Part Three

NATIONAL INCOME, SAVING, AND INVESTMENT

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Discussion

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Greater abundance of statistical data in many countries has made it possible to compute national income at shorter intervals and with greater accuracy than before. Not only have the data become more plentiful, but also the methods have been improved and the concepts defined more precisely so that a number of mistakes frequently made in earlier computations are now being avoided.

In addition, a distinctive and significant change in the tenor and purpose of national income calculations has occurred in recent years. National income has always been regarded by economists as a comprehensive measure of economic progress, of economic welfare. The interest attached to national income from the welfare point of view has recently spread from the professional economist to the general public. Governments and politicians have acquired the habit of formulating the aim, and of measuring the success, of their economic policies in terms of national income.

Meanwhile, economists have gradually become more interested in national income also for another reason: they use it increasingly as a tool of economic analysis. From that point of view, however, interest attaches not so much to aggregate national income itself as to its component parts. But since some of these are defined or calculated as residuals, a measure of the total becomes indispensable for measuring the parts.

I National Income as a Welfare Concept

I VALUE JUDGMENTS IN WELFARE PROBLEMS

Let us first discuss national income as a welfare concept. I shall not go at great length into what I should call the philosophical

problems of welfare economics as they are discussed, say, by Professor Pigou in the first part of his *Economics of Welfare* or even more penetratingly by Professor Gunnar Myrdal in his book, *The Political Element in the Development of Economic Doctrines*.[1] (Professor Myrdal, by the way, seems to me to adopt a somewhat too skeptical or too austere attitude and throws out the child with the bath water.) These more philosophical discussions demonstrate that all welfare probelms involve value judgments which are not capable of a purely scientific solution. The scientific task consists in making these value judgments explicit and in showing which value judgments underlie the ordinary methods of computing national income. The problem is somewhat more difficult than it would perhaps seem at first blush, because it is not simply a question of attaching a value index to a final result that could be reached quite independently of whether a value is attached to it. Unfortunately, the method of arriving at a final measure of national income itself does depend on, and vary with, the underlying value judgments. But as I said, I do not propose to go into these problems. I prefer to leave them unsolved.[2]

2 NATIONAL INCOME AND ECONOMIC WELFARE

National income is considered a measure of economic welfare. But economic welfare is usually defined in a broader sense. It is therefore better to say that national income affects economic welfare. Other things being equal, economic welfare is greater, if national income is greater. Such other things that also affect economic welfare but are usually not considered a part of national income are, for example, the presence or absence of cer-

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[1] Available in Swedish and German.

[2] In my book *Der Sinn der Indexzahlen* (Tubingen, 1927) and in the article, Der volkswirtschaftliche Geldwert und die Prisindexziffer (*Weltwirtschaftliches Archiv*, Vol. 30, July 1929, p. 6** *et seq*) I have shown that (a) for one individual, making several simplifying assumptions, a rational method of calculating changes in 'real income' can be evolved; that (b) the extension of the concept of price level and real income to a number of individuals (or society as a whole) involves arbitrary decisions that can be justified only on the basis of some value judgments. The problem mentioned under (a) has since then attracted much attention and the analysis has been pushed forward. (Cf. especially various articles by Hans Staehle which are quoted, together with other references, by Ragnar Frisch in *Econometrica*, Vol. IV, 1936, p. 2, and A. Wald, Zur Theorie der Preisindexziffern, *Zeitschrift fur Nationalokonomie*, Vol. VIII, 1937, pp. 179-219.) As far as I am aware the problem mentioned under (b) has not been constructively dealt with. See also M. A. Copeland and E. M. Martin, Part Two, and discussion by R. T. Bye and Milton Friedman.

tain wants. If, say, the state of health is poor and requires some expenditure for the service of a physician or for medicine, but does not impair the earning or producing power,[3] welfare is less than it otherwise would be;[4] but we should probably not say that the real income is smaller. We should rather say that a larger part of the income must be spent on, or consists of, medical services.

Similarly, if the economic system does not run smoothly, or is not believed capable of running smoothly if left alone and if, consequently, much money and effort must be spent on 'policing' the system more or less extensively—from the nineteenth century night watchman to the Administrator of the AAA or NRA or any of the other alphabetical agencies—economic welfare is certainly affected. It would be greater, if all that effort could be devoted to the production of, say, food or clothing and shelter for the poor. But whether national income is impaired is another question. If we include the services of the 'police' (in the wide sense indicated above) in national income, it is not. Thus innumerable facts affect economic welfare, that is to say, make the situation more or less desirable than it would be in their absence, but do not—or need not—in general affect real income.

3 SOME PROBLEMS OF INCOME DEFINITION[5]

a) *Value judgments in income definition*

The answers to the questions raised in the preceding sections depend, of course, on the definition of income. It can be defined more or less inclusively, and these questions of definition are not purely academic. The practical statistician is forced to give defi-

[3] If the producing power of the people is affected, national income will be affected too, but to a smaller extent than economic welfare, because the medical services will be included in national income.

[4] As a criterion, I should take the preference act of the individual. The situation that the individual prefers we characterize as a higher welfare position. Since we can rely on the preference act of the individual (which we try to infer from his behavior in the market), we need not introduce any value judgment. If, on the other hand, we deal with a multitude of individuals or with society as a whole, we cannot rely on individual decisions. Society as such does not act and the decisions and preferences of individuals will, as a rule, be contradictory, at least to some extent. Consequently we, that is, the observer (scientist), will be forced to supply the unifying decision; that is to say, we shall have to pass a value judgment.

[5] For other discussions of this general problem, see *Studies, Volume One*, (1937), M. A. Copeland, Part One; Clark Warburton, Part Two; and Gerhard Colm, Part Five, Sec. I.

nite answers, explicitly or implicitly, whenever he decides whether he wants to include certain items in national income.

There is general agreement that all goods and services that pass through the market are to be included, whether they are sold for money or exchanged one for another. Furthermore, of those goods of which only a part passes through the market, that part which does not change hands but is consumed by the owner or producer is to be included—the consumption of farm products on the farm, the value of the services of a house to its owner, etc. The income of domestic servants—whether received in money or in the form of food and lodging—is almost invariably included in national income. (The question whether that is to be done may be put by asking whether the income of the employer is to be defined inclusive or exclusive of the value of the wages paid for domestic services and of the food and shelter supplied to domestic servants.) However, the line that separates a domestic servant from a worker may be very hazy where household and business are not sharply separated as, for example, on the farm or in the case of the small business of a craftsman or a shopkeeper. And surely the wage of a worker has to be deducted from the receipts of the employer to arrive at the latter's net income. From the services of servants it is only a small step to the services of housewives and daughters which are frequently evaluated and included in national income. But sometimes, especially in the American household, not only the female members but also the male members perform many of the domestic services that in other countries, where labor is cheap, are performed by hired servants. It may be difficult to draw the line.

b) *The treatment of government services*

There is furthermore the question of the income of the government or rather of those who receive their income from the government: government officials, the police and fighting services, pensioners, receivers of poor and unemployment relief, and of subsidies, recipients of interest on government securities, etc.[6]

[6] On all this compare Colm, *Volume One*, Part Five. Dr. Colm distinguishes between the income of the government and the income of government officials. I should rather prefer to eliminate the government and focus attention on the physical individuals who receive their income through the government. In some cases, however, especially in the case of durable goods constructed by the government (gov-

Are all these receipts to be included in national income? Or more precisely: if these sums are counted as income of the respective recipients, do the taxes and contributions from which they are paid have to be deducted from the income of the taxpayers? Is the income of the taxpayer to be defined inclusive or exclusive of taxes? An analogy will clarify this issue. Suppose we buy food from a farmer or the services of a physician. What we pay to the farmer or to the physician comes out of our income and becomes income of the farmer or the physician. We would not deduct these sums from our income. If we pay taxes, we provide income for a government official, a Congressman, the President, a WPA worker, a farmer who receives a subsidy, and so on. Do we have to deduct this from our income? Obviously it depends on whether we regard the various government activities as useful. And our views will evidently differ according to their nature and the theory we hold about the usefulness, productivity, and desirability of the various government services.

It is clearly necessary to distinguish between different branches of government activity. Not everybody will consider an AAA subsidy that induces a farmer to destroy or not to produce wealth a useful service. In many other cases the usefulness of government services cannot be doubted. But even if we have, in a more or less arbitrary way, made up our mind what we consider useful and therefore constituting a part of the national dividend, it is still difficult to achieve an absolutely consistent treatment. Suppose we have decided that a certain part of taxes is to be deducted from the taxpayer's income, corresponding to that part of government expenditure which is considered a mere transfer of income, e.g. sums spent on poor and unemployment relief. If the same amount were raised, instead of by taxes, by selling government securities to the same group of people, nobody would deduct that amount from the income of the buyer of these securities or somebody else's income.

There is still another difficulty, which, after closer consideration, proves to be a blessing in disguise. If we consider some types

ernment investment), it may be a convenient fiction to speak of government income, without allocating it to individuals. But special care must be taken to avoid double counting. See also G. C. Means, Part Five, and Clark Warburton, *Volume One*, Part Two, Sec. IV.

of government activity 'productive' or 'useful', that is, as contributing something to national income, and therefore count expenditure connected with them as income and do not allow a corresponding deduction from taxpayers' income, we should sometimes commit an error of double counting. This would be the case when these services are not directly consumed, but rather help to produce something and thus enter the value of goods which, in turn, are counted as part of national income. The principle will become clear if we consider an analogy from the market sphere. Suppose a producer of, say automobiles, buys intermediate goods, raw materials, labor, and so on. Naturally we cannot put down as part of national income the value of all these things together with the gross value of the product, i.e., of automobiles. Exactly the same principle must hold for those government services that contribute to the production of goods or services that form a part, directly or indirectly, of national income.

Now there can be no doubt that a large part—I venture to say the greater part[7]—of government services (exclusive of income transfers such as poor and unemployment relief) are of this kind, are 'cost services' (as Professor Colm says), that is to say, have to be classified as producers' goods rather than as consumers' goods. This is undoubtedly true of all the services that directly assist business (information services, consular services, etc.), of a large part of legal services (courts), police, fighting services, etc. In order to test whether a particular kind of service is a consumers' or producers' good, the following question might well be asked: suppose the service in question is discontinued and no impairment of the production of other goods and services (which form a part of the national dividend) results, would the discontinuance of those government services be regarded as a loss? If not, they are clearly not regarded as valuable in themselves, but only because they assist in the production of other services which are either valuable in themselves (consumers' goods) or contribute directly or indirectly to the production of such goods. Of course, in a number of instances the answer to such a question will not

[7] It should be noted that this guess is not dependent on a radical laissez-faire attitude.

be uniform, but will vary according to personal predilections and general outlook. Some people, for example, may attach a value to military displays, training, the kind of mental attitude that a vast military machinery is bound to foster, quite irrespective of whether the expense can be justified by a rational evaluation of internal or external disturbances of the production process which are obviated by the existence or the activity of the military machine. But I venture to say that in many cases an agreement could be reached.[8]

If once a certain type of government activity has been declared as not having a value of its own in the sense indicated above, but as representing either a mere transfer of income or at best a cost service, the further treatment is unambiguously predetermined: we need *not* find out whether it actually is productive, that is to say, whether it contributes something to the national dividend. A staunch laissez-fairist would deny categorically that government activities can be productive. People with less extreme views would consider each case according to its own merit. But from the point of view of a computation of national income we need not go into that matter, just as we do not and need not inquire whether each worker, whose income we count as part of the national dividend, really contributes a value product equal to his wages. Even if he were a saboteur, that is, if his value product were negative, our calculation would not be upset. His wage must be put down as his income and will in any case be deducted as cost from the value product of the firm. His negative productivity will automatically find its expression in smaller physical output. In the national income calculation it will show up either in decreased profits or in higher prices (if output is lower than it otherwise would be) and hence a lower figure of deflated (real) income.

