The "Keynesian" Analysis of Italian Economic Problems

I.

During my period of study in Italy, I have encountered frequent concern among Italian economists with the applicability of "Keynesian" analysis to the study of Italian economic problems. Almost invariably the opinion is expressed that Keynesian analysis, which occupies such an important role in Anglo-American economics, is either thoroughly inapplicable, or is at best incomplete or misleading in its application to the current pressing economic problems of Italy. At first rather skeptical of this conclusion, I have now become more sympathetic with it. However, I believe that different Italian economists have meant different things by "Keynesian" analysis, and have rejected it for different and not always correct reasons. That particular element of Keynesian analysis which now seems to me most questionable in its application to the Italian situation is, incidentally, retained in the analysis of many Italian economists who most vigorously reject Keynesian economic thought and policy.

I do not propose to deal here with the work of particular Italian economists, but only with ideas that, in my modest and perhaps unrepresentative sampling of argument and opinion, seem to have some currency. I hope that I will not be considered to be tilting with windmills.

Both the Italian economists who are concerned with Keynesian economics and I need perhaps to specify more concretely what we mean by "Keynesian analysis". All of us, I think, restrict the term to the Keynes of the "General Theory of Employment, Interest, and Money" (rather than the Keynes of the "Treatise on Money" or other earlier works); and all of us include in the term the works and ideas of some of the earlier and more enthu-

siastic Keynesian disciples. Where we draw the line between "Keynesian" and merely "post-Keynesian" is a difficult matter; but for present purposes I doubt that any precise drawing of lines is crucial to the argument.

In my view, Keynesian analysis has a number of elements or characteristics. Some of these are methodological; others involve particular substantive assumptions about the nature of the economic institutions and structure and the behavior of the economic subjects with which the analyst is concerned. Without attempting to be systematic or comprehensive, it seems to me that the methodological elements include the conceptual tool of equilibrium (that is, a static analysis), a limitation to the short run, an extreme degree of aggregation, a reliance upon certain identities which appear in the national accounts, and a primary concern with spending behavior rather that with the flow of funds. Among the substantive elements, the most original and wellknown is the idea of the "consumption function" — the view that the primary determinant of consumer spending is consumer income, and that the relationship between income and consumption exhibits considerable stability. Some of the other substantive assumptions about behavior are more traditional — such as profit maximizing behavior by firms, and the rational management of portfolios by wealth owners (1). Among the assumptions relating to economic structure, a crucial one is that output is generally limited by shortages of labor rather than of capital facilities.

Some of these and other elements of the Keynesian analysis are discussed below in relationship to Italian problems, particularly the problems of inflation and unemployment. In section II, I try to show how an appropriately broadened Keynesian analysis can be applied to the Italian economy as well as to the British or American, to the economic problems of 1957 as well as to those of 1933. But in section III, I indicate what may be a fundamental deficiency of this broadened model when applied to problems like the current ones of Italy. Perhaps the analysis can be still further enlarged to escape this difficulty. But the resulting framework may no longer be recognizable as Keynesian.

(1) However, Keynes suggested a new element of rational behavior in a world of change and uncertainty.

II.

Some Italian economists describe Italy's major economic problem as a shortage of saving. When they speak of a shortage of saving, they often mean a shortage of loanable funds relative to the demands of borrowers: government, and business firms seeking funds for investment. The temptation, these economists say, is to use money creation (directly or indirectly) to supply the required funds. At least beyond some point, money creation is inflationary. Therefore, the shortage of saving threatens inflation.

An economist in the Keynesian tradition prefers to describe the matter somewhat differently. He says that, at any given time, an economy has a certain total productive capacity for final goods and services. At least to some extent, this capacity can be used to produce, alternatively, goods for consumers, goods for government use, or goods for investment. To simplify, let us call goods produced for government either for consumption or investment. Thus the total productive capacity of the economy can be used either for C (consumption) or I (investment). When productive capacity is already employed to its limit, any attempt to increase spending on either C or I, without simultaneously reducing the other type of spending, is inflationary, because a fixed supply of goods is confronted with an increased aggregate demand. This is true whether or not the increased aggregate demand is accompanied by an increase in the supply of money.

