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THE SUBJECTIVE THEORY OF VALUE
AND THEORIES OF THE VALUE
OF MONEY

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1. PREFACE

In the theories of the value of money, " the value of money " usually means the quantity of merchandise which can be bought with a unit amount of money, that is to say, merchandise-purchasing power. In the present article, the term " the value of money " is used in this sense. There is apparently no disputing the meaning of the term. But as a matter of phenomena, directly given us, there are as many kinds of merchandise-purchasing powers of money as there are goods bought with money, while, on the other hand, the value of money is believed to mean one particular thing, in so far, at least, as the purpose for which it is studied goes, namely, general purchasing power. It is thought that the value of money can be known by the reciprocal of the index number of general prices, which is nothing but the figure obtained by averaging the index numbers of commodities at a certain given time (or period), worked out on the basis of the prices of various commodities at a certain basic time (or period), the price index numbers of which are all taken as 100. Accordingly, one general commodity is a pre-requisite for the conception of the value of money. It is, however, a debatable question wheter it is enough for the conception of the value of money, to regard that one generl commodity as " an idealistic standard commodity, composed of such an assortment of goods, which are taken into the average, as accords to the ratio of their weighted quantities "[1]", or not enough and must further assume that all commodities have something in

common from the economic point of view and that they are
capable of being reduced to what is common to all[2]. With
regard to this problem, we may be allowed to say that if
"the ratio of the weighted quantities of the goods which
are taken into the average" in order to know the value of
money is constant, the former theory is obviously true, but
if Laspeyre's formula $\dfrac{\Sigma p_2 q_1}{\Sigma p_1 q_1}$, in which the weighting con-
forms to that of the base year, is regarded as unsatisfactory,
or if it is deemed natural to prefer the geometrical average
to the mathematical one for the reason that in the arithme-
tical average, marked flucturations in the prices of a few
commodities are reflected too strongly, the former theory
can hardly be deemed correct as it stands. Because that
fact means that something which cannot be fixed by a
certain physical ratio of various commodities is, in so far
as this theory goes, presupposed, that different combinations
of many commodities are taken to signify a certain someth-
ing, and that these commodities are taken to be monistic,
from the point of view of their power to contribute to this
something. But in this case also, the "idealistic standard
commodity" is sought after all the same. The only dif-
ference lies in the fact that, in this instance, it does not
consist of "a certain physical ratio of various commodities."
Theoretically, therefore, it is possible to conceive any stan-
dard commodity (though, of course, it must not be one
which is contained in money) and to consider the value of
maney in its relation to it[3]. If the latter theory means this,
the problem is solved. But if the "something" by which
"the exchange ratio of various commodities is generally
determined," that is, for instance, the so called "labour"
which it costs to produce commodities; is to be taken as
that standard commodity[4], it is a question whether we can
grasp this "something" at all. Even if it may be grasped,
it is then necessary to take as the premise that money
itself does not contain this "something," in order to consider
the value of money in the sense of general purchasing

power. It is, however, open to doubt whether such a premise is possible. Such a view is evidently untenable. Setting apart this point, the very idea that there is only one kind of the value of money cannot be accepted.

In order to study the value of money, it is necessary to take some "idealistic standard commodity" as the premise, and according to the "idealistic standard commodity" that is presupposed, the value of money which is taken to represent the purchasing power of it must differ in kind. The method of measuring the value of money assumes, either consciously or subconsciously, a certain "idealistic standard commodity." Accordingly, the value of money as treated *de facto* differs in kind, as the methods of measurement adopted differ. Whatever method of measuring be adopted, is, however, a question of determining the kind of value of money after all. A clear line of demarcation must be drawn between this and the question of what decides the value of money, which is measured by a method of measurement of one kind or another, or, in other words, the question of quantitative determination of the value of money. It is with the latter question that the present article proposes to deal.

One definite theory necessitates the grasp of the concrete phenomenon in a certain fixed way. Only because of this fact can a theory have its *raison d'être* indeed, in the systematic grasp of the concrete phenomenon. It is due to this fact also that we are enabled to discern the correctness or incorrectness of a positive theory. But a theory does not always evolve in a manner strictly in accordance with its requirements; it is often distorted by the incursion of discordrnt factors. In examining a theory, therefore, it is important that such discordant ideas as have crept into it should first be removed so that the theory may be presented in a form as unalloyed as possible. In this way only can the correctness or otherwise of a theory be proved. There are, no doubt, few systems of theoretical economy which do not deal with the theory of the value of money, but at the same

time there are few theories which are so frequently treated either independently of or, in some cases, even inconsistently with the basic theory as the theory of the value of money. Now that it has become a question of great importance how to grasp concrete phenomena, theoretically and systematically, by the subjective theory of value, and especially seeing that opponents of the subjective theory of value argue that in the theory of the value of money the subjective theory of value is exploded, and that even among the advocates of the subjective theory of value, opinion is divided on the theory of the value of money, it is at once very important and interesting to study what theory of the value of money is logically and essentially demanded by the subjective theory of value.

This problem is admittedly a very complex one, so complex, indeed, that it is beyond my limited ability and knowledge to solve it completely. But as I find many points in the theories advanced by many scholars on this important problem which seem questionable to me and as, moreover, it is a problem which I could not see solved to my satisfaction in my discussion with Professor Schumpeter on the occasion of his recent visit to this country, partly due to the insufficient time available for discussion and partly owing to language difficulty, I now propose to set forth my point of view in the hope of inviting valuable suggestions from those interested in the subject.