Similarly, for all cost services of the government (just as for income transfers effected by the government) a corresponding sum must be deducted from the taxpayers' income, that is to say, their income must be defined and measured exclusive of that part of taxes which corresponds to the cost of such government

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[8] For an attempt at a quantitative allocation of government expenditures between producers' and consumer's goods see R. W. Nelson and Donald Jackson, Part Six.

services (plus transfers). If it is held that some (or all) of these services contribute nothing, that they do not aid but impede the production of wealth, that does not in the least disturb our calculation. If it is true, then the ouptut of goods will be smaller than it otherwise would be and, provided the methods of calculating national income are otherwise correct and the data complete, that would find its expression in the national income figure in a lower level of money income of certain individuals or in a higher price deflator (price index).

How the cost of such government services and of income transfers is to be allocated among different groups of taxes and taxpayers is an entirely different question. The allocation must be to a very large extent arbitrary, because most government services are broad overhead services for the economy as a whole, and it is in many cases impossible or even meaningless to say that they contribute to one line of production rather than another. The allocation among different taxes is in any case only of secondary importance. The important thing is the classification of government services.[9]

If it could be assumed that all government services are of the nature of producers' goods, the computation of national income would be enormously facilitated; for then all questions of the productivity or usefulness of government activity, in principle as well as in specific cases, could be neglected as irrelevant. Unfortunately, this is not possible. Many types of government activity are certainly rather of the nature of consumers' goods; e.g., all or a large part of the services for recreation, education, health. Here the difficulty arises that we have—in most cases—no prices of these services. The price index (cost of living index or whatever it is) used to deflate money incomes does not and cannot take account of the prices and changes in the prices of these services. We know only the money cost, and, if money costs rise or

[9] Dr. Colm's paper can, it seems to me, be criticized on this score. He discusses first the question of 'Public Revenue in National Income' and speaks of the classification of public services only later, as if it were of the nature of an afterthought. What he says under the first heading seems to me inconclusive, if not looked at in the light of what follows. I see no justification for the postulate that cost services should be charged to business taxes rather than income taxes, or that the shiftability or the actual shifting of taxes should have anything to do with the question whether the taxpayer's income should be defined inclusive or exclusive of the tax.

fall, that need not imply a more or less plentiful supply of the services, but may merely reflect a change in the efficiency of rendering them. In the market sphere a change in cost due to a change in efficiency would be corrected by a change in price (assuming correct methods and complete data).

A further difficulty arises from the welfare point of view in connection with government investments in durable goods or construction. Irrespective of whether they are wholly or partly of the nature of durable consumers' goods (parks, roads, schools) or of producers' goods (dams, irrigation projects, office buildings, armaments, etc.) they are usually counted as part of the national product. From a welfare point of view, however, this is justifiable only if the works are considered useful or desirable, and if their desirability or usefulness is roughly proportional to their cost;[10] for what we know is only the cost and not—as in the case of goods sold in the market—the price the consumer is willing to pay. Thus all the difficulties that could be avoided in the case of cost services currently consumed come to the fore. There can be no doubt that the solution of these problems cannot but be very rough and will to a large extent depend on value judgments concerning which no general agreement can be expected and which are incapable of a rigorous scientific proof.

II National Income and its Components as Instruments of Economic Analysis, with Special Reference to the Relation between Saving and Investment

I THE PREVAILING TERMINOLOGICAL CONFUSION

When it comes to using the concept of national income in economic analysis, especially in business cycle analysis, fortunately many of the difficulties mentioned in the first part of this paper can be avoided; but as we shall see, others take their place. This must be attributed to the fact that, although the same words are used in economic analysis in general, and cycle analysis in par-

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[10] This has, of course, nothing to do with possible 'secondary' ('multiplier') effects of a policy of public expenditure on output and employment as a whole. If there are such effects—positive or negative—they would find their expression in a changed output of other goods and would thus be taken care of automatically by a correct national income calculation.

ticular, as in the computation of national income for purposes of welfare economics, their meaning undergoes a more or less far-reaching transformation.

It is not difficult to find examples. Take as a first instance the problem of government investments (public works) and their influence on economic activity. This problem has been much discussed in recent years under the heading 'Investment and Consumption', and by some writers a fairly stable quantitative relationship between the two has been assumed ('multiplier'). It would seem to follow that all the difficulties connected with the definition and measurement of the volume of public investment mentioned above would be brought to the fore, if the multiplier theory were applied to a specific case and an attempt made to find out what the probable consequences of government expenditure on economic activity were likely to be. Fortunately that is not so. Whether some types of government expenditure are regarded as productive or not, whether they are classified as consumption or investment, whether people are paid for leaning against a shovel, for digging holes, for having in some way participated in the World War (veterans' bonus), for building a dam, or for constructing a road or a battleship is almost entirely irrelevant from the point of view of the further effect of such expenditure. In many cases the classification of these types of expenditure as consumption or investment expenditures is quite arbitrary, but fortunately equally irrelevant from the point of view of their immediate secondary effects. What matters is the way these expenditures are financed, whether the successive recipients spend the money and how quickly they spend it, the existence of idle factors of production in those branches into which the additional demand is being directed (the absence of bottle necks), and the avoidance of psychological repercussions. It follows that the statistical application of the multiplier theory as it is now current among the Keynes school is not very useful. The multiplier states a relationship between investment and consumption, and Mr. Keynes and some of his followers try to draw conclusions from the relative magnitude of consumption and investment in normal years when private, profit-seeking, and price motivated investments prevail, which are then applied to find out something about the probable effects of what is more or less

arbitrarily classified as 'government investment'. The whole problem is thereby misconceived and attention diverted from the strategic factors indicated above.

The foregoing remarks, of course, touch but superficially the complex problems connected with a public works policy. I wanted only to give a first example of the difference between the meaning of such terms as 'investment' in an analysis of the business cycle and their meaning in national income computation.

We find, however, these disastrous equivocations not only if we apply the concepts national income, investment, consumption, saving, etc., to the public sphere of the economic system, but also if we confine ourselves to the market sphere where, on the whole, all those concepts are less ambiguous.

In almost all current theories of economic fluctuations the relation of saving and investment and the division of the national income into its component parts, that is to say, into consumption and investment or consumption and saving, play a very important role. It would seem to follow that for all these theories statistical income computations, especially when they break income into its components, are of the greatest value. Unfortunately, the confrontation of the theories with the facts by means of statistical measurements of income, saving, investment, and so on, with a view to verifying or disproving the theories, has so far made hardly any progress.

The reason is to be found not only and not primarily in the inadequacy of the statistical data, but in the pitiful confusion prevailing in the theoretical sphere: different theorists use the same words in a different sense, and statisticians in still another. Frequently they are not aware of the differences in meaning, and in many cases they are not able to handle their own set of definitions consistently. No wonder that statisticians do not derive much inspiration from the theory.

In the following pages a short sketch of some of the concepts of saving and investment as developed in recent theoretical literature will be offered, with special reference to statistical applicability. However, no exhaustive treatment is contemplated. The literature on the subject is already too vast and is still growing rapidly.[11]

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[11] A bibliographical note is appended to this paper.

2 THE CONTROVERSY OVER THE DEFINITION OF SAVING AND INVESTMENT

Probably no other two concepts have given rise to so much confusion and discussion in recent years as saving and investment. Are saving and investment necessarily equal? Can there be a difference between them? If so, what does such a difference mean? How is it to be measured? What are the consequences?

The fight about these questions is still raging and the pages of the various economic periodicals are filled with the cries of the battle.

It would seem well to begin by recalling, and to keep in mind, a few simple principles which, elementary though they are, have not always been observed in the discussion.

Whether saving and investment are necessarily equal or can be different depends on their definition. Without giving a precise definition there is no sense to such statements as 'it is a fact that saving and investment are equal' or 'they are in reality equal or unequal'.[12] If it is said, as many writers now say, that saving and investment are necessarily equal under all circumstances, and that their being unequal is absolutely inconceivable, this must be so by definition and must be demonstrated by a tautological transformation of the terms; an appeal to the facts or to experience is nonsense. In other words, this equality by definition does not tell us anything about the real world, but expresses a terminological convention about the use of the symbols (words). Hence there is no sense in using it as a condition for economic equilibrium or in postulating it as an objective of economic policy.

Since, however, almost all economists are rather loose in the definition of their terms and do not always use them consistently, it is not safe to rely solely on the explicit definitions a writer gives; we must also consider how he actually uses his terms. And a criticism that confines itself to pointing out that in a certain theoretical system the explicit definition does not fit the proposi-

[12] It sounds a little naive for A. P. Lerner to choose as a title for a paper the categorical statement: 'Saving Equals Investment', *Quarterly Journal of Economics*, Vol. LII (February 1938), pp. 297-309. An equally categorical and therefore naive attitude is displayed by Joan Robinson in her *Introduction to the Theory of Employment* (London, 1937) *passim*.

tions where the term is used, may be very superficial. A slight change in the definition will sometimes not only give sense to the propositions where the term is used, but also make them valuable statements. A fair and constructive critic will investigate this possibility.

3 THE KEYNESIAN IDENTITY OF SAVING AND INVESTMENT

Let us begin with saving and investment in a sense in which they are necessarily equal. If (as most writers do) we define the income of a period for society as a whole (we shall denote it from now on as Y) as the total output of the period or, more precisely, the money value of the output; if we define saving, S, as that part of the income which is not consumed, and investment, I, as the addition to the stock of capital, then S and I are identically the same thing. We have two symbols for the same magnitude. Both S and I denote the unconsumed part of current output. The definition and measurement of that magnitude involve, of course, difficult problems such as the determination of the proper amortization requirements and what is to be understood by maintaining capital intact. The magnitude in question can furthermore be expressed in terms of current prices or can be 'deflated', and the choice of the proper price index for deflating current-price values presents great difficulties. However, all these difficulties and ambiguities concern S and I alike; they cannot give rise to a difference between them, for the unconsumed output, after it has been defined in one way or the other, is the same thing whether we call it saving or investment.

These are, as is well known, Mr. Keynes' definitions as used in his *General Theory*, and so far he is, of course, quite right. And we must admit that these definitions are the ones frequently given by writers who do not care much about precise definitions, but try simply to formulate the everyday meaning of their terms. Therefore, those writers who want to speak of differences between S and I must change their definitions. Otherwise their terminology is inconsistent and it is difficult to attach any definite sense to what they are saying when they speak of a difference between S and I.

I have said that Keynes is right in saying that under these definitions $S = I$. But, of course, he says much more in this con-

nection, and much that is not right. First he defines S and I as identical, but at the same time uses both terms, and neither indiscriminately nor for purely stylistic reasons; then he keeps saying—and that is an integral part of his theory—that I and S are 'made equal', 'are brought into line' by a change in Y. None of this makes sense according to his definitions; S and I are equal because they are identical at any moment of time. No adjustment is required to make them equal, for they are different symbols for the same thing.[13]

But although aggregate S and I are identically the same thing, there is no necessity that for each individual S and I must be equal. How is this possible? Does it not prove that the equality of S and I is more than a convention about the use of terms?

To clear up the situation we may turn with profit to Mr. Lerner's account, since it is easily the most precise.[14] Y is there defined as the sum "of expenditures of all kinds".[15] All these Y's are classified either as C's or I's, consumption expenditures and investment expenditures, i.e., "expenditures on things other than consumption since these two make up all possible expenditures".[16] I is thus defined as Y-C. And S is also Y-C. But how can S and I then be unequal for some individuals?

