maturity." The third class, "Intermediate Primary Products," is a leading sector in the "Preconditions Stage" and the fourth class, "Final Primary Product," is a leading sector in the "Age of High Mass Consumption."

It may be concluded that general rankings for industries in all situations or countries may be difficult to develop and in any event any such information should be used with great caution. This point was made by Hirschman when he wrote the following.

The knowledge of the approximate ranking of an industry from the point of view of forward and backward linkage effects as derived from existing developed economies through their input-output tables is, I believe, useful to the economist-planner in underdeveloped areas. It is something to be added to his criteria box. But excessive reliance should obviously not be placed on these rankings, based as they are on a mental experiment subject to numerous qualifications. Industrial development clearly cannot be started everywhere with an iron and steel industry just because this industry maximizes linkages. It is far more useful to look at the structure of the underdeveloped countries and to examine how linkage effects normally make their appearance: such an analysis is likely to yield some hints about the

¹W. W. Rostow, The Stages of Economic Growth, Op. cit.

possibility of an influencing development in such a way as to strengthen these effects.¹

To summarize Hirschman's unbalanced growth model, it must first be said that it focuses on scarcities. The particular scarcity over which Hirschman is concerned is a scarcity of entrepreneurial talent. Because of this scarcity, it is difficult and often-times impossible for an underdeveloped country to combine the resources it does have into productive activity. The problem lies in a lack of capacity for the decision making process. Consequently, priority must be established, in the earlier stages of growth, in those economic activities which will "induce" other activities by decreasing the difficulties of the decision making process. These "inducements" are transmitted in the form of external economies, primarily vertical external economies or as Hirschman calls them "linkages."

Unbalance in Demand

The second set of unbalanced growth arguments which have been formulated in the controversy over balanced and unbalanced growth has been presented by P. P. Streeten.² As indicated

¹Hirschman, The Strategy of Economic Development, Op. cit., p. 108.

²See page 70.

earlier, Streeten agrees with Nurkse that the limited market size presents a major dilemma in underdeveloped countries. However, he disagrees with Nurkse with regard to the best way to overcome this dilemma. According to Streeten, the notion of "complementarities can support the argument for unbalance."¹

Streeten uses the notion of complementarities to present an unconvincing argument for unbalanced growth which is based on indivisibilities in consumption and "anabolism" of wants. The first part of the argument, that which is based on indivisibilities, emphasizes: "the fact that many commodities can be bought only in large and expensive units, so that either we overshoot the mark that would be dictated by equalizing marginal utilities, and then feel pinched in other directions, or we refrain from buying the commodity and then feel its absence acutely."² This resultant feeling of dissatisfaction which is derived from inability to equate marginal utility with price in a world of indivisible consumption alternatives is supposed to drive the consumer on to increasing his consumption and hence widening the market for producers. This

¹P. P. Streeten, "Unbalanced Growth," Op. cit., p. 172.

²Ibid., pp. 173-174.

extended market will then provide the inducement to investment which, according to Streeten, is the real problem anyway.

The second argument or complementarity comes under the heading of "anabolism" of wants. According to Streeten:

An observation of the growth of wants in a dynamic society shows that new wants are created in the process of satisfying existing ones, and that complex consumption patterns spring from single innovations, 'as if increase of appetite had grown by what it fed on.'¹

In order to explain these effects on development, Streeten first points out that his is a dynamic concept of consumption patterns which accounts for changes in consumer's taste as opposed to the static concept which is found in balanced growth theories. He then goes on to discuss how unbalanced growth will result from the existence of these dynamic consumption patterns.

If wants were satisfied by balanced growth, people would have to think up new ways of spending income. Inertia or lack of imagination may then prevent a further rise. But complementarities, whether caused by indivisibility or anabolism, create pressures and a sense of deprivation, which stimulate and guide investment, and guarantee its

¹Ibid., p. 174.

profitability. Investment opportunities are created by new consumption opportunities which in turn result from unbalance.¹

It is obvious that Streeten relies on two concepts that are closely related to external economies: indivisibilities and complementarities. What is not obvious, however, is whether or not his analysis depends upon external economies. His reference to "a sense of deprivation" would suggest that external diseconomies at the consumption level provides the stimulus to investment. There is evidence in his writings that these diseconomies are derived from a demonstration effect.

On the other hand, there is a more basic problem which cannot be avoided. It is difficult to perceive that, in an under-developed country, wants might be "satisfied by balanced growth" or that there could be a problem of "inertia or lack of imagination" in patterns of demand which as suggested by Streeten above could prevent further growth. Such conditions would seem to be more a part of the patterns of consumption in a developed country. In fact Streeten himself is reported to have confessed to one author

¹Ibid., p. 175.

that, "anabolism of wants is intended to apply to the analysis of highly developed countries only."¹ Consequently, there is reason to question whether or not this theory has any relevance at all to underdeveloped countries.

¹M. Lipton, "Balanced and Unbalanced Growth in Underdeveloped Countries," The Economic Journal, Vol. LXXII, (September, 1962), p. 643, footnote number 1.

CHAPTER V

A REVIEW OF THE CONTROVERSIAL ISSUES IN THE BALANCED VERSUS UNBALANCED GROWTH DEBATE

Introduction

Since the publication of Nurkse's formulation of balanced growth there has been an extended debate over the relative merits of balanced and unbalanced growth. This debate has centered on the validity of balanced growth as a method of development. The two sides of the debate have been represented by the advocates of balanced growth on the one hand and the dissenters on the other hand. Those who dissent from balanced growth have generally attempted to establish a theory of unbalanced growth in its place.

This controversy has been marked by a great deal of confusion. One reason for this confusion might be that the concept of balanced growth has been developed from an especially difficult concept; external economies. The concept of external economies is difficult for many people to understand. Nurkse himself has stated that: "I must confess that the economics of external

economies still has some dark corners for me."¹ Indeed this concept received full clarity only through the debate itself. This clarity was produced by people like Fleming, a critic of balanced growth, and Scitovsky, a supporter of the concept.

In addition, there are many aspects to the concept of balanced growth. As we have seen, the minimum critical effort, the questions of balance in supply, balance in demand, and sectoral balance all figure into the controversy. At the same time there is a lack of clarity concerning the assumptions on which the theory is presented, the degree of balance which is required and the meaning of the word "growth".

Part of the responsibility for this confusion must necessarily rest with the principal proponents of the concept. There is sufficient evidence to indicate that much of the confusion could have been avoided had they used more care in the presentation of their ideas. On the other hand the critics of the concept must also share a part of this responsibility through their failure to read carefully and to acknowledge evidence which could have prevented much of the confusion.

¹Ragnar Nurkse, "Further Comments on Professor Rosenstein-Rodan's Paper," Economic Development for Latin America, Op. cit., p. 74.

In the next few pages there will be an analysis of this controversy. The major points of confusion will be identified and clarified. It seems likely that in this way the debate can be settled at least in part by illustrating why it should not have raged in the first place. Finally, there will be in this chapter a summary of the contemporary interpretations of the two concepts with some suggestions concerning how they might better be interpreted.

The Meaning of "Balance"

Much of the confusion surrounding the concept of balanced growth is related to the meaning of the word "balance." It is generally accepted that balanced growth requires a simultaneous expansion of several industries at one time, but there seems to be a great deal of confusion concerning the degree of simultaneous expansion. Some writers take the position that for balanced growth to occur there must be a perfectly equal expansion in all industries at the same time. Others attach a less inclusive meaning to the concept.

Although the principal authors of the balanced growth concept did indicate the degree of balance which they had in mind they still must share part of the responsibility for this confusion. On

the other hand the critics of balanced growth must also accept some of the responsibility. Even though it is not completely clear what was meant by Young, Rosenstein-Rodan, and Nurkse, in what they said concerning the degree of simultaneous expansion which would be necessary under balanced growth, others such as Fleming, H. W. Singer, and Hirschman seemed to have neglected or at least minimized what little they did say concerning this point. It seems that these critics have generally taken advantage of this lack of clarity in order to assign too rigid an interpretation to the concept as it is found in the works of the proponents of balanced growth. Some interpret it too narrowly in terms of the sectors which were meant to be included in this simultaneous expansion assuming that something has been left out, e.g., agriculture. Others are too inclusive in their interpretation and assume that everything was meant to be included.

It is possible, even in Allen Young's early article, to see that something less than complete balance in the rate of growth of different industries was intended. Young's statement on this matter is quite clear.

. . . there must be some sort of balance, that different productive activities must be proportioned one to another,
. . . The rate at which any one industry grows is conditioned by the rate at which other industries grow, but

since the elasticities of demand and of supply will differ for different products, some industries will grow faster than others.¹

Rosenstein-Rodan makes a similar point with the statement that, "linear homogeneous production functions are basic in this sense, but they are completely unrealistic."² And Nurkse points out that:

In this way the market difficulty, and the drag it imposes on individual incentives to invest, is removed or at any rate alleviated by means of a dynamic expansion of the market through investment carried out in a number of different industries. The rate at which one industry can grow is inevitably conditioned by the rate at which other industries grow, although naturally some industries will grow faster than others since demand and supply elasticities will vary for different products.³

It is true that these statements are somewhat obscure but they are, nevertheless, of strategic importance to the controversy. These statements, especially by Young and Nurkse, can leave the reader with little doubt that the concept of balanced growth was never meant to be rigidly interpreted concerning the required degree of balance. There clearly was no indication that growth must follow

¹Allen Young, "Increasing Returns and Economic Progress," Op. cit., pp. 533-534.

²Rosenstein-Rodan, "Notes on the Theory of the 'Big Push'," Op. cit., pp. 60.

³Ragnar Nurkse, Problems of Capital Formation in Under-developed Countries, Op. cit., pp. 14-15.

the lines of a linear homogeneous expansion path. Yet it is possible to find such an interpretation of the concept along with the suggestion that it was gained from Nurkse in the writings of the balanced growth critics.

The meaning of the term balance is even more confusing concerning what is to be included in the simultaneous expansion of several industries. Kindleberger, for example, broadly interprets this to mean that, "not only is it necessary to do everything before you can do anything: the scale on which everything is required means that a minimum critical effort is needed."¹

Rosenstein-Rodan made a rather obscure statement concerning this problem when he wrote:

The risk of any single investment in any one industry is increased by the fact that various goods are highly imperfect substitutes for each other in low income underdeveloped countries. The southwest corner of the indifference map shows very high degrees of convexity. Demand for most goods will therefore be highly inelastic.²

Although this statement refers primarily to the effect of highly inelastic demands on profits, it may also be a recognition by Rosenstein-Rodan that in an underdeveloped country demand is

¹Charles P. Kindleberger, Economic Development, Op. cit., p. 204.

²Rosenstein-Rodan, "Notes on the Theory of the 'Big Push'," Op. cit., pp. 62-63.

likely to be confined to a relatively limited variety of goods. Rosenstein-Rodan's recognition of the inelasticity of demand for these goods is tantamount to saying that the minimum critical effort or the big push can be confined to a few industries at least in the early stages of development.

Nurkse presents a rather loosely defined position regarding the variety of goods which must be covered under the simultaneous expansion of several industries.

