Alternative Theories of Growth and the Italian Case

Since the end of the Second World War the industrial countries have experienced an appreciable acceleration in their economic growth, with a certain group of these countries having growth rates much higher than the others. Before this period, such pronounced differences in individual growth rates had not occurred (1); even the acceleration of the growth process was exceptional (2) and unforeseeable (3). Neither was it foreseen nor foreseeable that similar differences would arise, and then last so long.

In fact, growth rate differentials diminished during the sixties (4) and it is predicted that this convergence would continue (5). Now, at the end of 1969, it could well be maintained that a reexamination of the question of differences in the growth rates of the industrial countries has lost much of its significance, and that the whole problem may soon become less topical and pass into economic history.

* This paper has benefited from several extended discussions with Professor Giancarlo Mazzocchi. I am also indebted to Giancarlo Graziola and Pippo Ranci for many useful criticisms.

(1) For European experience in the 1913-1938 period, see: I. SVENNILSON, *Growth and Stagnation in the European Economy*, ECE, Geneva 1954.

(2) For example, for Italy, see: P. SARACENO, *Lo Stato e l'economia*, Edizioni Cinque Lune, Roma 1963, p. 13: "In the twelve years following 1950, national income per head increased at a rate that is almost seven times greater than the average of the ninety previous years". See also: G. FUÀ, *Notes on Italian Economic Growth 1861-1964*, Giuffrè, Milano 1965, pp. 12-13: "The only comparison with this rate... is to be found in the brief phase of extremely rapid growth from 1921 to 1925".

(3) The case of Great Britain is significant. See N. KALDOR, "The Quantitative Aspects of the Full Employment Problem in Britain", in W. H. BEVERIDGE, *Full Employment in a Free Society*, Allen and Unwin, London 1944, p. 399. Kaldor, in 1944, made an estimate of the growth in national income for the period 1948 to 1970, which was inferior to that effectively realized (he himself has recently judged this as having been too low: he did not foresee that other countries would develop more rapidly!).

(4) ECE, *Economic Survey of Europe in 1963*, Geneva 1964, Ch. II, p. 2.

(5) OCDE, *Croissance Economique 1960-1970*, Paris 1966.

It is still important, however, to clarify at least two problems. Firstly, was the disparity temporary or were there causal factors which could reproduce or perpetuate it? Some economists have maintained that this disparity was temporary by its nature because the acceleration in the growth rate was found to have been greater for those countries whose growth had been retarded in the past (6). This thesis has not found much support, because of insufficient evidence and because more complex reasons also needed to be considered (7). In the second place, it is necessary to decide whether the recent reduction in growth differentials has come about as a result of "natural" factors or of deliberate interventions of economic policy.

An answer to these two questions is required for an understanding of the future, but this would obviously demand a complete reexamination and an explanation of the causes of past disparity. Interest in the problem certainly remains lively, which explains the recent publication of Denison's monumental work (8) on the causes of the differences in the growth rates in nine leading industrial countries, Italy among them, during the postwar period. Denison's analysis makes possible a systematic evaluation of the alternative interpretations (and they are by no means few!) made during the last few years of postwar growth in the industrial countries, and in Italy in particular. His work also suggests some interesting conclusions bearing on the theory of growth.

In the following brief survey the three most recent contributions to the discussion of growth rate differentials will be considered. All three, using different arguments, arrive at the conclusion that such a disparity should be considered as exceptional. In other words, they hold that the growth rates of the various countries should show a tendency to converge.

Some argue, on the one hand, that the highest growth rates have been reached thanks to a very elastic labour supply. This however would be a temporary factor, destined to disappear (either

(6) J. KNAPP-K. LOMAX, "Britain's Growth Performance: the Enigma of the 1950's" in *Lloyds Bank Review*, October 1964, pp. 1-24.

(7) ECE, *Some Factors in Economic Growth in Europe during the 1950s*, Geneva 1964, Ch. II, pp. 3-4.

(8) E. DENISON, *Why Growth Rates Differ, Postwar Experience in Nine Western Countries*, The Brookings Institution, Washington 1967.

because a *Turning Point* is reached — Kindleberger — or because the *Maturity* stage is arrived at — Kaldor).

On the other hand, it has been maintained that the highest growth rates attained in the postwar period can be explained as being due to exceptional opportunities for the reallocation of resources and economies of scale (Denison). Even these factors, which could be considered as characteristic of "intermediate" phases in the growth process, diminish and the convergence of growth rates in the various industrial countries is reached again.

This assumption of convergence (due to the progressive reduction of the elasticity of the labour supply, or to the movement towards phases of the growth process in which the sources with the highest growth potential lose importance) is somewhat dubious, for more than one reason.

It should be stressed that the effective growth rate depends on the rapidity with which the economic system is able to transform itself. The latter is obviously at a maximum level in an "intermediate" phase of the growth process when both elasticity of the labour supply and exceptional opportunities for the reallocation of resources and economies of scale are found together. It is also true, however, that the flexibility of an economic system may become accentuated by characteristics of the investment process and technical progress during this phase, which can lead to continuous transfers of resources from low productivity sectors to those with a high level of productivity. As long as this is the actual situation (as seems to be the case in Italy at present), high growth rates are found without the convergence assumption becoming fact.

In the long run, it is possible that the countries which today are fast growing will likewise reach a stage at which the sectors with a low productivity level (the tertiary sector) will begin to increase again, and there could be a decisive reduction in their growth rate. It is for this reason, more than for the effects of the elasticity of the labour supply, that the convergence of the growth rate assumption would appear to be confirmed.

« Growth » or « Development »?

Economic theory succeeds in explaining easily enough the differences between developed countries on the one hand and underdeveloped countries on the other. To the extent that it becomes

possible to distinguish one theory for the highly developed and another for the underdeveloped countries. In practice, when speaking of the former, reference is often made to the "Growth Theory", and when considering the latter to the "Theory of Development".

This is explicitly maintained by Hicks (9), when he says that *Growth Theory has nothing to do with "underdeveloped countries"*. This same distinction receives the approval of Hahn and Matthews in their survey — "Theory of Economic Growth" (10), where it is maintained also that in the case of dualistic economies, (economies where an advanced and a backward sector coexist), *the Growth Theory is applicable only to the advanced sector, whereas the problems of the backward sector must be regarded as part of the theory of development rather than the theory of growth* (11).

Kindleberger (12), reversing this line of thought, recently affirmed the necessity to explain the disparity between the growth rates of the developed European countries during the postwar period by adopting models originally formulated for the underdeveloped countries (13) and not by the "modern theory of growth": "The expansion of the 1950's has followed what W. Arthur Lewis calls the model of "Growth with unlimited supplies of labour". Lewis and others, such as Ragnar Nurkse and John Fei, have sought to apply the model to less developed countries. The model's most striking relevance, however, has been among the developed countries of Europe.

In applying the Lewis model to recent European experience, Kindleberger assumes a dualistic structure both for the group of countries under consideration and within each country. The essential characteristic here is an infinitely elastic supply of labour from the backward sector (or country) to the advanced sector (or country). Thus it has been possible to satisfy high demand in the capitalistic sector under stable conditions as long as an abundant

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(9) J. Hicks, *Capital and Growth*, Oxford University Press, Oxford 1965, pp. 3-4.

(10) F. H. Hann-R. C. O. Matthews, "The Theory of Economic Growth: A Survey" in *Economic Journal*, December 1964, p. 804.

(11) Hann-Matthews (ibid., p. 804) also note that Lewis' concept of unlimited supply of labour from a backward to an advanced sector links the theory of growth and the theory of development.

(12) C. P. Kindleberger, *Europe's Postwar Growth, The Role of Labor Supply*, Harvard University Press, Cambridge Mass. 1967.

