A STUDY ON THE VALUE OF MONEY
——THE TWO APPROACHES

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I. *Problems of the Value of Money*

It is a well-known fact that the value of money is expressed by the purchasing power of money, and this purchasing power of money is closely linked to the general price-level. That is, it is thought that the purchasing power of money decreases as the general price-level rises, and conversely, the purchasing power of money increases as the general price-level falls. However, the general price level in this case is not a self-evident concept. Needless to say, the general price-level is the price-level of a certain composite commodities, and should be put in contraposition with individual price of each commodity and service. But as to the viewpoint of how to compose commodities, two approaches are considered as the representative ways to this problem.

One of the two approaches is the market-system-approach, and the other is the expenditure-approach. It will be helpful in preventing confusion of the situation by distinguishing clearly the two approaches.

The market-system-approach grasps the value of money in relation with the exchange economy. Primitively, the exchange economy is thought as the barter economy, but in the present time, as the division of labor and sphere of exchange have been deepened and expanded, it takes the form of monetary economy. In monetary economy, the individual price which means the exchange ratio between money and individual commodity can be referred as indicating the individual purchasing power of money. And the general purchasing power of money, i. e. the value of money is thus generalized as the aggregate of the individual purchasing power of commodities. Therefore, in this case, although the role of money which is to support the market economy is realized, but it has to be said that the viewpoint of economic welfare is entirely neglected. That is, the value of money is important when it is for consumers, investors and asset-holders, and the stabilization of the general value of money determined by the relationship between the value of commodities transacted in market economy means nothing when judged from the viewpoint of welfare.

Although in the market-system-approach, it is possible to classify commodities by characteristic of each commodity. For instance, to classify them into consumption goods and capital goods. In this case, although the general price-level can be grasped as a weighted average of the price-level of capital goods and the price-level of consumption goods, but these goods are aggregated by the weight of transaction in market economy, and it is considered that the form of goods is counted for much while the relationship with economic

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subject is loosened.

In contrast with this, the expenditure-approach is on the standopint of considering the price-level from the correlation between the activities of consumers who conduct consumption expenditure and the activities of investors who conduct investment expenditure, and it is considered that in this case, the general price-level is composited of consumers' price-level and investors' price-level. Therefore, although the price-level by the two approaches are both called the general price-level, their contents are quite different.

In the expenditure-approach, what is important is not the value of money in the exchange of money and goods in market economy, but is the purchasing power of money in the expenditure activities conducted by each economic subject. It seems that the view-point of welfare is just to indicate the importance of making analysis in correlation with such activities of economic subject.

Now, this approach was developed by J. M. Keynes' *Treatise on Money*. It was stated, "The Fundamental Problem of Monetary Theory is not merely to establish identities or statical equations relating (e. g.) the turnover of monetary instruments to the turnover of things traded for money. The real task of such a Theory is to treat the problem dynamically, analysing the different elements involved, in such a manner as to exhibit the causal process by which the price-level is determined, and the method of transition from one position of equilibrium to another.....I propose, therefore, to break away from the traditional method of setting out from the total quantity of money irrespective of the purposes on which it is employed, and to start instead,——for reasons which will become clear as we proceed—— with the flow of the community's earnings on money-income, and with its twofold division, (1) into the the parts which have been earned by the production of consumption-goods and investment-goods respectively, and (2) into the parts which are expended on consumption-goods and on savings respectively."[1]

Keynes disregarded the market-system-approach as the cash transactions standard or cash balances standard, and, instead, developed the expenditure-approach. But it seems that this approach has not gained considerable advocacy since then. For this, Keynes himself cannot be exempt from responsibility. Because, although he put so much importance on the expenditure-approach in *Treaties on Money*, but in his *General Theory*, whether his standpoint was on the market-system-approach or on the expenditure-approach was obscure. As the result, as there was stress laid on Pigue's effect and others in the economics, it seems that the cash-balances-standard became predominant again. But this result does not endow the value of money with any substantial contents. In other words, the value of money has only very formal contents, and the welfare viewpoint is lost entirely.

It seems very important to revive the Keynesian's point of view when consciousness toward economic welfare is increasing in these days. The chance which makes us be aware strongly of the difference between the market-system-approach and the expenditure-approach is the disparate phenomenon between the trend of wholesale price-level and that of consumer's price-level, the so-called characteristic of the contemporary capitalist economy. (see Table 1.) As the two price-levels become disparate, a controversy on which price-level really reflects the value of money is arisen. Some disputants consider that the consumer's price-level really indicates the indicator of the value of money while the other disputants consider

[1] J. M. Keynes: *A Treatise on Money*, Vol. 1, p.p 133-134.