Here in a nutshell, is the case for balanced growth. An increase in the production of shoes alone does not create its own demand. An increase in production over a wide range of consumables, so proportioned as to correspond with the patterns of consumer's preferences, does create its own demand.¹

Although there is not a specific enumeration of the relevant sectors or industries which Nurkse would have included in his balanced growth scheme, neither is there a specific elimination of certain sectors or industries. A general statement that the relevant industries should conform to consumer's patterns of demand seems to be more useful and realistic than an attempt at specific enumeration. These patterns will naturally vary in different countries and at different times and stages of development. There is no specific

¹Ragnar Nurkse, Problems of Capital Formation in Underdeveloped Countries, Op. cit., pp. 11-12.

omission of agriculture from this growth scheme as is suggested by H. W. Singer.

Singer points out that it might be necessary, in order to comply with the demands of a "balanced diet," to expand production in agriculture as the economy develops. He says: "Engles law may say that the demand for food increases less than in proportion to income, but it does not say that the demand for food does not increase at all."¹ Singer makes this statement in a clear-cut implication that Nurkse has omitted agricultural goods from his balanced growth scheme. It seems a lot to ask one to accept the proposition that simply because agricultural goods were not expressly mentioned by Nurkse he must not have been aware of their importance and would therefore have omitted them.

Hirschman, too, imposes too inclusive an interpretation on the degree of balance when he says:

The advantage of this kind of seesaw advance over 'balanced growth,' where every activity expands perfectly in step with every other, . . .²
. . . the balanced growth theory reaches the conclusion that an entirely new, self-contained modern

¹H. W. Singer, International Development: Growth and Change (New York: McGraw-Hill, 1964), p. 45.

²A. O. Hirschmen, The Strategy of Economic Development, Op. cit., p. 52.

industrial economy must be super-imposed on the stagnant and equally self-contained traditional sector.¹

It is obvious that the critics of balanced growth take advantage of the failure of its exponents to state clearly and elaborately what degree of balance is required with regard to both the economy's expansion path and the composition of goods. In this way they have reduced the concept to absurdity through interpreting the word balance in the strictest sense of the word. According to this interpretation, it is impossible to have a transmission of external economies between industries under a scheme of simultaneous expansion of several industries unless this scheme includes all conceivable industries and each industry "expands perfectly in step with each other."

This kind of criticism can be no less unjustified than if one were to interpret unbalanced growth in its strictest possible form. It is absurd to suggest that under a system of unbalanced growth emphasizing leading sectors of the economy only the leading sectors should be expanded. It should be clear that only if there are "lagging sectors" can leading sectors transmit external economies. What good could be served by a giant steel industry or a complex system of public overhead capital if there were not a sufficiently

¹Ibid., p. 63.

large private sector to maintain them or to employ their outputs? Certainly the advocates of unbalanced growth would object to the strictest interpretation of their concept. Why then do they commit such an error in their interpretation of balanced growth?

Both concepts can be understood better if they are given a restricted interpretation. In order for either to be useful, they should be accorded a reasonable interpretation with consideration given to the realities of the underdeveloped countries to which they are to be applied. It is unnecessary to attach an unusually stringent interpretation to either of the two concepts. Such an interpretation can serve no useful purpose.

The Meaning of the Word "Growth"

A second problem in the balanced versus unbalanced growth controversy is confusion surrounding the word growth. This confusion has been more or less implicit. The problem is one which is characteristic of all development theory. It is the simple problem of using economic growth and economic development as synonyms. Growth is a rather simple concept defined by Webster as "the process of growing." Development, on the other hand, is a more complex concept defined by Webster as "going through a

process of natural growth, differentiation, or evolution by successive changes."¹ It is clear that even though growth is a part of development it is not the whole of it. Development involves both growth and differentiation.

It would seem that in order for the concept of "balanced growth" to have relevance for the problems of underdeveloped or developing countries it should be a concept of "balanced development" and it should be concerned with more than just growth. Nevertheless, the term balanced growth has been used and it is clear that "growth" means different things to different people even within this controversy.

When the term balanced growth is employed there is no attempt made to clarify what is to grow. This only adds to the confusion. As one writer puts it:

'Balance' and 'unbalance' are insufficiently clinical; 'growth' is insufficiently precise. What is to grow-- income or income per head? Total output, 'economic power,' may interest a government more than income per head, or 'economic welfare'; and the choice of output-raising policies itself offsets population growth.²

¹Webster's Seventh Collegiate Dictionary (Springfield, Massachusetts: C. and G. Merriam Company, 1963).

²M. Lipton, "Balanced and Unbalanced Growth in Underdeveloped Countries," Economic Journal, Vol. LXXII, (September, 1962), p. 643.

What then is meant by the principals in this controversy when they use the term growth? In order to examine this question it might be useful to review the meaning of "growth" as it is used by the major disputants in the controversy.

In his 1928 article, "Increasing Returns in Economic Progress," Young places the emphasis on "progress." He rarely uses the term "growth." Instead he refers to "change" which "becomes progressive and propagates itself in a cumulative way"¹ and, "that continuing economic revolution."² Although these statements provide only a limited example of what Young was concerned with, they are a good indication that it is economic development; i.e., growth and change. Young did not use the term balanced growth. If he had, it seems he would have been discussing balanced "development."

Rosenstein-Rodan also does not use the term "balanced growth." His discussion is primarily concerned with the "big push" which is a partial variation of the concept of balanced growth. But Rosenstein-Rodan seems also to write about development rather

¹Allen Young, "Increasing Returns and Economic Progress," Op. cit., p. 533.

²Ibid., p. 536.

than growth. In "Problems of Industrialization of Eastern and South-Eastern Europe," his first article on this subject, he refers to "international depressed areas"¹ and industrialization is seen as a change from an agrarian economy to an industrial economy.² In "Notes on the Theory of the 'Big Push', however, he refers to "a development program"³ and again it is clear that something more than growth is desired.

There is little doubt that Ragnar Nurkse is writing about underdeveloped countries in his Problems of Capital Formation in Underdeveloped Countries. It appears that this is the first time that balanced growth is mentioned in this controversy. Nurkse speaks of "the problem of development in economically backward countries."⁴ He also states that "economic development has much to do with human endowments, social attitudes, political conditions-- and historical accidents."⁵ To make the picture complete he states

¹Rosenstein-Rodan, "Problems of Industrialization of Eastern and South-Eastern Europe," Op. cit., p. 246.

²Ibid.

³Rosenstein-Rodan, "Notes on the Theory of the 'Big Push'," Op. cit., p. 57.

⁴Ragnar Nurkse, Problems of Capital Formation in Underdeveloped Countries, Op. cit., p. 2.

⁵Ibid.

that:

The essence of the process, then, is the diversion of a part of society's currently available resources to the purpose of increasing the stock of capital goods so as to make possible an expansion of consumable output in the future.¹

It seems clear that the concept of balanced growth is really a concept of balanced development including not only growth but also diversification and change. That is how it was presented by the principal authors of the concept. How then do the critics interpret the meaning of "growth"?

It is clear that Hirschman does not believe that the balanced growth concept is a description of either growth or development.

My principal point is that the theory fails as a theory of development. Development presumably means the process of change of one type of economy into some other more advanced type. . . . This is not growth, it is not even the grafting of something new onto something old; it is a perfectly dualistic pattern of development, akin to what is known to child psychologists as "parallel play". . . . The balanced growth doctrine is now seen to be essentially the application to underdevelopment of a therapy originally devised for an underemployment situation.²

Even though Hirschman offers a theory of "unbalanced growth," as an alternative to "balanced growth", he is concerned with more

¹Ibid., p. 2.

²Hirschman, The Strategy of Economic Development, Op. cit., pp. 52-54.

than just growth, i.e., growth and change or economic development.

Hirschman's charge that Nurkse is using an essentially Keynesian underemployment analysis on the problems of underdevelopment might better be made against Streeten. Even though Streeten discusses both growth and development his is essentially a Keynesian analysis. His growth analysis offers little to a theory of economic development.

The Internalization of External Effects

One of the most penetrating criticisms of balanced growth has been that while the concept makes ample provision for the internalizing of external economies, it neglects the internalizing of external diseconomies. This point was first raised by J. Marcus Fleming in his 1955 review of Nurkse's Problems of Capital Formation in Underdeveloped Countries.¹

Fleming pointed out that under an assumption of fixed (and limited) factor supplies, a simultaneous expansion of several industries is likely to give rise to external diseconomies through competition for scarce resources. The consequence would be a lack of investment incentive or even a disincentive effect on business

¹J. Marcus Fleming, "External Economies and the Doctrine of Balanced Growth," Op. Cit.

investment.

It would appear therefore that where there is a single factor of production in fixed supply the installation of an unprofitable new plant in industry, even though its unit cost, at the least unprofitable output, is below that of pre-existing production is likely to induce contraction rather than expansion in other consumer-goods industries, to yield external diseconomies rather than external economies.

The situation might be roughly expressed by saying that, whereas the balanced-growth doctrine assumes that the relationship between industries is for the most part complementary, the limitation of factor supply ensures that the relationship is for the most part competitive.¹

Fleming's is a valid criticism of balance in demand as long as the assumption of fixed and limited factor supplies is valid. However, it will be made clear in greater detail later in this chapter that the concept of balanced growth was never made, nor meant to be applied under such a limiting assumption. Fleming has demonstrated that under the assumption of fixed factor supplies there is a greater likelihood for the transmission of vertical external diseconomies than there is for horizontal external economies. He concludes then that balanced growth through a simultaneous expansion of consumer-goods industries (balance in demand) is unlikely. On the other hand, these conditions might present a very good case for balance in supply or unbalanced growth. Therefore all Fleming has been able to do with this criticism is to

¹Ibid., p. 279.

establish that balance in demand as formulated by Nurkse will not work under specific conditions which were never included in the assumptions under which it was presented. He has not been able to demonstrate, even under these conditions, that unbalanced growth is preferable to balance in supply.

Hirschman takes up this criticism and goes into it in greater detail in his critique of balanced growth. He directs his criticism at that variant of the balanced growth concept which seeks to internalize external economies through centralized decision making.

The case for centralized investment planning as growth-promoting per se would of course be entirely convincing if it permitted production to be organized in such a way that only external economies were internalized while all external diseconomies and social costs resulting from new ventures remained strictly external to the central authority or were negligible.¹

He goes on to point out that internalization is likely to affect the pace of a country's development unfavorably in some areas and favorably in others depending upon the extent to which net external economies or diseconomies are internalized. Each country will have different results or potentialities for internalization and this should play a major role in deciding on a balanced or unbalanced

¹Hirschman, The Strategy of Economic Development,
Op. cit., p. 56.

growth scheme as well as the desired amount of centralized decision making. Countries with a high potential for external diseconomies should tend towards private enterprise in decision making since such a system would not include a measure of this social cost. Such countries should also tend towards an unbalanced development scheme. On the other hand, those countries which exhibit a low potential for external diseconomies and a high potential for external economies should tend toward centralized decision making and balanced growth schemes since in this way account could be taken of these social benefits.

Hirschman goes on to point out that with few exceptions, e.g., "the reconstruction of an economy devastated by war, or the development of underdeveloped regions and open spaces through colonization schemes," there will be a greater likelihood for the internalization of net external diseconomies. This is due to the natural "disruption of traditional ways of living, of producing and of doing things, in the course of which there have always been many losses; old skills become obsolete, old trades are ruined, city slums mushroom, etc."¹

The significance of this criticism is in its recognition of

¹Ibid.

external diseconomies. Any development plan that hopes to internalize external effects will necessarily have to deal with both external economies and diseconomies. According to Hirschman's analysis of this problem, there must be some measure of the potential for net external economies or diseconomies before a decision can be made to follow a scheme of balance or unbalance or to develop by private or public decision-making.