These two ways of describing the matter can be seen to be formally identical, when we recognize that saving is the difference between total output (or income) and consumption expenditure. That is, S (saving) equals Y (total output or income) minus C (consumption). To say that I tends to exceed S is to say that I tends to exceed Y minus C, which means that I plus C (total spending) tends to exceed Y (output). Despite their formal identity, the latter way of putting it — which I call the "spending approach" — seems to me to be more helpful than the former way — which we might call the "flow of funds" approach. For the spending approach focusses attention directly on spending decisions, on productive capacity, and on the supply and demand for *goods* (rather than funds). The flow of funds approach, on the other hand, often gets confused in "velocities", "forced saving", and

similar vague concepts. And when it comes to defining the crucial point beyond which money creation is inflationary, the flow of funds approach has, in effect, to convert itself into the spending approach.

Although some Italian economists may reject Keynesian analysis because it concentrates on spending decisions rather than on tracing flows of funds, I personally consider this an invalid ground for rejection. Because a full reconciliation and evaluation of the two approaches would require considerable space, I limit myself here to the mere expression of my conclusion, which is that the Keynesian spending approach is superior whether applied to Italian or American or Russian economic problems. However, I am the first to recognize that which approach we use is largely a matter of taste. Concepts and approaches are merely tools. Some tools may be sharper than others, or fit the hand better; but even dull tools can do a good job in the hands of a real craftsman. Wicksell, for example, used the flow of funds approach; but he understood clearly (better than did Keynes, a generation later) the relationship between the two approaches, and could switch easily from one to the other.

Regardless of tools, and who fashioned them, the *substantive* economic problem discussed in the preceding paragraphs is a very different one than that which originally attracted most of the attention of Keynes (in his " General Theory ") and of most Anglo-American Keynesians, at least until recently. Rather, the problem of original interest to Keynes was the situation where total demand (*C* plus *I*) does not tend to exceed, but rather falls short of the economy's productive capacity. In this case there is a waste of productive capacity (2). There can be an increase in both *C* and *I*, or either can increase without a decrease in the other. Since *Y* can rise, and almost surely will if *I* does, one can correctly say that *I* can create its own *S*. However, this is the flow of funds again. I still prefer the spending approach, which merely says that spending for *C* and *I* may either tend to exceed or may fall short of productive capacity. In the latter case, spending may increase without the demand for goods exceeding the supply, thus without creating an inflationary rise of prices (regardless of what happens to the supply of money). To the extent that Keynesian analysis was originally primarily concerned with such situations, and to the extent that this is not the case in Italy, then in that sense I agree that Keynesian analysis is inapplicable. However, the Keynesian framework can easily enough be broadened to include both cases (a) and (b). To some extent this was already done in the " General Theory " itself (chapters 20 and 21). With the outbreak of war, Keynes (in " How to Pay for the War ") applied his tools to the inflationary case. In America, too, Keynesians, using the concept of the inflationary gap, readily broadened their analyses to include the case of a society in which aggregate demand was pressing against the limits of productive capacity.

(2) I do not discuss here Keynes' fundamental thesis, which was that such waste of productive capacity can easily arise. Twenty years of polemics have left his main argument to this effect relatively undamaged. This argument showed how and why the automatic correctives (flexible interest rates and flexible wages and prices), relied upon in " Classical " analysis to maintain an adequate and stable level of demand, might fail to operate. The same argument implies, of course, that excessive aggregate demand (threatening inflation) will not be automatically eliminated, either.

The previous part distinguished the situation in which an economy is already working at the limits of its productive capacity from the situation where it is not. There is a second, quite independent distinction to be made. This one relates to the nature of the capacity limitations in an economy. It appears to be presently the case in Italy that capacity to produce final goods and services is limited, generally speaking, by shortages of plant capacity (including agricultural plant) and not by limitations of labor supply (3). This is in sharp contrast to the situation in, for example, the United States, where, during the past two years (as in most earlier periods), the limit of output appears to have been set in most industries by shortages of labor. Given the nature of its productive techniques (as embodied in present capital goods), Italy would need substantially more capital equipment and productive land to employ all of its present labor supply. Given the productive techniques of the United States, there is at least enough capital equipment and land to employ all of the labor — possibly to absorb more labor than is currently available. It is a matter of what some have called " factor endowments ": Italy's factor endowment of labor is in

(3) This is a question of fact about which most economists in Italy express a definite opinion, although I have found it exceedingly difficult to discover the empirical basis upon which their opinion rests. For a more skeptical view, see my Lecture " Some Problems in the Absorption of Unemployed Resources " delivered at the Istituto di Economia e Finanza della Facoltà Giuridica di Roma, February 9, 1957, especially pages 8 seq.

excess of its endowment of capital; therefore some labor is surplus. America's factor endowment of capital perhaps exceeds, surely equals, its endowment of labor.