TABLE 1. THE WHOLESALE PRICE AND THE CONSUMER'S PRICE IN ADVANCED CAPITALISTIC NATIONS

year	Japan		U.S.A.		Great Britain		France		West Germany		Italy	
	Wholesale price	Consumer's price (wards inside metropolitan, Tokyo)	Wholesale price	Consumer's price	Wholesale price (Industry)	Consumer's price Jan. 16, 1962=100	Wholesale price (Industry)	Consumer's price	Industrial Producer's price	Consumer's price	Wholesale price	Consumer's price
1961	98.9	77.9	94.5	89.6	——	——	——	——	98.9	97.1	92.3	88.9
1962	97.3	83.0	94.8	90.6	——	101.6	100.0	100.0	100.0	100.0	85.1	93.2
1963	99.0	89.6	94.5	91.7	100.0	103.6	102.7	104.8	100.5	102.9	100.0	100.0
1964	99.2	93.3	94.7	92.9	101.9	107.0	106.4	108.4	101.6	105.4	103.4	106.0
1965	100.0	100.0	96.6	94.5	104.6	112.1	107.2	111.1	104.0	108.7	105.0	110.7
1966	102.4	104.8	99.8	97.2	107.3	116.5	110.2	114.1	105.8	112.7	106.6	113.3
1967	104.3	109.1	100.0	100.0	108.2	119.4	109.2	117.2	104.9	114.6	106.7	116.9
1968	105.1	115.2	102.5	104.2	112.4	125.0	107.4	122.5	99.3	116.4	106.8	118.5
1969	107.4	121.6	106.5	109.8	115.9	131.8	118.9	130.4	101.5	119.5	110.9	121.6
1970	111.3	130.4	110.4	116.3	124.6	140.2	127.8	137.3	107.5	124.0	119.0	127.7

Source: Economic Planning Agency: *Japan Economic Indexes* and *Overseas Economic Trend Indexes.*

that the wholesale price-level really indicates the indicator of the value of money. Let us start from the examination of the two approaches which grasp the value of money.[2]

II. *The Market-System-Approach and the Expenditure-Approach*

In examining the difference of the value of money brought about by consideration from the market-system-approach and the expenditure-approach, it seems convenient to examin this by citing the concrete examples. If the Marxian reproduction table is considered, an example of the market-system-approach will be as follows:

Expanded reproduction model	Constant capital	Variable capital	Surplus value	
Capital goods producing sector	$4400c$	$+ 1100v$	$+ 1100m$	$= 6600$ (capital goods)
Consumption goods producing sector	$1600c$	$+ 800v$	$+ 800m$	$= 3200$ (consumption goods)

In this case, the goods transacted in market are divided into capital goods and consumption goods, and in their respective formation of cost, the surplus value is obtained by using constant capital and variable capital. That is, in capital goods producing sector, 1100 surplus value is obtained by using 4400 constant capital and 1100 variable capital, and 6600 capital goods are produced. In the same way, in consumption goods producing sector, 800 surplus value is obtained by using 1600 constant capital and 800 variable capital. And 3200 consumption goods are produced. As for the smooth progress of the economic reproduction, 3200 from 3800, i.e. the sum of 2200 income in capital goods producting sector ($=1100v+1100m$) and 1600 income in consumption goods producing sector ($=800v+800m$) should be spent for purchasing 3200 consumption goods. On the other hand, 600 which is saved and not been expended out of 3800 income should be used for 600 new investment, and together with 6000 supplement investment ($4400c$ in capital goods producing sector and $1600c$ in consumption goods producing sector) should be used for purchasing of 6600 capital goods.

Now, the value of money in this case is considered by cash transactions standard or cash balances standard as mentioned above, and it is considered as to be indicated by a reciprocal number of the general price-level which is a weighted average of capital goods price-level and consumption goods price-level. Now, let price of capital goods as p_1, its transaction volume as T_1, and price of consumption goods as p_2, and its transaction volume as T_2, then the amount of transaction of capital goods will be $p_1 \times T_1$, and the amount of transaction of consumption goods will be $p_2 \times T_2$, and the money flow for the completion of these transactions should be the product of the velocity V and quantity of money M. Therefore the following formula should stand: $MV=p_1T_1+p_2T_2$. Let the general price-

[2] The discussion on the value of money in this article will be restricted in consumers and investors only. Therefore, the contents of the value of money will also be considered as to be restricted within this limit. For examination on more broad sense of the value of money, the activities of asset-holders and the international relations should be put into consideration. Nevertheless, the examination of the concept of the value of money in this article still seems to be a basic one.