Central Planning

The question of central planning has been one more point of controversy in the balanced versus unbalanced growth debate. Some writers have attempted to demonstrate that balanced growth is more compatible with central planning while unbalanced growth is more compatible with decentralized decision making.¹ The principals in the debate have said little on this subject and what they have said is not conclusive.

Rosenstein-Rodan had the most clearly defined position concerning this issue. In one of his articles he proposes an "Eastern European Industrial Trust" as a centralized agency for the collection and dispersion of capital supplies.² According to Rosenstein-

¹For example, Hirschman arrives at this conclusion in his discussion of the internalization paradox. See Ibid.

²Rosenstein-Rodan, "Problems of Industrialization of Eastern and South-Eastern Europe," Op. cit., p. 249.

Rodan, this industrial trust would function as a centralized agency making investment decisions for Eastern and South-Eastern Europe.

Nurkse, on the question of planning versus decentralized decision-making, does not take a rigid position favoring either side. In his Problems of Capital Formation in Underdeveloped Countries, he says, for example:

Whether the forces of economic progress are to be deliberately organized or left to the action of private enterprise--in short, whether balanced growth is enforced by planning boards or achieved spontaneously by creative entrepreneurs--is, of course, a weighty and much debated issue. But from our present viewpoint it is essentially a question of method. I feel no need to enter into it at length. . . .

The nature of the solution is what I have tried to indicate. The question of method must be decided on the grounds of broader considerations; on the grounds, especially, of the human qualities and the native forces existing in any particular society. The economist, as an economist, has no categorical imperatives to issue on this subject.¹

Nurkse's position at this time seems to be that if the country in question is sufficiently endowed with brave entrepreneurs the "method" should be left to private forces. If, on the other hand, the country in question is not so endowed, the state should handle the decision-making process. He does, however, take a more

¹Ragnar Nurkse, Problems of Capital Formation in Underdeveloped Countries, Op. cit., p. 16.

definite position in a later work where he says:

Autonomous advance in different branches simultaneously may come about through the infectious influence of business psychology, through the multiplier effects of investment anywhere which can create increased money demand elsewhere, or through deliberate control and planning by public authorities. According to some writers the balanced-growth argument implies that the market mechanism is eliminated and that investments must be effected according to a coordinated plan. This opinion, which is widely held, seems to me dubious. . . . As a means of creating inducements to invest, balanced growth can be said to be relevant primarily to a private enterprise system.¹

It can be concluded then that Nurkse tended toward a private enterprise solution. However, he did not insist nor even indicate that this must be the approach. Neither did he indicate that central planning is completely out of the question.

It has already been pointed out that Hirschman seems to feel that balanced growth which depends upon horizontal transmission of external economies must proceed on the basis of centralized decision making while unbalanced growth which depends upon the transmission of vertical external economies is more likely to be successful than is balanced growth under a decentralized scheme.²

¹Ragnar Nurkse, "The Conflict Between 'Balanced Growth' and International Specialization," Equilibrium and Growth in the World Economy, Op. cit., p. 249.

²See p. 106.

On the other hand, Hirschman relies to a great extent on development planning as the decision-making method in his Strategy of Economic Development. In fact, he points out in the "Preface to the Paperbound Edition" that:

My book has not turned into grist for the mill of those who are hostile to development planning. It was, of course, never meant to be that; rather, my hope was and is that it will contribute to making planning and programing activities more effective.¹

In the end, the question of whether or not to entrust either a balanced or unbalanced growth scheme to the market or to planning is left unanswered by the principals in the controversy. However, it does seem likely that some kind of planning scheme would be the most reliable of the two alternatives in either case. Along these lines, it may prove interesting to examine the planning technique of the French indicative plan. This will be done in the following chapter.

The Question of Factor Supplies

The question of factor supplies and assumptions made concerning them has been one of the hottest issues in the debate over balanced and unbalanced growth. It is quite obvious that, in a

¹Hirschman, The Strategy of Economic Development, Op. cit., p. vii.

world of scarce factor supplies, the possibility for a horizontal transmission of external economies through the complementary relationship which industries share in the demand for final goods can be more than offset by the transmission of vertical external economies through competition for factors. Consequently, without the assumption of unlimited factor supplies, the balanced growth analysis has very little meaning. According to Nurkse this point is "even intuitively obvious, which is probably why no one has advanced the case on these terms."¹

Rosenstein-Rodan left no doubt about the sources of his unlimited factor supplies. Labor would be supplied from disguised unemployment in agriculture. Capital could be supplied from three sources: internal finance, foreign borrowing, and German war reparations in kind.² Since Rosenstein-Rodan's analysis was formulated as a specific prescription for a well defined problem, the industrialization of Eastern and South-Eastern Europe after World War II, his discussion can best be judged within the framework of

¹Ragnar Nurkse, "Balanced Growth on Static Assumptions," The Economic Journal, Vol. LXVI, (June, 1956), p. 365.

²P. N. Rosenstein-Rodan, "Problems of Industrialization of Eastern and South-Eastern Europe," Op. cit., p. 255.

this specific case.⁷ The important thing here is that he explicitly provided for the elastic capital supplies which were fundamental to his argument. Consequently he was not criticized on that basis.

The first criticism of balanced growth on the basis of factor supplies was directed at Nurkse's formulation of the concept, even though he had made some obscure statements concerning his assumptions on this matter. However it is at this point that Nurkse's careless exposition is most apparent and for that carelessness he must share part of the responsibility for the resultant confusion. Aside from establishing early in his chapter on balanced growth that he is limiting his discussion to the problem of investment demand, Nurkse's only reference to capital supply is as follows.

The more fundamental difficulties that lie on the supply side have so far been kept off-stage merely for the sake of orderly discussion.¹

It is possible, of course, to interpret this statement as a ceteris paribus assumption concerning capital supply but that might be too generous. At any ~~rate~~ Nurkse certainly did not state explicitly

¹Ragnar Nurkse, Problems of Capital Formation in Underdeveloped Countries, Op. cit., p. 31.

that he assumed an elastic supply of capital.

Perhaps as a consequence of Nurkse's carelessness J. Marcus Fleming launched an attack against the doctrine on the basis that it was unrealistic and invalid in a world of scarce factor supplies.¹ It wasn't until after this criticism was launched that Nurkse pointed out his assumption of elastic capital supplies.

Far from assuming capital supplies, my opening chapter-- assumes away any inelasticity in the supply of capital. . . . This was made clear at the beginning and the end of the chapter, though I admit that the conditions should have been stated more precisely, . . .²

Nurkse never left this position once it was established and there is little reason not to accept his contention that this was the position which he held at the time of his first statement of the balanced growth theory. However, his explicit statement came late and only in the form of an obscure note made in response to a review of his first exposition. Although Fleming certainly must have seen this statement, it seems that others did not. Consequently the controversy continued on this ground.

¹Fleming's criticism was discussed in this study under the discussion of the internalization problem, p. 103.

²Ragnar Nurkse, "Balanced Growth on Static Assumption," The Economic Journal, Vol. LXVI, (June, 1956), p. 367.

Singer raises this same question when he says: "Supply can create its own demand or it can create its own finance--but it cannot conceivably do both."¹ Singer goes on to construct an elaborate criticism of balanced growth based on this issue. Thus he says:

The trouble with Nurkse's approach is that the remedy for the demand side which he proposes puts a particularly heavy strain on the supply side which in any case is the 'fundamental difficulty' in his own words.²

This criticism has particular relevance only if Singer's proposition that capital is scarce and that investment must be financed internally is accepted. On the other hand, one could reply that the theory of balanced growth has not been advanced on these terms.

Singer goes on with his assumption of limited factor supplies to advance a theory of unbalanced growth. According to him there is not a large enough factor supply under this assumption to support a "frontal attack". Instead a more effective approach might be

¹H. W. Singer, International Development: Growth and Change, Op. cit., p. 47.

²Ibid., p. 48.

"gorilla tactics" or the allocation of scarce investment into strategic sectors of the economy in order to open specific bottle-necks.¹

The availability of factor supplies is of major importance to the theory of balanced growth. It is one thing to construct a theory on the basis of an assumed unlimited supply of capital. On the other hand, it is quite another thing to attempt to apply that theory in a world of capital scarcities. Even though there may be some exceptional cases where this abundance may be assumed it is necessary to agree with Singer that for most of the underdeveloped world: "In spite of its intellectually satisfying features, the doctrine of balanced economic growth has severe limitations in its application."²

It should be made clear then that the concept of balanced growth, especially balance in demand as formulated by Nurkse, depends upon the assumption of unlimited capital supplies. In a world of less than unlimited supplies of capital it is necessary to look towards unbalanced growth as a means of rationing these supplies or, perhaps, balance in supply as a means of bringing about greater

¹Ibid.

²Ibid.

flexibility in the supply of capital.

Three Different Development Problems

Much of the confusion which surrounds the current controversy over balanced and unbalanced growth is resultant from the fact that there are actually three different problems with which the different theories are concerned. It is possible, since all the disputants deal with the industrialization and development of underdeveloped countries, to assume that they are all discussing the same thing. However, the truth of the matter is that each of the three main disputants is discussing a particular aspect of the broader issue of capital formation or industrialization in underdeveloped countries. These three aspects are: (1) the allocation of capital (Rosenstein-Rodan), (2) the lack of investment incentive due to limited market size (Nurkse), and, (3) the scarcity of entrepreneurial talent (Hirschman).

The problem of allocating scarce capital supply is treated by only one of the major disputants, Rosenstein-Rodan. He formulated the theory of balance in supply as a possible solution to this problem. Nurkse, as we have already seen, assumed away this problem in his formulation of balance in demand. According to

Hirschman such scarcities "are interpreted as a manifestation of the basic deficiency in organization."¹

The lack of investment incentive due to the small market size in underdeveloped countries is the problem to which both Nurkse and Streeten directed their energies. Nurkse, of course, saw this as a very real problem and he formulated his theory of balance in demand in response to this problem. Streeten, on the other hand, did not recognize this as a serious problem. According to him the limited market size would automatically be corrected through the "anabolism of wants." Therefore balance would not be necessary.

The third problem, that of a lack of entrepreneurial talent was the basic problem which concerned Hirschman's analysis. According to Hirschman, the best growth scheme would be that which best utilized scarce decision-making ability. Consequently he set out to develop a theory which could best provide "inducements" to investors and thereby make investment decisions obvious and easy to take.

Once it is recognized that the principal discussants in the balanced versus unbalanced growth controversy are directing their attention to different areas of the several potential problems of

¹A. O. Hirschman, The Strategy of Economic Development, Op. cit., p. 25.

development, it is not surprising that they arrive at different solutions.

It is possible that some underdeveloped countries might be victim of all three of the problems mentioned above. In that case it would be necessary to seek out a solution to the most crucial of the problems or to look for a solution that might deal effectively with all three. On the other hand, it is possible that an underdeveloped country might try to resolve its development problems by a combination of the three theories into some other approach. The possibility of such a synthesis will be discussed in the next chapter.