Now it is further true that Keynes and Keynesians have almost invariably assumed factor endowments of the American sort. Thus *unemployment of labor* comes to be identified with operation of the economy below its practical capacity — that is, unemployment of labor automatically signifies a waste of productive capacity as a result of inadequate aggregate demand. It is for this reason that the standard Keynesian remedy for unemployment is to increase aggregate demand — to stimulate either investment or consumption or government expenditure in a way that will not reduce another kind of spending; or, if possible, to increase all three simultaneously. But this kind of remedy is inapplicable if the economy is already operating at capacity limits, set by a shortage of capital goods or land.

Once again, Keynes' substantive assumption may be inapplicable to Italy; but not necessarily other aspects of his analysis, which one might easily broaden by including *both* types of limitations on output. We then have three cases: the situation where aggregate demand falls short of productive capacity (the original Keynesian case); the situation where aggregate demand threatens to exceed productive capacity, limited by shortage of labor (the usual Anglo-American inflationary gap analysis); and, finally, aggregate demand that threatens to exceed a productive capacity which rests upon shortages of capital and land.

The factor endowments referred to above are, of course, not fixed and immutable; rather, they are constantly changing. Keynes' own analysis was short run — it assumed factor endowments as given. But later Keynesians, for example, Harrod and Domar, have incorporated growth of factor endowments quite comfortably into the Keynesian framework. There is no reason why we cannot extend this also to include cases in which growth of factor supplies starts from a point at which the labor factor is redundant.

In such an analysis, we usually consider the growth of labor supply as autonomously determined. The labor force changes through population growth, through changes in the traditional or institutional limitations upon membership in the labor force, and through changes in the institutional limits on the extent of the working day or week. All such matters are only indirectly and

remotely affected by current economic forces. The endowment of capital changes through the excess of the construction of new capital equipment (including land) over losses through wearing out, obsolescence, or accident. That is, it changes through net investment, which is one of the variables of our analysis.

Starting from factor endowments like those of Italy, the objective of policy obviously must be to get a larger growth of capital than of labor supply, both to increase production and well-being, and to eliminate the personal and social tragedy of unemployed labor. A high rate of growth of capital means that a high rate of investment is required. But since the economy is already working at capacity limits — limits imposed by the very shortage of capital which policy is trying to correct — investment can increase only at the expense of consumption. Here, then, is where we get the proposition at first sight so strikingly non-Keynesian: reduction of unemployment requires more, not less, saving. Yet if we broaden the Keynesian analysis in the ways suggested, this can still be thought of as a Keynesian conclusion.

Actually, the conflict between this and the usual Keynesian doctrine is more apparent than real. The usual Keynesian remedy for unemployment, which calls for more spending (either more of *both* C and I, or more I without any reduction of C) refers to a single point or period of time. The Italian remedy for unemployment, which calls for I *in place of* C, refers to two different periods of time. A mere change in the composition of aggregate demand — more I and less C — does not affect today's aggregate demand or employment; it is designed merely to permit more employment at a later period. It is still true that, up to the limits set by productive capacity, it is the total size and not the composition of aggregate demand that matters for today's employment. But if aggregate demand is today adequate for capacity operation, and if capacity is limited by capital shortages, then a shift in the composition of today's aggregate demand (toward investment) may permit a higher level of employment *tomorrow* than if this shift in composition had not occurred.

Indeed, if we can assume that the present ratio between capital and employment (or some other predetermined ratio) will be maintained, and if we can predict the growth of the labor force, we can even compute how much restriction of consumption is necessary in order to eliminate unemployment, or any predetermined portion

of it, within any given time interval. Or, if we assume that some given restriction on consumption (or on the growth of consumption) is the maximum that can be tolerated, we can compute how long it will take to eliminate unemployment, or any predetermined part of it. The "Vanoni Plan" is, among other things, essentially a computation of this sort. Once an American Keynesian grasps its assumptions, he finds the analysis fairly familiar.

