A Study on the Reality of J. M. Keynes' *"The General Theory"*

Mutsuji Hayashida

1. Introduction

Macroscopic economic analysis is no other than analysis of the general economic relationships stretching among total income, total savings, total investment, total employment and other of the series of so-called aggregate economic quantities. The economics established as the result of a systematic organization of this macroscopic economic analysis is known by the name macro-economics and can be said to aim, to borrow the words of W. W. Leontief,[1] at being a system which "cuts a way through the complexities of individual facts and figures to lead depiction of fundamental economic reality to a small number of structural relations which include only a small number of strategic variables."[2] J. M. Keynes,[3] the economist who did the most in developing modern economics through a theoretical systematization of macro-economics, develops a macroscopic theory of prices in Chapter (20 and) 21 of his *The General Theory* as one of his macro-economic theories,[4] in which he introduces the concept of elasticity, one of the basic tools of price analysis by the neo-classical school, and, having amended it slightly to suit his own position, uses it to pursue his macroscopic prices analysis. That is to say, he draws up the concept of macroscopic elasticity and uses it as a springboard for prices analysis.[5] Accordingly, analysis tools learnt from traditional prices theories prior to his feature

1) Wassily W. Leontief (1905—)
2) W. W. Leontief, *Econometrics, A Survey of Contemporary Economics,* edited by H. S. Ellis, Philadelphia, 1948, p. 403.
3) John Maynard Keynes (1883—1946)
4) J. M. Keynes, *The General Theory of Employment, Interest and Money,* London, 1936. Chapter 20, Chapter 21.
5) *Ibid.*, Chapter 20, Chapter 21.

hugely in the macroscopic prices theory systematized by J. M. Keynes, and can be said to have the closest relationship.

Considering such facts as that the concept of elasticity was first thought up by A. A. Cournot,[6),7)] that the concept was clarified as a fundamental tool for carrying out individual price analysis by A. Marshall,[8),9)] and that it was J. R. Hicks[10)] who theoretically conceived and refined the elasticity of substitution,[11)] the elasticity of expected price[12)] and so forth, people today are apt to assume that this concept is a tool of theoretical analysis found only in micro-economics and developed within micro price theory, but as becomes clear if one is aware of the information given above, this was not in fact the case, and when one considers what the greatest value of this concept really is, we realize that its true worth is probably most appropriately exhibited on the side of macroscopic analysis rather than microscopic analysis of economy. What this means is that the true value of the concept of elasticity exists in the fact that it is not merely an abstract concept but a concept that can be measured, in other words, that the greatest value of this concept lies in the fact that it can be made to adhere measurably to the actual economy. If one looks at it from the point of view that whether or not a concept is really applicable as an economic concept is determined by whether or not it is a quantifiable concept, then the fact that this is a measurable concept can clearly be said to be the greatest feature of the concept of elasticity, and for this reason if none other J. M. Keynes praised A. Marshall extremely highly for forming the concept of price elasticity of demand.[13)] This being the case, one can next say that the

---

6) Antoine Augustin Cournot (1801—1877)

7) A. A. Cournot, *Recherches sur les principes mathématiques de la théorie des richesses,* Paris, 1938, 24.

8) Alfred Marshall (1842—1924)

9) A. Marshall, *Principles of Economics,* 8th ed., London, 1920, Book III, Chapter IV.

10) John Richard Hicks (1904—1989)

11) J. R. Hicks, *The Theory of Wages,* Machmillan, London, 1932, Chapter 6.

12) J. R. Hicks, *Value and Capital,* Oxford, 1939, p. 205.