The Problem of Overgeneralization

Perhaps the greatest single problem in the balanced versus unbalanced growth controversy is the desire to treat the various theories as "general theories." It is difficult to read the literature concerning balanced and unbalanced growth without receiving the impression that these theories were meant to be general theories designed to provide a complete solution or method of development for all underdeveloped countries and at all stages of development. Such an interpretation is not only erroneous but also potentially pernicious. Unfortunately it has often been made

and has resulted in the diversion of much time and attention to an evaluation of the relative merits of balanced and unbalanced growth as a method of development. So much attention has been paid to this overgeneralization that there has been a serious and damaging loss of perspective concerning the two approaches. Both Nurkse and Hirschman were aware of this problem and sought to correct it. Nurkse says, for example:

My interpretation of the phrase 'balanced growth' is more limited and less rigid than he makes it out to be. Streeten seems to have no use for special context and seems anxious to establish a general doctrine favoring unbalanced growth. In this spirit he puts all who ever used the phrase 'balanced growth' in the same camp.¹

.
This would be in some ways a convenient terminology, but 'balanced growth' may mean different things to different people, and can have wider connotations not relevant to our special theme. The term is one we can easily dispense with.²

Hirschman tried to discourage the balanced versus unbalanced growth controversy when he wrote the following.

I hope this statement will serve to calm down the debate. It is remarkable how the question of balanced versus unbalanced growth together with the analysis of linkages (Chapters 3 to 7) seems to have caught the exclusive attention of many readers. I should like to plead for a

¹Ragnar Nurkse, "Notes on Balanced Growth," Equilibrium and Growth in the World Economy, Op. cit., p. 279.

²Ibid., p. 318.

correction of this bias; in my opinion the topics discussed in the chapters on motivation (1), technology (8), and regional transmissions of growth (10), are no less central to development strategy and require much further investigation.¹

It should be clear that the theories of balanced and unbalanced growth were never meant to be "general theories" of development but instead rather specific solutions to particular problems. An attempt to interpret these theories as "general theories" rather than "partial theories" is likely to lead to confusion and misdirection of time and energy.

Benjamin Higgins places the theories of balanced and unbalanced growth in the category of partial theories and it is the contention of this study that this is the proper place for them.² They should be thought of as specific prescriptions for certain, rather limited problems of economic development. It has already been pointed out in Chapters II and III of this study that the theories were presented along these lines. It should be remembered that balanced growth has been presented as a solution for the lack of

¹A. O. Hirschman, The Strategy of Economic Development, Op. cit., "Preface to the Paperbound Edition," p. ix.

²Benjamin Higgins, Economic Development: Principles, Problems, and Policies (W. W. Norton and Company, Inc., New York, 1959), pp. 384 ff.

investment incentive in economies with a small market. Unbalanced growth was presented as a solution for the lack of entrepreneurial talent.

One significant contribution of the theories of balanced and unbalanced growth is the introduction of the concept of external economies to the development economist's criteria box. This specific contribution has been missed by those who treat the theories as generalized theories of economic development. There is little doubt that it is easier and more impressive to focus attention on the broad and general aspect of balance versus unbalance as a method of development than it is to deal with the more subtle question of the meaning and significance of external economies in the process of economic development. Nevertheless, in the opinion of this writer the theories of balanced and unbalanced growth can best be understood as partial theories emphasizing particular types of economic externalities and used as prescriptions for specific problems of economic development. Such an interpretation may prove useful in an attempt to reconcile the theories of balanced and unbalanced growth. The following chapter will have some suggestions concerning what might be done along these lines.

CHAPTER VI

BALANCED AND UNBALANCED GROWTH -

A SUGGESTED INTERPRETATION

Introduction

Chapter V presented a discussion of the various controversial points from which confusion and misunderstandings have been propagated in the debate over balanced versus unbalanced growth. It was suggested in the discussion of Chapter V that the two theories have been neither fully appreciated nor clearly understood. The reason for this lack of appreciation is due primarily to the excess time and energy which has been devoted to attempts to establish one or the other of the two theories as a general theory of economic development. In addition there has been too little time and energy devoted to an understanding of the importance of pecuniary external economies.

After discussing the unsatisfactory nature of the traditional interpretation of the two concepts, it is necessary to formulate a

different interpretation. This study suggests that the concepts of balanced and unbalanced growth could better be understood as rhetorical expressions of emphasis on vertical or horizontal transmissions of pecuniary external economies. Balance in demand should be understood to refer to a system of development which emphasizes the importance of horizontal transmissions. Balance in supply and unbalanced growth should be understood to refer to a system of development which emphasizes vertical transmissions.

This interpretation should be more useful than the traditional one because emphasis is placed on the greater contribution of the two theories which is the development of the concept of pecuniary external economies. In addition, this interpretation may assist in demonstrating that the two theories are reconcilable and that they might be synthesized into one partial theory of development.

In order to demonstrate this, it should prove beneficial to examine the concepts of pecuniary external economies from four different points of view. First, there should be a more or less purely theoretical examination of the concepts as they have been developed in the controversy over balanced versus unbalanced growth to determine if any fundamental conflict exists between them.

If no conflict exists, it should be possible to suggest a development plan which could offer maximum propagation of all types of external economies.

Secondly, it should prove instructive to examine the usefulness of the concepts of pecuniary external economies to see if they can be applied to problems other than those which provided the basis for the formulation of the concepts of balanced and unbalanced growth. The problem which has been selected for this examination has been the problem of dualistic development.

Next, it would seem to be advantageous to examine one of the dominant historical descriptions of growth to see if the concepts of pecuniary external economies have been evident throughout the history of economic development. At the same time it should be worthwhile to investigate the extent to which the various types of external economies have been either mutually exclusive or mutually reinforcing, and whether or not they have remained constant at all stages of growth. The historical explanation selected for this examination is Rostow's Stages of Economic Growth.

Finally, the question of planning versus private decision-making should be examined to determine if anything more definite can be suggested concerning the best possible way of stimulating

the propagation of pecuniary external economies.

Two Types of External Economies

And a Possible Synthesis

By now it appears that the strategic contribution of the balanced versus unbalanced growth controversy is perhaps the development of the concept of pecuniary external economies. Not only has the concept of pecuniary external economies been developed in the controversy over balanced and unbalanced growth, but it has also been refined and made useful as a policy tool for the development economist. This is true even though the debate has actually been concerned primarily with how this tool has been employed in the past. At this point a review of the concept of pecuniary external economies as a pure concept should be of some value. This can be accomplished by reviewing the various aspects of the concept and the way in which it has been employed. It should also be instructive to investigate the possibility of combining the two basic types of pecuniary external economies into one partial theory of economic development.

According to Scitovsky, pecuniary external economies are the result of "nondirect economic interdependence" and are

transmitted through free markets.¹ These pecuniary external economies were first introduced in and were basic to the analysis of Young, Rosenstein-Rodan, Nurkse, and Hirschman. The concept was subsequently clarified and given technical refinement in works by Fleming and Scitovsky. In this analysis, the concept of pecuniary external economies was further distinguished as horizontal and vertical depending upon the nature of the transmissions of these effects.

Horizontal transmissions of pecuniary external economies are basic to the theory of balance in demand as formulated by Nurkse. These are the transmissions of external economies between firms and industries through the market demand for final goods. According to the advocates of balance in demand there is a basic inability to exploit the potential for horizontal transmissions of pecuniary external economies in a small market. This inability results in a lack of investment incentives which presents itself as a barrier to growth and development. The way in which this dilemma can be overcome might be to achieve a simultaneous expansion of several industries in a manner consistent with consumer taste and governed by the coefficients of supply and demand elasticity in each

¹See Chapter II, p. 23.

industry. In this way there might be a horizontal transmission of pecuniary external economies which will provide investment incentives for private business in an expanded market. The employees of each industry will become the customers of each other industry.

Vertical transmissions of pecuniary external economies make up the analytical foundation of balance in supply as formulated by Rosenstein-Rodan and unbalanced growth as formulated by Hirschman. They are transmitted through the market for factor inputs which exists between firms and industries. Their impact is felt through an increase in output and/or a decrease in the cost of productive factors. This type of external effect is further complicated by the fact that there can be both forward and backward vertical transmissions of pecuniary external economies. Forward transmissions are benefits which are transmitted to a using firm or industry through an increase in the output and/or decrease in the cost of factors supplied to them. Backward transmissions are benefits which are transmitted to a supplying industry through an increase in the demand for its output by some other using industry.

Vertical transmissions of pecuniary external economies were first introduced in, and are basic to the analysis of balance

in supply. According to Rosenstein-Rodan, underdeveloped economies are plagued by an "indivisibility in the production function" which means that each industry must utilize certain "lumpy" coefficients of production.¹ In order to expand any one industry there must also be an expansion in its supplying industries. Any specific lack of elasticity in the supply of any one productive input represents an inability to exploit potential vertical transmissions of external economies and a consequent barrier to development. The way out of this dilemma is to establish a simultaneous expansion of several industries in a manner which is consistent with the input-output requirements of production and governed by supply and demand elasticities of factors and factor inputs as well as final products. In this way the problems posed by indivisibility of production functions can be overcome and the economy will be able to exploit its potential for vertical transmissions of external economies.

Vertical transmissions of pecuniary external economies are also fundamental to the theory of unbalanced growth as formulated by Hirschman. According to Hirschman neither the size of the market nor the elasticity of factor supplies is the fundamental

¹See Chapter III, p. 43.

problem of underdeveloped countries. To him the basic difficulty is a lack of entrepreneurial talent.¹ This lack of talent represents an inability to exploit potential vertical transmissions of pecuniary external economies and a consequent barrier to development.

According to Hirschman, the way to solve this problem is to begin a development program with certain key sectors of the economy which will result in a maximum transmission of such external economies (linkages). The result of this would be a provision of "inducements" to investors through making investment decisions obvious and easy to take.

After a close examination of the theories of balance in supply and unbalanced growth it becomes increasingly clear that there is no great difference between them. Both concepts depend upon vertical transmissions of pecuniary external economies between firms and industries operating as suppliers and users of each others products. The difference between them seems to be in whether or not to place a great deal of emphasis on leading sectors or to treat all sectors as more or less basic. It seems natural that certain industries will emerge as leading industries while others will emerge as lagging industries. This should happen under any scheme

¹See Chapter IV, p. 73.

of development. Certainly supply and demand elasticities will differ for different industries. Some products such as steel, fuel, and power will naturally have more uses as productive inputs than will other industries. Therefore they should naturally grow faster and transmit greater external effects than will others. However, one must not neglect the external effects that might be transmitted from lagging sectors to leading sectors. In fact, the marginal difference between success and failure in the development of a leading sector itself may well be the extent to which it is able to appropriate external economies from lagging sectors. Consequently it is necessary to consider the need for vertical balance as well as horizontal balance in the broader process of economic development.