(13) See: W. A. Lewis, "Economic Development with Unlimited Supplies of Labour", in *Manchester School of Economic and Social Studies*, May 1954, pp. 139-191.

labour reserve force existed. The most immediate consequence of this has been an exceptionally high growth rate ("supergrowth"). When labour reserves (both domestic and foreign) are used up, the advanced sector (or country) has approached a *turning point*, which initially took the form of a rapid fall in the elasticity of the labour supply, and subsequently led to a decline in the growth rate, to balance of payments difficulties, and to substantial modifications in the pattern of growth (14). When this *turning point* has been passed and a stage of "maturity" reached where a considerable absorption of labour is no longer possible the growth process tends to be unstable, and "supergrowth" becomes impossible, given the rigidity on the supply side.

Kaldor, too, has recently used partly analogous concepts to explain the causes of slow growth in Britain after the war (15). He does not consider the problem of dualism, but *seeks to explain the recorded differences in growth rates in terms of the stage of economic development attained by different countries.*

According to his theory, rapid economic growth is a result of growth in productivity connected with an increase of manufacturing production, which expands only if employment in the manufacturing sector rises. *This is an attribute of an intermediate stage of economic development: it is the characteristic of the transition from "immaturity" to "maturity".* The rate of growth therefore slows down when the economy reaches the stage at which this rise in employment is no longer possible: *all countries will experience a slowdown in their growth rates as their agricultural labour reserves become exhausted. It is the existence of an elastic supply curve of labour to the secondary and tertiary sectors which is the main precondition of a fast rate of development.*

The difference between Great Britain's growth rate and the higher levels attained by other industrial countries is explained by

(14) About "turning point" see W. A. Lewis, "Unlimited Labour: Further Notes", in *Manchester School of Economic and Social Studies*, January 1958, pp. 19-29. See also: J. C. H. Fei-G. Ranis, *Development of the Labor Surplus Economy, Theory and Policy*, Irwin, Homewood Ill. 1964, Ch. VII. Strictly, the turning point should refer only to the transition from underdeveloped countries to developed countries. Substantial modifications in the growth process of developed countries have been named by Hicks "*Traverse*" (*op. cit.*, Ch. XVI). It remains to be decided whether in the case of the industrial countries considered by Kindleberger there was a true "turning point" or, rather, a "traverse".

(15) N. Kaldor, *Causes of the Slow Rate of Economic Growth of the United Kingdom*, Cambridge University Press, Cambridge 1966.

the fact that Great Britain has reached — in advance of other countries —, the "maturity" stage that is to say, an intersectoral level of real individual income *at which industry can no longer attract the labour it needs by drawing on the labour reserves of other sectors*, whereas other industrial countries are still at an intermediate stage of economic development.

There is obviously a notable analogy between Kindleberger's interpretation and that of Kaldor (16). Kindleberger has recourse to the Lewis model of the infinite elasticity of the labour supply to support the theory that only the latter permits *supergrowth*; Kaldor lays stress on the stages of economic development to draw the conclusion that *supergrowth* is associated with the intermediate stage (in which labour reserves are still available). More or less explicitly, both Kaldor and Kindleberger go back to the theories that explain the evolution of countries from an underdeveloped to a developed state, in order to maintain that the same models can be applied to explain growth differentials among advanced countries.

Lewis underlines, as does Rostow (17), the transformations which accompany the beginning of development (it is with these two that Kindleberger and Kaldor associate themselves more explicitly): "leading sectors" emerge and expand, absorbing resources from those which are more backward, "pulling" development in a dualistic way. Both Lewis and Rostow underline the transformations occurring during two particular phases ("take-off" and "turning point") which mark the transition to a different kind of economic development.

Given the diversity of the problems under consideration, Lewis and Kindleberger naturally differ in the emphasis they place on certain factors. Lewis was interested in explaining how a growth mechanism based on the accumulation of capital works — given an acceleration of demand in various sectors — when there is an

(16) Kindleberger maintains that once the excessive supply of labour is exhausted, all countries have a tendency to converge towards normal growth rates: supergrowth ends, hence the differences in growth rates. Kaldor, instead, maintains that differences in productivity can perpetuate the disparity in growth rates, and indicates the necessity for policies to stimulate growth in countries that are growing slowly, like England.

(17) W. W. Rostow, *The Stages of Economic Growth*, Cambridge University Press, Cambridge 1960.

infinitely elastic supply of labour (18). Kindleberger and Kaldor, on the other hand, assume a high level of demand in the industrial countries considered, and aim at explaining the differentials between growth rates by the differences in the elasticity of the labour supply. The analogy would seem to be complete in the sense that in both cases only *unlimited supplies of labour* permit "super-growth" (even though this represents, for Kindleberger, a *phase* in the expansion of a developed country, and is characteristic, for Kaldor, of an *intermediate* stage in the growth process).

In conclusion, Kindleberger and Kaldor attempt to explain together not only what distinguishes underdeveloped from developed countries, but also what is responsible for the different growth rates of the developed countries. This implies a single general theory of growth, founded outright on one crucial factor — elasticity of the labour supply.

Is there a General Theory of Growth?

The very possibility of a "general" theory of economic growth, however, has been disputed, on the grounds that it cannot even be applied to the developed countries alone. Kuznets observed that there is an enormous variety of different growth processes in the world, for which reason whether formulating or evaluating theoretical assumptions as to economic growth, any attempt to go beyond mere "lists" of factors would have to be made bearing well in mind the characteristics of countries and of the periods relating to the growth processes it is intended to explain (19). Others, as for example Åkerman (20), hold that a "general" theory of economic growth is not even conceivable, since there must be growth analyses strictly linked to the institutional and structural environment of the countries under consideration (analyses that are bound to be "specific" theories), in order to pin-point

(18) Naturally, Lewis ruled out that this assumption could be valid for Great Britain and North-West Europe, while he considered it as valid for countries like Egypt, India and Jamaica (*op. cit.*, 1954, p. 140).

(19) S. Kuznets', "Comment to M. Abramovitz, Economics of Growth", in B.F. Hailey, ed., *A Survey of Contemporary Economics*, vol. II, Irwin, Homewood Ill., 1952, pp. 178-180. See also: S. Kuznets, *Six Lectures on Economic Growth* (Lecture VI), Glencoe, Ill., 1959.

(20) J. Åkerman, "Une théorie générale du développement économique est-elle concevable?", in *Economie Appliquée*, January-June 1959, pp. 235-252.

the individual factors that promote structural changes, within the limits set in each country by the existing institutional system. Still more recently, Spaventa (21) has underlined the need for an historically eligible theory which would emphasize the difference between the assumptions that should be valid for countries in the first, intermediate or advanced phases of the growth process. For countries in differing situations, the development process would progress in different ways.

In this perspective, it is understandable that the so-called "general" theories, when applied to groups of different countries, must be strained to the utmost or must allow exceptions, or else end with the conclusion that — in the words of Chenery (22) — "while the analysis has focused on the similarities in the pattern of growth, it has also revealed the substantial variation that exists and the need to separate particular from universal factors".

These limits are naturally also present in the case of Kaldor's and Kindleberger's analyses. The former does not seem to allow exceptions, partly because he considers that the so-called "Verdoorn's law" on which he bases his theory is necessarily of general validity. Doubts, however, can be thrown on the same "law", for more than one reason (23). Kindleberger, instead, admits that he may have forced his conclusions (24); here, however, doubts can be cast also on the parts of his analysis where he maintains that the Lewis model applies "magnificently" (25).

Denison's recent work contains substantial differentiations with respect to these analyses. He does not seem to believe in a "general" theory of growth, but rather affirms that "there are many sources of growth and these vary greatly in importance from time to time and from place to place" (26). If we accept this

(21) L. Spaventa, *Nuovi problemi di sviluppo economico*, Boringhieri, Torino 1962, pp. 13-30.

(22) H. B. Chenery, "Patterns of Industrial Growth", in *American Economic Review*, September 1960, p. 651.

(23) See my "Sviluppo della produttività e 'legge di Verdoorn' nell'economia italiana", in *Moneta e Credito*, September 1968, pp. 326-343.

