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A RECONSIDERATION OF THE QUANTITY THEORY OF MONEY

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I The Significance of the Quantity Theory of Money

According to the simple and classical quantity theory of money, fluctuations in commodity prices used to be explained only through the increase or decrease in the quantity of money issued. The term inflation meant an increase of the quantity of money, and the term deflation its opposite. In this way practical knowledge about the correlation between the quantity of money and the price-level could well be traced fairly far back in the history of money, probably as far as the days of the origin of monetary economy. As far as the literature of economics is concerned[1], generally speaking, the names of Jean Bodin and Richard Cantillon may be noted as naive theoretical thinkers in the earlier stage, and it could well be supposed that the original pattern of the quantity theory of money which was later advanced by Irving Fisher[2] must have already been conceived in its crude form by Cantillon, since it is known that Cantillon laid stress on the concept of the velocity of circulation of money. In addition the big names of great thinkers, such as Locke, Montesquieu, etc., are now commonly referred to in textbooks, not to speak of the names of D. Ricardo and J. S. Mill as theoretical contributors. During those days the quantity theory of money appears to have won greater confidence as a result of long and ted-ous arguments and discussions about the currency principle versus the banking principle, partly as a result of the inflation brought forth by the gold-rushes in California and Australia.

Taking an example of the prominent work of Charles Rist, the *History of the Doctrines of Credit, of Money from John Law up to the Present*[3], it is not too much to say, if viewed as a whole, that their ideas as

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1) See the following about these pioneer achievements : J. A. Schumpeter, *History of Economic Analysis*, 1954, Part 2, 3 (Transl. by Seiichi Tobata, *History of Economic Analysis*, Vol. 1, Vol. 2, 1956–57). As to the theory of money of mercantilism, E. F. Heckscher, *Mercantilism*, Eng. Tranls., 2 Vols., 1931.

2) Irving Fisher, *The Purchasing Power of Money*, Rev. ed., 1923.

3) Charles Rist, *Histoire des Doctrines relatives au Crédit et à la Monnaie, depuis John Law jusqu'à nos jours*, 1938.

are after all a history of the quantity theory of money in the broad sense. On the other hand under the present circumstances, where Keynes' theory has been accepted far and wide and where the analysis of national income has come to be more thought of from the aspect of macro-economic theory, and where the emphasis and relative weight of fiscal policies to secure full-employment have come to play the more important part in economic policy, the problem of prices appears to be taken up rather oftener in terms of an excess or shortage of effective demand than in terms of the quantity theory of money.

Furthermore, since the tendency to think little of monetary affairs in the above-mentioned manner has been maintained to a great extent in the tradition of economic theories, I can not help thinking that the same train of thought can be observed in a great deal of economic thought, such as criticism on mercantilism, the view laying stress on actual business transactions on the basis of the theory of business cycles, and the view looking upon money as a veil based on the general theory of the equilibrium of money.

However, when our eyes are turned to real economic conditions it is very seen that practically every country in the world, including Japan, is suffering from a deep-seated tendency of rising consumer prices, and that post-war inflation in this country could only be terminated by the so-called nine economic principles of the 'Dodge Line', which were the practical application of the quantity theory of money, and that all the business depressions which took place several times after the war were originally by the tight-money policy adopted in order to improve the international balance of payments. Of course, if such monetary phenomena are turned down as superficial phenomena, that is the end of it, but I think that the adjustment of current money from the viewpoint of the quantity theory of money should play an extremely important part even at the present day. Putting aside the problem of how effective an economic policy may be, I should still think that there woulel be no other way even for the universal tendency of rising consumer prices in every country in the world these days to be dealt with, ultimately speaking, than in the strong enforcement of the tightening of the money market (if an immediate and effective stop is to be projected). The only difficulty would be that most people would not support it because of its strong reactions. In short, it can be concluded that there would ultimately be no other way to check the recent chronic tendency of rising consumer prices than to tighten the money market as dictated by the quantity theory of money, though it would be by no means desirable. Needless to say, a strong deflationary policy such as the 'Dodge

Line' is strong medicine as it were, which should not be improperly used. However, I think that the fundamental posture of any price policy should be characterised by such a severe nature, and that there is a necessity for us to reconsider the importance of monetary economics today.