13) J. M. Keynes, "Alfred Marshall, 1842—1924," *The Economic Journal XXXIV,* September 1924.

concept of elasticity should be to some degree capable of exhibiting its true worth even better within an economics structured for easy measuring or statistical examination, and one can probably say that it was thus natural that J. M. Keynes, who laid particular emphasis on the appropriateness of economic theory to the actual economy, should have found his attention drawn to this theory. Actually, as mentioned above, he pursued his prices analysis in his macro-economics with full use of his own concept of elasticity adapted and developed from what he had learnt of the neo-classical concept of price elasticity of demand. Accordingly, bearing this, that is, that his system was based on the concept of elasticity, in mind, one can probably say that it is possible to clarify something of the reality of *The General Theory* by examining also J. M. Keynes' macroscopic prices theory. So, how, can one grasp J. M. Keynes' macro prices theory if one looks at it primarily in terms of the concept of elasticity ? And how did J. M. Keynes' ultimately regard the concept of elasticity ? Also, what problems does the concept of elasticity that he formed pose ? The paper that follows looks at these issues.

2. Prices Analysis According to J. M. Keynes' Macroscopic Concept of Elasticity

The starting point for prices analysis using J. M. Keynes' macroscopic concept of elasticity is formula (1), that is,

$$Y = Py \quad \cdots\cdots (1)$$

〔Y = monetary income, P = general price level, y = net output〕

J. M. Keynes pursued his examination by taking this as the relationship between the elasticity of output in response to changes in effective demand e_o and the elasticity of prices in response to changes in effective demand e_p.[14] If we now show effective demand with the symbol D and output with the symbol O, we can draw up formula (2) below, which is

14) J. M. Keynes, *The General Theory of Employment, Interest and Money,* Chapter 20, Chapter 21.

exactly what (1) means.

$$D = PO \quad \cdots\cdots (2)$$

Incidentally, changes in general price level P and output O corresponding to changes in effective demand D can be examined by analyzing formula (2) as follows. First, taking an increase on both sides gives

$$\begin{aligned} \Delta D &= (P+\Delta P)(O+\Delta O)-PO \\ &= P\Delta O+O\Delta P+\Delta P\Delta O \quad \cdots\cdots (3) \end{aligned}$$

If we then divide the two sides of formula (3) by the two sides of formula (2), we can obtain

$$\frac{\Delta D}{D} = \frac{\Delta O}{O}+\frac{\Delta P}{P}+\frac{\Delta P\Delta O}{PO} \quad \cdots\cdots (4)$$

Furthermore, if we then divide the two sides by the ratio of increase of effective demand $\Delta D/D$, we get

$$1 = \frac{\dfrac{\Delta O}{O}}{\dfrac{\Delta D}{D}}+\frac{\dfrac{\Delta P}{P}}{\dfrac{\Delta D}{D}}+\frac{\dfrac{\Delta P\Delta O}{PO}}{\dfrac{\Delta D}{D}} \quad \cdots\cdots (5)$$

Since the product $\Delta P\ \Delta O$ of the rise in general price level ΔP and increase in output ΔO found as the numerator of the third item of formula (5) can be considered almost zero, formula (5) can also be rewritten as follows :

$$1 \fallingdotseq \frac{\dfrac{\Delta O}{O}}{\dfrac{\Delta D}{D}}+\frac{\dfrac{\Delta P}{P}}{\dfrac{\Delta D}{D}} \quad \cdots\cdots (6)$$

Furthermore, one can also say that the first and second items on the right hand side of formulae (5) and (6) are the concept of elasticity. Specifically, the first item on the right hand side of formulae (5) and (6) can be said to be the elasticity of output in response to changes in effective demand e_o and the second item the elasticity of prices in response

to changes in effective demand e_p. For this reason, these formulae can also be written as follows.

$$1 = e_o + e_p \quad \cdots\cdots (7)$$

Subsequently, it is also possible to elicit formula (8) below from formula (7)

$$e_p = 1 - e_o \quad \cdots\cdots (8)$$

Formula (8) means that the effect of changes in effective demand D is absorbed in changes in output O and in changes in general price level P. If, for example, effective demand D were to exceed the level of full employment, output would not increase even if effective demand D increased. That is to say, $\Delta D \fallingdotseq 0$ even if $\Delta D > 0$. Thus, in an extreme case,

$$e_o = \frac{\frac{\Delta O}{O}}{\frac{\Delta D}{D}} = 0 \quad \cdots\cdots (9)$$