level as P, and transaction volume as T, then the above-mentioned formula can be re-written as $MV=PT$, and $P=\frac{MV}{T}$. Thus, this is a characteristic of the market-system-approach that the quantity of money is expressed explicitly when considering the value of money or the general price-level.[3] And the relations between the price of capital goods and the price of consumption goods in the market-system approach indicates the relative-price-relations. And, as division of labor and sphere of exchange become broader and broader, it is considered that the ratio of transaction volume of capital goods to the transaction volume of consumption goods will increase, therefore it is considered that the importance of the capital goods price-level in the general price-level also is increased.

What is considered in the expenditure-approach, compared with this market-system approach? Let us examine this with the instance of Maxian-reproduction table. The production structure considered in this case is the production structure which corresponds with the change of the scale of economy, whereas the production structure considered in the market-system-approach is the production structure corresponds to the form of the produced goods.[4] Therefore, for the purpose of distinguishing with the capital goods producing sector and consumption goods producing sector in the market-system approach, the consumption goods sector and the investment goods sector will be used in the expenditure-approach. The consumption goods sector is the producing sector which lumps up together all the production process aimed ultimately at the maturing of the consumption goods. And same as this, the investment goods sector is the producing sector which lumps up together all the production process aimed ultimately at the maturing of investment goods.

In consumption goods sector, capital goods needed directly and indirectly for producing 3200 consumption goods is 4800,[5] and income earned from participating directly and indirectly in producing 3200 consumption goods is 3200. (=the sum of $800v+800m$ in capital goods producing sector and $800v+800m$ in consumption goods producing sector.[6]

On the other hand, in investment goods sector, capital goods needed directly and in-

[3] There will be no intrisic change of situation even if output O is used instead of the transaction volume T.

[4] Toshiya Hanawa, " Circulation Pattern of Money and Production Structure." *Economic Research*, Vol. 18, No. 1, January 1967.

[5] For the viewpoint of re-writing Maxian reproduction table, see the following book written by Dr. Takahashi. Taizo Takahashi, *Theory of Monetary Economic Circulation*, 1953.

Capital goods directly required for producing 3200 consumption goods is $3200\times\frac{1}{2}=1600$, and capital goods indirectly required is $1600\times\frac{2}{3}+1600+\left(\frac{2}{3}\right)^2+\cdots\cdots=1600\times\frac{2}{3}\times\frac{1}{1-\frac{2}{3}}=3200$, therefore the sum of both is 4800.

[6] Income earned by directly participating in the production of consumption goods is: $3200\times\frac{1}{2}=1600$, and consists of 800 variable capital and 800 surplus value in consumption producing sector. Income earned by indirectly participating in producing consumption goods is: $1600\times\frac{1}{3}+1600\times\frac{2}{3}\times\frac{1}{3}+1600\times\left(\frac{2}{3}\right)^2\times\left(\frac{1}{3}\right)+\cdots\cdots=1600\times\frac{1}{3}\times\frac{1}{1-\frac{2}{3}}=1600$, and consists of 800 variable capital and 800 surplus value in capital goods producing sector.

directly for producing 600 investment goods in 1200,[7] and income earned from participating directly and indirectly in producing 600 investment goods will be 600. ($300v+300m$ in capital goods producing sector.)[8] And, 3200 out of the sum 3800, of income 3200 in consumption goods sector and income 600 in investment goods sector is expended, and the balance 600 is saved. And 600 new investment will be the necessary condition for expanding the scale of economy.

Thus, in the expenditure-approach, on value added base, the three aspects; production aspect, distribution aspect, and expenditure aspect (it will be four aspects, if disposition aspect is added) will become equivalent with one another.

The above-mentioned examination can be expressed as follows:[9]

	production aspect	distribution aspect (wage+profit)	expenditure aspect
Consumption goods sector	$8000-4800=3200$	$(=1600W_C+1600Q_C)=3200$	(consumption expenditure)
Investment goods sector	$1800-1200=600$	$(=300W_I+300Q_I)=600$	(investment expenditure)

This can be expressed in more general form as follows:

Let, P_C=Consumer's price-level
O_C=Consumption goods
Y_C=The value added which is produced in consumption goods sector.
W_C and Q_C denote respectively the wage and profit in consumption goods sector.
c=Propensity to consume
Y=National income
P_I=Investor's price-level
O_I=Investment goods
Y_I=The value added which is produced in investment goods sector.
W_I and Q_I denote respectively the wage and profit in investment goods sector.
I=Investment expenditure

And P=The general price-level
O=Output
$W=W_C+W_I$
$Q=Q_C+Q_I$

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[7] 1200 capital goods which is directly and indirectly required for producing 600 investment goods is obtained from: $600\times\frac{2}{3}+600\times\left(\frac{2}{3}\right)^2+\cdots\cdots=600\times\frac{2}{3}\times\frac{1}{1-\frac{2}{3}}=1200$.