The solution is very simple. Each act of expenditure that constitutes Y and C or I at the same time must be allocated to a given individual; it must have, so to speak, a personal index—it must be income, consumption, or investment of somebody.

[13] That has been pointed out by Myra Curtis, 'Is Money Saving Equal to Investment', *Quarterly Journal of Economics*, Vol. LI (August 1937), pp. 604-25, by R. G. Hawtrey and others.

[14] *Loc. cit.*, p. 298.

[15] Mr. Lerner's description is not quite general, because there are expenditures that are not income expenditures (interbusiness transactions, transfer payments, etc.) and, as we shall see, it is not always possible to identify individual acts of expenditure as income expenditures. But let us abstract from these difficulties and assume that we have somehow made a selection of those expenditures that constitute income.

[16] *Loc. cit.*, p. 298. Note that I is defined only negatively. That all Y's must be either C's or I's is not the only possible convention in accord with everyday usage of the terms. Suppose the government creates money and spends it on unemployment relief, then according to the ordinary usage we would say that these expenditures constitute income of the unemployed but neither C nor I. (The subsequent expenditure of these sums by the unemployed constitutes C on the part of the unemployed and Y on the part of the receiver of the money.) Mr. Lerner would probably classify that expenditure as an I-expenditure, because it is "on things other than consumption".

Now, one and the same act of expenditure constitutes Y of the *receiver* of money ("the receipt of which [viz., of the payments] constitutes all the incomes")[17] and C or I of the *spender* of the money. And likewise the S's, although they are made up of the same elements as the I's, are not allocated to the same individuals as the I's. Suppose, e.g., an entrepreneur pays wages to workers who are engaged in constructing a house. Then this expenditure constitutes I on the part of the entrepreneur and (so long as the workers have not spent the money) S on the part of the workers. When they spend the money the S is shifted to somebody else.[18]

Hence there is nothing mysterious about the fact that S and I are the same thing in the aggregate, but may be unequal for particular individuals. The purely conventional matter of the equality of S and I is not in the least affected.

4 VARIOUS DEFINITIONS ACCORDING TO WHICH SAVING AND INVESTMENT NEED NOT BE EQUAL

Let us discuss now the sense or senses in which saving and investment can be said to be unequal by sketching the evolution in the usage of these words in recent literature.

a) *Traditional definitions*

We can first distinguish the 'Pre-Keynesian' usage of the terms saving and investment. Before Mr. Keynes' *Treatise on Money* appeared, economists spoke quite naively and unsophisticatedly of differences between S and I. Wicksell and the Neo-Wicksellians, especially Professor Hayek, and others used that language and it was adopted by a great many other writers.

An excess of investment over saving was meant to imply inflation. If all investments during a period are financed by, or are equal to, voluntary saving, then, so far as these investments are concerned, no inflation, that is, no increase in total monetary demand for goods is occurring. If, however, investment exceeds saving, inflationary sources are being tapped; the excess is financed either by newly created bank credit or by dishoarding, which implies an increase in monetary demand for, and expenditure on, goods in general.

[17] Lerner, *loc. cit.*, p. 298.
[18] That in this case this account of the matter is not in line with the everyday usage of the terms is another question that will be discussed below under 4 (d).

On the other hand, saving is said to exceed investment when people hoard or when receipts are used to extinguish deposit money (by repaying bank credits). That part of income which people hoard they do not spend on consumption. Hence, on the definition of saving as income minus consumption, what is hoarded constitutes saving. But these sums are not spent on capital goods; hence they do not constitute investment; hence S exceeds I. An excess of saving implies deflation.

This language is irresistibly convenient and seems to express very realistically what actually happens during the prosperity and depression phases of the cycle respectively. Nevertheless, it conceals difficulties unless the definitions of S and I are different from those previously given. It seems that the writers mentioned above have not been aware of these difficulties; this is at least indicated by their failure to give careful definitions of S and I. We shall see at once that definitions of S and I can be devised that fit perfectly that convenient language [see below under (d)]. But historically the solution comes a little later.

b) *Keynes' early concepts*

The next stage in the doctrinal development is marked by Mr. Keynes' *Treatise on Money*, which has made the catch words 'excess-saving' and 'excess-investment' really popular. He makes these two magnitudes play a strategic role in the theory of economic fluctuations. Mr. Keynes was aware of the fact that under the loose every-day definition of S and I they are necessarily equal. He therefore tried to define his terms very carefully and consistently. Unfortunately, however, Mr. Keynes' definitions rob his terms of all causal significance in explaining expansion and contraction of output. All such statements, spread through the two volumes of the *Treatise*, as that this or that factor or event can produce a favorable or unfavorable effect on output only if and so far as it leads to excess investment or excess saving, are reduced to worthless tautologies. Since Mr. Keynes has given up the terminology of his *Treatise*, I need indicate only very briefly why that is so.[19] Income is defined as normal income, that is to say, total earnings minus windfall profits (plus negative profits,

[19] Cf. Hawtrey's analysis in *The Art of Central Banking* (London, 1932), pp. 334 ff.

i.e., losses). Saving is income minus consumption. Investment is total earnings minus consumption. Hence an excess of saving over investment is so defined as to be equal to losses, and an excess of investment over saving is by definition equal to profits. In turn, profits and losses are defined as that amount by which actual entrepreneurial income exceeds, or falls short of, that level which would leave the entrepreneur under no inducement to change the level of output and employment.

To give an example: inserting all these definitions, the statement to the effect that the introduction of a protective tariff will increase output, only if and so far as it leads to an excess of investment over saving, comes to this: "The introduction of a protective tariff will increase output, only if and so far as it changes entrepreneurial earnings to such an extent that entrepreneurs do increase output"—a proposition that does not take us very far.

c) *Ex ante and ex post concepts*

Another interpretation of a difference between saving and investment has been suggested by a group of modern Swedish writers such as Lindahl, Lundberg, Myrdal, and Ohlin.

For all the magnitudes concerned—income, consumption, saving, investment, etc.—they distinguish between an *ex ante* and an *ex post* sense. Looking back at the end of any period, what Y, C, S, and I actually were can be measured. In this *ex post* sense S and I are equal because they are both defined as $Y - C$.

From the *ex post* sense of these concepts the *ex ante* sense must be carefully distinguished, and what is true of the *ex post* phenomena of a certain kind need not be true of the corresponding *ex ante* phenomena. The *ex ante* phenomena are the expectations and plans entertained by all the individuals and firms at any point of time for some period ahead of that point. All members of an economic society at any moment of time expect a certain income, and plan or intend to spend a certain part of it on consumption and to save another part. The entrepreneurs expect certain prices to rule, a certain demand situation, interest rates, etc., and on the basis of these expectations they plan a certain amount of investment.

Summing up the expected incomes, the planned consumption, the planned savings, and investments of all individuals, we arrive

at the *ex ante* magnitudes of these phenomena for the economy as a whole.[20]

"There is no reason," according to Professor Ohlin, "for assuming that [planned saving and planned investment] should be equal. But when the period is finished, [realized] investment is equal to [realized] savings. How does this equality 'come about'? The answer is that the inequality of Sa [*ex ante* saving] and Ia [*ex ante* investment] sets in motion a process which makes realized income differ from expected income, realized savings from planned savings, and realized new investment differ from the coresponding plan. These differences we can call: *unexpected income, unexpected new investment* and *unintentional savings* . . . The business man who, after the closing of his accounts, finds that he has had a larger net income than he expected and that therefore the surplus over and above his consumption is greater than his planned savings, has provided 'unintentional savings' which is equal to this extra surplus. Unexpected new investment, which, like unintentional saving, may, of course, be negative, can mean simply that stocks at the end of the period are different from what the entrepreneur expected. . . .

"Assume that people decide to reduce their savings and increase their consumption during the next period by 10 million, as compared with the realized savings and consumption during the period which has just finished . . . Assume further that the planned investment is equal to the realized investment during the last period." (Since realized saving and realized investment are equal, the assumption implies that *ex ante* saving falls short by 10 million of *ex ante* investment.) "What will be the result? Retail sales of consumption goods will rise 10 million and the stocks of retailers will at the end of the period be down, e.g., 7 million, the remaining 3 million being the extra [unexpected] income of the retailers.[21] This latter sum is 'unintentional' savings. Thus real-

[20] No critical examination of the whole approach will be attempted, although it badly needs clarification and modification in several respects. After all, it is not expectations, that is, purely psychological phenomena, but actions, that influence and change the situation. People are, on the whole, not so much influenced by other people's expectations, as by their actual behavior. Therefore, in order to achieve complete clarity and precision, it will be necessary for the authors of that theoretical schematism to indicate how the psychological concepts can be interpreted by, or translated into, behavioristic terms.
[21] Professor Ohlin obviously assumes that retailers have put up prices to such an

ized saving is down only 7 million, or the same amount as realized investment."[22] Realized investments are down, because the depletion of stocks by 7 millions is counted as unintentional or unexpected disinvestment.[23]

Similarly, other cases of an *ex ante* difference between S and I can be analysed. "When the State finances public works with the printing of new notes, the increased investment is matched [*ex post*] by increased 'real' savings" although *ex ante* investments were in excess of savings, because no planned saving corresponded to the planned government investment. "At the end of the period some people hold more cash than at its beginning. This is evidence that they have had an income which they have not consumed, i.e., that they have saved. *Ex post* there is *ex definitione* equality between savings and investment."[24]

Mr. Hawtrey's analysis is similar. He distinguishes between 'designed' or 'active' investment, on the one hand, and 'undesigned' or 'passive' investment, on the other. Their sum is total investment and saving ('increment of unconsumed wealth'). Designed investment is defined as the voluntary acquisition of items of unconsumed wealth in the expectation that they will be remunerative. This is evidently what Mr. Ohlin calls *ex ante* investment. Undesigned investment is defined as an "increment of unconsumed wealth which is not acquired voluntarily in the expectation of its being remunerative. This will be an involuntary accumulation of unsold goods"—Professor Ohlin's unexpected

extent that the increased demand of 10 million has reduced stocks (measured in *old* prices) by 7 million.

[22] Bertil Ohlin, *Economic Journal*, Vol. XLVII (March 1937), pp. 64-6. Italics as in the original.

[23] This analysis involves the assumption that the supply of investible funds from other sources than current saving is elastic. In other words, that the money supply in the form, for example, of bank credit, is quite elastic, that the banks are prepared and able to finance the investment plans, even if consumption expenditure rises. Otherwise the planned investments could not go ahead undisturbed by the fact that people spend more on consumption. This assumption about the elastic money supply may be reasonable, especially if the period in question is sufficiently short; but it should be made explicit. It may not be correct and if it is not, the rate of interest will rise so much that the investment plans will be sufficiently scaled down. This may very well lead to more or less serious disturbances in the capital goods industries, as analysed by Professor Hayek in his various writings. These considerations suggest that Professor Hayek's theory can be well expressed with the help of the Swedish terminological apparatus.

[24] Ohlin, *loc. cit.*, p. 69.

investment. "Passive investment may be a negative quantity; that is to say, active investment may exceed saving, and the excess will be represented by an undesigned disinvestment or decrement of stocks of unsold goods. Thus active investment and saving (= total investment) may be unequal. If they are, the resulting undesigned increment or decrement of unsold goods will be a source of disequilibrium, leading to a decrease or an increase in productive activity and possibly also in the price level."[25]

d) *Robertson's definition of saving and investment*

D. H. Robertson has proposed a set of definitions that allows us to speak of differences between S and I and comes very near to, or even makes explicit, what is meant when the terms are used in the unsophisticated way outlined above under (a).

The discussion of a simple case will show that the definitions that make S = I (saving is income minus consumption; income is the value of total output; investment is output minus consumption), although they sound very familiar, lead sometimes to very strange[26] results which are avoided by Mr. Robertson's definitions.