〔where $O > 0$, $D = 0$〕

If this is substituted in formula (8), it gives

$$e_p = 1 \quad \cdots\cdots (10)$$

This means that since output O does not increase at all despite an increase in effective demand D, the rate of rise of the price level $\Delta P/P$ changes at the same rate as the rate of increase of effective demand $\Delta D/D$.[15] On the other hand, if effective demand D falls below the full employment level, the increase in effective demand D sensitively induces a rise in output O. That is to say, an increase in increase ΔD of effective demand induces an almost directly proportional increase in increase ΔO of output. Accordingly, in extreme cases, the relationship given in formula (11) is generated.

---

15) *Ibid.*, p. 303.

$$e_o = \frac{\frac{\Delta O}{O}}{\frac{\Delta D}{D}} = 1 \quad \cdots\cdots (11)$$

For this reason, if (8) is substituted in (11), it gives the following formula.

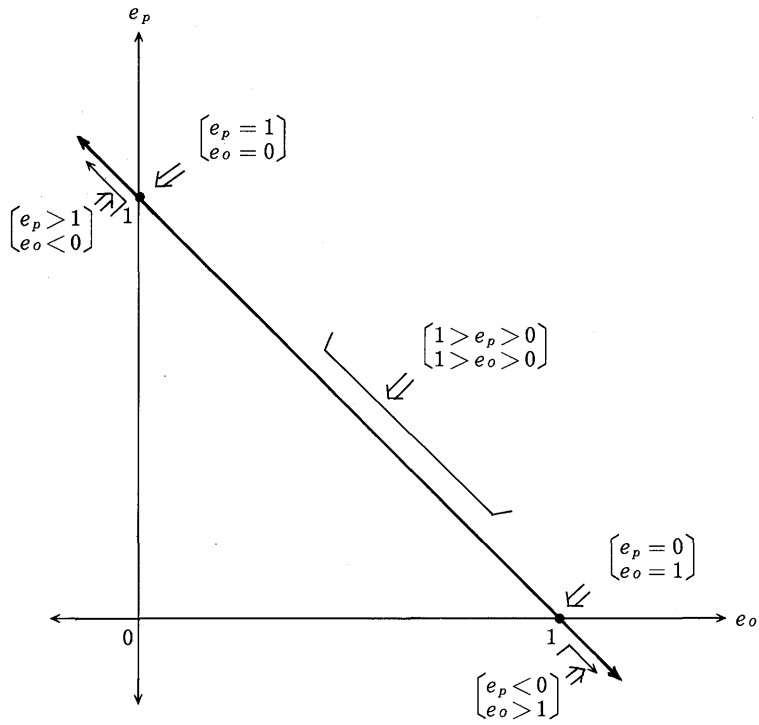
$$e_p = 0 \quad \cdots\cdots (12)$$

This shows that, based on incomplete employment, the true increase in effective demand $\Delta D > 0$ leads the rise in general price level ΔP to zero, in other words, that, when effective demand D falls below the full employment level, output O only increases at the same rate as effective demand D and general price level P does not rise at all. Furthermore, when the elasticity of output in response to changes in effective demand e_o takes a value other than 1 or zero, general price level P can be said from formulae (7) and (8) to move so that the sum of the elasticity of prices in response to changes in effective demand e_p and the elasticity of output in response to changes in effective demand e_o becomes equal to 1. As is obvious from the above analysis, when effective demand D changes, the movement of general price level P depends upon the movement of the elasticity of output in response to changes in effective demand e_o. This relationship can be shown diagramatically as in Fig. I.

What we must be careful of here, however, is that J. M. Keynes' unit of measurement was money, so that it is not clear whether the effect of changes in effective demand D on general price level P came from real changes in output O or from changes in production costs, that is, from nominal changes.