[8] Income earned by directly and indirectly participating in producing 600 investment goods is: $600\times\frac{1}{3}+600\times\frac{2}{3}\times\frac{1}{3}+600\times\left(\frac{2}{3}\right)^2\times\frac{1}{3}+\cdots\cdots=600\times\frac{1}{3}\times\frac{1}{1-\frac{2}{3}}=600$, and consists of 300 variable capital and 300 surplus value in capital goods producing sector.

[9] " 8000 minus 4800 " in the production aspect of consumption goods sector shows transactions 8000 (4800 plus 3200) in consumption goods sector minus 4800 intermediate products. Simlarly, " 800 minus 1200" in the production aspect of investment goods sector shows transactions 1800 (1200 plus 600) in investment goods sector minus intermediate products 1200.

Then,

	production aspect		distribution aspect	expenditure aspect
Consumption goods sector	P_CO_C	=	$Y_C\ (=W_C+Q_C)=cY$	
Investment goods sector	P_IO_I	=	$Y_I\ (=W_I+Q_I)$	$=I$
Over-all sector	PO	=	$Y\ (=W+Q)$	$=cY+I$

Now, in this case, the value of money is the problem of purchasing power of money which is used in expenditure activities by each economic subject, so it can be considered as a reciprocal number of the general price-level which is a weighted average of the consumer's price level and investor's price-level. That is, the general price-level P is denoted by $P=Y/O$, or $P=\frac{cY+I}{O}$, and it is a characteristic of this approach that the quantity of money M is not expressed explicitly. What is important here is the relations between consumer's price-level and investor's price-level. In the market-system-approach, it is considered that the relations between capital goods price-level and consumption goods price-level expresses the relations of the relative price level, whereas in the expenditure-apporach, the relations between consumer's price-level and investor's price-level is considered as to express the relations of "trend" and "cycle". That is, the consumer's price-level mainly indicates "trend" and the investor's price-level mainly indicates "cycle".

For indicating most typically this relations, it can be understood immediately by considering the simple reproduction model. Now, take numerical value in Marxian reproduction table as an instance to consider the market-system-approach as follows:

Simple reproduction model	Constant capital		Variable capital		Surplus value		
Capital goods producting sector	$4000\,c$	+	$1000\,v$	+	$1000\,m$	=	6000 (capital goods)
Consumption goods producing sector	$2000\,c$	+	$500\,v$	+	$500\,m$	=	300 (consumption goods)

And the correlation with quantity of money, M, will be expressed by $MV=P_1T_1+P_2T_2=PT$, as in the case of the expanded reproduction.

In contrast to this, the simple reproduction model in the expenditure-approach will be as follows:[10]

[10] In this case, as only consumption sector exists, capital goods directly required for producing consumption goods is: $3200\times\frac{2}{3}=2000$, and capital goods indirectly required is: $3000\times\frac{2}{3}\times\frac{2}{3}\times\frac{1}{1-\frac{2}{3}}=4000$, and the sum of capital goods required is 6000. Therefore, the transactions in consumption goods sector is 9000 (=6000 plus 3000), and surplus value is 3000 after deducting 6000 intermediate products from 9000.

And, income earned by directly participating in producing consumption goods is $3000\times\frac{1}{3}=1000$, and consists of 500 variable capital and 500 surplus value in consumption goods producing sector. And income earned by indirectly participating is: $3000\times\frac{2}{3}\times\frac{1}{3}\times\frac{1}{1-\frac{2}{3}}=2000$, and consists of 1000 variable captial and 1000 surplus value in captial goods producing sector. Therefore the sum is 3000.

	production aspect	distribution aspect	expenditure aspect
Consumption goods sector	$9000-6000=3000$	$(1500W_C+1500Q_C)=3000$	(consumption expenditure)
Investment goods sector	0	0	0
Consumption goods sector	P_CO_C	$=Y_C\ (=W_C+Q_C)$	$=cY$ (consumption expenditure) ($\because\ c=100\%$)
Investment goods sector	0	0	0
Over-all sector	PO	$=Y\ (=W+Q)$	$=cY$