2. THE SUBJECTIVE THEORY OF VALUE AND THE THEORY OF THE VALUE OF MONEY

The subjective theory of value is one which asserts that price is essentially based on the process of circulation and that circumstances connected with the process of production are merely one factor (though, perhaps, the most cogent factor) which operates in the determination of a price by way of influencing the circumstances connected with the process of circulation. Here, demand and supply functions

and also subjective valuation that lies in the background form the basis of explanation. Consequently, when approaching the theory of the value of money from the subjective theory of value, methods of explaining the value of money in the light of the subjective value of money claims attention.

As Dr. Döring says, " it is comparatively recent in the history of theories that the subjective theory of value came to be applied to the theory of the value of money." Perhaps, Professor v. Wieser was the first scholar to bring the question of the subjective value of money to the fore. According to him, " money is always and by all people appraised for its exchange value. · · · The exchange value of money is the expected value in use of goods purchased with money." Accordingly, if what is called " the expected value in use of goods purchased with money "[6] is to be interpreted as " a mere reflection of the value of those goods " (and these two accord, as a matter of fact, with each other, in the theory of equilibrium, in the fundamental process of theoretical study), the conclusion is inevitable, in so far as it is attempted to explain the value of money by the subjective value of money, that " the value of money arises from the subjective value of money in use—which means the subjective exchange value of money—and that the subjective exchange value of money depends on the value of money."[7] This naturally invites the criticism that it forms a vicious circle.

This criticism has often been heard,[8] and it is accepted even by those who advocate the subjective theory of value. They contend that the value of money need not be explained on the basis of the subjective value of money, even when the subjective theory of value is adopted, but that it should be explained by some other means.[9] It is to be noticed that Professor Schumpeter, who once tried to explain the value of money[10] on the basis of the subjective value of money, says in his later article: " Money is by no means a commodity, in its fundamental nature, even when it happens to be made of a commodity of value. · · · So long as

it is money, its material does not satisfy any desire. Nor
can it, as money, form an object of the appraisal of the
subjective value in use. So, it can possess no inherent
value. Money has purchasing power, and for this reason it
is prized by its possessor. But the purchasing power of
money . . . does not spring from its appraisal as anything
other than money, that is to say, on account of the material
of which it is made. Such being the case, . . . if one at-
tempts to explain the purchasing power of money by the
subjective valuation of money and goods on the part of the
parties to transactions, one will fall into the mistake of a
vicious circle, for their valuation of money is a mere reflec-
tion. Such an attempt premises certain relations of exchange
between money and goods and accordingly the purchasing
power yet to be expounded."[1] So long as the subjective
value of money is interpreted in this sense, it clearly cannot
explain the value of money.

Then, is it possible at all to explain the value of money
by methods other than that of explaining it by the subjective
value of money, when the subjective theory of value is advo-
cated ?

Professor Schumpeter takes the line that the advocacy
of the subjective theory of value does not prevent the value
of money being explained by methods other than that of
proceeding from the subjective value of money to the ex-
plnation of the value of money. Now, let us see how he
attempts to justify this contention of his. The Professor
says, " just as the nature of the game does not suffer in
any way, no matter how the total score may be fixed, the
computation in money by no means alters the nature of
things. It, no doubt, splits up the big movemept of econo-
mic life, that is to say, the constant exchange of productive
goods for consumable goods, into two big groups of move-
ments of exchange, thus dividing a national economy into
two markets which, in the absence of money, would cons-
titute one big market. In the one market, that is, in the
productive goods market, industrialists figure as buyers and

possessors of productive goods as sellers, and an exchange
is effected between productive goods and money.   In the
other, namely, in the consumable goods market, industrialists
assume the position of suppliers and consumers that of
buyers.   Here, an exchange takes place between money and
consumable goods.   But the consumers in the consumable
goods market are of necessity those who figured as suppliers
in the productive goods market.   In the consumable goods
market, therefore, that money only is spent which these
people have received in the productive goods market. · · ·
Such being the case, the fact that the single process (which
would rule, were there no money) splits up into two pro-
cesses; in other words, the fact that money is introduced,
has, so far as it goes, market-technic meaning only.   Things
are, in their essential nature, moving, irrespective of the
introduction of money, in the form which they would assume
when the state (of activity of a society without money),
conceived theoretically, operated."[12]   Thus we see that the
learned professor takes the view that, independently of the
existence of money, the mutual exchange ratio of goods is
fixed by the subjective value, and that the part played by
money is merely to fix the exchange ratio of goods, say, 1,
2, 3, either at ¥ 1, ¥ 2, and ¥ 3 or at ¥ 2, ¥ 4, and ¥ 6.
Presumably, he thinks that, money, while occupying a posi-
tion different from that of an object of exchange forming
the exchange community, can take its place in the mechan-
ism of exchange.   We often come across such an idea.[13]

Is it, however, possible to take such a view of the
mechanism of exchange?