In this country, particularly during the post-war period, partly because of the increased intricacies of money-flow due to the technical improvements of economic planning and policies based on Keynesian theory and the increased weight of international financial relationships as well as the newly issued public bonds on the one hand; and partly because of the complexties of the capital market due to the increased weight of financial intermediaries in connection with urban commercial banking systems caused by the enlarged differences in scales of enterprises as well as the increase of working funds on the other, conversely, I think that considerations based on the simple conception of the quantity theory of money have come to be rather neglected and that in an increasing tendency only new economic policies have come to be taken up (if any of the economic policies based on the Keynesian theory could be called "new economic policies" in the same way as the Keynesian economics or 'New Economics')[4]. Odd as it may sound, an aspirin is a good medicine for a cold. For this reason I venture to say that it is necessary to reconsider the quantity theory of money. In view of the facts that even the epoch-making achievements of J. M. Keynes[5] and Knut Wicksell[6] after all have the origin of their theoretical foundations in criticisms on the quantity theory of money, I think that it is very useful to reconsider today's chronic problem of rising consumer price in terms of the quantity theory of money all over again, starting from the very beginning (da capo als finis).

II Nominalism versus Metalism with Respect to the Substantial Nature of Money

The quantity theory of money may be defined as a theory determining the level of general commodity prices by the quantity of currency in use: (accordingly the value of money is to be evaluated as its reciprocal). In this case it doesn't matter whether the quantity of money is full-bodied money made of precious metals or nominal money (token money), such as the inconvertible money now in use[7], and still further whether it is in the form of cash or deposit money. Consequently the

4) S. E. Harris (ed.), *The New Economics*, 1947.
5) J. M. Keynes, *The General Theory of Employment, Interest and Money*, 1936.
6) Knut Wicksell, *Interest and Money, A Study of the Causes regulating the Value of Money*, Eng. Transl., 1936.
7) As to the classification and kind of currency, see D. H. Robertson, *Money*, 4th ed., 1948.

quantity of currency can be looked upon as the quantity of currency existing in the field of circulation for a certain period of time concerned. Hence, it is not crucial whether we stick to nominalism or to metalism (commodity theory) as far as the substantial nature of money is concerned, but I think that the quantity theory of money itself would stand for nominalism as far as the theory is concerned with the correlation between the value of money and the quantity of money (including the velocity of circulation) without being concerned with the substantial nature of money.

Of course it may appear that the metalic theory, or metalism, seems to be appropriate historically and systematically (if viewed, for example, from the fact that gold is used for the final settlement of international accounts and that gold is retained for reserve funds in every country or the IMF). But it is impossible to accept the metalic theory (commodity theory) with respect to the value of money as a substantial theory[8] because even the value of gold has been constantly exposed to waves of fluctuation due to the fluctuation of the price of gold caused by changes in the natural production of gold, as well as in relation to the demand and supply for gold, and by artificial adjustments through certain policies. And even the absolute level of value of gold which may prescribe the intrinsic value of currency (even in the case where 1 unit of gold = ¥ 5 is prescribed under the gold standard system) must have been maintained in truth by certain artificial operations (such as free minting or free melting).

However, even if the nominal theory is to be regarded as acceptable, what counts in this case is the existence of national power to guarantee the compulsory validity of currency, as contended in the state theory of money by G. H. Knapp[9]. Consequently, the nominal theory is applicable within the extent of the enforcement of such national power. But it is also natural that hard (metalic) currency which has a more universal validity, (in opposition to soft currency (bank-notes)), or gold may be particularly used as a means of the preservation of value, for example, under the circumstances where the compulsory validity of money or the monetary system itself is not much trusted, as has happened in developing countries, or in the case of the international final settlement of accounts or reserve funds for foreign trade.

8) The price of gold in the U. S. A. has been nailed down at the rate of 1 ounce = $ 35 as a currency policy since 1934. It is today considered to be too cheap, but it is impossible either to change the rate (devaluation of the dollar) or to keep American dollars from flowing out. And partly because of the recent top-heavy production of gold in the States, it seems that the problem of international liquidity is becoming more and more serious.

9) G. F. Knapp, *Staatliche Theorie des Geldes*, 1909.

However, the purpose of this argument is only to find out how to confirm the general acceptability of money as a means of universal exchange which, ultimately speaking, can be done either by the national power or by gold or precious metals. It is in a sense a matter of the security of the value of money and not an argument in itself concerned with the value of money.