For this reason, J. M. Keynes measured general price level P and effective demand D in wage-units W (the money wages of a unit of labour), making general price level $P\ P_w = P/W$ and effective demand D $D_w = D/W$. Accordingly, he believed the product of output O and general price level measured in terms of wage-units P_w was equal to effective demand measured in terms of wage-units D_w, that is to say, that $OP_w = D_w$. From this, one can immediately draw formula (13)

Fig. I. $e_p+e_o=1$



showing the relationship between the elasticity of prices in response to changes in effective demand measured in terms of wage-units e'_p and the elasticity of output in response to changes in effective demand measured in terms of wage-units e'_o.

$$e'_p=1-e'_o \quad \cdots\cdots (13)$$

(1) $OP_w=D_w \rightarrow D_w=OP_w$

To differentiate with D_w

$$1=\frac{dP_w}{dD_w}\frac{D_w}{P_w}+\frac{dO}{dD_w}\frac{D_w}{O}=\frac{\frac{dP_w}{P_w}}{\frac{dD_w}{D_w}}+\frac{\frac{dO}{O}}{\frac{dD_w}{D_w}}=e'_p+e'_o$$

$$\therefore\ e'_p=1-e'_o$$ [16]

Next, we introduce the concept of elasticity of money wage in response to changes in effective demand measured in terms of money e_w $(=\Delta W/\Delta D\times D/W)$ and show the relationship between this and the elasticity of prices in response to changes in effective demand measured in terms of money e_p.

$$e_p=1-e'_o(1-e_w) \quad \cdots\cdots \quad (14)$$ [17]

(2) Since

$$P_w=\frac{P}{W}\quad D_w=\frac{D}{W}$$

$$P=P_wW\quad D=D_wW$$

$$\therefore\ \Delta P=(P_w+\Delta P_w)(W+\Delta W)-P_wW$$

$$=P_w\Delta W+W\Delta P_w+\Delta P_w\Delta W$$

In this case,

$$\Delta P_w\Delta W\fallingdotseq 0$$

$$\therefore\ \Delta P\fallingdotseq W\Delta P_w+\frac{P}{W}\Delta W=W\frac{\Delta P}{W}+\frac{P}{W}\Delta W$$

$$=W\frac{\Delta P}{W}\frac{P}{P}+\frac{P}{W}\Delta W=W\frac{\Delta P}{P}P_w+\frac{P}{W}\Delta W$$

$$=W\frac{D_w}{P}\frac{\Delta P}{\Delta D_w}\frac{P_w}{D_w}\Delta D_w+\frac{P}{W}\Delta W$$

$$=We'_p\frac{P_w}{D_w}\Delta D_w+\frac{P}{W}\Delta W$$

16) J. M. Keynes, *op. cit.*, p. 284.
17) *Ibid.*, p. 285.

$$= e'_p \frac{P}{D}(\Delta D - \frac{D}{W}\Delta W) + \frac{P}{W}\Delta W$$

$$\left[D_w = \frac{D}{W} \quad \therefore \quad \Delta D_w = \frac{(\Delta D)W - D\Delta W}{W^2}\right.$$

$$\left. = \frac{\Delta D}{W} - D\frac{\Delta W}{W^2} \quad \therefore \quad W\Delta D_w = \Delta D - \frac{D}{W}\Delta W\right]$$

$$= e'_p \frac{P}{D}\Delta D + \Delta W \frac{P}{W} - e'_p \frac{P}{D}\frac{D}{W}\Delta W$$

$$= e'_p \frac{P}{D}\Delta D + \Delta W \frac{P}{W}(1 - e'_p)$$

$$\therefore \quad e_p = \frac{D}{P}\frac{\Delta P}{\Delta D} \fallingdotseq \frac{D}{P\Delta D}\{e'_p \frac{P}{D}\Delta D + \Delta W \frac{P}{W}(1 - e'_p)\}$$

$$= e'_p + \frac{D}{P\Delta D}\frac{\Delta WP}{W}(1 - e'_p) = e'_p + \frac{D}{\Delta D}\frac{\Delta W}{W}(1 - e'_p)$$

$$= e'_p + \frac{\frac{\Delta W}{W}}{\frac{\Delta D}{D}}(1 - e'_p) = e'_p + e_w(1 - e'_p)$$

$$= 1 - e'_o + e_w e'_o = 1 + e'_o(e_w - 1) = 1 - e'_o(1 - e_w)$$ [18]