The concern of Anglo-American Keynesians with unemployment arising from inadequate aggregate demand led them, at first, to pay little attention to the problem of the composition of aggregate demand, as between consumption and investment. They were more concerned with the total level of demand, not with its apportionment. Later, they began to worry about the possibility that a full-employment level of demand which was too heavily weighted in the direction of investment might create problems for tomorrow. Actually, this concern began with Keynes' own rather incidental discussion, in which he expressed the fear that an act of investment today would make it harder to find an investment outlet tomorrow. Domar refined this analysis by showing that today's investment created additional productive capacity, which, if it were to be utilized tomorrow, would require not merely the repetition of today's level of aggregate demand, but rather a growth of demand. Assuming a given average propensity to consume, and a given average ratio of capital to output, the maintenance of full capacity operation over time would require the growth of investment (and hence of income) at a constant percentage rate. It was Domar who first refined in the Keynesian literature the concept of a productive capacity which depended on previous investment.

The Italian economists who espouse a program of heavy investment to solve Italy's employment problem are well aware that investment creates added productive capacity — this is exactly why they want it. Unlike the Anglo-American Keynesians, they do not worry about the possibility that aggregate demand will not grow fast enough to utilize the new capacity; perhaps the Anglo-Americans no longer worry so much about this either. Certainly we now know a number of ways in which public intervention can be used whenever aggregate demand is insufficient fully to utilize our productive capacity.

The concentration of attention by Italian economists on problems of growth over time of productive capacity, and the shift

of attention to this area by the Anglo-American Keynesians, has begun to expose some difficult analytical problems, at first glossed over. The Domar models assumed that the ratio of capital stock to potential output was constant; thus tomorrow's productive capacity was determined entirely by today's investment. The assumption of the Italian models is similar, but subtly different. It is that the ratio of capital stock to *employment* is constant; this means that tomorrow's potential *employment* is determined by today's investment. The Domar models pay no explicit attention to the size of the labor force. But if the ratio of capital stock (K) to output (Y) is constant, regardless of changes in manhour employment (L), then the ratio of K to L cannot be constant. Here we enter a very treacherous terrain. On our usual static assumptions concerning the "laws of production", we can increase K and L in the same proportion and get an equal proportionate increase in Y. In this case, K/Y and K/L are both constant. If K increases in greater proportion than L, Y will increase in lesser proportion than K, causing a rise in the ratio of Y to L. The static assumptions include that of "given" techniques of production, the meaning of which has always been extremely slippery. But in an analysis of the historical process of the growth of capital, employment, and output over time, static assumptions are clearly inadmissable.

One approach to this difficulty has been to distinguish between two types of investment. Following usage introduced by the American Keynesian, Professor Alvin Hansen, we can call an investment a "widening" investment if it merely supplies more workers with capital equipment of a type no different from that already in use. More specifically, an investment is widening if it does not alter the existing (average) ratio of capital input to labor input — that is, does not raise capital per man. An investment is "deepening", on the other hand, if or to the extent that it equips workers with more or more elaborate or more expensive equipment than the previous average.

Only if all investment, or some constant portion of it, were of the widening variety would it be possible to predict how much investment would be necessary in order to absorb a given number of unemployed workers. If an increasing fraction of Italy's investment were of the deepening sort, Italian productive capacity measured in terms of output would still grow (because each worker could now produce more than before); but employment would not neces-

sarily grow, nor unemployment necessarily decline. The reverse might even occur. In fact, just this problem is now bothering many Italian economists (4). The problems involved here are not only crucially important from the standpoint of economic policy; they are very imperfectly understood by economists. The invention of the categories " widening " and " deepening " does not conceal the fact that we know little or nothing about the reality behind these terms. Much more work is needed. This includes abstract model building, of which much is being done both by Anglo-American and by Italian economists. But it also includes work on the empirical level, of which perhaps less is being done.

III.

With what I consider only a slight extension of the Keynesian substantive assumptions, I have thus brought a familiar analysis of Italian economic problems under the " Keynesian " label. One may not agree that I should call the latter analysis Keynesian. But it surely is Keynesian in the very important methodological sense that it deals only with broad aggregates of total consumption, total investment, national income and output. Those who prefer the flow-of-funds approach are no less aggregative, when they deal in terms of saving, money creation, and investment. While the " growth " analysis departs from Keynes' short run limitations, it is equally aggregative, only adding such further aggregates as the accumulated capital stock, introducing functional relationships between this new variable and productive capacity or employment (5).

It is my thesis that the high degree of aggregation involved in the Keynesian approach may be fully appropriate in dealing with what I have called above the " original " Keynesian case, that of aggregate demand less than productive capacity; that it is still useful, with certain qualifications, for the case of aggregate demand pressing against a productive capacity limited by labor shortages; but that serious, perhaps fatal qualifications may be necessary when

(4) See V. Lutz, " Some Characteristics of Italian Economic Development, 1950-1955 ", in this *Review* (1956, No. 39).