Hence, $P=P_C=Y/O$

From the above-discussion, it is clear that in the market-system-approach, as the capital goods producing sector and consumption goods producing sector both exist even in the simple reproduction model, the relations of the relative price between the consumption goods price-level and capital goods price-level is indicated explicitly, whereas in the expenditure-approach, although investment goods sector and investor's price-level both exist in the expanded reproduction model, but as investment=savings=zero in the simple reproduction model, neither investment goods sector nor investor's price-level exists. In other words, in the simple reproduction model in the expenditure-approach, there exist only consumption goods sector and consumer's price-level. This is to indicate that just this is the basic economic sector and basic price-level in economy. This was the reason why Keynes put importance on consumer's price level in *Treatise on Money*. However, the simple reproduction model is a too extreme case, and would be rather considered as the model in golden-age where the natural rate of growth=the warranted rate of growth=the actual rate of growth. In this case, the investor's price-level will form the general price-level together with the consumer's price-level, but it seems that the steady growth which will not be affected by business cycle is considered. Thus, in the expenditure-approach, the consumer's price-level is considered mainly in connection with " trend " and the investor's price-level is considered mainly in connection with " cycles ", and does not indicate the usual relative price ralation. One more step is required for grasping the relative price relation explicitly in the expenditure-approach. The service price will be introduced to show this in the following discussion.

III. *The Introduction of Service Price and Two Approaches*

When talk about service, it probably reminds us of services by maids or services by barbers and beauty parlors business. Nevertheless, service is comprised not only in such consumption goods but also in capital goods such as transportation, wholesale business. And it seems that the weight of such service which is comprised in capital goods has been increased recently. It will be as the following expression when service with such meaning is considered in the Marxian reproduction table. As it is thought that consumption goods and capital goods are consisting of service-goods and non-service-goods respectively, the

numerical value in the reproduction table will be as follows: It is assumed that service-goods and non-service-goods are constituted in the ratio of 2 to 3.

Expanded reproduction model	Constant capital		Variable capital		Surplus value		
Capital goods producing sector	$4400\,c$	+	$1100\,v$	+	$1100\,m$	= 6600	(capital goods)
Service-goods producing sector	$1760\,c$	+	$440\,v$	+	$440\,m$	= 2640	(service goods)
Non-service-goods producing sector	$2640\,c$	+	$660\,v$	+	$660\,m$	= 3906	(non-service goods)
Consumption goods producing sector	$1600\,c$	+	$800\,v$	+	$800\,m$	= 3200	(consumption goods)
Service-goods producing sector	$640\,c$	+	$320\,v$	+	$320\,m$	= 1280	(service goods)
Non-service-goods producing sector	$960\,c$	+	$480\,v$	+	$480\,m$	= 1920	(non-service goods)

Let the price of service goods in capital goods producing sector as $P^S{}_1$, its transactions volume as $T^S{}_1$, and the price of non-service goods as $P^N{}_1$, its transactions volume as $T^N{}_1$, then: $P_1T_1=P^S{}_1T^S{}_1+P^N{}_1T^N{}_1$. In addition to this, let the price of service goods in consumption goods producing sector as $P^S{}_2$, its transactions volume as $T^S{}_2$, and the price of non-service goods as $P^N{}_2$, its transactions volume as $T^N{}_2$, then: $P_2T_2=P^S{}_2T^S{}_2+P^N{}_2T_2$. Therefore, $MV=PT=P_1T_1+P_2T_2=P^S{}_1T^S{}_1+P^N{}_1T^N{}_1+P^S{}_2T^S{}_2+P^N{}_2T^N{}_2$, apparently, the relative price relations become more complicated in this expression. If such division is further proceeded to n goods, then the relative price relations will become n goods model. And money which is used in exchange for these service and non-service will bear a character of being compared with consumption goods in one hand, and being compared with capital goods in other hand. The model of Friedman[11] and Patinkin[12] can be considered as the models of this type.

In contrast with this, when service goods are introduced in the expenditure-approach, it will be as follows: In this case, sectors are divided into the following four sectors: They are: consumption goods service sector; consumption goods non-service sector; investment goods service sector and investment goods non-service sector. Consumption goods service sector is a producing sector which lumps up together the production process in which service as consumption goods will be ultimately matured. The other sectors can be also considered in the same way. Following are the examples of the expanded production models:

Expanded reproduction model	production aspect	distribution aspect	expenditure aspect	
Consumption goods sector	8000—4800=3200	$(=1600W_C+1600Q_C)$	=3200	(consumption expenditure)
Consumption goods service sector	3200—1920=1280	$(=640W^S{}_C+640Q^S{}_C)$	=1280	(service consumption)

[11] Milton Friedman: *The Optimum Quantity of Money and Other Essays*, 1969.
[12] Don Patinkin: *Money, Interest and Prices*, 1956, and 2 Edition, 1965.