(24) He not only admits specific exceptions (as in the case of Germany, where the Lewis model would be applicable only until the *turning point*), but concedes that "other instances where the data do not conform to the model may have been glossed over somewhat in the enthusiasm of pointing out the strengths of the model" (*op. cit.*, p. 1).

(25) See my "Offerta di lavoro e sviluppo economico", in *Rivista Internazionale di Scienze Sociali*, July-August 1968, pp. 407-413.

(26) E. Denison, *op. cit.*, p. 5.

position, it becomes clear that an economic growth theory cannot claim that the same causal factors must be equally valid for all countries, but must stress the differences between the various countries in terms of "sources of growth" and seek to interpret the origins and causes of their variations.

A possible interpretation along these lines should demonstrate first of all that individual causal factors of the growth process change as an economic system gradually grows to "maturity".

It is in fact generally true that economic growth is explained by these factors: abundant resources (in the first place, high elasticity of labour supply); capital accumulation; more efficient allocation of resources (transformations of the productive structure and redistribution of resources among the different sectors); widening of the size of the market (economies of scale); qualitative improvements of resources (new knowledge and applications of higher technologies with respect to natural resources, and education in the use of human resources). During the various phases of the growth process these factors may nevertheless have a diverse role, some being necessary or sufficient to start off the growth process, others (or diverse combinations of them) being needed to ensure that growth proceeds at an accelerated pace, and yet others being necessary to promote continued growth even in an advanced phase. In each phase an individual factor may hold a dominant position and sustain the growth process. There may however be a gradual, continuous, shift from some to others: as the growth process advances, one factor can lose its importance and another or others take its place.

It ought to be necessary to define which of the principal factors listed above perform a decisive role in the different countries, during the various phases of their growth process. And as each factor's contribution to the growth process also depends on the interaction between that factor and the others, the way in which this interaction changes from country to country and period to period should be indicated.

Clearly, it will not be possible to explain differences in the growth rates for all the industrial countries — with all the evident differences between them due to historical conditions of development — by simply having recourse to a single factor. This is also confirmed by the limits of the two opposing theories which aim at explaining both the causes of *supergrowth* and the causes of

normal growth, in a uniform way: for if Kindleberger's theory is not satisfactory, neither does the equally well-known theory of Beckerman (27), which is weighted on the side of *demand*, satisfy entirely. Objections can be made to both theories (28). And it is evident that both the partial explanations must be taken into account when considering the classic case of the British economy, that is, the demand factors and the supply factors must both be examined (29). If the differences in growth rates are not dependent on a single factor, nor on the demand factors rather than on the supply factors, it is by no means certain that those differences between growth rates must necessarily disappear. Rather, it is more relevant to know whether the countries that have recently achieved the fastest growth were in a phase in which they could make use of decisive factors with a higher growth potential, or what interaction between these same factors led to a higher growth rate for these countries.

Why Growth Rates Differ: Fast-Growers and Slow-Growers

Following the foregoing interpretation, let us compare the countries that have recorded the highest growth rates with those which experienced a slower growth rate, making use of Denison's estimates on the "sources of growth". After this, Denison's method of analysis will be discussed and its limits made clear.

In Table I the percentage contributions of the various sources to the *growth of adjusted* (30) *national income per person employed* in the period 1950-62 and in the shorter, more recent period 1955-62 are shown. The five countries considered, (Italy, France, Germany,

(27) See W. Beckerman, "Projecting Europe's Growth", in *Economic Journal*, December 1962, pp. 912-925. A *refined* version of that model is to be found in W. Beckerman et al., *The British Economy in 1975*, Cambridge University Press, Cambridge 1965.

(28) As regards Beckerman's analysis, one should refer to the long polemic between Beckerman and Balassa (*Economic Journal*, December 1963, March and September 1964). Balassa maintained that the Beckerman model ignores the possible limits to the "virtuous circle" given by the rigidity in the labour supply.

(29) See my "Instabilità e sviluppo in un'economia 'matura'", in *Rivista Internazionale di Scienze Sociali*, September-October 1967, pp. 449-471.

(30) "Adjusted" means that growth rates have been corrected by the distorsions caused by irregular factors in agricultural production (bad weather, etc.) and by differences in the pressure of aggregate demand (for their effects on the intensity with which resources employed are utilized). See E. Denison, *op. cit.*, ch. XIX.

TABLE I

PERCENTAGE DISTRIBUTION OF GROWTH RATES OF ADJUSTED NATIONAL INCOME PER PERSON EMPLOYED AMONG THE SOURCES OF GROWTH IN SELECTED WESTERN COUNTRIES, 1950-62

	Italy	Germany	France	G.B.	U.S.A.
(A) 1950-62					
Adjusted Growth Rates	5.35	5.15	4.58	1.72	2.19
In percentages:					
Total	100	100	100	100	100
Total factor input	20	14	25	26	36
Labour	10	— 2	8	6	10
Capital	11	18	16	21	27
Land	— 1	— 2	0	— 1	— 1
Output per unit of input	80	86 (*)	75	74	63
Advances of knowledge	14	15	17	44	34
Application of lagged knowledge	16	16	16	2	—
Improved allocation of resources	27	19	21	7	13
Economies of scale	23	31	22	21	16
(B) 1955-62					
Adjusted Growth Rates	5.49	3.81	4.70	2.08	2.07
In percentages:					
Total	100	100	100	100	100
Total factor input	22	25	25	33	37
Labour	9	— 5	7	— 1	12
Capital	13	32	17	34	27
Land	0	— 2	0	0	— 1
Output per unit of input	78	75	75	67	63
Advances of knowledge	14	20	16	36	36
Application of lagged knowledge	10	3	17	5	—
Improved allocation of resources	29	20	21	5	12
Economies of scale	26	33	21	21	14

(*) An additional 5 per cent of German growth was contributed by the *balancing* of the capital stock (for the *1950-55* period).

Source: E. DENISON, *op. cit.*, ch. XXI.

Great Britain and the United States), are those which have had, respectively, the highest and the lowest growth rates among the nine industrial countries considered by Denison.

An examination of the data of Table I shows some significant regularities [Denison (31), though observing that *differences in growth rates have no simple general explanation*, notes that *some important general observations emerge*].

By analysing the differences shown by growth rates — in terms of the "weight" of the individual decisive factors — in the various countries during the two periods, it is possible to note that, as a rule, growth is faster in the countries where the percentage role of "output per unit of input" in relation to "total factor input" is also greater. But it is also interesting to observe that in more recent years the importance of the first group of factors ("output per unit of input") has diminished.

Moreover, it may be observed that in the countries registering a lower growth rate, capital had a dominant role; this fact has become further accentuated during more recent years. The contribution of capital has been proportionately less in countries with a more rapid growth rate. Even for such countries, however, the role of capital has increased in importance during more recent years.

For one factor — advances of knowledge — there is a completely negative correlation with the growth rate. That is to say, this factor has apparently been of outstanding importance for slowly growing countries and of minimum importance for countries registering the highest growth rates. This would be an interesting observation were it not directly derived, as will be seen later, from the same assumptions of Denison.

As far as Italy is concerned, it is evident that the "improved allocation of resources" factor is of outstanding importance (this was even more the case in recent years), together with "economies of scale" (also of increasing importance in more recent years). Considering, finally, the total period, the "application of lagged knowledge" (which in Denison's calculations represents a "residual" element which comprises everything left unexplained) would weight about as much as "advances of knowledge".

(31) *Ibid.*, p. 319.

From these first observations it is already possible to single out some connection between total growth achieved and the percentage role of the various "sources of growth". But to explain the causes of the differentials in the growth rates of these countries it is necessary to look farther. It is not enough to point out that the countries which have shown the highest growth rates have been those in which a certain factor turned out to have had a dominant role: the absolute weight of that factor in the various countries, its interaction with other factors, the reasons why such a factor could perform a dominant role in a certain country at a certain time, and the kind of causal relationship that links that factor to the growth rate remain to be known.