The opposition of nominalism versus metalism with respect to the value of money has so far been looked upon as if it were a theoretical opposition with respect to the value of money itself, but I think that what the metalic theory is concerned with lies rather in the problem of security, which guarantees the compulsory validity of money. Consequently, it follows that the contention of the nominal theory seeks the origin of its security in the national power, while that of the metalic theory seeks its source mainly in gold. In the final analysis all that has been said leads to the conclusion that both the metalic theory and the nominal theory are characterised by a respective conception in an entirely different field. However, as far as there exists a common taste of human beings towards gold or financial interests held by the gold-using countries, the above-mentioned opposing views would not only remain in existence, but the difficulty of prevailing international liquidity might well be considered to have originated from the opposition of these two veiws. Should a world-wide currency-controlled system be established in the future, then it might be possible to anticipate a fairly strong administration or control, but it would be an extremely difficult task under the existing circumstances.

In short, the problem of the value of money is rather the problem of the quantity of money in reality, which involves in particular the problem of a monetary system and its practical application, calling for an adequate adjustment of currency. For example, even when the value of a bank-note or coin is to be determined, the judgement is to be made not from the value of the component material but from the value of exchangeability of the said currency, that is, from the relationship of the quantity of money (including the circulation-velocity) versus the quantity of physical goods in reality, and for this reason what must be taken up as a realistic problem in this connection should be concerned not only with the way economic activities are conducted throughout an economic society, but also with the monetary system itself, including its practical application.

Consequently, a variety of currency systems, such as the gold standard system, gold exchange standard system and others, can all well be regarded as one system to adjust the quantity of money. In fact it has

been so contrived, particularly in the gold standard system, that the quantity of money, commodity prices, volume of export or import, and the exchange rate might all be automatically adjusted, though only to a theoretical extent, by virtue of the so-called automatic adjustment of gold, and what should be noted here is the fact that the substantial nature of the gold standard system used to be sought in the automatic adjustment of gold as a functional mechanism rather than in the mere linkage of the value of money with that of gold. It also can be said that the predominance of the belief in a free economy and in free trade during the period from the end of the 18 th century almost up to World War I arose through the idea of the automatic adjustment of gold inherent in the gold standard system as its underlying mechanism, and it is also very important to realise that the old practice of the gold standard system is still being copied even in today's banking system after the abolition of the gold standard, and that the traditional control is still being effected almost in a similar pattern as it used to be.

III The Value of Money and the Quantity Theory of Money

The opposition of nominalism versus metalism has been described in the foregoing section as a problem of making further confirmation of the validity of the compulsory validity of currency. However, when only the domestic economy is taken up, I should think that the nominal theory is sufficient to develop adequate theory and practice, but if the international economy is taken up as a field of study, I think that there is the necessity of taking the viewpoint based on the metalic theory into consideration (which I will discuss later).

Now, the way of thinking that the value of money is the commodity price is in itself a conception based on the nominal theory, but I think that it is proper from the viewpoint of its theoretical history to take up the quantity theory of money to start with whenever the problem of money value=commodity price is to be taken up in existing normal circumstances. As far as the concept of commodity prices is the weighted average value of each commodity price, and the average price (price level) of general commodity groups is considered in parallel with the purchasing power of money, it is very natural that the problem of the commodity price (=money value) should also be explained in terms of the quantity theory of money. Now then, if the quantity theory of money of Irving Fisher[10] is quoted here, we get the following well-known equation:

10) Irving Fisher, *The Purchasing Power of Money*, Rev. ed., 1923, pp. 151–172.

$$P=\frac{(MV+M'V')}{T} \quad \cdots\cdots(1)$$

wherein P represents the price level, M the quantity of money, V the circulation-velocity (of transactions), M' the quantity of money in deposit, V' the circulation-velocity (of its transactions) and T the quantity of transactions.

The nature of this formula is, as is self-explanatory from the given formula, composed of the left side, which represents the total turnover for a certain period of time (for example one year), and the right side, which represents the total money value of cash or deposited currency (draft or cheque) paid for the said turnover. Consequenlly, it must be noted that these relationships imply not the concept of stock but the concept of flow for a certain period of time, which are always equivalents when conceived from an ex post viewpoint.

Therefore, since Fisher's quantity theory of money is about self-explanatory relationships (equation), if the purchasing power of money $(MV+M'V')$ in the numerator of the right side of the foregoing formula (1) is increased, then the price-level P goes up, and contrariwisely if the quantity of transactions T in the denominator (this can be looked upon as an approximate quantity of production) is increased, then the price-level goes down. Its reverse produces the inverse result.