Consumption goods non-service sector	4800−2880=1920	$(=960W^N_C+960Q^N_C)=1920$		(non-service consumption)
Investment goods sector	1800−1200= 600	$(=300W_I+300Q_I)$	= 600	(investment expenditure)
Investment goods service sector	700− 480= 240	$(=120W^S_I+120Q^S_I)$	= 240	(service investment)
Investment goods non-service sector	1080− 720= 360	$(=180W^N_I+180Q^N_I)$	= 360	(non-service investment)
Over-all sector	9800−6000=3800	$(=1900W+1900Q)$	=3800	(over-all expenditure)

As the intermediate products required directly and indirectly for producing 1280 $\left(=3200\times\frac{2}{5}\right)$ value of service as consumption goods is $3200\times\frac{2}{5}\times\frac{1}{2}\times\frac{1}{1-\frac{2}{3}}=1920$, therefore the transactions volume in consumption goods service sector is 1280+1920 =3200. And as the intermediate products reuired directly and indirectly for producing 1920 $\left(=3200\times\frac{3}{5}\right)$ value of non-service as consumption goods is: $3200\times\frac{3}{5}\times\frac{1}{2}\times\frac{1}{1-\frac{2}{3}}=2880$, therefore the transactions volume in consumption goods non-service sector is 1920+2880=4800.

Again, as the intermediate products directly and indireclty required for producing 240 $\left(=600\times\frac{2}{5}\right)$ value of service as investmnet goods is: $600\times\frac{2}{5}\times\frac{2}{3}\times\frac{1}{1-\frac{2}{3}}=480$, the transactions volume in investment goods service sector is: 240+480=720. And, as the intermediate products directly and indirectly required for produing 360$\left(=600\times\frac{3}{5}\right)$ value of non-service as investment goods is: $600\times\frac{3}{5}\times\frac{2}{3}=\frac{1}{1-\frac{2}{3}}=720$, therefore, the transactions volume in the investment goods non-service sector is: 360+720=1080.

Next, income earned by participating directly in producing 1280 value of service as consumption goods is: $3200\times\frac{2}{5}\times\frac{1}{2}=640$, and consists of 320 variable capital and 320 surplus value in consumption goods producing sector. And income earned by indirect participation is: $3200\times\frac{2}{5}\times\frac{1}{2}\times\frac{1}{3}\times\frac{1}{1-\frac{2}{3}}=640$, and consists of 320 variable capital and 320 surplus value in capital goods producing sector. And income earned by directly participating in producing 1920 value of non-service as consumpting goods is: $3200\times\frac{3}{5}\times\frac{1}{2}=960$, and consists of 480 variable capital and 480 surplus in consumption goods

producing sector. And income earned by indirect participation is: $3200\times\frac{3}{5}\times\frac{1}{2}\times\frac{1}{3}\times\frac{1}{1-\frac{2}{3}}=960$, and consists of 480 variable capital and 480 surplus value in capital goods producing sector. Lastly, income earned by direclty and indirectly participating in producing 240 value of service as investment goods is: $600\times\frac{2}{5}\times\frac{1}{3}\times\frac{1}{1-\frac{2}{3}}=240$, and consists of 120 variable capital and 120 surplus value in capital goods producing sector. And income earned by directly and indirectly participating in producing 360 value of non-service is: $600\times\frac{3}{5}\times\frac{1}{3}\times\frac{1}{1-\frac{2}{3}}=360$, and consists of 180 variable capital and 180 surplus value in capital goods producing sector. The expenditure-approach as this can be showed generally as follows: Where suffix s dentoes service and suffix N denotes non-service.