For a close scrutiny of this matter, it is convenient to
make use of the system of the theories of the mathematical
school which most strictly embodies the mechanism of the
exchange community.   Especially helpful will be found
Professor Walras's system in "the problem of mutual ex-
change between many commodities; the theory of general
equilibrium."   According to his system, "supposing that
there are in one market "m" kinds of commodities, (A),

(B), (C), (D), $\cdot$ $\cdot$ $\cdot$, we can obtain m-1 effective demand equations for commodities (B), (C), (D), $\cdot$ $\cdot$ $\cdot$, as measured by commodity (A), namely.

$$D_{b,a}^{(4)}=F_{b,a}(P_{b,a}^{(5)}, \ P_{c,a}, \ P_{d,a} \cdot \ \cdot \ \cdot \ \cdot \ ),$$
$$D_{c,a}=F_{c,a}(P_{b,a}, \ P_{c,a}, \ P_{d,a} \cdot \ \cdot \ \cdot \ \cdot \ ),$$
$$D_{d,a}=F_{d,a}(P_{b,a}, \ P_{c,a}, \ P_{d,a} \cdot \ \cdot \ \cdot \ \cdot \ ),$$
$$\cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot$$

For commodities (A), (C), (D), $\cdot$ $\cdot$ $\cdot$, as measured by commodity (B) the following m-1 effective demand equations can be secured:

$$D_{a,b}=F_{a,b}(P_{a,b}, \ P_{c,b}, \ P_{d,b} \cdot \ \cdot \ \cdot \ \cdot \ ),$$
$$D_{c,b}=F_{c,b}(P_{a,b}, \ P_{c,b}, \ P_{d,b} \cdot \ \cdot \ \cdot \ \cdot \ ),$$
$$D_{d,b}=F_{d,b}(P_{a,b}, \ P_{c,b}, \ P_{d,b} \cdot \ \cdot \ \cdot \ \cdot \ ),$$
$$\cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot \ \ \cdot$$

And so on, until we can obtain m (m-1) equations. On the other hand, $\cdot$ $\cdot$ $\cdot$ (as, in the case of the mutual exchange of two commodities, the exchanged quantity of goods, which is regarded as the denominator of value in exchange, is equivalent to the multiplication of the quantity of goods of which the value is expressed by that denominator by their unit value), we can obtain m-1 equations of exchange between commodity (A) and commodities (B), (C), (D), $\cdot$ $\cdot$ $\cdot$ as follows :—

$$D_{a,b}=D_{b,a}P_{b,a}, \ \ D_{a,c}=D_{c,a}P_{c,a}, \ \ D_{a,d}=D_{d,a}P_{d,a}, \cdot \ \cdot \ \cdot \ \cdot$$

The m-1 equations of exchange between commodity (B) and commodities (A), (C), (D), $\cdot$ $\cdot$ $\cdot$ are as under :—

$$D_{b,a}=D_{a,b}P_{a,b}, \ \ D_{b,c}=D_{c,b}P_{c,b}, \ \ D_{b,d}=D_{d,b}P_{d,b}, \cdot \ \cdot \ \cdot \ \cdot$$

In the same way, we can obtain the total m (m-1) equations in the end. If to these m (m-1) equations are added m (m-1) effective demand equations, we can obtain 2m (m-1) equations. The number of unknowns is m (m-1) indicating the quantity of each of the goods to be exchanged and m (m-1) prices for the sake of " m " kinds of goods.[16] This shows the mechanism of an exchange community devoid of money.

One thing that must not be lost sight of is that, in this

system each commodity can constitute the denominator of the value of all the other commodities or can form the centre of exchange transactions, since it is assumed that there is no money and that mutual exchanges take place between all commodities. If money is to constitute the general denominator of value and form the centre of exchange transactions—and this must necessarily happen, if it is to operate as money—it must occupy the position of one of the commodities here mentioned in the mechanism of exchange. (It does not, of course, necessarily follow that it should on that account possess value in use). In no other way can it be admitted into the mechanism of exchange. By the establishment of money it is meant that, viewed from the standpoint of the mechanism of the exchange community, the functions of the denominator of value and of the centre of exchange transactions belong to one thing exclusively, or for instance, that by the conversion of (A) in the above-mentioned system into money, the above mentioned mechanism of exchange becomes as follows: the effective demand equations for the various commodities are expressed in the terms of money only:

$$D_{b,a} = F_{b,a}(P_{b,a}, P_{o,a}, P_{d,a} \cdot \cdot \cdot \cdot),$$
$$D_{c,a} = F_{c,a}(P_{b,a}, P_{c,a}, P_{d,a} \cdot \cdot \cdot \cdot),$$
$$D_{d,a} = F_{d,a}(P_{b,a}, P_{c,a}, P_{d,a} \cdot \cdot \cdot \cdot),$$
$$\cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot$$

and the supply equations of various commodities are also expressed in the terms of money only:

$$O_{b,a}^{[17]} = f_{b,a}(P_{b,a}, P_{c,a}, P_{d,a} \cdot \cdot \cdot \cdot),$$
$$O_{c,a} = f_{c,a}(P_{b,a}, P_{c,a}, P_{d'a} \cdot \cdot \cdot \cdot),$$
$$O_{d,a} = f_{d,a}(P_{b,a}, P_{c,a}, P_{d,a} \cdot \cdot \cdot \cdot),$$
$$\cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad \quad \cdot \quad \cdot \quad \cdot \quad \cdot$$

followed by the following system of equations[18] signifying the equilibrium of demand and supply:

$$D_{b,a} = O_{b,a}, \quad D_{c,a} = O_{c,a}, \quad D_{d,a} = O_{d,a}$$

and the system remains in its essential nature, unaltered, which is in this case composed of $3(m-1)$ equations, the unknown quantities being the quantities expressing the

prices of commodities (m-l), the quantities expressing the demand quantity of each commodity (m-l), and the quantities expressing the supply quantity of each commodity (m-l), making a total of 3 (m-l). Accordingly, the position of money is not outside the mechanism of exchange, but is within it from the beginning.