On the other hand it would seem to be foolish to attempt a developmental program which strived solely for a coordination and a maximization of vertical external economies without considering the ultimate end of that production, consumption. Although it sounds trite, it is still nevertheless true that the ultimate goal of all economic activity must be consumption. This proposition is so basic and so widely known and understood by economists that today it is virtually unquestionable. Yet it is quite often forgotten in the finer detail of economic analysis. All too often

development is thought of in terms of a growth in total production alone with no consideration given to what is to become of this output once it is achieved. It is obvious from the supply side that scarce factors must be utilized most efficiently by way of producing the greatest total output. It may be equally true that in an underdeveloped economy Say's Law may hold true, but only if what is produced conforms to the desires of the consumers. In short one must consider not only technical efficiency but economic efficiency as well. For that reason it would be unwise to totally neglect the question of horizontal balance in the economy.

Hirschman is guilty of such an omission in his analysis of the use of linkages in development planning. According to Hirschman the most sensible development program would be one which would maximize vertical transmissions of external economies (linkages).¹ He even goes so far as to carry out a mental experiment in which he illustrates the way in which this can be decided. According to him, to achieve this end the development economist should conduct studies of the actual transmissions of external economies among existing firms in established economies. From those studies he should derive some conclusions concerning

¹See Chapter IV, p. 78

the best development plan for given underdeveloped economies. However, even Hirschman saw that the validity of any such study with regard to any given underdeveloped economy would depend in large measure on the extent to which there would be a similarity in the output mix of the two economies.¹ This is, in essence, an admission that consideration should be given to the goods composition of final demand.

With this in mind, perhaps a better program might be one which seeks to construct a system of measuring vertical transmissions on one hand and horizontal transmissions on the other. In this way specific weights might be assigned to forward and backward transmissions, as Hirschman has done, and also then to horizontal transmissions of pecuniary external economies. Then the ultimate test of an investment alternative might be its potential for the highest combined total of forward and backward vertical transmissions as well as horizontal transmissions.

The next question to be answered would then be the relative importance of horizontal or vertical transmissions of external economies. If one had to choose between an industry with a potential for large horizontal and small vertical

¹See Chapter IV, p. 76.

transmissions and one with large vertical and small horizontal transmissions of pecuniary external economies, how would he make the choice? It seems that the determinate factor might be the relative severity of the problems of limited market size and limited factor supplies. The solution to this problem would require additional study.

External Economies, Balance, and Problems of
Economic Development: Economic Dualism

As pointed out in Chapter II of this study economic externalities are derived from economic interdependence. It is clear, of course, that in any economic activity there will be a great deal of economic interdependence. This is especially true for a market economy where there is not only the direct economic interdependence which gives rise to technological external economies but also the indirect economic interdependence which gives rise to pecuniary economic externalities. This economic interdependence, however, affords a chance for the propagation of external diseconomies as well as external economies. The problem of development is, at least in part, the problem of developing an economic environment in which there can be a

propagation of net external economies.

In Chapter II of this study there was also a great deal of evidence presented to demonstrate that many development economists agree that it is necessary to exploit external economies as a prerequisite to economic development.¹ Obviously then it would behoove the development economist to understand not only the concept of economic externalities including both external economies and diseconomies and especially as we have seen pecuniary external economies, but also the conditions which might prevent the propagation of net external economies. This is a major contribution of the balanced versus unbalanced growth controversy. It is already clear that this controversy produced a refinement of the concept of pecuniary external economies. Of equal importance, however, this controversy also produced a recognition of at least three conditions which might prevent an underdeveloped economy from exploiting external economies and hence from developing. These three conditions are: indivisibility of the production function, small market size, and a lack of entrepreneurial talent.

In the previous few pages of this study it has been shown how the various concepts of balanced and unbalanced growth were

¹See Chapter II, p. 34.

really mere prescriptions for these specific problems rather than generalized theories of economic development. At this point it should be interesting to apply the concepts of economic externalities and balanced or unbalanced growth to a fourth problem, economic dualism.¹ The object of this discussion is to demonstrate that economic dualism is one more of the many problems which may result in an inability for underdeveloped countries to exploit external economies. This problem, like those faced by Rosenstein-Rodan, Nurkse, and Hirschman, might be corrected at least in part by creating an environment in which potential external economies might be exploited.

Two general types of dualistic development will be considered here: social dualism and technological dualism. Each represents a particular problem which has special relevance to this study. This discussion will be restricted only to an analysis of these special problems. There will be no comprehensive discussion of the concepts of dualism as they have been

¹The interested reader will find an informative section and a comprehensive bibliography on economic dualism in: Gerald M. Meier, Leading Issues in Development Economics (New York: Oxford University Press, 1964), Section II, pp. 48-88.

Although there are many problems connected with dualistic development, this study will concentrate only on those which the writer considers to be most obviously relevant to the present study.

developed in the literature because that is not the purpose of this study. The object of this discussion is to illustrate how the concepts of economic externalities and of balanced and unbalanced growth can be applied to problems other than those to which they have been applied.

Social Dualism

Social dualism is usually resultant from the imposition of an advanced society onto some other less advanced society. This is usually a result of colonization. According to Boeke's theory of social dualism, colonization results in the coexistence of two social systems one of which is imported from abroad. The two social systems will have different "social spirits" including organizational form and techniques and socially determined patterns of demand. When neither social system is able to oust or assimilate the other and become general and characteristic, a dual society will be resultant.¹ As a result of this there springs up a problem of one economy supporting two different societies. Each society has different tastes and customs. The economic

¹J. H. Boeke, Economics and Economic Policy of Dual Societies, (New York: Institute of Pacific Relations, 1953), pp. 3-4.

problem which emerges is a split market. Each of the two cultures will manifest different, sometimes incompatible patterns of consumer demand. The result is actually two different markets each of which is too small to encourage industrial advancement. This is essentially the same problem which was faced by Nurkse in his formulation of balance in demand.

This split market, which is resultant from colonization and which in turn results in a limited market size, also causes a strategic inability to exploit pecuniary external economies. The employees of industry A do not purchase the product of industry B because it does not conform to their patterns of consumption. The basic problem is the same as that about which Nurkse wrote even though it is caused by something quite different. Likewise the solution is the same as Nurkse's, to promote the horizontal transmission of pecuniary external economies which are a potential part of the market economy. However, the means of bringing that solution about should be different from that which was suggested by Nurkse. Somehow there must be some conformity introduced into the market. This conformity may be brought about by changing the consumption patterns of the indigenous populace, perhaps through a demonstration effect, or it may be brought about through changes

in the consumption patterns of the colonists. Most likely, however, it will be through some combination of the two. In the end the purely economic problem, inability to exploit external economies in a small dualistic market, must be resolved through a social change.

The social change should result in a larger, more consistent market wherein there can be a resultant transmission of pecuniary external economies. When all persons in an economic community share a common set of tastes and consumption patterns there is a greater likelihood for the employees of industry A becoming the consumers for industry B. In this case investment incentives will increase and development will be all the more possible.

If one were to persist in using the terminology of balanced growth he could say that social dualism, insofar as it results in two markets, is a special plea for balance in demand. Of course one might ask why anyone should persist in using the term balanced growth. Why not speak instead of horizontal transmissions of pecuniary external economies? Balance in demand, as it was formulated by Nurkse, refers to a simultaneous expansion in several industries in such a way as to conform to the demands of the consumer. In this way there can be a resultant, horizontal transmission

of pecuniary external economies. Overcoming the barriers to this transmission as a solution to social dualism requires an introduction of conformity into consumption patterns in order to enable such an expansion to take place. In either case investment incentive depends upon effective horizontal transmissions of pecuniary external economies which in turn depend upon increasing the size of the market.

Technological Dualism

A second type of economic dualism is technological dualism. This concept of dualism represents a situation in which certain sectors of the economy develop more rapidly than others. The concept is generally employed as a method of describing a situation in which capital innovation is superior to and is gaining faster than the quality of the labor force. This situation represents a special inability to exploit external economies. However, since it is a special relationship between two factors of production, labor and capital, it does not fall neatly within either of the two general classifications of horizontal or vertical transmissions of external economies as they have been defined in this study.¹ Neither is it

¹See Chapter II, p. 28.

clear at the outset whether or not the particular external economies which are left unexploited are pecuniary, technological, or perhaps both.

It is readily clear that labor and capital are horizontally related in the production function in much the same way as shoes and stockings are related in the consumption function. One must have both before either can be of maximum usefulness. Consequently the specific type of economic interdependence is one of a complementary relationship between two factors of production. Increased productivity in capital goods can result in increased efficiency of labor and consequent increases in total product only if labor is of sufficient quality to exploit the external economies which are potentially appropriable. On the other hand, if labor is able to appropriate the potential technological external economies it should also be able to enjoy certain pecuniary rewards by way of increased incomes. Through these increased incomes labor should then be able to purchase more of the goods in whose production capital is employed. Thus labor should be able to transmit additional pecuniary external economies to capital and thereby increase the incentive for investment.

One could say that this particular variant of the notion of

technological dualism is a special plea for balance among complementary factors of production. If there is an imbalance in the quality of labor (or capital), total output will be limited by the factor with the least quality due to an inability of the low quality factor to appropriate potential transmissions of external economies from the complementary, higher quality factor.

Technological dualism may also refer to a situation in which the productivity due to technology is greater in one stage of production related vertically to some other. If a situation exists in which the applied technology and hence the productivity of steel refining is far superior to the efficiency of mining the ore, total product will be limited by the vertical stage with the least efficiency, in this case the mining sector.

Such a case of vertical technological imbalance represents an inability to exploit the potential for vertical transmissions of both technological and pecuniary external economies. This is the same basic problem which is fundamental to Rosenstein-Rodan's theory of balance in supply. However, the cause of this problem as Rosenstein-Rodan saw it is somewhat different. Nevertheless, the solution is the same, i.e., to increase productivity and hence total output in many vertically related sectors at one and the same

time.¹ What is needed is a system of simultaneous development of all relevant sectors at once in order that they might all appropriate the external economies potentially available to them.

One could consider technological dualism and the need to overcome the problems which are created by it as a special plea for balance in supply or vertical balance. On the other hand, if one were to recognize that due to different elasticities in supply and demand some stages must grow faster than others, he might suggest that this is really a special plea for vertical imbalance. It really does not matter whether it is called balanced or unbalanced growth. What is important is that in order to solve the problem of technological dualism there must be an increase in vertical transmissions of external economies.

Balance, Imbalance, and External Economies

In Rostow's Stages of Economic Growth

Before beginning this section it should be made clear that the terms balanced and unbalanced growth as they are used herein and for the rest of this study will not be used as they traditionally have been. The term balanced growth seems to be more acceptable if it is understood to refer to an emphasis on horizontal transmissions

¹See Chapter III, p. 46.

of external economies in the case of balance in demand and vertical transmissions of external economies in the case of balance in supply. Likewise, the term unbalanced growth seems to be more acceptable if it is understood to refer to an emphasis on vertical transmissions of external economies or linkages.

With only a limited study of the history of economic development it seems evident that unbalanced growth and vertical transmissions of external economies have been more apparent than balanced growth and horizontal transmissions of external economies. However this does not mean that horizontal transmissions have been totally nonexistent. The process of economic development goes through several stages. In the early stages of low productivity and limited factor supplies it is natural to observe activity on the supply side more closely than activity on the demand side. Since under these conditions Say's law has some validity, demand does not appear to be much of a problem in the process of growth and development. Naturally then vertical transmissions of external economies which appear on the supply side will be most apparent in the earlier more critical stages of economic development. Horizontal transmissions of external economies which appear on the demand side will become more apparent in the later stages

of development when the problem of capital shortages is largely overcome.