If one compares formulae (8) and (14), it becomes clear that the relationship between the elasticity of output in response to changes in effective demand e_o and the elasticity of output in response to changes in effective demand measured in terms of wage-units e'_o is as per formula (15).

$$e_o = e'_o(1 - e_w) \quad \cdots\cdots (15)$$

(3) $e_p = 1 - e_o = 1 - e'_o(1 - e_w)$

$\therefore \quad e_o = e'_o(1 - e_w)$

As is shown in formula (14), the elasticity of output in response to changes in effective demand measured in terms of wage-units e'_o is the result of subtracting the elasticity of money wage in response to changes

18) *Ibid.*, p. 285.

in effective demand measured in terms of money e_w from 1 ; that is to say, it can be converted to the elasticity of output in response to changes in effective demand e_o by multiplying by $(1-e_w)$. Accordingly, it is possible to obtain the elasticity of prices in response to changes in effective demand with money as the unit of measurement e_p. By deduction, the elasticity of output in response to changes in effective demand e_o can be broken down into part of the elasticity of output in response to real changes in effective demand measured in terms of wage-units, in other words, the elasticity of real-output in response to changes in effective demand measured in terms of wage-units e'_o and factor which include the elasticity of money wage in response to changes in effective demand measured in terms of money e_w.

Originally, changes in effective demand D measured in terms of money included both real changes in demand and nominal changes. The former, that is to say, real changes, can be elicited by measuring effective demand D in terms of wage-units W. The size of effective demand D_w with wages as the measurement unit can be expressed by D/W, so effective demand D can be expressed by

$$D = WD_w \quad \cdots\cdots (16)$$

Formula (17) can easily be induced from formula (16).

$$\frac{dD}{D} = \frac{dW}{W} + \frac{dD_w}{D_w} \quad \cdots\cdots (17)$$

(4) If $D = WD_w$ is differentiated with D,

$$1 = \frac{dW}{dD}\frac{D}{W} + \frac{dD_w}{dD}\frac{D}{D_w} = \frac{D}{dD}\left(\frac{dW}{W} + \frac{dD_w}{D_w}\right)$$

$$\therefore \quad \frac{dD}{D} = \frac{dW}{W} + \frac{dD_w}{D_w}$$

This formula shows that the rate of increase of effective demand measured in money dD/D can be divided into the upswing rate of money wage dW/W and the rate of increase of effective demand measured in wage-units dD_w/D_w. That is to say, the larger the upswing rate of

money wage dW/W, the smaller the real portion of the increase in effective demand dD, and whereas real changes in effective demand D follow changes in output O, nominal changes in effective demand D are simply absorbed by changes in production costs. Accordingly, the effect on general price level P of changes in effective demand D can be divided into the influence of real changes on production costs and nominal changes that are not reflected in changes in production costs. For this reason, if the increase in output O corresponding to the real increase in effective demand D is 1 to 1, then the elasticity of output in response to changes in effective demand measured in terms of wage-units e'_o is always 1, but the size of the real and nominal parts into which the increase in effective demand D can be divided can be examined through the elasticity of money wage in response to changes in effective demand e_w and the corresponding elasticity of prices in response to changes in effective demand e_p has a different value. That is to say, the larger the real portion of the increase in effective demand D, the smaller the elasticity of money wage in response to changes in effective demand e_w. Accordingly, the elasticity of prices in response to changes in effective demand e_p becomes smaller and finally, although formulae (8) and (14) end up the same, one can say that formula (14) is characterized by the fact that it shows the effect of changes in effective demand D on the general price level with the real portion and nominal portion quite separate.