So far, the production process has been left out of consideration, but it is superfluous to say that even if it be taken into the system, it does not affect[19] in any way the essential nature of things as it is here studied.

Thus, if in the mechanism of exchange the subjective value is indispensable for anything to be an object of exchange, it must of necessity be so for money also. This point is made clear by another method of expression of the theory of general equilibrium. For ψ_{1x}, ψ_{2x}, in the following system

$$A\begin{cases} \psi_{1x}=\dfrac{1}{P_y}\psi_{1y}=\dfrac{1}{P_z}\psi_{1z}= \cdot \cdot \cdot \cdot \\[2mm] \psi_{2x}=\dfrac{1}{P_y}\psi_{2y}=\dfrac{1}{P_z}\psi_{2z}= \cdot \cdot \cdot \cdot \\[2mm] \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \end{cases}$$

$$B\begin{cases} x_1-x_{10}+P_y(y_1-y_{10})+P_z(Z_1-Z_{10})+ \cdot \cdot \cdot \cdot =0 \\[1mm] x_2-x_{20}+P_y(y_2-y_{20})+P_z(Z_2-Z_{20})+ \cdot \cdot \cdot \cdot =0 \\[1mm] \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \\[1mm] x_{\theta-1}-x_{\theta-10}+P_y(y_{\theta-1}-y_{\theta-10})+P_z(Z_{\theta-1}-Z_{\theta-10})+ \cdot =0 \end{cases}$$

$$C\begin{cases} x_1-x_{10}+x_2-x_{20}+ \cdot \cdot \cdot \cdot =0 \\[1mm] y_1-y_{10}+y_2-y_{20}+ \cdot \cdot \cdot \cdot =0 \\[1mm] \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \end{cases}$$

which, according to this method of expression of the mechanism of exchange,[20] show the marginal utility which the subjects 1,2, · · recognise in money.

It may, however, be argued that as the circumstances expressed, say, by θ equations:

$$\psi_{1x}=\frac{1}{P_y}\psi_{1y}, \qquad \varphi_{2x}=\frac{1}{P_y}\varphi_{2y}, \cdot \cdot \cdot \cdot \cdot \cdot$$

in the abovementioned system are replaced in the monetary

circles by something else, ψ_{1x}, ψ_{2x}, · · are put out of the question from the point of view of the system. Professor Schumpeter contends that "it is possible to think that each economic subject is given several units of means of exchange with no subjective value in use, according to the commodity in its possession or, to be more exact, according to the *price* of the commodity, and that all commodities for each economic period are sold in accordance therewith."[21] This is the fundamental theory of the new quantity theory of money which has been gaining ground of late. The quantity theory of money takes the line that a change in the quantity of money in a community brings about a rise or a fall in the prices of commodities in that community and accordingly fluctuations in the value of money, provided all other factors remain unchanged. There are two quantity theories of money. One refers to "the most fundamental theory explanatory of phenomena concerning the value of money in the world of monetary economy,"[2] and the other refers to the cognition of the general tendency regarding fluctuations in the value of money. It is the former theory which has been gaining ground of late. In so far as it refers to the most fundamental theory explanatory of phehomena regarding the value of money, what is called "the quantity of money" evidently means not the amount of currency in a community but the total amount of money involved in transactions, that is, after all, the total price of the goods which are turned into money (though theories differ as to whether such goods shall be confined to final consumable goods,[23] or include productive goods as well, except labour power,[24] or include every kinds of productive goods).[25] Consequently, if the condition "provided all other factors remain unchanged" is taken to include the condition "that no change in the quantity of the goods which are turned into money takes place" an increase or decrease in the quantity of money in this sense (which will henceforth be termed monetary sum for brevity's sake) necessarily means fluctuations in the prices of commodities in direct proportion, and conse-

quently changes in the value of money in inverse proportion,
" provided all other factors remain unchanged." This is
self-evident. But how is the so-called monetary sum fixed?
It is, no doubt, fixed by the prices of various goods which
show the exchange ratio between these goods and money,
that is to say, by their prices which have yet to be explain-
ed. Such being the case, though such theory of the value
of money may be of some significance from the point of
view of determining the value of money in terms of quality,
it is meaningless as a theory of determination the value of
money in terms of quantity, for which it is intended. This
misconception arises from the fact that the monetary sum,
which is fixed only through the mechanism of exchange, is
regarded as if it were supplied to the mechanism of ex-
change from without. It is, thus, impossible to exclude ψ_{1x},
ψ_{2x} . . . by treating the monetary sum as a known quantity.