(5) The reader may contend that I have loosely identified " Keynesian " analysis with macroeconomics in general, which includes, among other things, the long development of monetary theory. It is certainly correct that I am inclined to minimize rather than to overstress the break between Keynes and his predecessors.

we deal in aggregative terms with the situation in which output is limited by capital shortages. To understand my thesis, it is necessary to look more sharply at the concept of " productive capacity " which I have used quite freely up to this point.

When we say that aggregate demand falls short of productive capacity, we mean that output of almost all goods can be freely and quickly expanded — if only buyers stand ready to purchase — under conditions of approximately constant cost. We are dealing here not with the Marshallian " very short period ", in which supplies are temporarily fixed by previous charges into the pipeline, but rather with the " short period " proper, in which inputs of variable factors can be freely increased, with resulting increases of output. If we assume perfect competition in all industries, as did Keynes, we are forced also to assume rising marginal cost curves in all industries as variable inputs increase (6). Thus all selling prices, and the average price level, must rise, at least slightly, relative to money wages and import prices as total demand increases. This was Keynes' conclusion. But he did not assume that the increase in marginal cost or prices would be substantial. Were we to assume imperfect competition, we might even have an output expansion with no rise in the price level.

This, then, is what we mean by an economy operating where aggregate demand falls short of capacity: output of all goods can be increased under conditions of constant or only slightly diminishing marginal returns (constant or only slightly increasing marginal cost). We need then to investigate what it means to say that aggregate demand is pressing against productive capacity, leading to the situation or the danger of inflation.

What does the term "capacity" mean for any single commodity? Actually, its meaning is usually far from clear. Presumably, repeated increases in variable inputs encounter more and more sharply rising marginal costs (more and more sharply diminishing marginal returns). At some point, the marginal cost curve becomes very steep, even vertical. But unless there is a discontinuity (and sometimes there is), it is hard to speak of any one point as a point of " capacity " operations (7).

(6) Otherwise, there could be no interfirm equilibrium in any industry.

(7) Input-output analysis usually assumes, I believe, in effect, that marginal cost curves are horizontal, up to some limit, where they rise vertically.

Now consider a range of commodities. Suppose that the variable inputs used in producing all commodities are the same. If we reach a level of demand at which the current flow of variable inputs is exhausted, while marginal cost curves for all goods are still quite flat, then we can quite meaningfully say that total output is limited by a shortage of the variable factor.

We can relax our assumptions somewhat, and still have a fairly unambiguous situation. Suppose, first, that an increase in demand for all products causes the output of some few of them to approach the point of rather sharply rising marginal costs. The prices of these products must, and will, rise somewhat more than the prices of other products (on competitive assumptions all must rise somewhat relative to wages). This rise in relative prices should cause demand to be diverted to other products whose marginal cost curves are still relatively flat. But if the particular goods in the position of short supply have reasonably good substitutes, the rise in the relative prices of these goods should not have to be very sharp (even though their marginal cost curves rise sharply), and the average price level need not be greatly affected. If only a few such " bottlenecks " are encountered prior to the point of full employment of the variable factor, and if good substitutes are available for the bottleneck goods, we can still think of total output as being limited by the supply of the variable factor.

Or, it may be that the inputs are not entirely identical as among the various goods. Or perhaps there is some immobility of the input factors, so that even if variable inputs are unemployed in the production of one product, an appreciable differential of input prices is necessary to cause them to move to the production of another. Suppose, further, that an increase in aggregate demand exhausts the specially-attached variable input factors for some products while there are still idle units of variable input awaiting employment in other industries or localities. In either case, some selective increase in the cost of variable inputs — and therefore further selective increase in output prices — will be necessary to reach a condition of full employment of variable inputs.

However, if we assume an economy with relatively abundant capital, and one in which the composition of aggregate demand is fairly stable, relatively few bottlenecks should arise short of full employment. And so long as there are reasonably good substitutes for the bottleneck products, there need be neither sharp changes

in the structure of prices nor sharp rises in their general level. So long as labor is, at least at the margin, reasonably mobile among industries and products, the concept of full employment of the variable factor, labor, remains reasonably precise, as do the concepts of an aggregate demand or output that fall short of, lie close to, or press against the limits of productive capacity.