If we therefore regard the money wage W as representative of the rate of remuneration of the factors of production, then general price level P can be assumed to be dependent on marginal costs particularly the money wage W and the scale of production (the volume of employment if equipment and technology is a given). Accordingly, one must of course emphasize first an analysis of the effect that changes in effective demand D have on costs and output. Incidentally, since J. M. Keynes' prices theory was an analysis of the relationship between changes in the quantity of money M and changes in the price level P and it is believed his aim was to establish the elasticity of prices in response to changes in the quantity of money e,[19] J. M. Keynes believed that it must be possible

19) *Ibid.*, p. 296.

to obtain the elasticity of prices in response to changes in the quantity of money $e(=dp/dM \cdot M/P)$ by introducing the elasticity of effective demand in response to changes in the quantity of money $e_d(=dD/dM \cdot M/D)$ to formula (8) and formula (14) and thus carried out the following analysis. That is to say, it is also possible to induce formulae (18) and (19).[20]

$$e_d \cdot e_p = e = e_d(1-e_o) \quad \cdots\cdots (18)$$

(5) $e_d \cdot e_p = \dfrac{dD}{dM}\dfrac{M}{D}\dfrac{dP}{dD}\dfrac{D}{P} = \dfrac{dP}{dM}\dfrac{M}{P} = e$

$$e_p = 1-e_o$$

$$\therefore \quad e = e_d \cdot e_p = e_d(1-e_o)$$

$$e_d \cdot e_p = e = e_d\{1-e'_o(1-e_w)\}$$

$$= e_d(1-e'_o+e'_o \cdot e_w) \quad \cdots\cdots (19)$$

(6) $e_o = e'_o(1-e_w)$

$$\therefore \quad e = e_d \cdot e_p = e_d(1-e_o) = e_d\{1-e'_o(1-e_w)\}$$

$$= e_d(1-e'_o+e'_o \cdot e_w)^{21}$$

Formula (19) was called by J. M. Keynes the "generalized statement of the quantity theory of money" and shows clearly that the elasticity of prices in response to changes in the quantity of money e is regulated by various elasticities, and it seems that J. M. Keynes, too, found formula (19) extremely useful in that its maximum value distinctly showed the complexity of the relationship between the quantity of money M and general price level P.[22]

3. Analytical Observations and Theoretical Problems

A problem would appear to lie, however, in how to interpret the above equations. This is because equation (19), which is formulated using the concept of elasticity, can be interpreted in any way one chooses depending upon which suppositions one places behind it. If, for example, one recognizes the suppositions (1) effective demand D changes propor-

20) *Ibid.*, p. 305.
21) *Ibid.*, p. 305.
22) *Ibid.*, p. 305.

tionally with the quantity of money M, (2) unused resources are all of the same quality, and (3) the money wage W is fixed all the while unemployment exists, as being behind equation (19) for the sake of simplification, then, because supposition 1 means that the elasticity of effective demand in response to changes in the quantity of money e_d is 1, supposition 2 means no change in earnings all the while that unemployment exists, thus that the elasticity of real-output in response to changes in effective demand measured in terms of wage units e'_o is 1, and supposition 3 means that the elasticity of money wage in response to changes in effective demand e_w is O, one also recognizes these suppositions, and one can therefore say in this case that the elasticity of prices in response to changes in the quantity of money e is a perfect O under a situation of incomplete employment. That is to say, an increase in the quantity of money M can be said to have no effect whatsoever on general price level P all the while that unemployment exists but simply to bring a relative increase in output O and accordingly the volume of employment. But since one can say that the elasticity of output in response to changes in effective demand measured in terms of wage-units e'_o reaches O and the elasticity of money wage in response to changes in effective demand e_w reaches 1 whether or not full employment is ever reached, one can say that the elasticity of prices in response to changes in the quantity of money e is 1. That is to say, in a situation in which there is no unemployment, in other words, in circumstances of full employment, an increase in the quantity of money M can be said to bring merely a proportional rise in general price level P. Accordingly, as long as one recognizes the three suppositions given above, equation (19), that is, J. M. Keynes' so-called generalized quantity theory of money can be interpreted as follows : "So long as there is unemployment, *employment* will change in the same proportion as the quantity of money ; and when there is full employment, *prices* will change in the same proportion as the quantity of money".[23]