If, however, the conditions of equilibrium are to include
the one condition that each subject shall possess, and possess
without fail, even after the exchange, just that sum of money
that was brought into the exchange world, or, in other
words, the condition that each subject shall spend all the
money income secured in an exchange world just in the
exchange world concerned, it may appear that to the system
of equations referred to, θ equations:

(D) $x_1 = x_{10}$, $x_2 = x_{20}$, · · · ·

can be added, with the result that from the system of equa-
tions (A) θ equations, as for example,

$$\psi_{1x} = \frac{1}{P_y}\psi_{1y}, \qquad \psi_{2x} = \frac{1}{P_y}\psi_{2y}, \cdot \cdot \cdot \cdot$$

is excluded, so that ψ_{1x}, ψ_{2x}, · · · can be put out of the
question. But if the system of equations (D) containing θ
equations be given, the equations:

$$x_1 - x_{10} + x_2 - x_{20} + \cdot \cdot \cdot \cdot = 0$$

in the system of equations (C) are necessarily drawn out of
them (and any one of the other equations contained in the
system of equations (C) and the equations contained in the

system of equations (B) are of necessity drawn out of others all the same), so the quantity of equations given by such an assumption are, as a matter of fact, no more than $\theta - 1$. Consecuently, this does not solve the problem. Moreover, as the system of equations (D) is one which is determined only after subjective valuation has been gone through, its admission into the system of equations from the beginning is simply to cover up the issue, let alone the defects such as have already been pointed out.

It, therefore, follows that if the subjective theory of value be adopted at all, the subjective value of money must needs be presupposed in order to explain the value of money. It is theoretically impossible to adopt the subjective theory of value, while denying the method of explaining the value of money on the basis of the subjective value of money. If the method of explaining the value of money by means of the subjective value of money is impossible, it is clear proof that the subjectivce theory of value is untenable; and, if the subjective value of money means what is set forth in the various criticisms already quoted, it is clearly unavailing in explaining the problem. " As it is in money that the objectivation of the complex intercourse between individuals manifests itself most vividly, the theory of money and its circulation is, so to speak, a touchstone to test all the theories of value."[26]   So it may be said that " the bankruptcy of the subjective theory of value and its uselessness for explaining the fundamental problem of national economy is most clearly demonstrated here."[27]

But as the analysis of Professor Walra's system already quoted shows, the subjective value of money required in money in that case—to be more exact, the subjective value function of money—is neither the value function of the goods yet to be purchased with money nor its mere reflection. What is required there is that which comes into the mechanism of exchange as one given, not that which is given to money only through the mechanism of exchange concerned. This point also is made clear by Professor

Pareto's system already quoted. For ψ_{1x}, ψ_{2x} . . which indicate the marginal utility recognised in money by the subjects 1,2, · . . , presuppose like ψ_{1y}, ψ_{2y}, · · · , ψ_{1z}, ψ_{2z} · · · indicative of the marginal utility recognised in the goods the subjective value function of that which comes in as one given to the mechanism of exchange. It is apparently for this reason that Professor Aftalion questions "if an accurate psychological analysis · · · will not negate the passive nature of the valuation of the money unit, the identification of the valuation of money with the valuation of the goods which are purchased with the final unit of income, and the lack of qualitative factors on the part of money itself; if it be impossible for us to appraise money except through goods; or rather · · , if we be unable to find in individuals the value of money which can be independent of the valuation of goods which are purchased with the final uuit of income; if it be impossible to differentiate between these two valuations,"[28] and that Prof. Aftalion asserts the existence of the subjective value of money which is free from the value of goods yet to be bought with money, thereby attempting to find a way out of a vicious circle.

In this case, it may be supposed that: "the marginal utility of money expressed by ψ_x in the general equation means nothing more than the utility function which is presupposed when rendering the establishment of equilibrium possible, and it is inconceivable that equilibrium can be established on the utility function of money given before the general equilibrium is established. If the prices in the monetary world concerned fluctuate, the utility function of money must of necessity change *pari passu*. The value function given before the general equilibrium is established shows a process leading to the establishment of the equilibrium. It is a mistake to think that equilibrium is then actually attained. Equilibrium is achieved through trials and errors, and consequently it is incorrect to think that the utility function of money is unalterably fixed from the beginning. It is subject to constant changes according to

changes in the amound of income before the function corresponding to the equilibrium is fixed. Once it is fixed, the equilibrium is established on its basis." But the general equilibrium theory presupposes the infinitesimal divisibility of the quantity handled and the continuity of the function. If this is the case, (of course, in every part but the margin, not only the subjective value of an article itself but the subjective value function of all the other articles which are bought with it will call for attention) in the margin the subjective marginal value due to the subjective value function of itself ought to accord with the subjective value of all other goods to be bought with it, and consequently its subjective value is always fixed at one point on the curve of the subjective value function of itself.

But the subjective value function of money in this sense cannot be recognised, so long as money remains money, in regard to the consumption of the material of which money is made. Then, what is the subjective value function of money, which is necessarily assumed in regard to money in the subjective theory of value, and which is neither the value function of the goods which are purchased with money or its mere reflection, nor the value function of the material of which money is made? It presupposes a certain purchasing power because of the essential nature of money. How, then, can this theory escape the charge of being a vicious circle?

Perhaps, Professor Wieser was the first to take up this phase of the question[29]—though, of course, not in such a clear-cut form as indicated above, and consequently often confusing it with the problem of the subjective value of money in the sense in which it is understood in the various criticisms quoted. It is an attempt to find the key to a solution in the phenomenon called "the inertia of the value of money," "the historical continuity," or "historically conditioned nature," and his theory has often been resorted to since.[30] According to Professor Mises, who set forth Professor Wieser's point of view concisely, "it is right to

contend that the subjective valuation of money already
presupposes a certain exchange value, but the value presup-
posed is not a value yet to be explained. It is the exchange
value of yesterday, and it can explain to-day's exchange
value."[31]

This theory has called forth many criticisms.