A Suggested Interpretation: Growth as a Transformation

In connection with this, diverse interpretations are possible, and here we shall try to clarify only their main aspects. In the first place, it is possible to maintain that some factors have a greater growth potential than others. Denison's estimates show that countries with higher growth rates did not achieve this through a faster growth of capital and labour, but through a better application of knowledge, reallocation of resources and economies of scale.

It is possible to go farther and maintain, for instance, that the reallocation of resources (which, for Denison, means a decrease in the employment of resources in agriculture, a reduction in non-dependent employment in the non-agricultural sectors, and a lessening of obstacles to international trade) has led to a growth rate higher than that produced by the application of new knowledge; that economies of scale (which, for Denison, result from expansion of the national market, independent expansion of local markets, and income elasticity of demand) have resulted in a more rapid growth than the employment of a larger amount of capital, and so on.

However, two problems need to be considered. Are there always some factors which have a greater growth potential than others, or is this only temporary and bound to fade, depending on the evolution of the growth process in each country? In the second place, can it be maintained that those diverse factors have a different growth potential, or is it not rather true that they have made a greater contribution in the countries where they have been sustained by appropriate economic policies?

Unfortunately, Denison's data do not enable an exhaustive answer to be given to these two questions (partly because of the way in which they have been calculated). Some approximate indications may however be derived from his data.

First of all, it does not seem that one can maintain that some factors *always* lead to a higher growth rate than others. It is useful to consider the effective growth rate attributed to the various factors. If Italy and Great Britain (the two countries presenting the greatest disparity as far as the growth rate achieved is concerned) are compared, it appears that some factors would have produced an equal growth rate for both countries recently. During the 1955-62 period, the total of "capital" and "application of new knowledge" gives an almost equal growth rate for both: 1.49 for Italy and 1.46 for Great Britain. Nevertheless, these two factors represent only 27 per cent of the Italian growth rate, but 70 per cent of that of Great Britain. In other words, these two factors together, to which the main role in the development of mature countries is normally attributed, do not explain the appreciable differences between countries growing rapidly and those growing slowly. Italy's growth rate is higher than that of Great Britain because of the diverse contribution made by the other factors: in particular, the "reallocation of resources" and "economies of scale" give an annual growth rate of 3.02 in Italy compared with 0.54 in Great Britain (viz. they explain the major part of the differential).

It is not however true that the reallocation of resources always gives a higher growth rate than the growth of capital; nor is it true that all the factors have led to a higher rate of growth in Italy than in Great Britain. During the period 1955-62, the "capital" factor gave rise in Great Britain to an annual growth rate of 0.71 and the reallocation of resources to one of only 0.11, whereas in Italy the corresponding estimates are respectively 0.73 and 1.60.

In the second place, a significant connection can be observed, for all five countries under consideration, between growth rate and the contribution made by the two factors *reallocation of resources* and *economies of scale*.

If a sum of the growth rates given by these two factors is made for the whole period 1950-62, a perfectly positive correlation with the total growth rate can be noted (see Table II). The high growth

rates of some countries are therefore the result of the major role played by these two factors. This is true in both an absolute and a relative sense, because the two factors have led to an annual growth rate of 2.64 for Italy, for example, and of 0.48 for Great Britain (the two countries showing the greatest differences between them). In the case of Italy, however, they represented almost half of the total growth rate and less than a third in the case of Great Britain.

TABLE II

GROWTH RATES OF ADJUSTED NATIONAL INCOME PER PERSON EMPLOYED AND THE CONTRIBUTION OF IMPROVED ALLOCATION OF RESOURCES AND ECONOMIES OF SCALE, 1950-62

	Growth Rates	Contribution of the Improved allocation of resources and Economies of scale
Italy	5.35	2.64
Germany	5.15	2.59
France	4.58	1.95
U.S.A.	2.19	0.65
G.B.	1.72	0.48

Source: see Table I.

Moreover, if these data are compared with the data relating to more recent years (1955-62), it can be seen that where the growth rate resulting from the two factors has diminished (in Germany and the United States), the overall growth rate has likewise diminished, while the increase in the growth rate (in Italy, France and Great Britain) is associated with a higher growth due to those very two factors.

Denison noted the important part that the opportunities for a reallocation of resources played in the countries that have shown the highest growth rates, though he does not find in this a source from which to draw conclusions at a theoretic level (32).

Proceeding with Denison's conclusions, it could however be maintained that if some factors have led to higher growth rates than others, this was related to the particular phases of growth that the country was then experiencing.

(32) *Ibid.*, pp. 319-326.

The contribution made by the various factors therefore differed according to which phase of the growth process each country happened to be in. This can lead back to a concept of the growth process as a "transformation" in two main senses: in the growth process there is a continuous "transformation" of the decisive factors, and the higher growth is derived from the same process of "transformation" of an economic system towards maturity.

In other words, the development of countries actually experiencing growth is dominated by the opportunities for reallocating resources, reducing the lag in applying new knowledge, and so on. As these countries develop, economies of scale become more and more important, as does the growth of capital and labour, until they reach the stage of "mature" countries in which the previous factors become less important and the growth of capital and the qualitative improvement of resources (new technical knowledge, more specialised labour, and so on) become dominant. Italy's remarkable growth rates thus seem typical of the "intermediate" phase (in a wider sense than that given it by Kaldor) in which the country has been during this post-war period.

Denison's estimates suggest this interpretation of the differences in the growth rates of industrial countries but leave many problems unsolved. For example, how much of the difference in the growth rates of two countries depends on the effective differences between the decisive factors of the respective stages and how much on the fact that one country has fully utilized its dominant factors and another has not? On the other hand, to what extent have differences in the investment structure, in the levels and rates of demand, in "competitiveness" and in the economic policies pursued affected the results? Denison gives no answer to these problems.

Causality and Interdependence

The considerations already put forward have been based on Denison's data; nevertheless his method of analysis may be criticized for more than one reason, and his estimates are partly rather rough and based on very restrictive assumptions (33).

(33) Denison himself is conscious of this when he affirms that "the particular numbers used in this analysis range from satisfactory estimates to guesses based only on general information or impressions" (*ibid.*, p. 296). In particular, the factor "changes in the lag in

As in one of his previous studies (34), Denison *adopts the conventional procedure of dividing the sources of growth among changes in "inputs", labour, capital and land used in production, and changes in output per unit of input* (*or "productivity"*). In other words, he defines "sources of growth" as *the changes that caused national income to increase from one date to another. These may be divided very broadly between changes in the resources used to produce the national product* (*changes in factor inputs*) *and changes that affect output per unit of input* (35).

Thus:

$$\Delta Y/Y = \Delta A/A + b\Delta L/L + (1\text{-}b)\Delta K/K,$$

where the growth rate of income (Y) results from the sum of the growth rates of labour (L) and capital (K), plus that part of growth (A) not explained by the growth of capital and labour.

Making a distinction between K and L on one side and A on the other, many studies of the production function (36) have found that changes in inputs explain the growth of output to only a very limited extent, the greater part of it being attributed to A (which is given various names: *residual, productivity, technical change, advance of knowledge, measure of our ignorance, etc.*).

The common tendency of all studies made over the last few years has been to explain the reasons for the marked importance of A,

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the application of knowledge" does not only represent the delayed utilization of already existing knowledge, but constitutes a "residual" of all unexplained elements, mistakes and omissions. The factor "advances of knowledge" is instead estimated only for the United States (always as a "residual", assuming that in that case there are no errors or omissions, or that at least they are offsetting) and it is then *assumed* to be the same for all the countries under consideration. One supposes, that is, that it doesn't come into the explanation of the disparity of growth rates, though this means that percentagewise the role of that factor may have been considerable for slow growing countries and minimum for countries with higher growth rates. As far as Italy is concerned, the estimates are very unsatisfactory (Denison himself admits that "both for statistical reasons and because the Italian economy is so different from the others, estimates for Italy are probably less reliable than the others", *ibid.*, p. 284). For example, as far as concerns the distribution of income in the case of Italy, "a guess was made that the labor share was 72.0 per cent in each period" (*ibid.*, p. 39). For a detailed examination of Denison's method, see A. P. Thirlwall, "Perché differenti tassi di sviluppo?", in *Moneta e Credito*, June 1969, pp. 226-240.