Both the strong and weak points of Fisher's quantity theory of money which are expressed in this formula (1) may be ascribable to the nature of the equivalent formula. Since it is a concept of flow, all that it can possibly denote is nothing but ex post relationships as stipulated by formula (1) at the end of a certain period of time, and there is no guarantee whatsoever that such relationships are constantly in existence. In other words, it is no more than a kind of theory to indicate a certain tendency.

However, there are not a few misunderstandings or misapplications of the formula (1) of this quantity theory. For example, it is a misunderstanding to think that the relationship represented by the equation (1) remains in a constantly established state at all times. A typically erroneous interpretation is maintained by Albert Aftalion[11]. Particularly in connection with German super-inflation immediately after the First World War because the level of the rise of commodity prices P on the left side, and $(MV+M'V')$ or T on the right side, showed neither direct proportion nor inverse proportion in a satisfactory manner, he advanced a new psychological theory of money, based on the psychology of the general public, in order to make up for the above-mentioned gap (though

11) Albert Aftalion, *Monnaie, Prix et Change*, 1927.

it appears to me that his 'Exchange-Psychology Theory' is more popular than this new theory in this book). In this connection, however, what should be kept in mind is the fact that the quantity theory in terms of the equation (1) is a kind of theory to indicate a certain tendency, and that in the long run such a relationship may come into existence, but that in a transitional state a strictly proportional relationship may not always be constantly maintained.

Another misunderstanding, or misuse, is the fact that each item on the right side should not be considered on an equal footing theoretically, though it is impossible to make a direct judgement from formula (1). Putting it an other way, since it would be impossible to attempt to check inflation by increasing T through the increased production of coal, fertilisers and foodstuffs when inflation was spreading with great intensity during such a period as that immediately after the war, (because no normal business contracts could be carried out when inflation was spreading with increasing intensity, production would have no chance to expand ——for instance, supposing that the price of a house contracted for $ 10,000 had gone up to $ 50,000 when completed, it would be quite natural that production could not have progressed), it was wrong to project such inflation-countermeasures. Conversely, the truth is that the funds appropriated from the Rehabilitation Loan Corporation gave an impetus to inflation and that only the coal mines enjoyed the resulting prosperity.

The same holds true with the numerator. Because it would be quite natural that barter-activities might be practised more and more extensively in the extreme circumstances of super-inflation, inflation-countermeasures projected by repressing V or V' would be practically impossible, and a saving campaign during such a period would be of little avail.

The significance of the quantity theory of money lies in the quantity of currency as implied by its name. The theory will lead to the following conclusion: first of all if M is tightened, as a result M' comes to be tightened correspondingly: if the velocity of rising prices of commodities can be slowed down as a result of the said two forces, then both V and V' come to be stabilised by themselves, and as a result the rising rate of prices comes to be slackened. The important point is the specific process to be applied, like $M \rightarrow M' \rightarrow V \rightarrow V' \rightarrow T$ as described in the above, and it does not necessarily mean that any part of the right side of the equation might be set to work on.

The quantity theory of money is of a very simple and self-explanatory nature as described above and it is very useful as a tool for inflation-countermeasures (if properly utilised). I should think that a specific

method of applying this theory would be effectively applicable even in the case of the present day's chronic tendency of rising prices.

Of course it must be admitted that Fisher's quantity theory of money is not entirely free from many limited conditions and theoretical defects, (which I shall discuss later), but its prominent merit is its simplicity and lucidity above all other things. All that we want is to be always careful not to oblige ourselves to have a confused idea by losing ourselves in the labyrinth of a complex model, without being able to tell what is substantial from what is not substantial.

Then, if I may add one more point here, I should like to invite attention to the fact that a variety of economic analyses today are tending to require more and more specialised techniques on the one hand, and yet we don't have any widely convincing theory at all on the other, in spite of the necessity of making economic policies widely-known to everybody in theses days of democracy, the fact of which strongly awakens us to reflect on ourselves about the above-mentioned circumstance.

IV The Cambridge Quantity Theory of Money

According to Irving Fisher's explanation, the amount of V and V' and the proportion between M and M' are likely to be stable in time in usual cases.

However, what is explained by him doesn't seem to me to be a matter of importance, when viewed from our standpoint. In other words, the danger that may arise from his quantity theory lies in attempting to apply his formula too faithfully. The world and the times are changing. We can not simply explain everything from one to ten in terms of his theory. Needless to say, I do not mean to grudge the due praise for his basic thought, but I don't think that his idea is applicable to everything.