However, one must refuse to accept simple suppositions of this sort and interpret equation (19) in a more complex way. To state things in

23) *Ibid.*, p. 296.

another way, this is nothing but bearing in mind the huge number of stipulating factors of the elasticities that determine the elasticity of prices in response to changes in the quantity of money *e*. J. M. Keynes both insisted on this and also seemed to be very much aware that these various factors existed in a complex relationship of interdependency. This is quite clear from the following passage J. M. Keynes wrote in chapter 21 of *The General Theory*; "Thus we must first consider the effect of changes in the quantity of money on the quantity of effective demand; and the increase in effective demand will, generally speaking, spend itself partly in increasing the quantity of employment and partly in raising the level of prices. Thus instead of constant prices in conditions of unemployment, and of prices rising in proportion to the quantity of money in conditions of full employment, we have in fact a condition of prices rising gradually as employment increases. The Theory of Prices, that is to say, the analysis of the relation between changes in the quantity of money and changes in the price-level with a view to determining the elasticity of prices in response to changes in the quantity of money, must, therefore, direct itself to the five complicating factors set forth above."[24] Accordingly, while J. M. Keynes analyzed the complicated relationship between changes in the quantity of money M and changes in the general price level P by making full use of his unique concept of elasticity,[25] a modification of the concept of elasticity he had inherited from A. Marshall, it seems he also recognized fully the limitations of this concept as well as its strengths. While thinking along the lines of the partial equilibrium theory has the strength of making it easy to grasp reality in a straightforward way, it permits handling only of the relationship between two variables, and this is commonly known as one of the limitations it contains. The concept of elasticity cannot be grasped only from the relationship between two variables, and thus it can be said to be the economic concept that reflects most directly the shortcomings of the partial equilibrium theory

24) *Ibid.*, pp. 296−297.
25) *Ibid.*, Chapter 20, Chapter 21.

method of consideration.[26]

J. M. Keynes reiterated again and again that since all the variables in actuality existed intertwined in a complex relationship of interdependency, this relationship of mutual interdependency could not be overlooked in economic thinking. As is quite clear from this, he seems to have viewed the method of thinking according to the general equilibrium theory as of extreme importance.[27] He stated, for example ; "…… after we have reached a provisional conclusion by isolating the complicating factors one by one, we then have to go back on ourselves and allow, as well as we can, for the probable interactions of the factors amongst themselves. This is the nature of economic thinking."[28] For this reason, although he did not have complete and total faith in the manipulation of numerical expressions by the concept of elasticity, he did say ; "The object of our analysis is, …… to provide ourselves with an organised and orderly method of thinking out particular problems ; …… Any other way of applying our formal principles of thought (without which, however, we shall be lost in the wood) will lead us into error."[29] Consequently, we can conclude that J. M. Keynes considered the concept of elasticity the most useful tool for examining, for example, the complicated relationship between general price level P and the quantity of money M. It was no doubt for this reason that he used this concept so positively even though he was fully aware of its limitations.[30] Furthermore, J. M. Keynes went further than this and, exploiting the

26) J. M. Keynes wrote the following passage in Chapter 21 of *The General Theory*. Accordingly one can probably say that it is possible to clarify, something of the fundamental thinking of J. M. Keynes, that is, his fundamental thinking to the economic analysis was based on the concept of elasticity by examining the following systematic passage. "It is a great fault of symbolic pseudo-mathematical methods of formalising a system of economic analysis, such as we shall set down in section VI of this chapter (The Theory of Prices), that they expressly assume strict independence between the factors involved and lose all their cogency and authority if this hypothesis is disallowed ;" (J. M. Keynes, *The General Theory*, p. 297)

27) *Ibid.*, Chapter 21, III, IV.