The first problem that presents itself is the relation
between history and theory. Dr. Hirsch says: ". . . the
theoretical and genetic (research) described by Professor
Mises is concerned with the formation of the value of
money in the sense of its historical origin. On the contrary,
the purely theoretical (study) is concerned with the forma-
tion of the value of money, independently of historical
origin. . . . It must therefore be kept in mind that they
are altogether different things."[32] If, however, the so-called
purely theoretical study is taken as meaning the study of
the mechanism of the decision of the value of money, Pro-
fessor Mises's contention exactly forms its conclusion. For,
when the point at issue is whether—in the study of the
mechanism decisive of the value of money, in which it has
been made clear that in all the objects of exchange to be
admitted into this mechanism the subjective value, not given
them for the first time by the exchange community, is
required—money which, unlike ordinary goods, does not
possess value in use can possibly possess such subjective
value, it is only proper that the reasons for its possession
of such subjective value should be given, and, indeed, by so
doing only can it explain the matter effectually. Again, by
this means can connection be found between history and
theory. If the criticism is correct that this oversteps the
limits of theoretical study, it will be impossible to consider
the question whether money which, unlike ordinary goods,
has no value in use, can possess such subjective value, for
it is a question which cannot be decided by a theory of
this kind. Also, it is incompatible with the process of
theoretical study aiming at the grasp of a historical pheno-
menon.

But it may be argued that as the subjective value of money designed to explain the value of money is based " on certain value of money, though not the one susceptible to explanation by that subjective value of money," such an explanation can hardly be described as final. Dr. Hirsch continues: " . . . the logical and genetic explanation does nothing more or less than reducing one concrete phenomenon to another, and does not solve the problem fundamentally. It simply transfers the problem from one place to another."[33] This view is, in this sense, quite correct. Professor Mises therefore goes on to argue: " The value of money in the market to-day is created by the value of money yesterday influenced by subjective valuation on the part of parties to transactions, while the value of money yesterday was created by that of the day before yesterday influenced by the subjective valuation on the part of the parties to transactions. If, in this way, the matter is pushed further and further back, one will surely reach the point of time when the value of money is entirely free from the value based on valuation due to the function of money as a general medium of exchange, that is to say, the point of time when the value of money was nothing but the value of something other than money."[34] The last part of Professor Mises's contention is obviously not very exact. To speak more strictly, it ought to be put in this way: " . . . In the end, the point of time when *the basis of* the subjective value of money does not include anything due to the function of money as a general medium of exchange, in other words, the point of time when *the basis of* the subjective value of money is merely the value of something other than money, will be reached."

At any rate, Professor Mises's view quoted above is significant as an attempt to meet the requirements of final explanation. It would be impertinent to criticise the above-mentioned theory as if it were an attempt to justify the subjective theory of value by insisting that the value possessed by money when it was first created has some bearing

on our economic life to-day.[75]

In further comment on the above-mentioned theory, Dr. Hirsch says: "What can we say on the question of the origin of money without consulting the views of historians? All that we can say is hypothetical. Professor Mises bases his theory on that of Menger, who contends that money had its origin in the 'most marketable commodity.' This idea runs through the entire system of the marginal utility school, and, indeed, it contains some truth. But this is not the only theory (concerning the origin of money). Knapp, for instance, claims that money is the creation of legislation."[76] It is true that Professor Mises here endorses the view of Professor Menger in regard to the origin of money, but the question at issue here is how the subjective value of the medium of exchange can arise out of things other than the subjective value of goods to be bought with it. No matter what may constitute itself the medium of exchange—whether general object of unilateral circulation or general object of exchange—the conclusion is inevitable that at the moment it becomes the medium of exchange its subjective value is essentially and invariably recognised in the manner already indicated. It is consequently out of place to discuss here how money came into being.[77]

Dr. Hirsch goes on to say: "It is of special interest to note that Mises who set out to explain the value of money has gone back to the value of goods. It is clear that the theory of marginal utility can easily be adopted for explaining the value of goods. But it does not mean the application of the theory of subjective value to the value of money, which is the question under discussion, but means its application to some particular historical goods."[78] But by the fact that it is used as the medium of exchange based on its objective value, its subjective value other than one merely due to its physical value is recognised. Dr. Hirsch's criticism confounds the subjective value due to its use as medium with the subjective value due to its physical use, which was one factor in determining the objective value

forming its basis.

In short, his criticism is irrelevant. The above-mentioned justification provided by the theory of subjective value of money ought to be recognised, and accordingly the theory of determining the value of money by it ought to be recognised also.

3. THE CONCLUSION

All the subjects which come into the mechanism of the monetary world are required to have definite subjective value functions for each kind of goods and for money. The subjective value function for money in that case can be formed on the basis of its purchasing power prior to the organisation of the monetary world concerned—which will probably be conceived differently by different people—and thus the question of the quantitative determination of the value of money can be explained from the angle of the subjective value of money, a fact whicn has been made clear in the previous chapter.