In the meanwhile, in his exchange equation one of his concepts which is most difficult to grasp is T (the quantity of transactions). Since the quantity of actual transactions is taken up by him, I think that it is correct to understand that it would reflect the national income based on actual production. Nevertheless, his idea has the two following weak points. First, the very concept itself of the quantity of transactions can not help becoming considerably complex (accordingly the concept of the velocity of circulation also becomes complex) under circumstances such as brisk speculative demand with many returned goods, frequent short selling, frequent hedge or dealings in the future. Secondly it becomes rather hard to grasp statistically the quantity of transactions (and the

velocity of circulation of transactions).

The Cambridge quantity theory of money in contrast to Fisher's seems to be more convincing, though a little harder to understand, in the sense that the above-mentioned defects have been overcome. In addition I can not but be deeply impressed with the theoretical profoundness in their retrospective thought contemplating individual motives for holding money (this train thought was crystallised in Keynes' liquidity preference) without taking the quantity of money for granted.

Now, the original pattern of the income quantity theory of money advanced by Alfred Marshall[12] may be expressed as follows:

$$M=kY \quad \cdots\cdots(2)$$

wherein M represents the quantity of money, and Y national income: k which is called Marshallian "k" represents the proportion of the part of national income which is being held in the form of money. In other words, it means the relationship $k=\frac{M}{Y}$. Incidentally, Keynesian liquidity preference represents the proportion of that part of savings S which is being held in cash, which means the relationship of $\frac{M}{S}$.

According to the explanation of Marshall himself, it is asserted that the value of k remains fixed at an almost constant rate, say 1/19 or 1/20, depending on the business custom.

Now then, the reciprocal corresponding to the above Marshallian "k" is to be looked upon as the income-velocity of circulation. In other words it means that 'if the national income Y is supposed to be transacted by using the quantity of money M, then how many times is M required to be circulated?' Hence, $\frac{1}{k}=\frac{Y}{M}$ is called the income-velocity of circulation. Of course, since it can be assumed that some part of the national income may be spent on some expenditure or investment without using any money, as in the case of an individual farmer's consumption, it is possible to know M by means of statistics, though not always in strictly precise figures, and if Y is found, then it is an easy task to calculate "k". For these reasons this concept is much easier to grasp than Fisher's circulation-velocity of transactions[13].

Now, supposing that Y which is expressed in money terms can be abstractly expressed in real terms as "y", then "y" represents substantially the amount of national income in real terms. Supposing that the

12) Alfred Marshall, *Money, Credit and Commerce*, 1923, Chap. 4.

13) Alvin Hansen, *Monetary and Fiscal Policy*, 1949, Chap. 1. Here 'historical ratios of money in relation to income' can be seen. Today we have a variety of studies about this subject. Needless to say we also have not a few corroborated surveys on the circulation-velocity of transactions. For instance, see A. G. Hart and P. Kenen, *Money, Debt and Economic Activity*, 3rd ed., 1961, p. 180.

unit price of this y (which represents the price-level) is P, the foregoing formula (2) makes

$$P=\frac{\left(M\times\frac{1}{k}\right)}{y} \quad \cdots\cdots(3)$$

in which, if compared with the foregoing formula (1), it is natural that the circulation-velocity of transactions V and V' after all becomes equal to the income-velocity of circulation $\frac{1}{k}$ and the quantity of transactions T with the amount of national income in real terms. Since it is found that the two different forms arrive at exactly the same result, the explanation in the foregoing section ought to be similarly applicable here.

We know that J. M. Keynes advanced his own quantity theory of money, which is of a similar nature, in *A Tract on Monetary Reform*[14] which is specifically called the cash balance theory. That is, supposing in formula (3) we put $M=n$ and $k\cdot y=k'$, then we obtain

$$n=Pk' \quad \cdots\cdots(4)$$

which is the formula derived from Keynes' cash balance theory (according to Keynes it runs as $n=Pk$, but here it is expressed as $n=Pk'$ to stress the difference of the notation).

Putting it an other way, k' is called the cash balance because $k'=k\cdot y$. In other words, what is meant by the cash balance k' is that portion of the amount of national income in real terms which is being held in the form of cash.

Since formulae (3) and (4) are exactly identical with each other, there is no need of any further explanation.

Some time later J. M. Keynes published *A Treatise on Money*[15] in which his so-called fundamental equation was developed, from which the main issue $I=S$ of his *General Theory of Employment, Interest and Money*[16] was further developed. We shall discuss this matter separately in the next section.