Suppose somebody, the government or a private firm, spends money on the construction of something that is considered an investment, say, a road, and the money is created *ad hoc* by the

[25] *Capital and Employment* (London, 1937), pp. 176-7. Mr. Hawtrey's analysis avoids some obscurities that attach to Professor Ohlin's theory. Designed invesments are actual investments. They exist not only in the plans but can in principle at least, be registered *ex post*. Ohlin, in a later article, 'Alternative Theories of the Rate of Interest', *Economic Journal*, Vol. XLVII (1937), p. 423, characterizes the *ex ante* concepts of S and I as meaning the same as demand and supply *schedules* for saving. *Ex post* S and I are then actual demand and supply as determined by the intersection of the schedules. It is, however, difficult to see how one can speak of *the* difference between *ex ante* S and I, if S and I *ex ante* are schedules. There is, then, in reality, a whole series of differences, corresponding to a series of hypothetical interest rates. When Ohlin speaks of *the* difference between *ex ante* S and I, he probably means the difference corresponding to that rate of interest which actually obtains in the market (the rate of interest being determined by the intersection of the demand and supply curve of credit of which the curves relating to *ex ante* S and I constitute a part). This difference is then not only an *ex ante*, but an *ex post* phenomenon as well, being the same thing as Hawtrey's undesigned investment which was clearly foreshadowed in D. H. Robertson's 'induced lacking', *Banking Policy and the Price Level* (London, 1926), Ch. V.

[26] Strange in the sense of being in contradiction to general, unsophisticated usage.

banks or comes from hoards (idle deposits). The new money is paid out as wages to the workers engaged, either directly on the spot or indirectly in the industries that provide material and machinery for the construction of the road, and the workers spend what they receive on consumers' goods. The unsophisticated will say there is investment but no saving, the investment being financed by 'inflation'. No, says the sophisticated economist. Saving must be equal to investment. But where is the saving? Mr. Harrod informs us that "for a few days the whole of the net investment may be financed by the savings of those who receive that money; before they begin to spend the money they save what they receive".[27] The worker who receives his weekly wage on, say, Saturday afternoon and has no opportunity to spend it during the night and refrains from spending it on Sunday saves it. When he spends it gradually during the following week on consumption, he gradually dissaves and, presumably, the retailer save it if he raises the price of his wares and thus makes a profit. If he depletes his stocks, he disinvests and this disinvestment wipes out the original investment.

This account of the matter sounds very strange, but it follows from the definitions given above. The income of the worker increases by the whole amount of the wage, when the wage is paid out. Consumption does not rise at once. Therefore, $Y - C = S$ has risen by the whole amount.

There can be no doubt that this is very confusing and unusual terminology. It amounts to the substitution of the terms 'saving' and 'dissaving' for 'receiving' and 'spending' money. But we do not ordinarily call it 'saving' if people refrain from spending their money income immediately, that is to say, if they keep it for a little while, paying it out at discrete intervals. Only if money is not spent on consumption for a longer period than is dictated by the length of the income period is it said to be saved or hoarded.

It should be noted that this discontinuity of income payments, and of payments in general, is an essential feature of a money economy. A shortening of the income period and other payment periods implies an increase in the velocity of circulation of money.[28] If the income period approaches zero, the velocity of

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[27] *The Trade Cycle* (Oxford, 1936), p. 72.

[28] Historically that happened to an extreme extent at the height of the German inflation in 1922-23, when incomes were paid out daily and, for a while, twice a

circulation rises to infinity and any finite quantity of circulating money raises the price level to infinity. In other words, a continuous money income stream is incompatible with a money economy. A perfectly continuous *money* income stream is a *contradictio in adjecto.*

Mr. Robertson takes care of that fact in his definitions. By adopting a 'period analysis', he introduces explicitly from the beginning the discontinuity of the income streams. He assumes that money received 'today' is available for expenditure only on the next 'day'. A 'day' may be a little longer than a day, say, a week. That depends on the payment habits. For any day he distinguishes, accordingly, between disposable and earned income. The disposable income is the earned income of the preceding day, and the earned income that is paid out today becomes disposable tomorrow.

Saving for any day is defined as *disposable* income of the same day minus consumption expenditure of the same day.

Investment, on the other hand, is defined as actual expenditure on investment goods during the day. Hence investment can be greater than saving because money may be spent out of other sources than disposable income. Expenditure may be made from newly created bank money or from hoards. This money becomes, of course, earned income on the same day and disposable income on the following day. Thus an excess of I over S, on the one hand, implies an increase of today's (earned) income over yesterday's (earned) income. An excess of S over I, on the other hand, implies a decrease of today's income as compared with yesterday's income. Evidently, if it is said in an unsophisticated way that any excess of I over S must be financed by 'inflation', precisely this is meant: inflation is defined as an increase in income, in other words, in MV (V being the income velocity of money).

Thus a set of definitions can be developed that gives precision and consistency to what I have called the unsophisticated usage of the terms S and I.[29]

day. Hence prices rose much faster than the quantity of money. This was reflected in a decline of the 'real' value (in terms of general purchasing power or of gold) of the total quantity of money to a small fraction of its normal level. (From this fact that the quantity of money in terms of gold decreased, some German economists, e.g., Karl Helferich, concluded that there was no inflation in Germany at that time!)

[29] It is interesting that Myra Curtis in her brilliant article (*loc. cit.*) applies a period

A few further remarks seem to be in order. Mr. Robertson uses income here in the sense of actual money income involving monetary transactions (a transfer of money), in contradistinction to income in the sense of the money value of real goods.[30] Evidently the two concepts do not coincide and should be clearly distinguished.[31] Professor Ohlin, for example, says that income, in his sense, "has nothing to do with the actual receipt of cash".[32] Thus, money income in Mr. Robertson's sense is no longer rigidly linked by definition with the value of output.

The two magnitudes need not coincide, because income in the sense of money value of output comprises items that do not give rise to monetary transactions ('imputed' income or 'bartered' income). But even if all transactions of goods took the shape of purchases for, and sales against, money, there would be certain discrepancies between the two types of income, because money incomes are received at discrete intervals while real income flows more continuously. Furthermore, if *new* money is created and handed to, say, an unemployed person or to an official, this might be called money income of the unemployed person or

analysis a la Robertson, apparently without being aware of this fact (at least, she does not mention Mr. Robertson's name) and, unfortunately, without making the distinction between successive short periods sufficiently explicit. That it is implicit in her analysis can be easily demonstrated. She speaks, for example, of "expenditure not out of income" which is "included in Y but not in I or C" (p. 610), I and C being defined as expenditure out of income on investment and consumption, respectively. The income 'out of which' people spend during a period is evidently Mr. Robertson's disposable income, and the income that is created by expenditure (out of income and not out of income) is the earned income of the period.

There is, however, one difficulty about Miss Curtis' scheme that is not present in Mr. Robertson's analysis. It is true that it can be objectively ascertained whether today's (earned) income is greater or smaller than yesterday's income, in Miss Curtis' words, whether there has been "expenditure not out of income" or whether "income has been withheld from expenditure" (has been hoarded). But how can we allocate the difference to C and I? How can we say, for example, that an expenditure not out of income was on consumption rather than on investment, or vice versa? Evidently, neither an individual piece of money nor an individual act of expenditure can be identified as 'coming out of income' or 'not out of income'. These are non-operational concepts, figurative language. What we can do is compare Y, C, and I in successive periods; but that should be sufficient to build up the definitions and to describe the process completely in all its details.

[30] Undeflated, that is, in current prices, or deflated by any sort of a price index number.

[31] A corresponding distinction should be made for saving and (perhaps) for investment.

[32] *Economic Journal*, Vol. XLVII (1937), p. 65.

official. Before the money is spent by the unemployed or the official on goods or services, there is no increase in the value of output corresponding to this income item. For a longer period these discrepancies between money income and value of output tend to become unimportant (because of the overlapping of periods at the beginning and end they never disappear completely), but in a microscopic analysis of the type into which the saving-investment controversy has led, they cannot be neglected.

In the case of non-wage and non-salary incomes, the concept of actual money income gives rise to further difficulties which make it impossible to define it without some reference to the real side of income. Not all money receipts and expenditures of a firm are income receipts and expenditures. Which part of the total flow of money is to be regarded as the income flow and which as 'intermediate transactions' can be defined only with reference to the 'real' sphere. But even if this has been accomplished satisfactorily, it is in many cases not possible, without more or less arbitrary conventions, to identify individual transactions (either the 'real' or the corresponding 'monetary' transactions) as income or non-income transactions. It is, for example, not under all circumstances admissible to regard all purchases of consumers' goods by the final consumer as income transactions, because consumption might exceed income (that is, capital consumption or disinvestment might take place). Nor is it possible to identify an individual purchase of a capital good as constituting new investment or replacement, that is, as belonging or not belonging to the income sphere. Income and new investment can be determined only in the aggregate, as residuals, by deducting from total output consumption and what is considered necessary for maintaining the capital stock intact.[33]

These complications are, however, not insuperable, although no attempt has been made in this paper to elaborate the analysis so as to take care of them and to include all non-income transactions in a coherent scheme of definitions.

e) *A hybrid definition of 'excess saving'*
A peculiar and unusual definition of S and I is implied by the

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[33] The definition and, *a fortiori*, the measurement of the latter item present very great difficulties in themselves. Fortunately, however, for many purposes a gross definition of income and investment seems sufficient.

statistical measures employed in the well known Brookings study.[34] What there is called a difference between S and I is not identical with any one of the various meanings of the ambiguous terms analysed above.

The Brookings studies have been subjected to very elaborate and destructive criticism.[35] Here only one point will be touched upon. For 1929 the Brookings study calculates an excess of S over I of 10.3 billion, and similarly for the preceding years. Since this was a period of rapid expansion, this result is paradoxical. On the Robertsonian or Swedish-Hawtreyian definition one should expect in prosperity years I to run ahead of S. The main reason for Mr. Moulton's striking result is his treatment of capital gains.[36] Realized capital gains are added to the income figure and hence to saving. Unrealized capital gains are, however, excluded from income.

This differentiation between realized and unrealized capital gains would seem to be hardly justifiable. Suppose A owns a capital asset that has risen in price. He sells it to B and realizes a capital gain which he spends on consumption, while he invests an amount corresponding to the original value of the asset and thereby keeps intact the nominal value of his capital. Hence A's income and consumption have risen by the same amount and his saving is zero. B's saving, on the other hand, is equal to the *new* value of the asset.

Now suppose that A does not sell the asset, but keeps it. B, on the other hand, saves and invests an amount equal to the *original* value of the asset and consumes an amount equal to the (unrealized) capital gain. Evidently as far as the market is concerned A and B together have bought consumption goods and investment goods to exactly the same extent as in the first case. A consolidated balance sheet of both should show the same amount of

[34] Cf. mainly H. G. Moulton, *The Formation of Capital* (1935), and the other volumes of that series: *America's Capacity to Produce* (1934), *America's Capacity to Consume* (1934), *Income and Economic Progress* (1935).

[35] Cf. A. F. Burns, 'The Brookings Inquiry into Income Distribution and Progress', *Quarterly Journal of Economics*, Vol. L (1935-36), p. 476, and H. H. Villard, 'Dr. Moulton's Estimates of Saving and Investment', *American Economic Review*, September 1937.

[36] For a similar interpretation of the Brookings result see Warburton, *Volume One*, Part Two, pp. 107-10.

S, C, and Y as in the first case. According to Mr. Moulton's method, however, we get in the second case a decrease in S by the amount of the capital gain as compared with the first case. It is difficult to see what the significance of this difference is.