28) *Ibid.*, p. 297.

29) *Ibid.*, p. 297.

30) *Ibid.*, Chapter 17.

greatest strength of the concept of elasticity, measured reality in what would appear to be an attempt to consider the meaning of equation (19) deductively. Accordingly, it seems that one can indeed say conclusively that it is in J. M. Keynes' economics system that the strengths of the concept of elasticity are exploited the best, or at least that the best efforts have been made to exploit them. A more detailed re-examination shows that in fact J. M. Keynes avoided the common practice of considering the elasticity of prices in response to changes in the quantity of money e as 1 and stated that in the actual economy e is probably smaller than 1.[31] He went on to discuss the actual economy, that is to say, historical trends in general price level P.[32]

The above has been an attempt to consider just the reality implied by J. M. Keynes' *The General Theory* through an analysis and study of what J. M. Keynes learned from traditional prices theory in his macro-economics system called "The General Theory", or, to put it more specifically, of the macro-prices theory formulated using the concept of elasticity, and through a study of the thinking J. M. Keynes harbored on the concept of elasticity. However, within the concept he created, that is to say, within the concept of macro-elasticity, lie further and unique problems, and for this reason one can say that by solving these problems J. M. Keynes' *The General Theory* could become a more realistic theoretical system. So what kind of problems does it actually imply ? Finally, allow me to point out those problem points from the conclusion in this paper that might be considered the most important.

Although the level of prices is constantly fluctuating and what is therefore necessary is dynamic analysis, this dynamic analysis of prices requires us to stress not only analysis of general price level P but also analysis of the relationship between particular price levels P. However, J. M. Keynes' the elasticity of output in response to changes in effective demand e_o and the elasticity of prices in response to changes in effective demand e_p are considered using a final, general concept, that is to say, the latter is not considered for each particular price level P, and

---

31) *Ibid.*, p. 306.
32) *Ibid.*, Chapter 21.

we have to say that this is somewhat inappropriate for dynamic analysis of prices. The elasticity of output in response to changes in effective demand e_o and the elasticity of prices in response to changes in effective demand e_p should probably be treated separately at least for consumer's goods and capital goods, and, by extension, they should probably be treated separately for each product of each industry. If this were done, it would probably be possible to carry out more pertinent dynamic analysis of prices. It seems that J. M. Keynes was also aware of this problem of separate handling, but he also stated that in actual fact one of the factors which greatly influence total employment volume is changes in allocation of total effective demand D to each industry.[33] The above can be summarized by saying that the macroscopic concept of elasticity used in (J. M. Keynes') macro-economics requires considerable internal separation if its economic analysis is to be more accurate ; furthermore, these separate items should be deductively synthesized and converted to a final macroscopic concept, according to which J. M. Keynes' prices theory needs to be reformed. It is quite clear, and there is really no need to reiterate this, that this is one of the most important problem points contained in his macroscopic theory of elasticity and needing theoretical interpretation.

BIBLIOGRAPHY

〔1〕 W. W. Leontief, *Econometrics, A Survey of Contemporary Economics,* edited by H. S. Ellis, Philadelphia, 1948.

〔2〕 J. M. Keynes, *The General Theory of Employment, Interest and Money,* London, 1936.

〔3〕 J. M. Keynes, "Alfred Marshall, 1842－1924," *The Economic Journal XXXIV,* September, 1924.

〔4〕 A. A. Cournot, *Recherches sur les principes mathématiques de la théorie des richesses,* Paris, 1938.

〔5〕 A. Marshall, *Principles of Economics,* 8th ed., London, 1920.

〔6〕 J. R. Hicks, *The Theory of Wages,* Machmillan, London, 1932.

〔7〕 J. R. Hicks, *Value and Capital,* Oxford, 1939.

33) *Ibid.,* p. 286.