The above explained knowledge of the character of the subjective value of money which takes part in the determination of the value of money indicates a certain direction regarding the understanding of fluctuations in the value of money. Supposing that currency of some kind is increased in society—as a matter of fact, in some subject—the subjective *value function*—not marginal utility—which one who has obtained more money possesses for money is the same as the one which he may possess in case not so much money has been obtained. (This is necessarily required in view of the nature of the general equilibrium theory). So, there is no necessity of the merchandise demand and supply function which he forms being equal to that which is otherwise formed. Consequently, there is no necessity of a change in the quantity of money not influencing the value of money. For, whereas the subjective *value* of money (not the function) must be regarded as unalterable, if such necessity is to be justified, our basic experience does not approve

of such a view. On the other hand, the very idea that this change in the quantity of money does not bring about any change in the subjective value function which each subject possesses regarding money leads necessarily to the negation of a necessary proportional nature between the changes of the quantity of money and that of the prices of commodities. For, its affirmation would be impossible unless two facts were presupposed that the height of the sub-jective value curve (showing the subjective value) changes in inverse proportion to the increase or decrease of the quantity of money and that changes in the quantity of money take place in respect of each individual in propor-tion to the quantity of money which he possesses when there is no change, and even if the latter premise may be left unquestioned, the former hypothesis is incompatible with the basic experience on which the subjective theory of value stands.

<div align="right">KEI SHIBATA</div>

1) Takata Yasuma: New Lectures on Economics, Bk. III. p. 259—60.
2) Hashizume Akio: Principles of Money p. 306.
3) Cf. Takata: ibid. p. 264.
4) Cf. Hashizume: ibid. p. 306.
5) Herbert Döring: Die Geldtheorien seit Knapp, 2. Aufl. 1922, S. 209.
6) Friedrich v. Wieser: Der natürliche Werth, 1889, S. 45—6.
7) Gustav Ekstein: „Die vielfache Wurzel des Satzes vom unzureichen-den Grunde der Grenznutzen Theorie. Eine Robinsonade." Neue Zeit, 22. Jahrg. 1904, Bd. II. S. 12.
8) Rudolf Hilferding: „Ludwich v. Mises, Theorie des Geldes und der Umlaufsmittel," Neue Zeit, 30. Jahrg. Bd. II. S. 1025——N. Bucharin: Die Politiche Ökonomie des Rentners, 1923, S. 98ff——L. v. Bortkiewitz: Der subjektive Geldwert, Schmollers Jahrbuch etc, 44. Jahrg. 1. Heft, S. 178ff——Mildschuh, Artikel „Geld" (Geschichtliche Entwicklung der Geldtheorien im H. d. St., 4. Aufl.) S. 731——Willy Hirsch: Grenznutzen-theorie und Geldwerttheorie, 1928, S. 44, 45, 72, 89, 103, 115ff, 174,
9) Joseph Schumpeter: Das Sozialprodukt und die Rechenpfennige usw., Archiv für Sozialwissenschaft u. Sozialpolitik, 44. Jahrg. S. 646, 647, 649 —50——Knut Wicksell: Geldzins und Güterpreise, 1898, S. 16, 27,—— Karl Helfferich: Das Geld, 6. Aufl. 1923, S. 577ff——Takata: ibid. P. 248—9.

10) Schumpeter: Das Wesen und der Hauptinhalt der theoretischen Na-
tionalökonomie, 1908, S. 287−8, 292 -3.

11) Schumpeter: Das Sozialprodukt etc., S. 646.

12) Schumpeter: a. a. O. S. 634, vgl. Derselbe: Theorie der wirtschaft-
lichen Entwicklung etc., 2. Aufl. 1926, S. 65ff.

13) Recently; Ohno Jun-ichi: Sozialökonomische Theorie des Geldes, 1931,
S. 126ff.

14) The quantity of commodity (B) in demand on payment of commodity
(A). This applies correspondingly to the following cases.

15) The quantity of commodity (A) paid for one unit of commodity (B).
This applies correspondingly to the following cases.

16) Léon Walras: Eléments d'économie politique pure ou theorie de la
richesse sociale, 1926, p. 112—4.

17) The quantity of commodity (B) supplied in exchange for money (A).

18) Gustav Cassel: Grundriss einer elementalen Preislehre, Zeitschrift f. d.
gesemte Staatswis. 55. Jahrg. S. 395ff.

19) This is clear from the production equilibrium theory. In the present
article, the cost of production is also left out of consideration, for it is a
matter of course in theoretical economy that the exchange ratio should
be determined in accordance with the cost of production in connection
with the demand, and there is no question calling for special study in
this connection. With regard to the production equilibrium theory we
must notice that according to the system by Vilfredo Pareto (Manuel
d'économie politique, Traduit par Alfred Bonnet 2. ed. 1927, P. 610—3),
money is regarded in the same light as ordinary productive goods and
treated as if it were consumed in production. This treatment of the
subject is evidently careless. This fact must be duly noted, for this
system has subsequently been used very often without scrutiny.

20) Pareto: ibid. p. 592. It is allowable to take ψ_{1x}, ψ_{2x} . . as represent-
ing the marginal utility which the subjects 1, 2, . . recognise in money,
and $\psi_{1y}, \psi_{2y}, \ldots, \psi_{1z}, \psi_{2z} \ldots$ as representing the marginal utility
which the subjects 1, 2, . . . recognise in the commodities Y, Z, . . .

$x_{10}, x_{20}, \ldots$ represent the quantities of money which the subjects 1, 2,
. . . possessed before they came into the mechanism of exchange con-
cerned, while $y_{10}, y_{20}, \ldots, z_{10}, z_{20}, \ldots$ represent the quantities of the
commodities y, z, . . . which the subjects 1, 2, . . . possessed before
they came into the mechanism of exchange concerned (all these are
regarded as known quantities).