There is, however, a more serious objection. A's capital gain is counted as an increment of Y, and, given C, of S. On the other hand, B's expenditure on the asset in question is not counted as I, because I is measured by the value of new investment goods. In other words, realized capital gains are S but not I. It is difficult to give an economic interpretation to the results of the procedure.

5 STATISTICAL APPLICABILITY

The question may now be asked whether it is possible to measure statistically saving and investment and differences between them in any one of these various meanings of the terms.

a) There will hardly be disagreement with the conclusion that saving and investment in the *ex ante* sense could not well be measured, even if the concepts were defined with perfect precision in operational terms which, as we have seen, they are not.

b) The concepts of S and I, as defined by Mr. Keynes in his *Treatise on Money*, are so unusual and depend so much on the peculiar definition of income exclusive of profit, profit being defined in a very special sense, that they too are not susceptible of statistical measurement.

c) Mr. Robertson's concept of the difference between S and I hinges on the distinction of very short periods. These periods are not the same for all types of income and payment; they change over time and overlap. Although, in my opinion, this terminological apparatus is extremely useful or even indispensable for a microscopic theoretical analysis, it does not lend itself to macroscopic statistical measurement. This, however, by no means precludes the desirability and usefulness of a statistical analysis of certain phenomena analysed microscopically by Mr. Roberston, e.g., of the hoarding process. But it need not be done under the heading of a difference between S and I.

d) Statistically speaking I should, for society as a whole, define S and I identically as unconsumed output. This, again, does not exclude the possibility of approaching that magnitude from dif-

ferent sides; say, from the money side, by calculating money income of individuals and deducting consumption expenditure, and, from the real side, by measuring the output of new capital goods and of consumers' goods, respectively. That is what, for example, Jakob Marschak and Walter Lederer in their book *Kapitalbildung* do. They try to measure what they call 'Geldkapitalbildung' and 'Realkapitalbildung', capital formation from the real and from the money side.

These two measures will never be the same, but the difference is by no means a measure of the difference between S and I in any one of the theoretical meanings distinguished above; it is entirely due to differences in the reliability and completeness of the statistical data used in the two procedures.

BILIOGRAPHY OF RECENT THEORETICAL LITERATURE ON SAVING AND INVESTMENT

Myra Curtis, 'Is Money Saving Equal to Investment?', *Quarterly Journal of Economics*, Vol. LI (August 1937), pp. 604-25

Gottfried Haberler and Karl Bode, 'Monetary Equilibrium and the Price Level in a Progressive Economy', *Economica*, Vol. II (1935), pp. 75-81

Gottfried Haberler, *Prosperity and Depression* (3rd ed., Geneva, 1938)

R. F. Harrod, *The Trade Cycle* (Oxford, 1936)

R. G. Hawtrey, *Capital and Employment* (London, 1937), and 'Alternative Theories of the Rate of Interest: Three Rejoiners', *Economic Journal*, Vol. XLVII (September 1937), pp. 436-43

F. A. Hayek, 'Maintenance of Capital', *Economica*, Vol. II (August 1935), p. 241

J. M. Keynes, *A Treatise on Money* (Macmillan, 1930), *The General Theory of Employment, Interest and Money* (Macmillan, 1936), and various articles in the *Economic Journal*

A. P. Lerner, 'Mr. Keynes' "General Theory of Employment, Interest and Money" ', *International Labour Review*, Vol. XXXIV (October 1936), pp. 435-54; 'Keynes' "General Theory" ', *International Labour Review*, Vol. XXXVI (November 1937), pp. 585-90; 'Saving Equals Investment', *Quarterly Journal of Economics*, Vol. LII (February 1938), pp. 297-309

Erik Lundberg, *Studies in the Theory of Economic Expansion* (London, 1937)

F. A. Lutz, 'Saving and Investment', *Quarterly Journal of Economics*, Vol. LII (August 1938)

Jakob Marschak and Walter Lederer, *Kapitalbildung* (London, 1936)

Gunnar Myrdal, 'Der Gleichgewichtsbegriff als Instrument der geldtheoretischen Analyse', *Beitrage zur Geldtheorie*, ed. by F. A. Hayek (Vienna, 1933). An English edition is being published by William Hodge, London

Bertil Ohlin, 'Some Notes on the Stockholm Theory of Savings and Investment', *Economic Journal*, Vol. XLVII (March and June 1937), pp. 53-69, 221-40; 'Alternative Theories of the Rate of Interest: Three Rejoiners', *Economic Journal*, Vol. XLVI (September 1937), pp. 423-7

A. C. Pigou, *Economics of Welfare* (4th ed., London, 1932), Part I, Ch. V ('What

Meant by Maintaining Capital Intact'); 'Net Income and Capital Depletion', *Economic Journal*, Vol. XLV (June 1935), pp. 235-41

D. H. Robertson, *Banking Policy and the Price Level* (London, 1926); 'Saving and Hoarding', *Economic Journal*, Vol. XLIII (September 1933), pp. 399-413; the discussion between Mr. Robertson, Mr. Keynes, and Mr. Hawtrey in *Economic Journal*, Vol. XLIII (December 1933), pp. 709-12; 'Alternative Theories of the Rate of Interest', *Economic Journal*, Vol. XLVII (September 1937), pp. 428-36; 'A Survey of Modern Monetary Controversy', *Journal of Manchester Statistical Society* (1937)

Discussion

I   M.   A.   COPELAND

It is difficult to read Dr. Haberler's admirable summary of the controversy over the relationships between saving and investment without getting the impression that various theorists, having become committed to the view that the difference between saving and investment is significant for an understanding of business fluctuations, have each sought to find a tenable meaning for this difference.

A clear understanding of the relationship between these two concepts seems to me to call for a recognition of the fact that investment represents the value of the increase in asset items on the consolidated national balance sheet, and saving, the value of the increase in equity items. When these two concepts are so conceived, it is clear that if saving and investment are consistently defined and evaluated for a given community and period, they will necessarily be equal. They are not, however, identical. The measurement of saving and of investment in such a way that they shall be defined and evaluated consistently is, indeed, extremely difficult. Dr. Warburton has given an able statement of the difficulties involved.[1]

Consistency of definition and valuation and hence equality of actual saving and investment is, of course, an integral part of such a view as that of Ohlin which rests essentially on distinguishing a record of past events from a statement of future estimates. With the insistence of this type of view on the necessity for a careful distinction between *ex ante* and *ex post* analysis I am in full agreement, as I am with the conclusion that in retrospect actual saving and actual investment for any past period are necessarily equal, *provided they are consistently defined*. But the propo-

[1] *Volume One*, Part Two, pp. 101 ff.

sition that planned saving and planned investment often differ significantly and the implication that unexpected investment and unintentional saving arise only out of such a difference[2] seem to me to imply a condition contrary to fact. This proposition and its implication appear to assume that for some advance period of significant length a budget or plan exists for each item of saving and for each item of investment to be made in the community; and incidentally, that the plans for saving and the plans for investment are made largely independently.

In commenting upon the criticism, sometimes leveled against the older type of economic theory, that it is an overrationalization of human behavior, J. M. Clark has noted that one interpretation of this criticism is that man is not ubiquitously a budget-making animal. I submit that a theory of the business cycle that assumes the budgeting of all saving items and the somewhat separate budgeting of all investment items in a community even for a period as short as a week assumes that man is a great deal more of a budget-making animal than is actually the case. Many investments and a larger number of saving items are not planned very far in advance.[3]

If we are to interpret business cycles in terms of budgets, there seems reason for considering a variety of discrepancies rather than concentrating on the discrepancy between budgeted savings and budgeted investments; for example, for considering the discrepancy between budgeted commodity sales and actual commodity sales. There is also some reason to urge that business fluctuations arise not so much because a complete set of saving

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[2] See *Economic Journal*, Vol. XLVII (March 1937), p. 65.

[3] Ohlin has foreseen the possibility of a criticism of the type here offered on this one aspect of his theory. In a brief note (*Economic Journal*, XLVII, 426) he tells us that he hopes that every reader who feels that his assumption of planned saving and planned investment is unrealistic will ask himself whether this criticism does not involve the whole analysis of price in terms of supply and demand schedules. He appears to think of such schedules as consisting of budgets or plans. I suggest that supply and demand schedules need not be so conceived. Without renouncing my privilege of criticizing schedule analysis on other grounds, I suggest that it does not necessarily depend on the assumption that man is a budget-making animal. Different demands (supplies) at different prices may be thought of simply as different conventional or habitual responses to differing social stimuli. The relationship between a particular amount demanded and a particular demand price is thus a special instance of the relation between response and stimulus.

budgets and an uncoordinated complete set of investment budgets exist as because budgetary practice is still relatively new and far from universal. Further development of budgetary practice by both governments and private corporations is likely in the course of time to lead to the putting together of these budgets into an approach toward a consolidated budget for the community. Such a development may well prove to have a definitely stabilizing influence on business fluctuations.

Robertson's view of the distinction between saving and investment, with which Dr. Haberler is apparently in general agreement, I find somewhat elusive. Indeed at this writing I am uncertain how far the agreement between these two writers extends. I shall confine my remarks to Dr. Haberler's statement. His assertion that such a view is apparently needed to avoid the "very confusing and unusual terminology" involved in Harrod's position [II 4(d)] is not entirely convincing. If individuals increase their holdings of cash, or of 'deposit currency' (without decreasing their holdings of other equities), this increase may fairly be construed as a form of saving. But the illustration employed to show that this statement involves 'confusing and unusual terminology' [II, 4(d)] deals with a case where individuals increase their holdings of cash temporarily, owing to the periodic character of payments of wages, etc. The question whether there is a temporary saving by recipients of wages paid on a weekly basis during the early part of the week may be put in these terms: does the increase in the cash holdings of individuals due to payment of wages take place without a corresponding decrease in other equities held by individuals? If two consolidated national balance sheets were set up, one representing the condition immediately before payment of wages and the other representing the condition immediately after, there is no reason to assume that the payment of wages would involve a net increase in the total equities held by individuals. If accounts are kept on an accrual basis the increase in cash holdings would be offset by a decrease in the accrued payroll liabilities due wage earners. If the accounts are not kept on an accrual basis the increase in cash holdings of individuals would be offset by a decrease in proprietorship equities. In other words, the debit entry corresponding to the credit to cash on account of wage payments would presumably be either a

charge to accrued payroll liabilities or a charge to profit and loss. In neither case does the increase in cash holdings of individuals represent a net increase in the total equities held by individuals. No one would contend that a mere change in the form of equity held by individuals represented saving.

So far as I can see, the view offered to avoid 'confusing and unusual terminology' involves the use of two unnecessary and misleading terms, 'disposable income' and 'income velocity of money', and the affirmation and subsequent apparent denial of the same proposition. Whether this apparent contradiction is actual rests on a question of interpretation. The crucial proposition is

1) Money income received 'today' is disposable or available for expenditure only on the next day.

The two terms the need for which I question are defined as follows:

2) Today's 'disposable income' equals yesterday's income; and
3) 'The income velocity of money' equals income divided by the quantity of money.

Saving is defined and investment is characterized as follows:

4) Disposable income minus consumption equals saving; that is, yesterday's income minus todays' consumption equals today's saving.

5) Investment is equal to saving plus money spent out of other sources than disposable income.

For simplicity we shall, in what follows, consider only the case where the money spent out of these other sources is a positive quantity. The money spent from these other sources is said to represent expenditures made from newly created bank money or from hoards. Having recourse to this two fold source, either M or V, is equivalent to saying:

6) If today's income is larger than yesterday's, then in addition to disposing of today's disposable income (yesterday's income) the community disposes today of an additional sum arising from (a) an increase in the quantity of money if the income velocity of money is no larger for today than for yesterday, or from (b) an increase in the income velocity of money if the quantity of money is no larger today than it was yesterday, or else from (c) increases in both the quantity of money and its income velocity, if both increase.

