THE DEVELOPMENT OF MONETARY THEORY
FROM ROBERTSON TO HANSEN

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by

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I Introduction

The monetary theory is entering upon a new era. The income approach has been attaining the dominant position because of its development by a group of eminent economists.

The merit of the income approach is that it is stated in terms of such basic economic operations as saving and investment, income and consumption, hoarding and dishoarding, all of which are closely related to human activity and decision.

The distinction that can be drawn between the traditional theory and the modern monetary theory is this. In the modern monetary theory income is regarded as a determinant of the value of money, but according to the traditional monetary theory, the quantity of money is a causal factor in business, and a determinant of the value of money.

Before the first World War the so-called cash transaction theory was the generally received doctrine in the English speaking countries. Fisher's equation of exchange is the well known generalization about the quantity of money in circulation. This is the only other way of stating the obvious fact that the money given in exchange for anything equals the price paid for it. The equation cannot tell us anything new about money and prices; it merely restates in precise and convenient form what is obviously true. It has, therefore, been assailed by some economists who have thought the failure to distinguish between the cause and effect of the factors involved in this equation is its main deficiency.

Even before the Cash Transaction Approach to the theory
of money was discredited, the Cash Balance approach became popular in Europe and especially in England. Marshall created the Cambridge equation in an attempt to connect the theory of money with the general value theory. According to this method of analysis, the value of money depends upon its supply and demand. The value of money at any time is fixed at that level which just equalizes supply and demand, and its variations through time arise out of changes either in its supply or its demand. It has been said that the general demand for money depends upon the individual's desire to hold a certain amount of money which fits his convenience.

Actually, in accordance with the approach, what each person or firm desires to hold is not primarily a number of monetary units, but rather a quantity of purchasing power depending partly on his wealth, partly on his habits. If consumers' wealth and habits under certain circumstances are not changed, the amount of purchasing power which they hold in the form of money is definitely fixed.

Obviously, the characteristic feature of the cash balance approach is the attempt to apply the supply and demand apparatus to an analysis of the value of money. In the general theory of value the supply-demand mechanism is used to analyze the forces which determine the value of a single commodity. In this sense the Marshallian theory inevitably falls into the marginal utility approach of money as a result of the insistence on adapting a real term version of the cash balance. It is convenient to mention here that Robertson
follows the traditional line closely in the interpretation of money.

In the group of economists who made a considerable contribution to the income approach, the Swedish economist Wicksell is the foremost. The most important step which Wicksell took in bridging the gap between the price theory and monetary theory is his insistence on money income determining the price. Following this idea, he stated that a rise in the general price level is due to a rise in the total demand in relation to total supply. He realized that it would be profitable to divide each of these two categories into two classes: the supply of consumption goods and the supply of capital goods in the one hand, and the income to be spent and income to be saved on the other.* A study of the relation between these four factors can give us a deeper insight into the character of the price movement than that obtained as a result of the analysis of changes in the price level by means of the traditional monetary theory.

In the course of the development of monetary theory, Hawtrey and Keynes threw a bright light on the field. Both Hawtrey and Keynes emphasize the monetary phenomena as an explanation of the fluctuation of income. In Hawtrey's system, the concept of "unspend margin" holds a key position in determining the price level. But the process, according to Hawtrey, is that divergence between consumers' income and consumers'

outlay gives rise to change in the relative size of the unspent margin which in turn results in an extremely important effect upon prices. In essence, in Hawtrey's theory the important factor which influences the stream of money and stream of goods in the short-run rate of interest.

Based on the circuit flow idea, Keynes set up a new system in which the long-term rate is the basic part.

On the other hand, there is another group of economists who uphold the autonomous forces in the fundamental factor of the fluctuation of business and national income. Robertson, Schumpeter and Hansen are the main figures. They agree that in a dynamic society the quantity of money is only a secondary factor in the determination of national income, and that spontaneous forces are the primary stimulus of business activity. Most of the economists who follow this approach begin to notice the significance of expenditure as a dominating factor in the business world. Naturally, those who know the interest theory would have gradually lost their positions in the economic literature.
After World War I, monetary theory is said to have entered upon a new era. Before that monetary theorists who fell into the classical school held that in the long run our economic system worked so well that supply created its own demand. There never was over-production. Meanwhile they regarded that saving was frequently equal to investment through the adjustment of interest rate. In their mind, money was merely a veil and the medium of exchange. It could not exert influence on economic phenomena. So they believed that the only function of money theory was to explain the determination of the value of money. In order to explain this, they tried to analyze the relation between the quantity of money and its velocity related to the price level. But they never put the value of money connected with the business activity. On the other hand, modern monetary theorists held the different view that the value of money is significant because of its influence on the economic phenomena. The causal sequence was assumed to be through money to the change of price and hence to the volume of income and employment. They tried to find out how money behaves in economic fluctuation.