Expanded reproduction model	production aspect	distribution aspect	expenditure aspect
Consumption goods sector	P_CO_C	$=Y_C\ (=W_C+Q_C)$	$=cY$
Consumption goods service sector	$O^S{}_CP^S{}_C$	$=Y^S{}_C\ (=W^S{}_C+Q^S{}_C)$	$=c_SY$
Consumption goods non-service sector	$P^N{}_CO^N{}_C$	$=Y^N{}_C\ (=W^N{}_C+Q^N{}_C)$	$=c_NY$
Investment goods sector	P_IO_I	$=Y_I\ (=W_I+Q_I)$	$=I$
Investment goods service sector	$P^S{}_IO^S{}_I$	$=Y^S{}_I\ (=W^S{}_I+Q^S{}_I)$	$=I^S$
Investment goods non-service sector	$P^N{}_IO^N{}_I$	$=Y^N{}_I\ (=W^N{}_I+Q^N{}_I)$	$=I^N$
Over-all sector	PO	$=Y\ (=W+Q)$	$=cY+I$

Thus, it is considered that in the expenditure-approach, the relative price relations on the process of growth of economy is expressed between the price of service goods, $P^S{}_C$, and the price of non-service goods, $P^N{}_C$, in consumption goods sector, whereas the relative price relations on the process of business fluctuations is expressed between the price of service goods, $P^S{}_I$, and the price of non-service goods, $P^N{}_I$, in investment goods sector. And it can be stated that the relations between the price of service $P^S{}_C$, in consumption goods sector and the price of service in investment goods sector do not indicate the usual relative price relations, but indicate the relation between " trend " and " cycle " in service sector. The same thing can be said on the relations between the price of non-service goods, $P^N{}_C$, in consumption goods sector and the price of non-service goods, $P^N{}_I$, in investment sector.

IV. *The Controversial Points of the Wholesale Price and the Consumer's Price*

As the representative price index in Japan, there are the wholesale price index and consumer's price index. What significance will the wholesale price index and consumer's price index have when viewed from the above-mentioned market-system approach and expenditure approach? Let us examine the controversial points of the wholesale price first.

(A) The Controversial Points of the Wholesale Price

The wholesale price index compiled by Bank of Japan in one of the wholesale price indexes in Japan, and is used not only as deflator but also used with significance of economics as (1) standard of the value of money and (2) indicator for general business activity.

When consider the wholesale price level as standard of the value of money and the the indicator for business trend, there are some controversial points in the wholesale price index compiled by Bank of Japan.

Firstly, the present whole-sale price index does not include service as its subject. It is probably owing to the still-existing concept toward service since Adam Smith. That is, the labor for producing goods is regarded as the productive labor while the labor for service is regarded as the non-productive labor. But the concept of productive labor and of non-productive labor was amended by Marshall, and since then " service " was introduced into national income account. But in case of examining the value of money, the price of service is not considered yet. As mentioned in preceding paragraph, it seems important to include service price. For second reason, it is probably because of the remains of the era when the weight of service in national income was still small. But the weight of service has increased gradually, and the present advanced capitalistic society is considered just as the nations of the third industry. From this point of view, it seems natural to include the service price if the wholesale price index is to be considered as the standard of the value of money.

Secondly, as the wholesale price index compiled by Bank of Japan includes not only the final products but also the intermediate products, its standpoint seems to be on the market-system approach. Therefore, the limit of this approach in the sense of the general price-level should be acknowledged. This is: as the above-mentioned, it is doubtless the purchasing power of money in the market but it lacks the viewpoint of welfare in the sense of not indicating the purchasing power of individual economic subject, Therefore, this price-level is a formal and abstractive price-level, and cannot be considered as to indicate the parchasing power of money in welfare sense.

Third, since the wholesale price index is considered as the price-level by the market system approach, this index cannot be considered as just to indicate the standard of the value of money or just to indicate the indicator of business trend. The wholesale price index as the general price-level——although this is an insufficient index in the sense that it does not include service, but it should be noticed that this index includes not only capital goods but also consumption goods——is by itself the standard of the value of money and at the same time the indicator of general business activity. To use one index as trend and cycle separately is required from attaining the respective objects.

Fourth, needless to say, it is important to include as many as possible the commodities sensitive to business cycle in order to indicate sensitively the general business activity in the wholesale price index, when consider it as just to represent the indicator of general business activity. But what significance will be attached when the wholesale price index is grasped from the expenditure approach? Needless to say, this will mean that to apprehend the wholesale price as the investor's price. Certainly, the wholesale price index cannot be regarded as a complete investor's price as it includes both final products and intermediate products, but at least it can be regarded as quasi-investor's price. And it seems that the wholesale price index has performed well this role so far.

In contrast with this, when the wholesale price is viewed from the expenditure approach, it means that it is utilized as the indicator of business trend only and not to be considered as the standard of the value of money. Therefore, in the case of the expenditure approach, the standard of the value of money is expressed by another price index. That is the consumer's price index which should be regarded more importantly.