These were Keynes' assumptions. If he did not labor them as I have, at least he made them quite precise and definite. They also describe, I submit, in a reasonably satisfactory way, the economic situation, in boom and depression, of England or America. And, if these assumptions are reasonably satisfied, our aggregative procedures are probably justified. If the structure of relative prices of the various goods and services that make up the aggregates can be taken to be approximately stable, then aggregation has a fairly clear meaning. The terms at which each commodity or service can be translated, in the market, into any other commodity or service are then fairly constant, and, at least for some purposes, we can speak as though an aggregate like " total real consumption " were a single good instead of a vast conglomeration of diverse goods and services. Put otherwise, if the relative prices of various goods and services can be taken as given, or nearly so, then an analysis which, like the Keynesian one, omits relative prices may still be valid (8).

In this case, we also have a fairly clear meaning for the concept of " inflation ". Up to the point of full employment, prices rise but little (relative to wages). As demand increases to and then beyond the point of full employment, demand for all products suddenly exceeds amount supplied, leading to an indefinite and self supporting inflationary spiral, much like that visualized by Wicksell. The inflationary rise in price is, for each commodity, a matter of demand rather than costs; for, if extra labor could be found, production of each commodity could still be increased under conditions of only moderately rising marginal cost. Inflation only becomes hard to define when certain prices are rising, not others, and when the rise in price is associated with the covering of higher marginal costs *of additional output.*

But what of the Italian case, which we agreed did not fit the Keynesian assumption? The lack of fit could arise from any of

(8) See G. Ackley and D. B. Suits, " Relative Price Changes and Aggregate Consumer Demand ", *American Economic Review*, XL (Dec. 1950), 785-804.

several sources. It might be, first, that as aggregate demand and output increased, but long before supplies of the variable factor were exhausted, very steeply rising or vertical marginal cost curves might be encountered, *at about the same time in all or nearly all fields of output.* Particularly if there are cost discontinuities which give clear meaning to the capacity concept for each good, the concept of an aggregate productive capacity limited by capital shortage would then have unambiguous meaning. In this case, an aggregative analysis might still be appropriate, the meaning of inflation clear. But this case seems rather specialized and somewhat implausible.

It would seem more likely that bottlenecks in some or a number of products might be reached while marginal cost curves were still relatively flat elsewhere. If the bottlenecks were in products for which good substitutes existed, moderate shifts in relative prices might redirect demand so that the point of plant capacity could still be reached simultaneously for every product. However, the meaning would be completely clear only if we adopt the assumptions of input-output analysis, of constant proportions between variable inputs and outputs, up to some limit of plant capacity, at which point output can no longer be expanded at all. Then, as capacity was reached in particular lines, these prices would rise in response to further increases in demand, diverting such demand to other products, until all products reached the limits of plant capacity together. If, instead, we have marginal cost curves that rise continuously, even though they are concave upward, rising more and more rapidly as output expands, the concept of total output limited by plant capacity loses much of its clarity. To be sure, we might give it meaning in the symmetrical case, in which cost curves with the same degree of inclination in all products are encountered at any one time. We could then arbitrarily declare that when further increases in aggregate demand encountered a supply elasticity in each product of, say, two, or one, or one-half (i.e., a one percent rise in output was accompanied by a one-half, a one, or a two percent rise in prices), this would be defined as the point of inflation or the limit of capacity. In the perfectly symmetrical case, the relative *structure* of prices would be unaltered — all prices would rise together. The less the symmetry, the more vague the concept of capacity; and clearly, the less stable the structure of prices the greater the difficulty of giving meaning to the "real" magnitude of aggregates.

One may say that the above difficulties are somewhat fanciful. Perhaps the assumptions of input-output analysis are more realistic, and capacity in most lines has clear meaning. And perhaps, over time, if demand pressures have remained consistently strong, the price structure has been so adjusted and investment has been so directed that the requirements of our model are approximately realized. This is at least possible.

However, my own casual observation as well as the testimony of many Italian economists and other trained observers suggests a different model. It is one in which true bottlenecks do exist in certain strategic goods — for example, steel, cement, electric power (9). These are also goods for which very poor substitutes exist, so that no practicable rise in their relative prices, and in the relative prices of final goods that use these as inputs, would have much effect in shifting intermediate demand to other materials — e.g., stone or sulfur — or final demand to other industries — e.g., textiles, housefurnishings, and personal services — in which supply is still freely expansible. We may be able to conceive of changes in relative prices which would accomplish the adjustment of demand to plant capacity (10). But to secure these without an elaborate system of subsidies would require an impossible inflation of the general price level and an intolerable redistribution of personal incomes. Barring such changes, total output is not limited by capital shortage, but by shortages in plant and equipment in a few specific lines.