(34) E. Denison, *The Sources of Economic Growth in the United States and the Alternative Before Us*, Committee for Economic Development, New York 1962, p. 23.

(35) E. Denison, *Why Growth Rates Differ*, *op. cit.*, p. 7.

(36) See: R. Solow, "Technical Change and the Aggregate Production Function", in *Review of Economics and Statistics*, August 1957, pp. 312-320.

clarifying its causes, both by analysing its individual decisive factors and by reconnecting them more or less directly with the factors K and L (37). The most radical approach was that coherently pursued by Griliches and Jorgenson (38), who maintain that the residual should be minimized as a "measurement error", and completely explained by re-relating it to quantitative and qualitative variations of the inputs. They concluded that, "*if quantities of output and input are measured accurately, growth in total output is largely explained by growth in total input*" (39). In other words, the residual... disappears.

Even before reaching such radical conclusions, an attempt had been made to ascribe to K and L much of what had initially been attributed to A. This was made by incorporating technical progress with the new investments (embodiment and vintage models) (40); then, Denison devised analogous corrections for the labour factor (41). Contemporaneously others tried to separate A into several factors such as increasing returns and the effects of reallocation of resources (42).

In his most recent work, Denison carries these two approaches to extremes incorporating the effects of "quality changes" in the labour and capital factors and separating the remaining A into many single factors. In order to estimate the contribution of inputs, that is to determine the factor elasticities b and $(1-b)$ in the above equation, he assumes that income shares are a valid index. In other words, he accepts the marginal productivity theory, in which all the factors of production are remunerated in relation to their marginal products,

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(37) See: R. R. Nelson, "Aggregate Production Functions and Medium-Range Growth Projections", in *American Economic Review*, September 1964, pp. 575-606.

(38) See: Z. Griliches, "The Sources of Measured Productivity Growth: United States Agriculture, 1940-60", in *Journal of Political Economy*, August 1963, pp. 331-346; and D. W. Jorgenson-Z. Griliches, "The Explanation of Productivity Change", in *Review of Economic Studies*, July 1967, pp. 249-283.

(39) D. W. Jorgenson-Z. Griliches, *op. cit.*, p. 249.

(40) See: R. Solow, "Technical Progress, Capital Formation, and Economic Growth", in *American Economic Review*, May 1962, pp. 76-86.

(41) E. Denison, *The Sources...*, *op. cit.*, Chs. 5-9. Denison tends to minimize the importance of embodiment of technical progress in new capital goods. See also E. Denison, "The Unimportance of the Embodied Question", in *American Economic Review*, March 1964, pp. 90-94. He admits, however, that it can have greater effects in particular countries and periods and gives an estimate of it for four European countries for this postwar period. (*Why Growth Rates Differ*, *op. cit.*, pp. 144-174).

(42) For this last factor, see: B. F. Massell, "A disaggregated View of Technical Change", in *Journal of Political Economy*, December 1961, pp. 547-557.

and this allows him to measure the input elasticities of output with the respective factor shares.

This method, already used by Denison in his preceding analysis on growth, is however very unsatisfactory. The marginal productivity theory has been criticized for many reasons (43), but in the particular case in question its validity would become dependent on an excessive series of restrictive conditions (perfect competition, linear and homogeneous production functions, constant returns to scale, and so on).

Denison is conscious, to a certain extent, of these limitations, and in part he deliberately ignores them. He maintains for example that the economic systems considered are not too far removed from the conditions needed to validate the effects of the marginal productivity theory. Having already affirmed that that held good for the United States (44), he then tries to extend it to all the European countries under consideration: *on the average for all producing units, the tendency towards proportionality of factor prices and marginal products under conditions of reasonably high employment is sufficiently strong in the United States and, though perhaps weaker, in Western Europe for distributive shares to provide an adequate basis for analysis of the relative contributions of the various factors to growth* (45). There is, however, no verification of the validity of this assumption, also taking into account probable differences between the various countries over the periods of time considered in this context.

Further limitations to the reliability of Denison's estimates are revealed in the light of some of his hypotheses. For example, without assuming an optimal allocation of resources, he assumes that the effective allocation of resources maintains a constant relation to the optimal; and at the same time he considers any reduction of the difference between effective and optimal allocation as a distinct " source of growth " (46). All this can lead to an eventual bias in the

(43) See, for example, what Scitovsky maintains in his " Survey of Some Theories of Income Distribution ", in *The Behavior of Income Shares, Selected Theoretical and Empirical Issues*, N.B.E.R., Princeton University Press, Princeton 1964, pp. 15-51, and Denison's defence of it in his *Comment*.

(44) His basic assumption being " that the economy of the United States is not so different from this description as to invalidate the use of the average return per unit of each factor as a measure of its marginal value product ". (*The Sources..., op. cit.*, p. 31).

(45) E. Denison, *Why Growth Rates Differ*, *op. cit.*, p. 35.

(46) See: F. Vicarelli, " La funzione di produzione ad elasticità di sostituzione costante e la stima del tasso di progresso tecnico ", in *Rivista di Politica Economica*, July 1967, pp. 1001-2.

estimates, and also underlines that economic problems exist which Denison does not answer. Will growth be faster when there is an optimal allocation of resources or if the difference with respect to the optimum is reduced; will growth be faster when resources are fully employed or if existing unemployment is reduced?

The crucial element in Denison's analysis is, however, his assumption that the various sources of growth are independent of each other. Such an assumption is obviously too restrictive for a rigorous analysis of the very problem of growth. Unless each factor exactly incorporates all the direct and indirect effects which it has on the others (that is, unless their interdependence has already been measured within the compass of each factor), an explicit evaluation of the *interactions* among the various sources and thus of the *causal relationships* which connect them is necessary.

It is opportune to examine this problem briefly, taking into account other analyses made on the growth of industrial countries in the postwar period.

Denison limits himself to correcting the estimates of the quantitative increase of capital and labour by means of estimates of their qualitative changes. The embodiment of technical progress in new capital goods is definitely of crucial importance (47), but other indirect effects should be included when estimating the contribution of capital, viz. all those variations in productivity which would not have been possible in the absence of investment. This is no easy task as these interdependencies appear at all levels: expenditure on education leads to new discoveries; which in their turn lead to technical progress, which requires new investments; and again technical progress is linked to reallocation of resources, and so on. On the other hand, every new investment has a tendency to condition successive investments (49); besides, a certain rate of investment produces a given set of direct and indirect effects (for example, on the utilization of resources), which change with a different rate of investment.

These considerations are of great importance for this discussion. If all the components of A are in fact interrelated and have con-

(47) In relation to this, Denison's position is in open contrast with what is maintained by many other economists. See also M. Abramovitz, " Economic Growth in the United States ", in *American Economic Review*, September 1962, pp. 762-782.

(48) For this interaction, see M. Gort-R. Body, " Vintage Effects and the Time Path of Investment in Production Relations ", in M. Brown ed., *The Theory and Empirical Analysis of Production*, N.B.E.R., Columbia University Press, New York 1967, pp. 395-430.

nections with the growth of capital and labour, this interdependence may turn out to be different in different periods and countries. It is possible, for example, that the interaction between investment and technical progress in "mature" countries is found to be different from that in countries at the first stage of the growth process. Denison's assumption which considers the various factors as independent is thus tantamount to assuming that their interdependence, if not negligible, has anyhow been identical for all the countries considered and has not changed (at either a general level, or in any particular country) since the end of the war. These assumptions are clearly very restrictive and evade one of the most important problems, which ought to be explained if the causes of growth differences among the relevant countries are to be understood. And it would be even less realistic to project those estimates to foresee the future if relative relationships among the various factors can change.