This proposition (6) is an elaborate way of saying that more income is disposed of today than the amount of today's disposable income (yesterday's income). The amount of income disposed of today as distinguished from the amount of today's 'disposable income' (i.e., yesterday's income) is evidently today's income. Thus we are told an excess of I over S implies an increase of today's income over yesterday's income, presumably an increase equal to the excess of I over S.

Proposition (6) is also an elaborate way of saying that the resulting excess of today's investment over today's saving (or excess of today's investment over yesterday's income minus today's consumption) is independent of the quantity of money. The careful limitation of income to money income lends plausibility to the assertion of a relationship between the quantity of money and the quantity of income, but mathematically the form of the statement might be characterized as 'too true to be any good';[4] for proposition (6) regarding M and V $(V = \frac{Y}{M})$ would be equally true if M represented the number of marriages in Maryland or any other variable selected at random.

Thus the argument is reduced to the proposition that the amount of income disposed of today exceeds the amount of today's disposable income by the amount by which today's income exceeds yesterday's income. In other words, today's entire income is disposed of today. The apparent contradiction between this and proposition (1) may be resolved if we interpret the terms 'investment' and 'disposable income' appropriately. I think the use of the word 'today' to stand for a time period of unspecified length lends ambiguity to the time reference of the items, saving, investment, etc.[5] The word 'investment' suggests that 'today' is viewed in the past tense. The term 'disposable income' suggests that 'today' is viewed in the future tense. When we are speaking of disposable income then we may assume we are speaking of *estimates* of consumption and savings for the period called 'today', made in advance of that period. When we speak of investment, however, we may assume that we refer to an *historical statement* of the amount of investment during the period called 'today', made after 'today' has elapsed. I suggest

[4] Cf. Ohlin, *Economic Journal*, XLVII, 69.

[5] I do not think Robertson's own statement involves ambiguity in time reference.

that our apparent contradiction may be resolved if we rephrase propositions (4) and (5), stripped of unnecessary verbiage, as follows:

7) Budgeted saving plus budgeted consumption for today equals yesterday's income,

8) Budgeted saving for today may not turn out to equal actual investment today.

The above comments on Ohlin's view are, of course, applicable to this interpretation unless indeed the period called a day is very much shorter than twenty-four hours. Man is not yet ubiquitously a budget-making animal.

II HANS NEISSER

I INCOME EX ANTE AND DEMAND FOR COMMODITIES

Professor Haberler concluded his illuminating survey with skeptical remarks on the possibility of evaluating statistically the volume of saving *ex ante*. Moreover, even his discussion of the *theoretical* content of this concept and of the basic concept of income *ex ante* may have left the reader puzzled as to which concept of income *ex ante* should be accepted in analytical work. In these respects the *ex ante* concepts compare unfavorably with the *ex post* concept of income, which is both theoretically precise and susceptible of statistical measurement. The question thus arises whether in theoretical analysis the concepts of income *ex ante* and saving *ex ante* are really needed.

Two services are performed by *ex ante* concepts in the body of modern economic doctrine: first, the concept of income *ex ante* is designed to explain the amount of actual demand for goods, services, and investment, at a certain price for the item; second, a comparison of saving *ex ante* with investment is supposed to indicate whether an economic system is in an 'inflationary' or 'deflationary' state.

With respect to the first problem, a few remarks will suffice to show that none of the different concepts of income can serve as a satisfactory basis for the theory of demand. Income *ex post* includes unexpected profits or losses, which, by their very nature, cannot influence the entrepreneurs' demand *during the income*

period itself.[1] Keynes' income concept, in the *Treatise*, which excludes windfall profits and losses, encounters the difficulty that the borderline between expected and unexpected profits cannot be drawn distinctly.[2] As to income *ex ante* concepts, 'expected income' obviously does not govern demand, since present demand is largely cash demand, and therefore depends upon the means available to the buyer, while his willingness to borrow for consumptive purposes is contingent not only on the size of his income of the next period but also on the *certainty* with which it is expected. 'Robertsonian' income (= 'yesterday's' earnings) would determine today's buying only if not known in advance, i.e., on yesterday morning; for if earnings are not only known but even paid in advance, the income receiver feels entitled to use them during the day in which they are to be earned.

There is no way out of these difficulties except to describe demand as a function of several variables, none of which should be singled out by labeling it 'income *ex ante*'. The following variables would be included in this function:

a) Yesterday's income *ex post*: so far as paid at the end of the preceding income period, it will influence today's demand, even though it differs from the income expected for today.

b) Income expected for today if paid in advance.

c) Income expected for today if not paid in advance.

  aa) If expected with reasonable certainty,

  bb) If associated with either available money funds of the income recipient or with adequate credit facilities.

The spending function will also be influenced by income expected in the more distant future, because sudden fluctuations in yesterday's and today's income, if considered short-lived, are usually not allowed to affect spending as much as saving.

The list does not claim completeness and certainly calls for further interpretation. It is given here only in order to suggest the correct approach.

[1] The equality between *aggregate* saving ex post and investment arises from the inclusion of these profits and losses in aggregate income. This equality may be recognized more easily if it is recalled that the saver is not necessarily identical with the person who holds the title to investment. Bank credit expansion, for example, might yield unexpected profits to some entrepreneurs, who then may appear in income statistics as having saved a corresponding amount, whereas the title to the corresponding investment would be held by the credit expanding bank.

[2] This point is discussed in greater detail in Sec. 3 below.

In terms of such a function, Keynes' 'psychological law' of the 'propensity to consume' could be restated in a less objectionable form. As Professor Ohlin has pointed out[3], the propensity to consume, as a psychological fact, cannot be a function solely of income *ex post*, because this income's unexpected components cannot possibly play any role in governing spending during the income period itself. Thus, according to Keynes, an aggregate income of, say, $10,000, would be associated with spending of, say, $8,000 regardless of the source of this income. In fact, however, spending would be different according to the magnitude of the unexpected components, e.g., $9,000 expected income plus $1,000 unexpected profits versus $11,000 expected income minus $1,000 unexpected losses. In the second case spending would, obviously, be larger than in the first. As indicated above, income *ex post* will play a role in tomorrow's spending.

2 SAVING AND THE RATE OF INTEREST

It has never been doubted in modern theory that the current rate of interest equalizes the supply of money funds to be lent and the demand for money funds to be borrowed. It is not correct, therefore, for Keynes as well as for Ohlin[4] to ascribe to traditional theory the view that the current interest rate has the function of equalizing *saving* and *investment*; for that has been the function of the 'natural rate' of interest. In traditional theory the role of saving has been stressed solely because changes in the supply of funds, not originating in changes in saving, were supposed to have no influence on the *long run* interest rate level, affecting supply and demand for funds about equally. The traditional view, qualified in some respects even before Keynes, will be discussed at greater length later. First we want to clarify the main difference between Keynes and economic tradition.

Most conspicuous is Keynes' refusal to differentiate according to the sources of the credit supply, namely, between 'saving', on the one hand, and money funds, newly created or dishoarded, on the other; and in this respect, Professor Ohlin seems to agree with him.[5] According to Keynes, the credit supply is derived not

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[3] 'Some Notes on the Stockholm Theory of Savings and Investment', Part II, *Economic Journal*, XLVII (June 1937), 239.
[4] *Ibid.*, p. 221.
[5] *Ibid.*, p. 224.

directly from current income but from that part of the *stock* of wealth that is kept in money form. And it must be admitted that for the supply in question (or, what is the same thing, for the demand for 'illiquid' assets) the situation is different from the demand for consumers' goods, which cannot be adequately analyzed without recourse to what is considered by people as their 'income'. Nevertheless, even from Keynes' point of view, it cannot be denied that the *current* rate of interest would be lowered by any increase in saving associated with an increase in the credit supply in the market. Only, and this is the gist of his theory, in contrast to theoretical tradition, this new interest rate level cannot be considered in any sense as an 'equilibrium' level, neither constant nor moving: other things being equal, it would be followed immediately by a decline in aggregate income and in the credit supply on the market. Clearly Keynes' theory replaces not the traditional theory of the current rate of interest, but that of the 'equilibrium' rate, provided this equilibrium is interpreted as a short run equilibrium in the traditional meaning of that term.

The basis of the new theory is the liquidity preference function. Nothing, however, can be deduced from the definition of the interest rate (i) as "reward for parting with liquidity for a specified period".[6] For this is consonant with theoretical tradition, according to which, in ordinary times, there have always existed sufficient investment opportunities at a rate of remuneration that covers the capitalist's risk as estimated by him; the liquidity preference function in the market (L), was therefore supposed to have the shape of a right angle (Fig. 1). In periods of depression, on the other hand, as has been acknowledged more recently, liquidity preference would become interest rate sensitive, and the marginal productivity of capital and the demand for capital would become inelastic. Under these conditions, a change in the interest rate, brought about by a shift in the level of supply, would not influence the amount of investment. If it is allowed in accordance with prevailing doctrines, to consider the propensity to save as fairly independent of interest rate fluctuations over a certain range, traditional opinion can be summarized as follows. In ordinary times, the interest rate is determined by the intersec-

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[6] Keynes, *General Theory*, p. 167.

tion of an almost vertical supply function (S) with a negatively sloped demand function (D), the latter being pressed downward by the exhaustion of investment opportunities through current investment and raised again by technological progress, discovery of new natural resources, and growth of population (Fig. 2). During depression a positively sloped supply curve intersects an almost vertical demand function (Fig. 3). This picture, of course, symbolizes only an ideal type of capital market, merging the different capital markets and interest rates that co-exist in reality. It shows, however, that the difference between Keynes and the traditional opinion cannot be found in the formal definition of the interest rate as a price, but in empirical assumptions about the shape of certain functions.

Figure 1   Figure 2   Figure 3
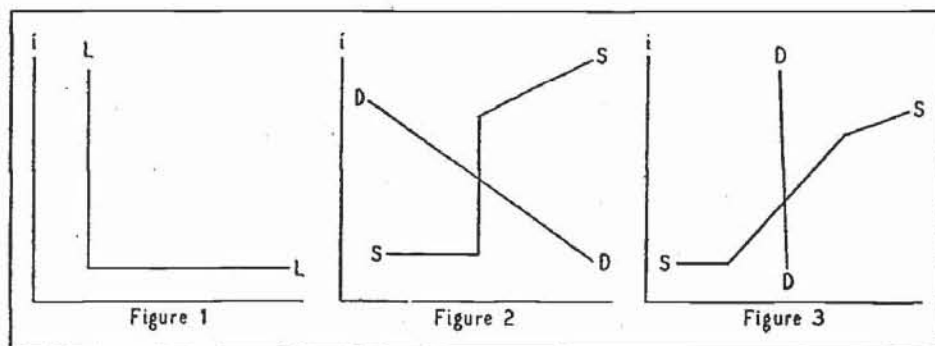
The assumption that liquidity preference is always a function of the rate of interest when combined with the assumption of a rigid wage level and a negatively sloped marginal efficiency of capital, therefore, forms the cornerstone of Keynes' theory.[7] On

[7] The theoretical structure of Keynes' system has been elucidated in a masterly study by John Hicks, 'Mr. Keynes and the Classics', *Econometrica*, April 1937. Nicholas Kaldor, however (*Economic Journal*, December 1937, p. 748) lays stress on quite a different element: "It is this assumption [that saving is largely a function of real income] more than any other which is responsible for the 'revolutionary' innovations of Mr. Keynes' system." It cannot possibly be implied by Mr. Kaldor that the assumption itself is revolutionary. It has been common property of traditional theory, and leads, in combination with an inelastic liquidity preference function, to the orthodox result, and in combination with a negatively sloped liquidity preference function and the two other basic assumptions mentioned above, to Mr. Keynes' doctrine. Mr. Kaldor himself refutes, with the help of the Keynesian liquidity preference function, Professor Pigou's proposition that variations in money wages entail proportional variations in real wages. Since this proposition is based, however, on the alleged ability of the banking system to stabilize aggregate pur-

these assumptions, fluctuations in saving can influence only the instantaneous position in the capital market; and when considered for a longer, though still short run period, their effect would be offset by the very change in the interest rate they bring about. Indeed, this result follows from Keynes' basic assumptions, even if one argues from them on the lines of traditional theory: with a given quantity of money any decline in the interest rate, according to the first assumption, would increase the volume of idle balances and reduce the volume of transaction balances; then, aggregate income, aggregate demand and, at a given wage level, output and employment cannot but decline. Plainly, the process cumulatively reduces output until a stationary state is reached.[8] A positive rate of investment presupposes either technological progress, which raises the marginal efficiency function, or an increase in the quantity of money.