W. W. Rostow's book, The Stages of Economic Growth¹ seems to provide an excellent framework within which an historical search for economic externalities might be made. The primary reason for this is his concept of leading sectors. Rostow's leading sectors are now understood to be those which enjoy the greatest propagation of external economies.² One interesting aspect of Rostow's analysis is that as development proceeds the leading sectors change from those in the early stages which propagate the greatest vertical transmissions of external economies to those in the later stages which propagate the greatest horizontal transmissions of external economies.

Rostow characterizes economic development as a discontinuous process depending on the emergence of new and different leading sectors at each new stage of development. He points out that even though these leading sectors are primarily determined by discontinuities in technology and the willingness of

¹W. W. Rostow, The Stages of Economic Growth, Op. cit.

²See Chapter III, p. 63; also, Chapter IV, p. 82.

entrepreneurs to accept innovation, they are partially determined by those types of demand which have exhibited high elasticity with respect to price, income, or both.

According to Rostow, the process of economic growth can be divided into five stages. The first stage is the traditional society. A traditional society is one whose structure is developed within limited production functions, based on primitive science and technology. The second stage is the preconditions for take-off stage usually referred to as the preconditions stage. This is a process of transition from the first stage to the third stage. It involves the development of institutions which will enable society to exploit the fruits of modern science. The third stage is the take-off stage. This is the vital stage of economic development. The take-off is the interval when old blocks of resistances to steady growth are finally overcome. The fourth stage of development is the drive to maturity. This is a long interval of sustained progress. The regularly growing economy drives to extend modern technology over the whole front of its economic activity. The fifth stage is the age of high mass-consumption. At this stage the economy has achieved full maturity and the leading sector of the economy emerges

as the consumer durables sector.¹

According to Rostow agriculture has historically been the leading sector during the preconditions stage.² This is natural since this stage begins with the base of the traditional society and sets the conditions for the take-off stage. Agriculture is basic in the traditional, primitive society. Agriculture is also basic in terms of producing the barest essentials of livelihood. Rostow identified three essential roles of agriculture which are relevant to the three types of vertical and horizontal transmissions of external economies. These three essential roles were discussed in Chapter III.³

When the three roles of agriculture are taken together there is a propagation of all three types of external economies which have been discussed in this paper. Increased productivity allows the workers to leave the farms for the city, thus propagating a forward transmission of external economies. At the same time agriculture is able to feed these workers because of its

¹W. W. Rostow, The Stages of Economic Growth, Op. cit., pp. 4-11.

²See Chapter III, p. 63.

³Ibid.

utilization of capital equipment produced in the city, thereby exploiting a backward transmission. And finally, the increased sales of agricultural output causes increased incomes for rural areas with which to purchase final goods produced in the city which is an exploitation of horizontal transmissions of external economies. Incidentally all three cases of externalities will in turn be transmitted from the lagging sectors to the leading sector, agriculture. These transmissions will not be as vital as those which are transmitted from the leading sector to the lagging sectors.

Special notice should be taken of the fact that in this early stage of development the problem of capital supply is critical to the development process. When supply is the critical problem, vertical transmissions of pecuniary external economics should be more important and more obvious than horizontal transmissions at least for those that are transmitted from leading sectors to lagging sectors. At the same time transmissions of external economies from leading sectors should be more obvious than transmissions from lagging sectors. It is also quite possible in this early stage that horizontal transmissions might be more obvious than vertical transmissions from lagging sectors to leading sectors.

All three cases of external economies can be detected in the different stages of development.¹ However, the identity of the leading sectors will vary for different stages. Also, during this process of growth and change, wherein new leading sectors emerge and old leading sectors become lagging sectors, the emphasis should become reversed in terms of the predominance of vertical or horizontal transmissions of pecuniary external economies. The reason for this is that, while growth and development proceed, the strategic problem in the economy becomes less a problem of supply and more a problem of demand.

During the take-off stage the leading sectors have historically emerged as textiles, coal, iron, and transport. According to Hirschman in these sectors both forward and backward transmissions of external economies should be very high while forward transmissions should be slightly higher than backward transmissions in these intermediate manufacturing industries. Horizontal transmissions which take place through the market for final products should be low insofar as they are transmitted from the leading sectors to the lagging sectors. The reason for this is that supply is still the basic problem in the early stages of development.

¹See Chapter IV, p. 82.

During the drive to maturity the leading sectors will change again to include such items as grain mill products, leather products, transport equipment, and machinery. These final manufacture goods industries should propagate high backward and low forward vertical transmissions of external economies. At the same time they should propagate somewhat lower horizontal transmissions of pecuniary external economies. Supply is becoming less of a problem and demand begins to emerge as the dominant problem.

During the highest stage of development, the age of high mass-consumption, durable and non-durable consumer goods emerge as the leading sector. This new leading sector should have low forward transmissions of vertical external economies and a somewhat higher backward transmission of vertical external economies. The major transmissions should be horizontal transmissions of pecuniary external economies. By this time the benefits of modern science and technology are fully distributed throughout the economy and supply is no longer a problem. The predominant problem is now the maintenance of full employment through high effective demand. Say's Law is no longer valid.

In the final analysis one can observe that in Rostow's first

three stages which are the actual development stages, the leading sectors are those which exhibit high vertical transmissions of externalities with lower horizontal transmissions of pecuniary external economies. In the final stage of high mass-consumption which is primarily a growth stage rather than a development stage the leading sectors are those which are characterized by large horizontal transmissions of pecuniary external economies through the market demand for final products.

The upshot of all this is that what is needed (and what seems to have happened historically) is unbalanced growth or balance in supply through sectoral expansion of industries which efficiently allocate scarce factor supplies and maximizes vertical transmissions of pecuniary external economies from the leading sectors to the lagging sectors. The ultimate achievement of this development process should be a diversified balanced economy which depends for its subsistence and sustained growth on horizontal transmissions of pecuniary external economies through the market for final goods.

Unbalanced growth, insofar as this is taken to mean an emphasis on vertical transmissions of external economies, seems to be the most effective way to develop in a world of scarce factor

supplies. This is especially true for the early stages of development. Nevertheless it is still true that there will be a potential for horizontal transmissions of pecuniary external economies even in these early stages. This potential should be exploited whenever and wherever possible. By the same token the problem of demand which is emphasized by balance in demand is a very real problem and any system of investment priorities must consider consumer demand as a vital criterion.

What is needed is a judicious program of investment priorities wherein emphasis is placed on those industries enjoying the greatest combined transmissions of pecuniary external economies. The relative priorities that will be assigned to forward and backward vertical transmissions of pecuniary external economies as compared with horizontal transmissions will need to be considered in light of the particular stage of development and the relative significance of the supply problem as compared with the problem of demand. In order for this program to be comprehensive in its scope some measured consideration must be given to external economies which are transmitted from the secondary sectors of the economy as well as those which are transmitted from the primary sectors.

Planning or Private Decision-making:

French Indicative Planning

Now that this study has arrived at the conclusion that development might best proceed through the greatest exploitation of pecuniary external economies, it now becomes necessary to investigate how these external economies might best be generated. This brings us to the question of the relative effectiveness of planning and private decision making as a means of achieving maximum exploitation of pecuniary external economies. In Chapter V it was pointed out that the discussants in the balanced versus unbalanced growth debate did not issue any categorical imperatives on this point. Their analysis did suggest, however, that some degree of centralized decision making might be desirable as a way to insure the maximum propagation of pecuniary external economies.¹ In any event, it is important to the achievement of either vertical or horizontal transmissions of pecuniary external economies that there be some coordination in the composition of investment activity which will attempt to maximize the degree of complementarity between firms and industry. The certainty of such a coordinated

¹See Chapter V, p. 107.

investment activity is questionable under a purely private decision-making economy in the early stages of growth, due to the high levels of risk and uncertainty. On the other hand, it is possible that the need for pecuniary transmissions of external economies might not be present under a purely public-decision-making scheme since such transmissions extend their major influence over investment incentives. With this in mind how does one reply to the issue of planning versus private decision making? To answer this question it is necessary to first examine the limitations of the two general alternatives--pure planning and purely private decision-making.

In order to examine this issue fully, it might be instructive at this point to review again the concept of pecuniary external economies. It must be remembered that pecuniary external economies, unlike technological external economies, will not have a direct effect on production functions. Pecuniary transmissions will not alter the ratios of the technical coefficients of production nor will they increase physical productivity directly. Pecuniary external economies are resultant from the indirect interdependence which exists through the market. Consequently they must be transmitted through markets and their impact will therefore be felt in

reduced money costs or increased money incomes. The broader impact of pecuniary external economies especially with regard to development stimulus is felt in increased market incentives to businessmen. In an economic environment in which investment decisions are made on the basis of pecuniary rewards and incentives it seems clear that pecuniary external economies will be significant. On the other hand in an economic environment in which decisions are made by a small elite of development planners, wherein allocation of capital is determined on the basis of material balances and success depends upon fulfilling plan quotas, the importance of pecuniary external economies seems to be negligible. It appears then that the analysis of pecuniary external economies should have its greatest relevance in an economic system which centers on private decision making, markets, and profit motivation. However under such a pure "free-enterprise" system there can be little assurance of the kind of coordinated investment activity which is so important to the transmission of these pecuniary external economies. The primary reason for this is that risk and uncertainty are prohibitive in an economic environment which is characterized by: an essential lumpiness of capital, limited market size, limited entrepreneurial talent, and a whole host of other problems too

numerous to mention. Under these risk conditions it is difficult to have faith that there will be a large number of independent, imaginative entrepreneurs who will have the courage to undertake a diversified investment program having both vertical and horizontal balance. The possibility of creating such an economic environment solely out of private sources seems too remote to have much credibility.

On the other hand under complete central planning based on material balances with little or no dependence on pecuniary incentives there does not seem to be much need for propagations of pecuniary external economies. Under these conditions technological external economies are still very important since they would have a direct impact on production coefficients. Pecuniary external economies with their indirect impact through prices and profits are not so important, however, when the decision to expand or not to expand one industry or another is made on basis other than private profitability. Consequently it may be concluded that neither complete "free-enterprise" nor complete central planning will be very useful in terms of maximizing the propagation of pecuniary external economies. If one has an uncompromised commitment to either of these economic philosophies it would seem that he must be prepared

to give up pecuniary external economies as a fundamental criterion in the process of economic development. For others who are willing to accept a combination of centralized and private decision making this can still be a useful criterion.

It seems then, that a good answer to the question of method might be some combination of central planning and private enterprise. The French method of planning would appear to be very close to what is needed. The French system is one of "regulated capitalism" emphasizing "indicative planning." The French economic system is basically a private system with a great deal of indicative planning and influence from central authorities. This indicative planning is thought to reduce risk and uncertainty and thus to set the stage for a market exploitation of pecuniary external economies.

Morris Bornstein summarizes how the French planning method operates to reduce risk and uncertainty in the following sentences.