Besides, the very interdependence of the various factors emphasizes the role of capital, which with Denison's method is of minimum significance, contrary to what is maintained in many analyses of the growth of the industrial countries in this postwar period, and more especially by Maddison and Lamfalussy.

Maddison (49) connects a high and steadily expanding level of aggregate demand with a high rate of investment, hence "the high rates of investment in the 1950's were a major factor responsible for the acceleration in European output and productivity". Though he admits the importance of another series of factors (reallocation of resources, a higher level of employment, and so on), Maddison evaluates them as having "once-for-all" effects and therefore considers that for the future as for the past the main element that explains any differences in growth rates will be the share of resources devoted to investment.

Lamfalussy (50), on the other hand, links investment, exports and productivity in such a way that a "vicious" or "virtuous" circle may result according to the intensity of the pressure of demand and the flexibility of supply. The rate of investment is important, but it is no longer the only determinant of the growth

(49) A. Maddison, *Economic Growth in the West, Comparative Experience in Europe and North America*, Allen and Unwin, London 1964, p. 94.

(50) A. Lamfalussy, *Investment and Growth in Mature Economies*, MacMillan, London 1961. Id., *The United Kingdom and the Six*, MacMillan, London 1963.

rate. This can be further extended since if it is true that investment does not signify only a higher level of demand and new productive capacity, it is also true that investment is necessary if all the other factors that increase productivity are to be realised. As Cornwall says: "capital formation is a necessary condition for obtaining the benefits of such things as improved education, economies of scale and the reallocation of labor" (51).

In addition to this, the investment that determines the effective degree of flexibility in the economy (in that it allows resources to be reallocated and directly leads to this by means of sectoral differences of technical progress) (52), does not necessarily have the same structure in the various countries. It has been observed that differences in investment structure, more than differences in the rates of investment, explain the divergence in growth rates (53). It is thus possible that variations in the composition of investment at the various stages of the growth process influence the growth rate without changing the share of resources devoted to investment (54).

However all this cannot be measured through the "factor shares" approach, and in point of fact Denison ignores it. In his analysis the "reallocation of resources" has the same role as already attributed to it by Maddison: a once-for-all factor. Considering, instead, all the effects — both direct and indirect — which capital has on the degree of flexibility of an economy, it becomes evident that investment reassumes a dominant role in a growth process characterized by the "rate of transfer of resources" (55), i.e. by a transformation that is essentially a "reallocation of resources".

The limitations of Denison's analysis emerge clearly when his estimates are compared with those made in other analyses of recent growth in the industrial countries. The role of investment and the related degree of flexibility in the economic system also depend on

(51) J. Cornwall, "Postwar Growth in Western Europe: A Reevaluation", in *Review of Economics and Statistics*, August 1968, p. 366.

(52) R. R. Nelson, *op. cit.*, p. 592.

(53) See: T. P. Hill, "Growth and Investment According to International Comparisons", in *Economic Journal*, June 1964, pp. 287-304.

(54) This aspect has not however been gone into deeply in the analysis of English postwar growth, emphasis being placed only on the acceleration of the rate of investment. See: R. C. O. Matthews "Why has Britain had Full Employment since the War", in *Economic Journal*, September 1968, pp. 555-569; also J. R. Sargent, "Recent Growth Experience in the Economy of the U. K.", in *Economic Journal*, March 1968, pp. 19-42.

(55) J. Cornwall, *op. cit.*, p. 366.

the different stages in the growth process and determine at the same time its rapidity of transformation, in other words, the growth rate. From this it follows that the differences in growth rates cannot be explained only by once-for-all factors; nor are these factors alone sufficient to enable a conclusion to be drawn about the early convergence of growth rates. This has been maintained by Denison and Kindleberger, but is not convincing. Denison (who, as previously said, develops his analysis from the point of view of supply, and does not distinguish analytically among the various countries, much as they differ, using a single interpretative model which he applies to all of them) judges the differences between postwar growth rates to be a temporary factor. Without any doubt the countries of Europe will not continue to have growth rates higher than those of the United States, once they have reached the latter's levels of per-capita national income! (56). The same conclusion was indicated by Kindleberger and for him, indeed, convergence should already have taken place: since there are no longer industrial countries with an unlimited labour supply all these countries should grow with a "normal" annual growth rate of from 2 to 4 per cent; supergrowth, with annual rates of from 6 to 8 per cent, ought by now to be only a memory.

From what has been said, it is however clear that economic growth cannot be characterized only by the elasticity of the labour supply. This is a decisive element in determining the degree of flexibility of an economic system, even though it is not sufficient to clarify the distinction that Kindleberger proposes between "exceptional" and "normal" growth: on the other hand, it has not been proved that the speed of the British economy's transformation has been appreciably checked by a labour scarcity, as Kaldor maintains (57). It is more necessary to evaluate the whole transformation process of the economy: to consider the "reallocation of resources" in a wider sense than that adopted by Denison, and to bear in mind the interaction between this and all the other factors.

(56) E. Denison, *Why Growth Rates Differ*, *op. cit.*, p. 344.

(57) On the contrary, it has been maintained that English growth has been curbed by "overmanning", and Denison himself seems to be in agreement (*Why Growth Rates Differ*, pp. 293-4). See also J. N. Wolfe, "Productivity and Growth in Manufacturing Industry: Some Reflections of Professor Kaldor's Inaugural Lecture", in *Economica*, May 1968, pp. 117-126.

In this connection, the hypothesis has been advanced that the individual causal factors are different during the various phases of the growth process, that is, they change gradually as a system becomes transformed and moves towards "maturity". From this it follows that the highest growth rates are realized when the transformation is most rapid. Thus, it could be concluded that the countries which registered the highest growth rates during the postwar period were still in an "intermediate" phase of that process, and that just because they were in that phase they enjoyed the factors with the greatest growth potential. It does not follow from this, however, that the difference in growth rates was wholly temporary (or had already disappeared, as Kindleberger says). Once emphasis is laid on flexibility and on the characteristics of transformation of the economic system, the assumption of the convergence of growth rates becomes weaker: it is possible that the differences between "vicious" and "virtuous" circle tend to perpetuate themselves.

In other words, the analyses that have been considered indicate that the divergence was initially due to temporary or exceptional factors. These factors then became less relevant, and the difference between growth rates was in fact reduced. But that very "supergrowth" can, in some countries, generate other causal factors and lead to a differential which thus tends to become permanent: in fact, the countries in an "intermediate" phase, though confronted by diminishing elasticity in the labour supply, have achieved an exceptional acceleration in the rate of increase of productivity, which can remain at levels higher than those of other countries. [Kaldor accepts this possibility, and actually underlines the need for *ad hoc* policies to raise the British growth rate.] Thus, in the very long run, there may be a tendency to convergence, but in the meantime the countries which have recently achieved the highest growth rates can continue to transfer resources to the high productivity sectors (58) to a greater extent than is possible for already mature countries, and so maintain higher growth rates.

(58) See: W. J. Baumol "Macroeconomics of unbalanced growth: the anatomy of urban crisis", in *American Economic Review*, June 1967, pp. 415-426, on the implications of a model with sectoral differences in the growth rates of productivity.

Alternative views on Italian Growth

The analyses of the differences in the growth rates of the industrial countries in the postwar period have reached different conclusions about "convergence" and "divergence", based also on their interpretation of recent Italian experience. It therefore seems opportune to contrast them with the many other *ad hoc* analyses of Italy's economic growth.

Studies made of factors relating to the increase in productivity for Italy alone have produced results which are partly similar to Denison's estimates (though the methods of analysis were diverse), above all with regard to the minimal weight given to the growth of capital and labour. But while Denison emphasizes the role of the reallocation of resources and economies of scale in the Italian context, the analyses mentioned above have found, in general, that the reallocation of resources has had little importance (59). The principal role should, instead, be attributed to increasing returns, together with technical progress in a narrow sense (60). Indeed, only the presence of increasing returns could have allowed the application of more advanced technologies, for which reason this factor is said to have conditioned the rate of technical progress as well.