It has already been pointed out that Keynes' theory of interest expressly limited as it is to short run conditions, in which capacity is not 'fully' utilized over the whole range of industries, is in closer accordance with tradition than is usually recognized.[9] For it has never been disputed that in the short run an increase in the quantity of money would lower the interest rate; on the other hand, it is pointed out by Keynes himself that in the range beyond the 'bottle necks', both demand and supply of credit would be equally influenced by monetary expansion. Moreover,

chasing power, it would also fail to be valid were the demand for capital to become inelastic in the short run, as suggested above and elaborated more in detail in my study, 'General Overproduction', *Journal of Political Economy*, August 1934.

[8] Income in the stationary state is a minimum magnitude, not governed by the multiplier which indicates the ratio between *marginal* investment and *marginal* income. This minimum income, analogous to an integration constant in mathematics, is supported by replacement investment of a certain amount, which, in contrast to net investment, is not frightened away by high interest rates. Naturally, the *average* propensity to consume would be equal to unity.

[9] At first glance, the borderline between the range in which Keynes' theory is applicable, and the range for which 'classical' theory is still acknowledged as valid, seems to be drawn by Keynes differently from the usual borderline between short and long run, which refers to the degree of utilization. Keynes draws the line at 'the point of acquiescence', i.e., the point at which workers refuse to allow the real value of their wages to be reduced further by rising commodity prices. However, the difference is minimized by the introduction of the concept of 'bottle necks', i.e., points at which the short run supply curve for a commodity becomes very inelastic. If such bottle necks appear in several industries, the point of acquiescence is near.

the theory of 'reflation', as developed in the decade before the publication of Keynes' *General Theory*, has stressed more and more the minor importance of saving and the overwhelming importance of monetary expansion for any recovery from the depths of 'depression'. Likewise, the classical proposition that income, under certain conditions, is independent of the saving quota, is compatible with Keynes' system, provided the change in the propensity to consume (i.e., the multiplier) leads to an opposite change in the rate of investment. The main difference between Keynes and the Pre-Keynesians lies in the views of what is 'normal' in the capitalistic system: traditional theory considered 'full' or 'optimal' utilization as normal, and used this state as the starting point of analysis, while Keynes considers incomplete utilization as the natural state of the system. He even maintains that never in the history of capitalism has 'full employment', i.e., the point of acquiescence, been reached. The gap has been recently narrowed by Keynes' admission (in some articles in the *London Times*, January 1937), that the British economy *did* reach at that date the point of acquiescence.

The empirical validity of the three basic assumptions underlying Keynes' theory cannot be discussed here at length. The negative slope of the marginal efficiency of capital might easily prove the most crucial proposition. General theoretical considerations militate for the assumption that 'idle balances' of a speculative nature are always a function of the interest rate[10]; for any change in this rate is likely in the short run to induce *some* capitalists to refrain from immediate long term investing in order to profit from a reverse movement, while the volume of short term investment opportunities, which otherwise would represent a temporary haven, is limited.[11] As to the third assumption, the rigidity of wage rates in terms of money, it is clearly valid only

[10] Or rather as Keynes himself remarked recently ('The Theory of the Rate of Interest' in *Lessons of Monetary Experience*, ed. by A.D. Gayer (Farrar and Rinehart), 1937, p. 145), a function of several variables, of which the interest rate is one; otherwise the volume of speculative balances could not rise at the beginning of a reflation.

[11] Less weight can be attached to the experience gathered in open market operations, cited by Keynes (*General Theory*, p. 197; and again, *Lessons*, p. 149). For their function may be, not to substitute speculative balances for security holdings of the public, but to stimulate investment, i.e., to increase the volume of *transaction* balances.

with reference to limited periods. As Keynes points out,[12] a decline in wage rates would free money for 'speculative balances', and thus make possible investment even with a given quantity of money. The objections to a policy of wage lowering that can be raised from the standpoint of an investment theory based on profit expectations in the consumers' goods industries are outside the scope of Keynes' system.

3 DISCREPANCY BETWEEN SAVING AND INVESTMENT

The preceding remarks have not yet settled the question whether the definition of 'equilibrium' (as a state of zero profits) requires a concept of 'saving *ex ante*' (and consequently of 'income *ex ante*'), which would fall short of, be equal to, or exceed investment. The concept of spending as a function of several variables does not answer this question. However, the concept of 'expected saving'[13] can serve this purpose even less. True, since credit inflation or deflation creates windfall profits or losses, their exclusion from the concepts of income and saving seems to restore the fundamental importance attributed to the discrepancy between saving and investment by Wicksell. But suppose entrepreneurs, watching closely the process of monetary development, except changes that are later realized? Plainly, expected saving, which now includes their profits *ex post*, will then match investment, and the equality between saving and investment breaks down as a criterion of 'equilibrium' and as a causal explanation of its disturbance.

The only way out of these difficulties is to recognize as income only wages, interest, and differential rents for so-called permanent advantages provided by nature. This is Keynes' income concept in the *Treatise* except that the element of expected profits is not mentioned. By making them share the fate of windfall profits, it is indeed possible to formulate a valid criterion for equilibrium. But it does not require any concept of saving *ex ante*; nor is the equality between some kind of saving and investment that could be stipulated as one of the conditions for equilibrium sufficient

[12] *General Theory*, p. 263.
[13] Professor Ohlin uses the term 'planned' as equivalent to 'expected' ('Some Notes, Part I', *Economic Journal*, March 1937, p. 64), though a 'planned income' sounds rather curious. The argument in the text is not affected by the change in terms, unless the 'plan' refers to the disposition of yesterday's savings.

for establishing it. Equilibrium is conditioned by aggregate prof-
its being zero; and this condition in turn requires the fulfillment
of the following equation:[14] entrepreneurs' spending plus net in-
vestment proper minus factors' saving equals zero.[15] This equa-
tion shows that the equality between expected saving and ex-
pected investment does not secure an equilibrium proper. Na-
turally, as long as the expectations remain in the sphere of the
mind, they have no effect at all in the social world; but even if
they lead to actions (because condition (a) or (b), Section 1
above, is fulfilled), they would fail to secure equilibrium proper,
as recognized most easily if the first term on the left hand side is
assumed to be zero; then, by the investment of *expected profits* the
second term could be increased above the volume of factor's
saving, which certainly would not be reduced by the same in-
vestment process; the equation is thus not fulfilled.

In traditional theory, the equality between saving and invest-
ment serves not only to define equilibrium proper but also to
indicate the end of any process of monetary expansion or con-
traction, even though in this state aggregate expected profits
would be positive and factor prices would be far from normal. In
other words, it serves to indicate the preservation of an histori-
cally given volume of aggregate demand (which, however, should

[14] The equation refers to competitive conditions. Under monopoly, the monopo-
list's income and his saving have to be treated on equal footing with factors' income
or saving.

[15] The term factor denotes here, of course, only labor, capital, and nature, the
remuneration for which has to be reckoned at normal prices. No ethical judgment is
implied in the omission of specific entrepreneurial activities; for if they have a
supply price, they are included in labor, and if they have no supply price, any
special remuneration is incompatible with equilibrium. Entrepreneurs' spending re-
fers to their spending beyond the income they would receive as 'factors'; such entre-
preneurial spending usually would be conditioned on expected, though not realized
profits. The term 'net investment proper' restricts the investment concept to the
acquisition of real capital goods in addition to the existing stock of fixed capital
and working capital (or of the titles to such goods); and excludes, therefore, not
mere replacement, but also the acquisition of money funds, whether designed as
additional idle balances or additional transaction balances, i.e., rotating funds to
discharge the firm's income and business payments. To any equilibrum that satis-
fies the condition of zero profits, there would correspond a 'neutral' rate of interest
that would preserve it. In a growing system, it must be fixed at such a level that
the necessary additional transaction balances would come forth. The volume of the
latter would be governed by the increase in the quantity of factors, their 'normal'
rate of remuneration (if necessary, adapted to changes in the marginal productivity
of factors), and the degree of differentiation.

not be confused with stabilizing an historically given price level). This condition of a quasi-equilibrium can be best characterized with the help of the Robertsonian income concept, which, therefore, should be given citizenship in the realm of economic theory: yesterday's saving *ex post* equals today's net investment proper.

4 THE 'WELFARE' CONCEPT OF INCOME

In his introductory remarks, Professor Haberler points out that "national income has always been regarded by economists as a comprehensive measure of economic progress, of economic welfare", and he contrasts this 'welfare' concept with the concept of income as a tool of economic analysis. Both *ex post* and *ex ante* concepts of income perform an analytical function. The question may therefore be raised as to the relation of the 'welfare' concept to the analytical concepts.

Since it is clear that the welfare of people is contingent upon what they actually receive as income during the period concerned, only the *ex post* concept can be kindred to the 'welfare' concept. Indeed, the relation is very close. The welfare concept differs from the analytical *ex post* concept only by (a) measuring *national* income, in the sense of income *enjoyed* by the nation, not aggregate income *produced* within the bounds of the country; (b) taking account of generally accepted normative valuations, while the analytical concept of *ex post* income (= aggregate income produced) is based on actual market valuations.

Aggregate income produced is given by the market value of the current net[16] output. It is equal to the sum of all personal incomes, interest, wages, rent, and profits (disregarding for the moment the government's share). This proposition is an analytical judgment and thus always true, because profits are defined in such a way that they make up any difference between the value of the net output and the total of factor remuneration. Aggregate income produced disregards, therefore, the nationality of the income recipient, particularly of capitalists and entrepreneurs, while the welfare concept corrects the aggregate income produced by the net balance of interest and profits, paid to and received from abroad.

[16] The term 'net' indicates the necessity of excluding that part of current output which serves to keep constant the stock of real wealth. The difficulties implied by

More difficult is the treatment of payments that do not represent current commercial obligations, like reparation payments, or that are not made in fulfillment of obligations in the juridical sense of the word, like immigrants' remittances. Here pure capital transactions must be differentiated from transactions on income account. The capital value of an immigrant's fortune should preferably not be added to the current national income.[17] But what about the ready cash the immigrant carries with him to support himself during the first jobless months, and certain capital goods, like a plough, that he may bring with him? Or, if reparations are paid (as the five billion francs after the Franco-German War of 1870-71) mainly by the sale of foreign securities, then their amount could not possibly be deducted from the national income for the period concerned. On the other hand, it might be difficult in many cases to prove a direct causal relationship between changes in the capital stock and political obligations. Here the statistician cannot afford to refrain from arbitrary decisions.