Nevertheless, by coordinating the production and investment programs of the different branches of the economy, the plan reduces uncertainty and risk for individual firms and promises them a "balanced market" in which to acquire factors of production and sell output. Firms will make their own decisions freely in the market. But they do so with the benefit of knowledge, provided by the plan, about the intentions of the rest of the economy and the Government's credit, tax, and price policies. In this way, the French economy endeavors to combine a limited

amount of overall government planning with decentralized private decision making.¹

In 1962 Pierre Masse, who was then the General Commissioner of the French Plan for Economic and Social Development, wrote an article on, "French Methods of Planning" for the Journal of Industrial Economics.² In this article he points out how the private sector is retained under French planning. He also discusses the reasons why the private sector is retained as the ultimate decision-making body. In this discussion it is possible to see some reason why French planning would result in a greater incentive for investment, particularly that investment which would exploit pecuniary external economies. He says:

In this aggregative, and therefore approximative form, a general program is drawn up. Every branch of activity is promised the possibility of acquiring its production factors and selling its goods on a balanced market. The promise, however, is only kept if everybody plays the game. The promise acts merely as an incentive. It is not binding on anybody. Firms are not dispensed from working out their valuations and choosing their own attitude concerning risks. But they can do so in a better informed manner.³

¹Morris Bornstein, Editor, Comparative Economic System Models and Cases (Homewood, Illinois: Richard D. Irwin, Inc., 1965), p. 212.

²Pierre Masse, "French Methods of Planning", Journal of Industrial Economics, Vol. XI, (November, 1962), Reprinted in: Bornstein, Ibid., pp. 213-228.

³Ibid., p. 220.

Masse also points out an essential difference between the First Modernization and Equipment Plan which was designed to overcome essential scarcities of factors of production and the Second Plan in which this supply problem was largely overcome. His remarks are as follows.

The First Modernization and Equipment Plan was a plan for economic recovery. One had to decide between a modest development in all sectors, and substantial progress in sectors having a driving influence whilst providing resources for all the rest. A bold choice was made in favor of the latter. Six basic sectors were given consideration: coal, electricity, steel, cement, agriculture, machinery, and transport.

.
(In the Second Plan) An important innovation was the extension of the plan to all productive activities, mainly agriculture, manufacturing industries, housing and overseas development. Priority to key industries was no longer a major concern and a harmonized growth in all sectors became the main preoccupation.¹

It would appear that the French too believe that as development proceeds there should be a change in the relative emphasis which is placed on vertical transmissions of pecuniary external economies and vertical balance, and that which is placed on horizontal transmissions and horizontal balance.²

¹Ibid., p. 217.

²See p. 150.

The genius of the French System is its combination of private enterprise and central planning. The French System is primarily a private enterprise system. There is, however, just enough planning and coordination of effort to reduce risk and therefore to allow the development of a mutually supporting investment package. In this way the potential for exploiting pecuniary external economies can itself be exploited even in an economic environment which is characterized by a great deal of freedom and individual liberty.

There is no reason to conclude from this discussion that the French method of planning is the only effective or even the most effective alternative. The only conclusion which can be safely drawn from this discussion is that some combination of central planning and private decision making might overcome the deficiencies of either one in their most rigid form. This combination might even take the form, for example, of Yugoslavia's economic system which is primarily a centralized economy that combines public ownership with decentralized resource allocation through markets and prices. The exact form of the "mixed" economic system, especially with regard to the degree of emphasis placed on the public sector or the private sector, will no doubt depend more on political than on economic considerations.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The objectives of this study, as outlined in the introductory chapter are: (1) to review the concepts of balanced and unbalanced growth as they have been formulated in economic development literature, especially by Rosenstein-Rodan, Nurkse, and Hirschman; (2) to examine the role of the one common denominator in the controversy--external economies; (3) to clarify the issues in the debate which has raged over the two concepts; (4) to attempt to reconcile the differences between the concepts of balanced and unbalanced growth while examining the possibility of some more meaningful interpretation of the concepts, and finally; (5) to examine the possibility of synthesizing the concepts of balanced and unbalanced growth into a single instrument of economic development analysis. Before stating the conclusions of this study, a brief summary of the findings appears to be appropriate.

The above stated first objective of this study was fulfilled with some surprising results. First it was discovered after close

examination of the concepts of balanced and unbalanced growth that there are, in fact, several separate concepts. This is particularly true of balanced growth. Each of these different expositions of balanced and unbalanced growth was discovered to be founded on some particular type of pecuniary external economy. In fact the concept of pecuniary external economies itself was discovered to be developed by and large in the debate over balanced and unbalanced growth. This study has suggested that the development of this concept is one of the major contributions of that debate.

To summarize the discussion of balanced growth it is necessary to recall that there are actually three basic types of balanced growth; balance in supply, balance in demand, and sectoral balance. Balance in supply was developed primarily by Rosenstein-Rodan. This particular analysis was directed at a basic inelasticity of capital supplies which is alleged to be common to most underdeveloped nations. The solution to this problem is seen as a simultaneous expansion of several vertically related industries at one time. Such an expansion would enable the economy to exploit potential vertical transmissions of pecuniary external economies. In this way the basic problem of supply inelasticity might be alleviated.

Balance in demand was developed primarily by Ragnar Nurkse. This analysis was directed specifically at the problem of limited market size and lack of investment incentives in underdeveloped economies. The solution to this problem is seen as a simultaneous expansion of several consumers goods industries at one time in a way which is consistent with consumer's tastes. Such an expansion should enable the underdeveloped economy to exploit potential horizontal transmissions of pecuniary external economies which in turn should result in increased incentives to private investors.

Sectoral balance represents specific applications of balance in supply, balance in demand, or both to specific sectors of the economy. This analysis has been used to emphasize the need for balance between the agricultural-industrial sectors, the domestic-foreign sectors, the public-private sectors, or any combination of the above even to the inclusion of all sectors. Whenever a discussion of sectoral balance appears in development literature it may be reduced to a need for balance in supply (vertical balance) and/or balance in demand (horizontal balance). At the same time any plea for sectoral balance can be regarded as a plea for a specific transmission of external economies between particular

sectors of the economy.

Although there have been many attempts to discredit the concept of balanced growth and to establish instead a concept of unbalanced growth, one appears to stand out over all the others. That is Albert O. Hirschman's concept of unbalanced growth. Hirschman's analysis was directed to another problem--the lack of entrepreneurial talent in an underdeveloped economy. The solution to this problem is seen as a system of judicious unbalancing with emphasis on those sectors or industries which promise the greatest vertical transmission of external economies (linkages). In this way there can be a strategic transmission of "inducements" which will make investment decisions obvious and easy to take. The result of this activity will be to alleviate the basic shortage of entrepreneurial talent.

In pursuit of the second objective of this study it was discovered that the concept of pecuniary external economies has some significance in all phases of the controversy. Every separate argument for either balanced or unbalanced growth may be reduced to a specific plea for the propagation of pecuniary external economies. Emphasis may be placed on vertical transmissions as in the case of balance in supply and Hirschman's concept of unbalanced growth

or horizontal transmissions as in the case of balance in demand but in any case the key is an effective transmission of some type of external economy. It should be remembered, however, that the concept of pecuniary external economies is an independent concept. Even though it is basic to and was developed in the balanced versus unbalanced growth controversy it is not limited to this controversy in its application.

The third objective of this controversy was also completed with surprising results. In analyzing the principal points of debate in the controversy over balanced and unbalanced growth it soon became apparent that the debate was marked with a great deal of confusion which in turn resulted in a basic misinterpretation of the several theories of balanced and unbalanced growth. This confusion was due in part to a lack of consistency in the use of terms such as "balance" and "growth." There seems to have been some wide divergence in the meaning which was attached to these terms by the several discussants. There also seems to have been some confusion concerning the basic assumptions under which the theories were presented. Two notable examples were assumptions concerning the availability of factor supplies and the specific problems to which the analysis was devoted. As a consequence of

this confusion, there was a great deal of controversy over the impact of external economies or diseconomies, the role of the central government, and the general applicability of any one analysis.

Part of the responsibility for this confusion should rest with the advocates of balanced growth for not having stated their cases clearly and completely. On the other hand the critics of balanced growth have also contributed to this confusion. It seems as though they did not give much consideration to the evidence which was presented by the advocates of balanced growth concerning these controversial points. The result of all this was the propagation of a lengthy debate over balance or unbalance as a generalized method of development with little consideration given to the important question of the meaning and significance of pecuniary external economies in economic development.

The problem of reconciling this controversy, which was the fourth objective of this study, did not prove to be difficult once it was established that each of the three alternatives is a special plea for a particular type of pecuniary external economy as a solution to a particular type of economic development problem. It has been suggested in this study that balance in supply, balance in demand,

and unbalanced growth are all directed at different problems even though it might appear that they are directed at the same problem. Balance in supply is a special plea for vertical transmissions of pecuniary external economies as a solution to the problem of limited factor supplies. Balance in demand is a specific plea for horizontal transmissions of pecuniary external economies as a solution to the problem of limited market size and the lack of investment incentives derived therefrom. Unbalanced growth is a specific plea for maximum vertical transmissions of pecuniary external economies as a way of providing inducements with which to overcome the problem of scarce entrepreneurial talent. The debate might better have been over the relative importance of the several different problems of development rather than the proposed solutions to those problems.

In addition to the fact that all three approaches are directed at different problems, they are also founded on different assumptions. This is particularly true of the assumption of capital supply. Nurkse assumed that capital supply was essentially unlimited. Rosenstein-Rodan assumed that capital supplies were potentially elastic but that they required the inducements of vertical transmissions of pecuniary external economics in order to exploit that potentiality.

Hirschman felt that inelasticity of capital supply was merely a manifestation of the more fundamental problem of limited entrepreneurial talent. At any rate, the relative significance of the three theories would seem to depend to a great extent upon the relative significance of the three assumptions.

After all this is understood it is no longer necessary to accept the contemporary interpretation that the theories of balanced and unbalanced growth are irreconcilable general theories of economic development. Rather one might think of them as basically complementary partial explanations of some causes of and solutions to economic development problems. They might better be reduced to specific theories of the application of pecuniary external economies to specific problems in the process of economic development.

The process of economic development should be characterized by different dominant problems at different stages of economic development. Consequently, the various concepts of external economies should take on different relative degrees of importance at different stages. However, it should be remembered that in every stage of development the various kinds of externalities can be highly complementary to one another. It should also be

remembered that any failure to cultivate a particular type of external economy might present itself as a strategic bottleneck in the process of development. Consequently, the best development program might be one which encourages the maximum propagation of all three types of pecuniary external economies even though some will be more important than others depending upon the particular stage of development and the relative importance of the various problems of development at that stage.

The primary conclusion of this study is that the subject of balanced versus unbalanced growth might best be considered a closed issue. The time and energy which is being dedicated to this controversy might better be redirected towards an understanding of the importance of pecuniary external economies in economic development. There seems to be a great deal of room for investigating the particular problems which might be classified as failure to exploit pecuniary external economies and the specific steps which could be taken to alleviate these problems. To this end it would seem appropriate to dedicate more time and energy to such studies as those which have been implemented by H. B. Chenery and his co-authors.¹ Since pecuniary external economies have been

¹See Chapter II, p. 31, footnote 1.

demonstrated to be at least potentially measurable, more time and energy could be spent in developing methods for this measurement. When these problems are solved, it should be even more possible to use the concepts of pecuniary external economies as effective tools in economic development programming.