V Keynes' Fundamental Equation

It has some importance to note that, although Keynes' fundamental equation was developed from exactly the same basic thought as in the case of the quantity theory of income, it after all came to result in an argument to make a bridge to the *General Theory* as a law of national income movement.

If the explanation made by Keynes himself is given in a concise

14) J. M. Keynes, *A Tract on Monetary Reform*, 1923, pp. 81-95.
15) J. M. Keynes, *A Treatise on Money*, 1930, Vol. 1, Chap. 14.
16) J. M. Meynes, *The General Theory of Employment, Interest and Money*, 1936.

form, it runs as follows:

Supposing that Y represents the national income produced, E the remaining portion of the national income distributed, from which windfall profit is deducted (this corresponds roughly to national income earned), and P windfall profit (this is not normal profit but profit which exceeds price over cost, i. e. price minus cost), I investment and S savings; first since the national income produced and the national income distributed are always identical, it leads to

$$Y \equiv E + Pw \quad \cdots\cdots (5)$$

Next, if it is supposed that the national income produced and the national income expended are ultimately to be identical, then

$$Y = C + I \quad \cdots\cdots (6)$$

and if the windfall profit is not to be used for consumption (if only a remaining portion of the national income earned from which saving are deducted is to be used for consumption), it leads to $C = E - S$. Consequently, (6) runs as follows:

$$Y = (E - S) + I$$

$$\therefore \quad Y = E + (I - S) \quad \cdots\cdots (7)$$

Now, supposing that the national income in real terms is represented by O (O equals to y in the foregoing section) and the price-level by π (π equals to P in the foregoing section), then (7) runs as follows:

$$O = E + (I - S)$$

If the two sides ate divided by O, then

$$\pi = \frac{E}{O} = \frac{I - S}{O} \quad \cdots\cdots (8)$$

This is Keynes' fundamental equation, and the level of commodity price π is to be explained both by the first term derived from the quantity theory of income and by the second term which means the Wicksellian gap.

In the meantime, how should Keynes' fundamental equation expressed in formula (8) be interpreted? I should think the following two interpretations may be assumed

(A) First of all, as is immediately understandable if the foregoing formulae (5) and (7) are compared, we can obtain from them

$$I - S = Pw \quad \cdots\cdots (8)$$

Therefore, the numerator of the second term of the fundamental equation represents windfall profit (price minus cost). In other words, it can be interpreted that when profit grows at a greater rate, prices also begin to rise. Or, it is possible to anticipate the cumulative rise of commodity prices, through the medium of the gap between the rate of interest and the marginal efficiency of capital (natural rate of interest in Wicksellian

terms). Be the matter as it may, when $I-S$ and windfall profit are found to be in a state of plus, it is natural that prices are in an environment to make them go up, but the convincing power to explain prices based on the relationships of $\frac{E}{O}$ of the denominator and numerator of the first term is rather weak (this does not carry much meaning and is self-explanatory).

In this way it can be seen that Keynes' idea of explaining prices has rather a close resemblance to that of Wicksell, and it can further be said that the principle of effective demand as expressed by the above formula (6) had already been in existence as seen in the foregoing description. It is simply because Keynes had too high a regard for the formality of the quantity theory of money that the fundamental equation expressed by the formula (8) has come to be drawn.

(B) Another possible interpretation of the fundamental equation is that which is concerned with the national income itself. Its explanation may be briefly stated in the following way. Supposing that Pw stands for the profit of a society as a whole as conceived by Macro (price minus cost, i. e. what is called windfall profit by Keynes), A for the total sales (or the turnover), F for factor cost and U for user cost, then the profit of a society as a whole Pw can be expressed by the following formula:

$$Pw=A-(F+U)$$

$$\therefore \quad A-U=F+Pw \cdots\cdots (10)$$

The left side of this formula (10) is the national income produced and the right side the national income distributed, and this relationship always remains equal. (Since the user cost on the left side U is composed of purchasing cost from other enterprises——intermediate products (such as raw materials and fuel)——and depreciation expenses, it represents $A-U=NNP$, i. e. national income produced, and the factor cost on the right side represents $F+Pw$, i. e. national income distributed, (if F is to be composed of wages, rent for land, money-interest and normal profit.)