In differentiating 'welfare' income from aggregate income produced, normative valuations play a minor role compared with the international relations just discussed. By application of these normative standards, any market income antagonistic to generally accepted ethical standards, e.g., the income of racketeers, prostitutes, etc., is excluded so far as it is not already excluded from 'aggregate income produced', because no stretching of the imagination can discover any 'service' connected with the 'income'.

In principle, no normative valuation enters the process of converting changes in money income into changes in real income through the application of price indices; in this respect, I apparently disagree with Professor Haberler. The computation of replacement deducted from gross income has to be based on market prices. The deflation of the *individual's* income must be carried through, in principle, by the application of the *individual* price

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this condition cannot be examined here; *Volume One* contains an ample discussion of the problems involved. Here it may suffice to point out that in drawing the line between 'gross' and 'net', again the decision of the market may either be accepted or it may be corrected by the observer's normative valuations.

[17] The opposite view, however, is held by M. A. Copeland; see *Volume One*, Part One, p. 26.

index, derived from the *individual's* preference schedule.[18] Statistical practice, naturally, has to be satisfied with approximations, based sometimes on arbitrary assumptions; however, neither approximations nor arbitrary assumptions are the same thing as normative valuations. The latter enter the stage only if the statistician substitutes for the individual's preference schedule some normative preference schedule.[19]

The fundamental definition of aggregate income produced as the value of net, current output proves useful also in the determination of the so-called 'private income' and of the so-called 'public income'; the former refers to the current net output in the market sphere, i.e., goods possessing a market value regardless of their origin, the latter to the current net output of real services rendered by the government, not possessing a market value. The market value of the private net output is equal to the income of the different agents of production (including net profits) plus cost taxes minus government subsidies. Cost taxes are taxes that are deducted from 'gross income' or from 'gross profit' in order to get the usual net income figures. The equation represents, therefore, an analytical judgment, and is entirely independent of the complicated considerations concerning the incidence of taxes applied, for example, by Professor Colm.[20] Nor can the analysis of the factors governing the amount of 'public' income afterwards exclude some of the cost taxes, because of so-called double counting; for such exclusion would invalidate the fundamental identity.

Public income must not be confused with the 'government income' (or 'revenue') appearing in fiscal policy studies. It is largely income of the *private* members of the society, bestowed on them by the government through such public expenditure as satisfy certain criteria. As to the valuation of these public services, the decision of the constitutional public authorities represents, as Professor Colm pointed out in former writings, an ob-

[18] The differences between the price indices according to 'Laspeyres' (based on actual consumption in the *given* year) and 'Paasche' (based on actual consumption in the *end* year) do not invalidate the statement in the text. If they cannot be removed by the recent methods developed by Dr. Staehle and Professor Frisch, then we have to put up with *two* equally justifiable values of real income.
[19] See Copeland and Martin, Part IV, especially Sec. IV.
[20] *Volume One*, Part Five.

jective standard, corresponding to the decisions of the market in the private sphere. Since the services can be evaluated only on the basis of money costs,[21] the items of public income need deflation like the items of the private income, with a price index especially constructed for this purpose.

Certain difficulties arise in connection with the concepts of 'net' and 'real' as applied to public income. The qualification 'real', in 'real services, rendered by the government' is designed to exclude all mere 'transfer expenditure', which does not imply the surrender of real resources to the government (apart from the administrative costs involved[22] which also cannot be counted as public income). Illustrative of transfer expenditures are relief expenditures and pecuniary subsidies to business; as mentioned above, the latter are a negative component of private income. No differentiation is necessary as to the sources of these transfer expenditures. If, for example, relief expenditures are financed by the printing press, then one of two alternatives must materialize: either the current private output is stimulated, and private income and revenue from cost taxes are correspondingly enhanced, or private output is not stimulated. In neither case would the relief expenditures represent a part of national income, private or public. I am unable, therefore, to attach any significance to the concept of 'disposable income', which would include the dole, as suggested by Professor Colm.[23]

The term 'net' accounts for the necessity of excluding from public income any government service designed to maintain the

[21] The point is controversial. Professor Kuznets prefers 'taxes' as a measurement of public income (with certain qualifications), considering them as the 'price' paid by the taxpayer for the services concerned. For a more detailed discussion of the difference between the two priciples of valuation see G. C. Means, Part Five, discussion by Simon Kuznets, and Dr. Means' reply. In the considered opinion of the present writer it is not up to the taxpayer to decide about the 'commodity' (government service) and the 'price' (taxes); it is the constitutional authorities who render the decision or rather who decide what taxes shall be raised to supplement the expected revenues from other sources, like loans and interest from public investment; in rendering this decision they take account of *all* government expenditure. In other words, they decide *at the same time* the amount of (1) transfer expenditure, (2) 'exhaustive' expenditure, (3) taxes to be raised, (4) other revenue to be procured. Item (2) represents the 'gross public income'.

[22] Cf. A. C. Pigou, *A Study in Public Finance*, Ch. III; Gerhard Colm, *Volkswirtschaftliche Theorie der Staatsausgaben* (1927), pp. 47 ff; *idem*, in *Volume One*, Part Five, pp. 195 ff.

[23] *Loc. cit.*

stock of public capital with the help of which these services are
performed. Beyond that, it has been pointed out correctly in
Volume One, as well as by Professor Haberler, that public services
rendered to private *business* must also be excluded.[24] But it would
be going too far to exclude all kinds of public services which, like
the services of the army, are of some indirect use for private busi-
ness, or which, in general, can be considered as indispensable for
the very existence of the modern state and the modern economy.
That expenditure for education improves a man's ability to earn
income, or that, without buying food, he would not earn any
income at all, is not considered sufficient reason to exclude the
service or commodity in question from net private output. Cor-
respondingly, only such government services should be treated
as a cost element of private business, and not counted as public
net income, as would be paid for by private business were the
government to cease to perform them. Or, any government ser-
vice is to be excluded from public net income the performance of
which by the government reduces correspondingly the costs of
the private output. From this angle vocational training, build-
ing of roads to isolated factories, and even the services of a part
of the police force might be excluded from public income,
but the bulk of the public services, whether or not liked by
the taxpayer, would remain.[25] It is doubtful, however, whether
a public income, calculated on these lines, should ever be added
to private income. Even if both forms of income could be reduced
to a common denominator of valuation, the character of the
services rendered in both spheres is so different that public in-
come, classified summarily under a few headings, might best be
presented as a separate item.

III GOTTFRIED HABERLER

I agree with most of Professor Neisser's comments on my paper.
The points where there is a real or apparent disagreement con-
cern either questions of minor importance or questions outside the
scope of this volume, or else would require a lengthy argument

[24] See *Volume One*, Warburton, Part Two, pp. 83-92; Colm, Part Five, pp. 194-206.
[25] For an attempt at a quantitative allocation of government expenditures between
expenditures furnishing services to business and those furnishing services to con-
sumers, see Nelson and Jackson, Part Six.

for complete clarification. Therefore I refrain from replying to Professor Neisser's comments.

I should like, however, to make a few remarks on Dr. Copeland's strictures. Dr. Copeland begins by saying: "A clear understanding of the relationship between these two concepts [viz., S and I] seems to me to call for a recognition of the fact that investment represents the value of the increase in asset items on the consolidated national balance sheet, and saving, the value of the increase in equity."

I submit that this is not a fact, but a proposal for a convention about the use of the two terms. If it were a statement 'of fact' to the effect that the above meaning is the meaning generally attched to the two terms, there could be no doubt that it is not generally true.

Dr. Copeland proceeds then to say: "When these two concepts are so conceived, it is clear that if saving and investment are consistently defined and evaluated for a given community and period, they will necessarily be equal." This sentence is rather vague because the distinction between 'conceived' and 'defined' is not clear. Perhaps by 'consistently defined' Dr. Copeland means 'consistently applied'. Only this interpretation makes several further statements in Dr. Copeland's paper correct, where he insists that consistency of definition implies equality of actual saving and investment. When taken literally this is not true. There are consistent definitions of S and I that do not make them equal. Only if he means by a 'consistent definition' a 'consistent application of *his* definition', does his statement become true.

With Dr. Copeland's criticism of Ohlin's ex ante analysis on the ground that it assumes man to be more of 'a ubiquitously budget-making animal' than he really is, I am on the whole in sympathy. I suggest, however, that it is not so much a question of right or wrong as of more or less correct.

Dr. Copeland's criticism of my discussion of Mr. Robertson's definition of S and I seems to me to rest on several misunderstandings. He finds unconvincing my assertion that it involves confusing and unusual terminology to speak of saving when workers keep money for a short period (say on the average for half a week) because income is spent more continuously than it is received. He says: "If individuals increase their holdings of cash

. . . (without decreasing their holdings of other equities), this increase may fairly be construed as a form of saving." Now I do not deny that a consistent application of certain savings concepts (e.g., of the definition proposed by Dr. Copeland himself) will lead to the result that there is saving in that case. I only say that this is in conflict with the unsophisticated everyday usage of the term.

The rest of Dr. Copeland's comment I find very difficult to follow. I have the impression that he expects much more enlightenment from the very simple set of definitions than it can possibly furnish. Most of what he says is nothing but a repetition of the Robertsonian definitions in slightly different language. In addition, he formulates some obvious implications of that set of definitions that I did not state, in a tone that suggests that they constitute an argument against the set of definitions from which they are derived. It is, for example, quite true that in Mr. Robertson's scheme an excess of I over S implies an increase of 'today's' income over 'yesterday's' income. This corresponds and gives precise expression to the notion that financing of investments in another way than by 'voluntary' saving means, or leads to, inflation.

To clear up the matter I should like to state the few relationships algebraically. Let us denote by Y^d disposable income, by Y^e earned or received or actual income, and let the subscripts $_0$ and $_1$ refer to the 'days', to 'yesterday' and 'today'. Then we have:

$$Y_1^d = Y_0^e$$
$$Y_1^e = C_1 + I_1 = Y_2^d$$
$$S_1 = Y_1^d - C_1 = Y_0^e - C_1.$$
$$\text{Hence } I_1 - S_1 = Y_1^e - Y_1^d = Y_1^e - Y_0^e.$$

Dr. Copeland comes to this conclusion: "Thus the argument is reduced to the proposition that the amount of income disposed of today exceeds the amount of today's disposable income by the amount by which today's income exceeds yesterday's income. In other words, today's entire income is disposed of today." He thinks that this is an apparent contradiction of the fundamental assumption that income received today becomes disposable only tomorrow.

The appearance of a contradiction is entirely of Dr. Copeland's own making. It is due to the fact that he introduces quite superfluously the word 'disposed income' for what Mr. Robertson and I call 'earned or received income'. This term is not only redundant (because Dr. Copeland himself uses simply the words 'today's income' for the same concept), but also positively misleading, for the assumption is that 'today' this income is earned or received but becomes disposable, in other words *may* (but need not) be disposed of only 'tomorrow'. If, as Dr. Copeland says, "in addition to disposing of today's disposable income the community disposes today of an additional sum arising (say) from an increase in" M, this additional sum is not, in the Robertsonian terminology, *disposable income* of today; it does not come 'out of today's (disposable) income', but out of hoards or out of nothing, or out of the printing press. It *becomes*, however, income, it goes into income, viz., 'earned' or 'received' income of today and becomes disposable income tomorrow.

I hope that this disposes of Dr. Copeland's apparent contradiction. His own solution seems to me to rest on a misunderstanding. For Dr. Copeland is mistaken if he thinks that the term 'disposable income' should be interpreted as referring to " 'today' viewed in the future tense". He seems to believe that it is an *ex ante* concept, an expected, planned, 'budgeted' magnitude.

This is not correct. 'Disposable income' is an *ex post* concept, as can be easily seen by substituting for it its definition: earned or received or actual income of the 'day' before.