According to a more precise estimate, the reallocation of resources to more productive uses (different within each sector or territory) could be responsible for 15 per cent of productivity increase, the rest being ascribable to qualitative improvements of resources and above all to increasing returns and technical progress (61).

These analyses do not give detailed estimates of each factor, as does Denison, as there is considered to be close interaction between them: increasing returns, technical progress and qualitative improvements of resources are held to represent "a totality not easily separable", regarding which only the (not very important)

(59) See: C. Sgorè, *Produttività e prezzi nel processo di sviluppo. L'esperienza italiana 1950-1957*, Giuffrè, Roma 1959, p. 37.

(60) See: P. N. Rosenstein Rodan, "Technical Progress and Post-War Rate of Growth in Italy", in *Il progresso tecnologico e la società italiana*, vol. I, Giuffrè, Milano 1962, pp. 162-163.

(61) G. De Meo, *Produttività e distribuzione del reddito in Italia nel periodo 1951-63*, ISTAT, Roma 1965. Substantially similar results were reached by A. Graziani, *Sviluppo del Mezzogiorno e produttività delle risorse*, Edizioni Scientifiche Italiane, Napoli 1964.

effects of reallocation of resources could be distinguished. This avoids the necessity of formalizing the interdependence relationships between the various factors. The problem remains, however, of connecting causal links, interpreting the conditions of the growth process and hence evaluating the factors (and combinations of these) which promoted it.

In this connection, it is interesting to recall that at the beginning of the last decade the dominant anxiety was about the backwardness of the Italian economy, the serious gap between North and South, and the apparently insoluble problem of unemployment. "An exceptional effort" was called for in order to sustain an annual growth rate of 5 per cent which would reduce unemployment and the difference between the North and the South (62). In the last few years, however, the interpretation has changed: the most recent analyses have ascertained that the 5 per cent growth rate has been, on average, easily passed, and it has been concluded that this was made possible by initial backwardness, dualism, and high unemployment.

Naturally, many analyses have emphasized the increase in demand (particularly for exports, deriving from increased competitiveness with respect to other countries) (63), in investment (64) and in technical progress; but it is significant that the positive role of these factors can be traced back to the existence of some indispensable conditions: a technological gap to fill, an elastic labour supply (65), and dualism (66).

These conditions, typical of Italian postwar development (because an acceleration in demand, in investment and in technical

(62) See: E. Vanoni, *Schema di sviluppo dell'occupazione e del reddito in Italia nel decennio 1955-1964*, Roma 1954.

(63) The Bank of Italy has laid particular emphasis on the interaction "competitiveness-exports-investment-productivity". See, for example, *Relazione 1964*, p. 480.

(64) Ackley's analysis is centred on the role of investment (without important limitations from the supply side). See his *Un modello econometrico dello sviluppo italiano nel dopoguerra*, Giuffrè, Roma 1963.

(65) As Lombardini says, some negative characteristics of the Italian economy (technological backwardness, large reserves of labour and disparities in the distribution of income) ended up by favouring rapid postwar expansion. See: *La Programmazione. Idee, esperienze, problemi*, Einaudi, Torino 1967, pp. 106-108.

(66) Dualism has not only not been reduced, but has been exploited for a more rapid growth. See G. Di Nardi, "Esperienze italiane di sviluppo economico", in *Bancaria*, January 1963, pp. 8-14. See also: H. B. Chenery, *Politiche di sviluppo per l'Italia meridionale*, Giuffrè, Roma 1962, p. 10.

progress has also been experienced by other countries which have nevertheless registered lower growth rates), have accentuated the degree of flexibility of the economic system and enabled a rapid process of transformation within the Italian economy to be achieved, that is, a high growth rate. These conditions, though typical of a stage in the growth process that is still far away from "maturity", in Kaldor's sense, do not seem wholly temporary, and certainly they have not yet disappeared.

This is undoubtedly true of Italian dualism, whose role in the process of postwar development is more relevant for this analysis than are its causes (67). In this connection, the position held by Mrs Lutz is well known (68). She regards as valid a *classical* theory of growth, according to which the latter is optimal when there is an optimal allocation of resources (equalization of the marginal productivities of the factors, spatially and sectorally), and interprets the problem of dualism (considered as a distorsion typical of the Italian economy and due to the malfunctioning of the labour market) as a slowing-down factor: it keeps up unemployment and generates distorsions which brake economic growth.

But this position is not wholly acceptable: there is no doubt that dualism is typical of every accelerated growth phase, and particularly of the initial phases in a country still far from "maturity" (69). It can be maintained, indeed, that dualism offers advantages and that it can be the only way for a still underdeveloped country to utilize its resources in the best way (70).

If, then, dualism is "a logical necessity of industrial development", in the case of Italy its existence has contributed to the acceleration of the growth process. Graziani's recent analysis (71) clarifies in a most incisive way the interaction between the dualistic conditions of the Italian economy and its accelerated postwar expansion.

(67) See, in relation to this, G. Mazzocchi, "Dualisme et disparités régionales", in *Revue économique*, September 1965, pp. 708-730.

(68) V. Lutz, *Italy: A Study in Economic Development*, Oxford University Press, London 1962.

(69) See: A. Graziani, "Dualismo e sviluppo economico", in *Rassegna Economica*, May-August 1963, pp. 332-348.

(70) A. O. Hirschman, "Investment Policies and 'Dualism' in Underdeveloped Countries", in *American Economic Review*, September 1957, p. 562.

(71) A. Graziani, *Lo sviluppo di un'economia aperta*, Edizioni Scientifiche Italiane, Napoli 1969.

Its general premise is that economic growth requires the presence of levels of remuneration for the different factors varying from sector to sector to guarantee the mobility of resources towards sectors that are expanding (there is an analogy here with what Kaldor maintains). In the case of Italy, an increase of exports has characterized during this postwar period the expansion of a highly capital-intensive industrial sector that also has a high rate of technical progress and productivity. In this way a dualistic industrial structure has been substantiated and emphasized (the "backward" sectors being those not stimulated by the need to be competitive on foreign markets), and its productivity dissimilarities have led to differences in wages and thus in consumption.

Graziani would appear to maintain that an "open" economy in an intermediate phase of its growth process cannot expand in a different way: requirements of high capital accumulation demand heavy increases in productivity, so as to secure the competitiveness that is so essential if exports are to be increased. The need for greater increases in productivity than in wages is met by dualism, since this curbs demand for labour and therefore wages. Dualism thus guarantees flexibility and opportunities for transformation, for the advanced sector can expand; and it is in this sector that higher profits, investment and technical progress are realized. This explains Italy's high level of growth in the postwar period.

There is however nothing in Graziani's model to show how (and why) this phase of rapid dualistic growth ends. If an eventual economic policy that reverses that tendency is left out of consideration, the process can tend to perpetuate itself and high growth rates be maintained. In fact, initially there are sectors with a high rate of technical progress and high productivity and sectors with a low rate of technical progress and low productivity. When resources are transferred from the latter to the former, overall productivity rises and the growth process is accelerated. According to a static analysis, the effect can only be temporary: the gap becomes progressively narrowed, dualism disappears with the levelling of productivity, and the "extra" increase in growth ceases. It is however possible that the flow of resources towards the more dynamic sector allows an acceleration of the rate of increase in productivity strong enough to reconfirm the gap. Investment concentrated in sectors characterized by higher rates of increase, would

result in the continuance of advanced sectors and backward sectors, that is, the opportunity to transfer resources from the latter to the former would remain.