Further, we need to add for the sake of completeness that the assumptions of the usual Keynesian analysis would be equally violated if variable input factors are either highly specialized or severely immobile (through ignorance, institutional barriers, or high transfer costs). In this case, too, a shortage of labor with particular skills could exist side by side with considerable unemployment in other skills (or of unskilled workers generally) or in other localities. Increases in aggregate demand would then encounter output limits that were based neither upon general labor shortage nor upon a shortage of plant and equipment. Again, these limits might con-

(9) The examples are illustrative only. These commodities may or may not be bottlenecks at present (a question of fact that I find very difficult to pin down).

(10) The usual input-output analysis involves, of course, the assumption that no change in relative prices of intermediate goods would alter their use in production.

ceptually, but not in practice, be resolvable through massive readjustments of relative prices (and incomes) (11).

Suppose that we admit that the Italian case may contain elements either of the true bottleneck or of severe immobility, perhaps of both. I have suggested that analysis of these situations by aggregative methods becomes dangerously misleading. The reason, of course, is that aggregative analysis — if it is to amount to anything more than an *ex post accounting* — necessarily involves functional relationships among the aggregative variables employed. In many if not all cases, stability of these functional relationships depends upon some stability of the composition of the aggregates.

Take, for example, the famous consumption function. The stability of this aggregate relationship rests upon certain plausible assumption about individual behavior toward particular goods and services, together with an aggregation across all goods and across all individuals. The assumption about the behavior of the individual is that he has a fairly stable positive income elasticity of demand for each good. This is reasonable enough. If his elasticity were the same for each good, and regardless of his income, and if all individuals were alike, then neither the availability of goods nor the personal distribution of an aggregate income would make any difference. But all individuals are not alike, nor is any individual's income elasticity of demand the same for all goods, and the same regardless of income. Thus stability of the aggregate relationship requires that both the goods composition of consumption and the distribution of income by broad categories either be (i) stable, or (ii) stable functions of the size of aggregate income or consumption. If there are serious bottlenecks (and lack of substitutability) or severe immobilities, neither (i) nor (ii) in the previous sentence can be assumed.

Or, to take another example, almost all aggregative analysis assumes some stable short run relationship between aggregate demand for goods and the volume of employment. We know that

(11) This reasoning suggests that there is a further implicit assumption of the "Keynesian" analysis. A reasonably mature economy, not subject to rapid transformation or development, should encounter few serious bottlenecks of plant capacity or serious partial shortages of labor, or should break them quickly. A developing economy, on the other hand, may be plagued with constant bottlenecks, and specialized labor shortages, their location perhaps shifting from stage to stage. Thus we may argue that Keynes implicitly was assuming the former kind of economy.

this relationship varies widely as among individual products (12). Therefore, an unstable composition of aggregate output might find a rise in the volume of total (deflated) spending accompanied by a fall in employment, or *vice versa*.

Another, perhaps still more relevant example relates to the assumed technological relationships between investment and productive capacity or employment which underlie the growth models. But if there are serious bottlenecks, investment "in general" neither increases productive capacity (for the goods that will be demanded), nor the ability to absorb additional workers. It is only investment in the bottleneck industries that will do these. If the problem is immobilities of labor, only investment in particular places or industries will increase productive capacity or permit greater employment. Thus, unless the composition of investment is either constant or is a stable function of its aggregate amount, the assumed relationship between investment and productive capacity or employment fails of stability.

It is not only in the analysis of economic problems but also in the design of economic policy that an aggregative analysis may fail where there are serious bottlenecks or immobilities. Keynesian aggregative analysis suggests and supports aggregative policies — generally of a fiscal or monetary nature. These policies are not directed toward individual products or industries or localities. They are "indirect" rather than "direct" controls. To most Anglo-American economists this is one of their great advantages. This preference reflects a recognition of the fact that the successful design of policies of the more direct variety requires a vastly greater amount of detailed information, and that such policies are infinitely more difficult to administer or enforce; and also a feeling that the more detailed interventions involve the public administration in more specific and personalized decision making — in favour of this person or firm or group over another — with its possibilities for petty tyranny, favoritism, and corruption.