Therefore, if formula (10) is re-written by applying the aforementioned notations, we will get

$$Y=E+(I-S)$$

$$\therefore \quad \pi \cdot O=E+(I-S)$$

$$\therefore \quad \pi=\frac{E}{O}+\frac{I-S}{O}$$

which after all means that Keynes' fundamental equation is obtainable from formula (10), which means 'national income produced=national income distributed'.)

Therefore, I can not but say that Keynes' fundamental equation has

in itself much more likeness to Keynes' theory than to the quantity theory of money, having very few characteristics of the quantity theory.

Lastly, I shall take up the fundamental equation of the formula (8) once again. If these notations are replaced by those of which we have made familiar use previously, then we can obtain

$$P=\frac{E}{Y}+\frac{I-S}{Y} \quad \cdots\cdots(11)$$

In the meanwhile, since the price minus cost is zero under the equilibrium condition E, which means that portion of the national income distributed from which the price minus cost (what is called windfall profit by Keynes) is deducted, comes to be identical with the national income distributed under the equilibrium condition. Again, since the national income distributed is alwauys equivalent to the national income produced, $E=Y=Py$ comes to hold true in the equilibrium. If this is applied to formula (11), then

$$P=\frac{P\cdot y}{y}+\frac{I-S}{y}$$

$$\therefore \quad I=S \quad \cdots\cdots(12)$$

In short, investment is no more than saving. This is the very core of Keynes' theory. Putting it an other way, it could be interpreted that if the fundamental equation developed in *A Treatise on Money*, 1930, were grasped in the equilibrium then its result would invariably lead to the basic issue of *The General Theory of Employment, Interest and Money*, 1936.

In other words, if an instant picture were taken on the assumption of a fixed value of the national income Y, then the fundamental equation would be obtainable, and if the movement to the balanced national income were pursued, then its expression such as $I=S$ would be obtainable. If Keynes' own writings are quoted here, they run as follows: "My so-called 'Fundamental Equations' were an instantaneous picture taken on the assumption of a given output."[17]

VI Reconsideration of the Quantity Theory of Money

I have so far explained, by reviewing the developments of the quantity theory of money, how the idea of Keynes' fundamental equation came to break up only to be transformed into the idea of the theory of national income. So far so good! Anyway, such being the way Keynes' theory came to be developed, could there be anything that might have been lost? Yes the original idea of the quantity theory of money has

17) "My so-called 'Fundamental Equations' were an instanteneous picture taken on the assumption of a given output." J. M. Keynes, *The General Theory of Employment, Interest and Money*, 1936, p. vii.

been extinguished.

In short, the recent trend is more and more towards making a study of monetary economics as a mainstream in reaction to actual economics, and it appears as if the traditional type of view based on the quantity theory of money has been rather pushed behind. Even in the well-known essay entitled *A Survey of Inflation Theory*[18] by M. Bronfenbrenner and F. D. Holzman practically no argument asserted from the viewpoint of the quantity theory is found, putting aside the cases of literature cited therein.

Needless to say, any idea based on a viewpoint of the quantity theory of money must be admitted to be an extremely superficial view. If the increase or decrease of the quantity of money is to be discussed at all, it is invariably necessary to make an analysis of the real economy by all means, so that the problems such as the underlying causes effecting the increase or decrease of demand for money and the specific mechanism of supply and demand could be contemplated fundamentally.

Nevertheless, since today's monetary economy has come to be administered and operated under very powerful control, there no longer remains any vestige of the gold standard system of the old days, i. e., free economy. Today the exchange rate is officially settled and so is the rate of money-interest. Of course it is true that we do have gray or black market prices, but they can be in no sense prices settled under perfectly free competitive conditions, being only settled with provisional adjustment on the basis of the official rate or official money-interest rate.

For instance, in reply to the question, "How is the rate for money-interest to be fixed these days?", some economists may answer, "The supply and demand of funds" or "The liquidity preference", but most ordinary people may answer that it is the job of the Bank of Japan to fix it in an adequate manner or at its own disposal. Can any one be sure enough to tell which one of these two answers is right?

In addition, whenever the Bank of Japan determines the rate of interest, is it settled by aiming at the so-called equilibrium rate, which could be supposed to be at a fair level under free competition? Or, does the Bank determine the official rate which is determined as a policy? I dare say that the answers will in all likelihood lean to the latter in a greater number.