It is evident that this contradicts the conclusions of those who insist on the convergence assumption, and of Kindleberger in particular. If dualism was interpreted solely in terms of elasticity of labour supply, it is clear that if this latter was reduced, the economy would reach a turning point that marked the end of the "super-growth" and the beginning of the "maturity" phase. But if a differentiated process of technical progress is introduced into dualism (which probably was originally only describable in terms of elasticity of labour supply), differences in productivity favouring the reallocation of resources continually reappear. Thus, the transformation of the economy continues (with high growth rates) and the labour supply does not become completely inelastic. In the long run, it is possible that other factors may have a contrary effect [Baumol underlines the role of social interventions and inelasticity of demand (72)], which favour expansion of low productivity sectors. In this case a "maturity" stage would be reached where a reallocation of resources to sectors with a higher level of productivity would no longer be possible and so the growth rate would fall. When the current fast-growers (Italy among them) reach this stage, differences between growth rates should eventually disappear.

On the other hand, even if the decisive role of elasticity of the labour supply, in Kindleberger's sense, is accepted, can his analysis of recent Italian experience be considered as valid? According to Kindleberger, the Lewis model *fits the Italian case beautifully*, the rapid growth up to 1963 marked the phase of progressive utilisation of what was initially an unlimited supply of labour, and the 1963 crisis was the turning point, though Italian economists did not realize this: *Italy had run out of its surplus labour and would have to grow in a different pattern!*

This does not seem acceptable, for more than one reason. First of all, many analyses of that period pointed out the transformation taking place in the Italian labour market, even though they gave it different interpretations. In general, it was observed that "Italy was beginning to approach full employment for the first time in

(72) See: W. J. Baumol, *op. cit.*

the postwar era" (73). The significance of this was however seen in terms of both short-term inflationary effects (74) and the slowing-down of the growth rate ("connected with the reduction of unemployment almost to a frictional level") (75), and finally as a true and proper *turning point*: "The Italian economy apparently reached a turning point in its postwar development in 1963" (76).

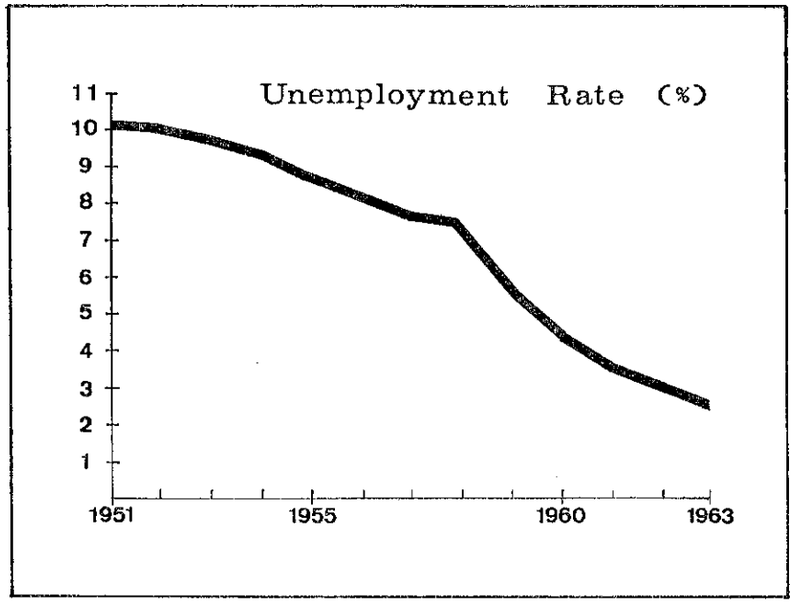

Chart 1

Kindleberger's argument is based exclusively on the reduction of unemployment (and the consequent increase in wages); and from the relevant Italian statistics — for what they are worth — it is

(73) R. Lovejoy, "Policy Making Without Reference to Growth Limitations: the Italian Case 1960-64", in *Economia Internazionale*, August 1968, p. 506.

(74) O.E.C.D., *Economic Survey: Italy*, Paris 1964, p. 20.

(75) P. Sylos Labini, "Prices and Wages: A Theoretical and Statistical Interpretation of Italian Experience", in *Journal of Industrial Economics*, April 1967, p. 110.

(76) R. M. Stern, *Foreign Trade and Economic Growth in Italy*, Praeger, New York 1967, p. 29. Even the analyses which have insisted on the fact that Italy "for the first time" had reached full employment did not sufficiently appreciate the implications in terms of structural modifications for the economy. For example, Modigliani and La Malfa, in

evident that during the period 1959-63 the rate of unemployment fell remarkably and unprecedently in comparison with the previous decade (see Chart I) (77).

On this basis, Kindleberger argues that not only was there an accelerated reduction in unemployment (which, having been rapid and unexpected, was bound to have inflationary effects), but that this brought about a " structural " modification of the entire growth process. The turning point having been reached, " not only is the

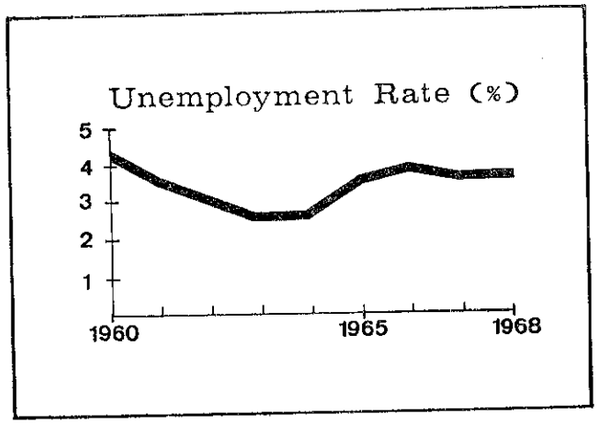

Chart 2

upward trend in income less steep; interruptions are more frequent and longer, and balance-of-payment surpluses give way on occasions to deficits. The virtuous circle of exports leading to higher incomes, profits and investment, which in turn lower prices and stimulate exports once again, is replaced by the classical negative-feedback mechanism in which increased exports are followed by higher prices, which cut off exports and attract additional imports " (78).

their study of the period 1960-65, state that they want to examine " the problems that beset a devoloping economy with large international trade when it *first* approaches full employment " (my italics), but then they ignore completely the structural consequences of the transition from " unlimited " to " limited " supplies of labour. See: *Inflation, Balance of Payments Deficit and Their Cure Through Monetary Policy: the Italian Example*, in this Review, March 1967, p. 3.

(77) Sources: SVIMEZ, *L'aumento dell'occupazione in Italia dal 1950 al 1957*, Roma 1959; and ISTAT, *Annuario Statistico Italiano* (various years).

(78) C. P. KINDLEBERGER, *op. cit.*, p. 3.

It does not seem however that this conclusion is well-founded; that is, it does not seem credible that Italy, having by 1963 achieved a stable full employment situation (79), could find that her pattern of growth had radically changed, and that she had passed the turning point, thus reaching the « maturity » stage (80).

Post-1963 experience does not confirm that any dramatic change occurred in the pattern of growth, nor the transition from a " virtuous " circle situation to that of a " vicious " circle. Even if it is true that the 1959-63 boom led to an accelerated reduction in unemployment (with important short-term effects), this seems to have been an accentuated cyclical phenomenon more than a *turning point*. The trend of the unemployment rate during the 1960-1968 period could confirm this (see Chart II).

Furthermore, it is obvious that Italy is still a long way from full employment and that there are still large reserves of labour (it should be remembered, too, that during the 1959-68 period the total labour force actually diminished by 8 per cent).

If, then, there was a reduction in unemployment in Italy during the nineteen-fifties, which the pre-1963 boom temporarily accentuated, this does not allow the entire growth of the Italian economy to be interpreted in terms of the Lewis model.

The Italian growth rate over the last few years has continued at a high level, contrary to Kindleberger's predictions; the factors that generated Italy's " supergrowth " do not appear to have dwindled — at least for the present.

GIACOMO VACIAGO

Milan

(79) It was actually in 1963 that it was foreseen that full employment in Italy would be reached in 1973! See: P. SARACENO, *op. cit.*, p. 18.

(80) Defining more precisely what he intends by " maturity ", Kaldor actually identified it with the end of the Lewisian phase of growth with unlimited supplies of labour; see: " Productivity and Growth in Manufacturing Industry: A Reply ", in *Economica*, November 1968, p. 385.