A general increase or decrease in the level of personal taxation, for example, can be expected to depress or to stimulate the demand for consumers goods in general. No administrator need decide

(12) It varies less widely when, as we must, we consider also the labor requirements for the intermediate goods used in producing each final product; but there is still wide variation.

whose consumption will be reduced, nor of what products (13). To be sure, because there are different income elasticities of demand, the depression or stimulus will have an unequal impact upon different goods. But if all goods are produced under conditions of approximately constant marginal cost, and labor is highly mobile, the structure of relative prices need not be greatly affected; the composition of output will adapt itself to the composition of demand, and only modest shifts in relative incomes will secure the necessary rearrangements of consumption and production. Similarly, a tightening or loosening of monetary controls will affect interest rates and the availability of loans and thus discourage or stimulate investment, the commodity composition of which can be easily adapted to the structure of demand.

Consider, however, the working of aggregative policies when bottlenecks or immobilities are severe. We referred at the end of section II to the diagnosis that said that Italy must restrict consumption (or the increase in consumption), in order to divert resources to investment so as to permit a closer approach to full employment in the future. Suppose such restriction of consumption is undertaken by general tax increases, or perhaps by a generally restrictive wage policy. Such policies may depress the consumption of automobilies (or the increase in their consumption), and thereby free steel to build more steel plants, cement factories, and power stations. This is the shift from consumption to investment that will permit greater output and employment at a later date. But these measures will also restrict the consumption of textiles and personal services. The resources released in these latter industries will not help break the steel or cement shortages, nor will they remedy a possible shortage of metallurgists, or of unskilled labor in some particular industrial suburb of Turin. Many of the resources will be released into unemployment, rather than diverted to investment. Likewise, a lowering of interest rates, or other generalized inducement, may stimulate investment in all lines, not merely in the bottleneck areas. Thus steel may be diverted from the construction of steel plants, prolonging the period of shortage. What is needed is not more investment in general nor less consumption in general, but certain specific transfers of resources.

(13) Actually, we deceive ourselves if we think that it is this easy. What, specifically, is a " general " increase or decrease in the level of taxation?

I am not prepared to argue how important these problems may be either for the analysis of Italian economic problems or for the design of policy. But I am convinced that if there is a limitation on the applicability of what I have broadly called Keynesian analysis to Italian problems, it is here that the limitation arises.

Assuming that the limitation is serious, what does it suggest? It means, does it not, that both analysis and the design of economic policy may have to be more detailed and complicated than would be the case were these problems not serious? If intervention is necessary in the Italian economy — and who does not agree that some intervention is required? — it may have to take a form and a degree that Keynesians (and the advocates of central bank policy) are not accustomed to contemplate. This view appears to be shared by many Italian economists who are closely concerned with planning and execution of economic policy. But I am not clear that the experiences and conclusions of these economists have yet been digested into Italian economic analysis. Put otherwise, since the Keynesian analysis is rejected, there does not appear to be any other considerable body of economic theory at the disposal of Italian policy makers relevant to the problems of unemployment and inflation. This is in striking contrast to the availability of the Keynesian and post-Keynesian theory to the economists concerned with fiscal policy in England and America.

Certainly, if we reject the Keynesian analysis on the grounds that I have suggested, it does not mean that we can go back to some earlier, simpler model. Both our theory and our policies must be macroeconomic; despite the necessity to consider particular industries, no partial equilibrium approach will suffice. Yet a traditional general equilibrium analysis seems to me equally inappropriate. Like the Keynesian, I should expect the new theoretical apparatus to retain the tie to the categories of the social accounts; like the Paretian, it would also be concerned, at crucial points, with relative prices (14).

In the development of this analytical model, there are two significant characteristics of the Keynesian analysis that I should think it necessary to incorporate. One is its empirical nature.

(14) Perhaps it would be better to say that it must consider sectoral elasticities of supply and demand. For relative price changes may either be too ineffective an instrument, or have socially unacceptable consequences for income distribution.

Keynesian analysis embodies hypotheses about economic structure and human behavior that have specific empirical content and which are framed in terms which permit their empirical testing. Perhaps the hypotheses are incorrect, or insufficiently detailed. But superior empirical hypotheses can be found. Second, Keynesian analysis concentrates upon a reasonably limited number of variables, and on variables that are *strategic*. By this, I mean that they are variables that economic policy either has in the past attempted or might in the future attempt to influence. Perhaps the variables have been too few. But we still need an analysis which is oriented toward economic policy — one intended to meet the needs of those who are charged with responsibility for advancing the objectives of society by the design either of appropriate action or, equally important, inaction. If the Keynesian analysis does not suggest the correct policies, it needs to be replaced — not by one which is not policy-oriented, but by one that suggests better policies.

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