BIBLIOGRAPHY

Books

- Abramovitz, Moses, and others. The Allocation of Economic Resources. Stanford: Stanford University Press, 1959.
- Argarwala, A. N. and S. P. Singh. The Economics of Underdevelopment: A Book of Readings. New York: Oxford University Press, 1958.
- Baran, Paul. The Political Economy of Growth. New York: Monthly Review Press, 1967.
- Belassa, Bela. The Theory of Economic Integration. Homewood, Illinois: Richard D. Irwin Inc., 1961.
- Boeke, J. H., Economics and Economic Policy of Dual Societies. New York: Institute of Pacific Relations, 1953.
- Blaug, M. Economic Theory in Retrospect. Homewood, Illinois: Richard D. Irwin Inc., 1962.
- Bornstein, Morris, Editor. Comparative Economic Systems: Models and Cases. Homewood, Illinois: Richard D. Irwin Inc., 1965.
- Ellis, Howard S. Economic Development for Latin America. London: Macmillan and Co. Ltd., 1961.
- Enke, Stephen. Economics for Development. Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1963.
- Higgins, Benjamin. Economic Development: Principles, Problems and Policies. New York: W. W. Norton and Company Inc., 1959.

- Hirschman, Albert O. The Strategy of Economic Development. New Haven, Conn.: Yale University Press, 1961.
- Kindleberger, Charles P. Economic Development. New York: McGraw-Hill, 1958.
- Leibenstein, Harvey. Economic Backwardness and Economic Growth. New York: John Wiley and Sons, Inc., 1957.
- Lewis, W. Arthur. The Theory of Economic Development. Homewood, Illinois: Richard D. Irwin, Inc., 1955.
- Marshall, Alfred. Principles of Economics, Eighth Edition, London: Macmillan and Co., Ltd., 1964.
- Meier, Gerald M. Leading Issues in Development Economics. New York: Oxford University Press, 1964.
- Meier, Gerald M. and Robert E. Baldwin. Economic Development: Theory, History, Policy. New York: John Wiley and Sons, Inc., 1957.
- Meier, Richard L. Development Planning. New York: McGraw-Hill, 1965.
- Mishan, E. J. Welfare Economics. New York: Random-House, 1964.
- Nelson, Eastin. Economic Growth: Rationale, Problems, Cases. Austin, Texas: University of Texas Press, 1960.
- Nurkse, Ragnar. Equilibrium and Growth in the World Economy. Cambridge, Mass.: Harvard University Press, 1961.
- Nurkse, Ragnar. Problems of Capital Formation in Underdeveloped Countries and Patterns of Trade and Development. New York: Oxford University Press, 1967.
- Pigou, A. C. The Economics of Welfare, Fourth Edition. London: Macmillan and Company, 1962.

- Rostow, W. W. The Stages of Economic Growth. Cambridge: Mass.: Cambridge University Press, 1960.
- Schumpeter, Joseph A. The Theory of Economic Development. New York: Oxford University Press, 1961.
- _____. History of Economic Analysis. New York: Oxford University Press, 1954.
- Singer, H. W. International Development: Growth and Change. New York: McGraw-Hill, 1964.
- Stigler, George J. and Kenneth E. Boulding, Editors. American Economic Association, Readings in Price Theory, Volume VI. Homewood, Illinois: Richard D. Irwin, Inc., 1952.
- Supple, Barry E. The Experience of Economic Growth. New York: Random-House, 1963.
- United Nations, Department of Economic and Social Affairs. Process and Problems of Industrialization in Underdeveloped Countries. New York: United Nations, 1955.
- _____. Economic Commission for Europe, Economic Survey of Europe in 1955. Geneva: United Nations, 1956.
- _____. Technical Assistance Administration. Taxes and Fiscal Policy in Underdeveloped Countries. New York: United Nations, 1954.
- Vakil, C. N. and P. R. Brahmanand. Planning for an Expanding Economic Employment, and Technical Progress in Underdeveloped Countries. Bombay: Vora and Company, 1956.

Articles

- Adler, John H. "The Fiscal and Monetary Implementation of Development Programs," American Economic Association: Papers and Proceedings, Vol. 42 (May, 1952), pp. 548-560.

- Arndt, H. W. "External Economies in Economic Growth," Economic Record, Vol. 31 (November, 1955), pp. 192-214.
- Bator, F. "The Anatomy of Market Failure," Quarterly Journal of Economics, Vol. 72 (August, 1958), pp. 351-379.
- Blitz, Rudolph. "Discussion of Papers by J. R. T. Hughes and Gorin Ohlin on Balanced Growth in Economic History," American Economic Review: Papers and Proceedings, Vol. 19, (May, 1959), pp. 354-356.
- Buchanan, Norman S. "Deliberate Industrialization for Higher Incomes," Economic Journal, Vol. 56, (December, 1946), pp. 533-553.
- Chenery, H. B. "Comparative Advantage and Development Policy," Surveys of Economic Theory, Growth, and Development, Prepared for the American Economic Association and The Royal Economic Association, Volume II, Surveys V-VIII, London: Macmillan and Company, Limited, 1966.
- _____. "The Application of Investment Criteria," Quarterly Journal of Economics, Volume 67 (February, 1953), pp. 76-79.
- _____. "The Interdependence of Investment Decisions," The Allocation of Economic Resources, Edited by Abramovits and others, Stanford: Stanford University Press, 1959, pp. 82-120.
- _____. "The Role of Industrialization in Development Programs," American Economic Association: Papers and Proceedings, Volume 45 (May, 1955), pp. 40-57.
- _____. "Overcapacity and the Acceleration Principle," Econometrica, Volume 20, (January, 1952), pp. 1-28.
- Chenery, H. B. and Kenneth S. Kretschmer. "Resource Allocation for Economic Development," Econometrica, Vol. 24 (October, 1956), pp. 365-399.

- Chenery, H. B. and T. Watanabe. "International Comparisons of the Structure of Production," Econometrica, Volume 26 (October, 1958), pp. 487-521.
- Coase, R. H. "The Problem of Social Cost," The Journal of Law and Economics, Volume III, (October, 1960), pp. 1-44.
- Coleman, J. S. "The Possibility of a Social Welfare Function," American Economic Review, Volume 56 (December, 1966), pp. 1105-1122.
- Dagninopastore, Jose Maria. "Balanced Growth: An Interpretation," Oxford Economic Papers, Volume 15 (July, 1963), pp. 164-176.
- Domar, Evsey D. "Capital Expansion, Rate of Growth, and Employment," Econometrica, Volume 14 (April, 1946), pp. 137-147.
- Ellis, Howard S. and Fellner, William. "External Economies and Diseconomies," American Economic Review, Volume 33, (1943), pp. 493-511.
- Fleming, J. Marcus. "External Economies and the Doctrine of Balanced Growth," The Economic Journal, Volume 65 (June, 1955), pp. 241-256.
- _____. "Rejoinder to Professor Nurkse," Economic Journal, Volume 66 (September, 1956), pp. 537-539.
- Goode, Richard. "Adding to the Stock of Physical Human Capital," American Economic Association: Papers and Proceedings, Volume 49 (May, 1959), pp. 147-155.
- Harrod, R. F. "An Essay in Dynamic Theory," Economic Journal, Volume 49 (March, 1939), pp. 14-33.
- Hirschman, A. O. "Investment Criteria and Capital Intensity Once Again," Quarterly Journal of Economics, Volume 72 (August, 1958), pp. 469-471.

- Hughes, J. R. T. "Foreign Trade and Balanced Growth--The Historical Framework," American Economic Association: Papers and Proceedings, Volume 49 (May, 1959), pp. 330-337.
- Hunter, John M. "Economic Growth and Development; Discussion", American Economic Association: Papers and Proceedings, Volume 47 (May, 1957), pp. 57-66.
- Kahn, R. F. "Some Notes on Ideal Output," The Economic Journal, Volume 45 (March, 1935), pp. 1-35.
- _____. "The Relation of Home Investment to Unemployment," The Economic Journal, Volume XLI (June, 1931), pp. 173-198.
- Knight, F. H. "Some Fallacies in the Interpretation of Social Cost," Quarterly Journal of Economics, Volume XXXVIII (1924), pp. 582-606.
- Lipton, M. "Balanced and Unbalanced Growth in Underdeveloped Countries," The Economic Journal, Volume LXXII, (September, 1962), pp. 641-657.
- Meade, James E. "External Economies and Diseconomies in a Competitive Situation," The Economic Journal, Volume LXII, (March, 1952), pp. 54-67.
- Montias, J. M. "Balanced Growth and International Specialization; A Diagrammatic Analysis," Oxford Economic Papers, Volume 13, (June, 1961), pp. 203-220.
- Nath, S. K. "The Theory of Balanced Growth," Oxford Economic Papers, Volume 14, (June, 1963), pp. 138-153.
- Nurkse, Ragnar. "Balanced Growth on Static Assumptions," The Economic Journal, Volume LXVI (June, 1956), pp. 365-367.
- _____. "Some International Aspects of the Problem of Economic Development," American Economic Review, Volume 42, (May, 1952), pp. 571-583.

- _____. "The Problem of International Investment Today in Light of the Nineteenth Century Experience," Economic Journal, Volume 64 (December, 1954), pp. 744-758.
- Ohlin, Gorin. "Balanced Economic Growth in History," American Economic Association: Papers and Proceedings, Volume 49 (May, 1959), pp. 338-353.
- Paul, S. "Sectoral Allocation in Development Planning," Indian Economic Journal, Volume 8 (July, 1960), pp. 18-36.
- Rosenstein-Rodan, P. N. "Notes on the Theory of the Big Push," Economic Development for Latin America, Edited by H. S. Ellis, London: Macmillan and Co. Ltd., 1961, pp. 57-78.
- _____. "Problem of Industrialization of Eastern and South-Eastern Europe," The Economic Journal, Volume 53 (June-September, 1943), pp. 205-216.
- Rostow, W. W. "The Take-off into Self-sustained Growth," The Economic Journal, Volume 66 (March, 1956), pp. 25-48.
- Scitovsky, Tibor. "Growth--Balanced or Unbalanced," The Allocation of Economic Resources, Edited by M. Abromovitz et al., Stanford: Stanford University Press, 1959.
- _____. "Two Concepts of External Economies," The Journal of Political Economy, Volume 62 (April, 1954), pp. 143-151.
- Singer, Hans W. "Economic Progress in Underdeveloped Countries," Social Research, Volume 16 (March, 1949), pp. 1-11.
- Sheahan, John. "International Specialization and the Concept of Balanced Growth," Quarterly Journal of Economics, Volume 69 (May, 1955), pp. 183-197.

Solow, Robert M. and Paul A. Samuelson. "Balanced Growth under Constant Returns to Scale," Econometrica, Volume 21 (July, 1953), pp. 412-424.

Streeten, P. P. "Balanced Versus Unbalanced Growth," The Economic Weekly, Volume 15 (April 20, 1963), pp. 669-671.

_____. "Unbalanced Growth," Oxford Economic Papers, Volume 11, (June, 1959), pp. 167-191.

_____. "Unbalanced Growth; A Reply," Oxford Economic Papers, Volume 15, (March, 1963), pp. 66-73.

Viner, Jacob. "Cost Curves and Supply Curves," Zeitschrift Fur Nationalokonomie, Volume III (1931), pp. 23-46.

Young, Allen. "Increasing Returns and Economic Progress," Economic Journal, Volume 38 (December, 1928), pp. 527-542.