$x_1, x_2, \ldots y_1, y_2, \ldots z_1, z_2, \ldots$ represent the quantities of the
money X, and commodities Y, Z, . . . which the subjects 1, 2, . . .
possess in the mechanism of exchange concerned after the exchange.

The kinds of the commodities are $m-1$, and the number of subjects
is θ. Accordingly, the system of equations (A) indicating the law of
equality of marginal utility in each subject (there are points requiring
scrutiny in this connection, but I will refrain from scrutiny here, as it

has nothing to do with the problem under discussion) contains $(m-1)\theta$ equations, and the system of equations (B) indicating the equilibrium of income and expenditure in each subject contains θ number of equations, while the system of equations (C) indicating the necessary social accord between the quantity sold and the quantity bought in regard to each commodity and that regarding money, contains "m" number of equations. As, however, one of the equations contained in the systems of equations (B) and (C) can of necessity be drawn out of the others, the number of equations contained in the system of equations (C) is fixed at $\theta-1$ in the system quoted in the present article. Thus, the total number of equations is $(m\theta+m-1)$. On the other hand, the number of unknown quantities is $m-1$ in respect of prices and θm in respect to the quantities of commodities and money respectively held by each subject after the cxchange, making a total of $(m\theta+m-1)$.

21) Schumpeter: a. a. O. S. 63.

22) Hashizume: ibid. 262.

23) Schumpeter: Das Sozialprodukt etc., S. 634ff——Wieser: Der Geldwert und seine Veränderungen. Schriften des Vereins für Sozialpolitik, Bd. 132, S. 507ff——Derselbe: Grundriss der Sozialökonomik, 2. Aufl. 1924, S. 188——Takata: ibid. p. 288ff. 318ff.

24) Friedrich Bendixen: Geld und Kapital S. 65, 31, (though he denied the quantity theory in the second sense).

25) Hashizume: ibid. p. 246, 250.

26) Bucharin: ibid. p. 100.

27) Hilferding: ibid. p. 1025.

28) Albert Aftalion: Monnaie, Prix et Change, 1927, p. 205—6.

29) Wieser: Der Geldwert und seine geschichtlichen Veränderungen, Zeitschrift f. Volkswirtschaft usw., Bd. 13, 1904 (Gesammelte abhandlungen, herausgegeben von Friedrich A. v. Hayek, 1929) S. 176ff——Derselbe: Der Geldwert und seine Veränderungen, Schriften des Vereins für Sozialpolitik, Bd. 132, S. 507ff——Derselbe: Theorie etc. S. 188.

30) Otto v. Zwiedineck-Südenhorst: Kritisches und Positives zur Preislehre, Zeitschrift für die gesamte Staatswis. 65. Jahrg. 1909, S. 88ff——Derselbe: Die Einkommensgestaltung als Geldwertbestimmungsgrund, Schmollers Jahrbuch etc., 1909, S. 141ff——Ludwich Mises: Theorie des Geldes und der Umlaufsmittel, 2, Aufl., 1924, S. 75, 86, 99ff——Aftalion: ibid., p. 204——K. Tanaka: "The value of gold and the value of money" in the Kokumin Keizai Zasshi (Journal of National Economy) Vol. 47, 1929, pp. 227—8. The same Professor's article "The marginal utility theory and the objective value of money" in the same magazine Vol. 49, 1930, p. 697. (It must be clearly stated here that it is because the subjective value of money in the sense already made clear is required that this historical continuity comes up for attention. Professor Tanaka, who emphasises this historical continuity, however, criticising Professor Aftalion's theory, which regards the subjective value in that

sense as necessary, says: "But I think it is inconceivable that money can become an object of subjective valuation, independently of commodities. Although we cannot but admit that, when we decide to buy or not to buy a certain commodity at a certain price, subjective valuation takes place not only in the commodity but in money, it . . . is a valuation made to correspond with that of other commodities which are purchasable at the same price." How can the value of money be explained on the basis of the subjective theory of value without accepting the subjective value of money in the sense claimed by Professor Aftalion? If, on the other hand, the subjective value of money in this sense is uncalled for, where is the necessity of the assertion of historical continuity from the point of view of fundamental theory? I cannot understand Professor Tanaka's point of view.

31) Mises: ibid. p. 100 (Though it is problematic that Mises does not admit the " historical continuity " concerning ordinary commodities but money, I will not touch that problem because it is not essential to our present pursuits).

32) Hirsch: ibid. p. 124.

33) Hirsch: ibid. p. 125.

34) Mises: ibid. p. 100, 93ff.

35) Hilferding: ibid. p. 1026——Anderson: The Value of Money, 1917, p. 105.——Tanaka: ibid. p. 699 - 701.

36) Hirsch: ibid. p. 127.

37) Though Dr. Hirsch further argues that even in the explanation of the exchanges of ordinary commodities the subjective theory of value forms a vicious circle considering the value of productive goods I will not touch that problem here, because I had already explained that problem in detail in may Article " A Study of the Imputation Theory " in Keizaironso, Bk. 31, 1930, p. 537ff, 723ff.

38) Hirsch: ibid. p. 129——cf. Schumpeter: Theorie etc., p. 62—3.