TABLE 2. PAASCHE CHECK

(cities with population of more than 50,000)

Items	Paasche Formula (P)		Laspeyres Formula (L)		$(L-P)/L$	
	1965/1960	1960/1955	1965/1960	1960/1955	1965/1960	1960/1955
Aggregate	127.5	106.6	135.2	107.9	5.7	1.2
Foodstuff	134.7	104.9	141.8	105.7	5.0	0.7
Residence	117.6	113.4	128.9	127.9	8.8	11.3
Light and Heat	100.2	108.1	108.5	112.3	7.6	3.7
Clothing	122.4	97.9	123.9	87.3	1.2	−0.6
Miscellaneous expenses	127.7	111.9	137.1	111.6	6.9	−0.3

Source: *On the Revision of the Consumer's Price Index* by the Statistics Bureau of the Prime Minister's Office, February, 1967.

(B) The Controversial Points of the Consumer's Price

The consumer's price index compiled by Statistic Bureau of the Prime Minister's Office was compiled for quick measuring of the rise in price during a state of confusion after the war, and is considered to have the following controversial points.

Firstly, as the subject of consumer's price level, the standard of household consumption expenditure itself should include imported goods, but it seems that the introduction of imported goods into the present consumer's price-level is not very obvious. Therefore, to what extent the fluctuations of imported goods price will contribute to the fluctuations of the consumer's price is not grasped thoroughly.

Secondly, in the case of the violent change of the consumption structure, it is important to make up the deficit of Laspeyres formula by applying Paasche test. According to a Paasche test in Japan, there was a considerable divergence during 1960-1965, as compared with the period of 1955 to 1960. Therefore, the rise in the consumer's price index in this case should be considered with discount of the same amount of divergence. Or, when the change of consumption structure is a considerable one, the amendment on weight, items, etc., should be done in a rather short period than sticking to the every-five-year-

adjustment. And it is also preferable that the improvement on qualities should be also considered thoroughly. If it is impossible, it seems that a part of the rise in consumer's price should be considered as being attributable to the improvement in qualities.

Thirdly, the consumer's price indicates the purchasing power of money being expended by consumers, and should be considrered as a center of the value of money from the viewpoint of the expenditure-approach. But from the viewpoint of the market-system-approach, the consumer's price seems to be meaningless or at most the inaccurate indicator of service price.

TABLE 3. THE LEVEL OF TWO PRICE INDEXES AND THE RATE OF THEIR DIVERGENCE IN 1969

(1964=100)

	U.S.A.	Great Britain	West Germany	France	Italy	Japan (Tokyo)
Consumer's price (*A*)	118.1	123.2	113.5	119.8	115.4	130.3
Wholesale price (*B*)	112.4	116.7	108.6	113.4	107.4	108.3
Rate of divergence (*A*/*B*)	105.1	105.6	104.4	105.6	107.4	120.3

Source: Statistics Bureau of Bank of Japan "Consumer's Price-Index of the Main Countries in Europe and the U.S.A.," *Statistics Research Material*, No. 17, May 1970.

(C) On Divergence between the Wholesale Price and the Consumer's Price

The divergence between the wholesale price and consumer's price in the advanced capitalist nations is showed in the above list. And as it shows, the rate of divergence in Japan is the most remarkable one. It seems that as the divergence between two prices become conspicuous, an argument on what should be considered as the indicator of the value of money becomes the subject of much discussion. Judging from the above-discussed argument, although the value of money is grasped as the reciprocal of the general price-level, but as to what should be considered as its contents is still obscure. It is thought that the general price-level from the market-system-approach is expressed solely by wholesale price-level. Therefore the assertion that as long as the wholesale price level is stable, the rise in consumer's price-level is not considered as inflation, and only in the case of the rise in the wholesale price is considered as unsound, seems to stem out from the market-system-approach. And there remains the problem, as mentioned above, on what the stability of the value of money means after all. And doubts on the concept of the value of money without welfare point of view is left.

In contrast with this, although the general price-level from the expenditure approach is considered as a weighted average of consumer's price level and investor's price level, but just judging from the weight, it is the consumer's price-level which should be on the center. Therefore, if the value of money will be considered from the expenditure approach, the trend of consumer's price level is important. The wholesale price-level in this case is considered as an insufficient indicator of investor's price-level. Needless to say, even if the stability of the value of money is desired, the problem on whether the strict stability of the general price-level from the expenditure-approach can be attained, and the problem on whether it is desirable or not, are another problems, and the trade-off problem with the objects of other economic policy should be considered. Therefore, although it is thought that actually only the reasonable stability of the general price-level is attained, but if just

for this reason and try to seek for the criteria of the value of money in another standard, such as to seek for the stability of the general price-level from the market-system-approach, then it will be meaningless at all.