It is utterly illusory to have an impression as if the money market itself were a free market, disregarding the fact that the operation of the

18) M. Bronfenbrenner and F. D. Holzman, *A* Survey of Inflation Theory, in American Economic Association and Royal Economic Society (ed.), *Survey of Economic Theory*, Vol. 1, 1965.

adjustment of currency has been exclusively exercised through discount-rate policy, open market operation, change in reserve requirements, etc. by the Central Bank. Nevertheless, our modern world is getting along in this way with a frame of mind to enjoy a free economy or mixed economy without feeling a sense of restriction such as in a controlled economy or planned economy. Then, why is it so? Because, today's mechanism of money and banking has been made up so as to operate in an extremely elastic manner. It is because there there is still room left for elasticity to the effect that pressing down on a certain part will make an other part swell up, as if an inflated rubber balloon were pressed down by a finger tip, even if the Central Bank were to exercise its powerful control. Since it can not be assumed that the Central Bank might adopt a trackless policy by any chance in future, I am confident that there is not any risk at the present stage for a full-scale monetary catastrophe to occur in the future, setting aside the case of a war breaking out.

Then, how is it designed? In short, it can be briefly answered that the stock control of currency has come to be exercised extremely ingeniously.

Taking a gold standard system (gold coin system) where only gold coins are usable for example, in its initial state the quantity of money will be restricted only to the existing quantity of gold. Next, in a case when the gold is concentrated in the Central Bank and convertible bank-notes are to be issued, in such a second state (gold kernel standard) the quantity of money will be multiplied by the inverse of the ratio of gold reserves.

Then, proceeding to the days of inconvertible bank-notes, and still further to the times not of a reserve system but of a maximum limit system, it is self-explanatory that the issuance of such bank-notes will normally increase from year to year almost in parallel with the progress of the economy. This state may as well be called the third stage.

I don't think that there is any need of further explanation about the credit creation or deposit creation of the banks, but here again there will be a probability that the amount of deposits or loans may be multiplied by the inverse of the ratio of payment reserve. This state may as well be called the expansion or inflation in the fourth state.

Furthermore, if ordinary citizens come to make more and more frequent use of checks or credit-cards and as a result the amount of money lying idle in the safes of city banks tends to increase, would it not become possible for the banks to increase their loans? If a perfect credit-card system, which may be called moneyless or checkless system should be adopted in future, would it not become possible for the banks to

make loans without limitation? This state may as well be called the fifth stage. Then, all that is said leads to the conclusion that there exists a money-amplifying mechanism in all the five different stages in the development of banking sysems.

Moreover, the issuance of public bonds on the part of the government, the expansion of credit among private enterprises and what not ——everywhere we see nothing but all kinds of inflation-devices.

In addition, if we turn our eyes towards the international economy, it may so happen that today's international liquidity problems might unexpectedly be settled with ease on account of the amplification of the so-called 'world currency', should it become possible in the future that the Bank for International Settlement, having an extensive banking-network throughout the world, might be ingeniously established. However visionary this idea may sound, such a possibility does exist, speaking from a theoretical viewpoint.

At this very time when it is considered that there already exists a possibility of the limitless increase of currency, isn't there a necessity to check the soundness of the adjusting function of currency once again in the light of the quantity theory of money? The amplifying device of money is at the same time an adjusting device. The problem of the controlling function of currency has only be taken up inclusively up to the present time in the theory of money and loans. However, if control over the quantity of money should not be put in to effect in each field from now on, the institutional environment would evidently be tending to incline towards in inflation. I am of the opinion that the the cause of today's chronic rise in consumer prices might be partly ascribable to the above-mentioned environment on a world-wide scale.

Viewed from the above-mentioned angle I think, in times when the reinforcement of international liquidity is wanted so seriously today on the one hand, and economic development, particularly the full play of the circulation mechanism for the developing countries is so much talked about on the other[19], that it is important to emphasise that the amplifying device for the quantity of money would at the same time serve the purpose of an adjusting device. It is regrettable that one's attention has been prone to be often taken up only with the analysis of the Macro-economy as a whole, and that less attention has been paid to the concrete analysis of the monetary mechanism in detail.

Out-of-date as it may perhaps sound, I would like to conclude this piece of writing by saying that the more strikingly economic society

19) Cf. J. G. Gurley and E. S. Shaw, "Financial Structure and Economic Development", *Economic Development and Cultural Change*, Vol. 15, No. 3, April 1967, pp. 257–268.

keeps expanding and developing, the more emphasis should be placed on the necessity of the adjustment of currency as a national policy based on the quantity theory of money.