It has been generally accepted that money plays a role in the business cycle. But different theorists give different emphasis to this role. Generally speaking, there are
two different schools, the real approach and the monetary approach. Each school takes a strong position to explain the cyclical phenomenon. Those who fall into the real approach hold that there are some fundamental forces working in the economic structure which do not belong to the money field. On the contrary, poor monetary theorists assert that the business cycle is simply a money phenomena.

The three economists, Robertson, Schumpeter, and Hansen can be classed among those who hold to the real approach, but it should, however, be noted that they differ widely in their views of this approach; the differences among them will be discussed throughout this thesis.

I What is meant by real approach in contrast to money approach.

First of all, we have to make clear what is meant by real approach. So far as the business cycle is concerned, a group of economists has agreed that external forces such as technological innovations, the discovery of new territory, the opening of new markets, the change in the size of population and its distribution of age, war, crops and so on are the causes of the disturbance in business activity, thus changing in flow of money and distribution of income.

Schumpeter especially emphasizes innovation, Hansen gives population, technology, and new territory large importance. Robertson, however, admitted those external forces are as main factors but he explains this in a different way in his "Banking theory and Price policy." According to Robertson,
the fluctuations in economic activity are traced to changes in the amount of effort and sacrifice necessary to produce a given amount of goods, and to changes in buyers estimates of satisfactions to be gained from the expenditure and non-expenditure of effort. But it should be recognised that in Robertson's approach, "real factors" are not the sole elements of economic fluctuation. There are other factors such as money and institutional set-ups which play a role in the business cycles, an important role in the determination of the system. Yet these institutional factors are more in response to the change of real factors. Changes in the amount of effort and sacrifice should be considered as principal elements of economic fluctuations.

On the contrary, the theory of the economists in the monetary approach group tells us that our economic system is characterized by monetary exchange; that business activity is measured in terms of money, and that this individual exchange economy and the market process which fluctuates through the money and credit mechanism is of primary importance. Price is a pure market phenomena in terms of money. So that price fluctuations are a result not of the process of production and consumption per se, but of the offers of money and credit against goods and services.

The explanation of the business cycle must be sought in price fluctuations, in the role of profit, the role of discount, bank reserves, cash balances of producers and consumers, loans and bank credit, and in the back log of costs
behind selling prices and so forth. In other records, the monetary school puts the monetary factors at the center of its scheme of causation in analysis of the business cycle.

II Robertson's presuppositions. How they differ with
those of the income approach.

Among the members of the monetary group, Hawtrey made the best exposition of monetary interpretation of business cycles. He said that the trade cycle is "a purely monetary phenomena." This can be interpreted to mean that changes in "the flow of money" are the sole cause of changes in the economic activity in the alternation of prosperity and depression. For this group of theorists, external factors are disregarded as fundamental factors in the change of business activity unless they exert an influence on the flow of money.

Robertson took the position that any change in output of production lies in the change in its real costs or its real demand. But, according to Robertson, if this concept be applied in the monetary system, the expenditure of effort and satisfaction of demand depends upon the pecuniary calculation. It can be assumed that in a hypothetical world, there is no money as an instrument of exchange, and that cost of production may be calculated in terms of the real efforts made.

Under these circumstances, any stimulus to change the scale of the output in the industry depends upon three possibilities of change: a change in its real operating costs,
a change in the intensity of its desire for the goods which it receives in exchange for its products, or a change in the real demand price for its products. At first, we can imagine that if the real operating costs were lowered, this industry would consider that it was worth while to expand the scale of production. In this case, as Robertson pointed out, there may be an innovation taking place in one single industry or in a group of industries, but most cases are connected with a phase of depression because "during the later stages of a depression, there is a progressive advance in the effectiveness of labor, a progressive handling of materials, of technique and organization, a progressive writing off of inflated capital charges." As for changes in real demand, Robertson suggested that it is not changes in the preference for one goods as against another but changes in the desire for whole groups of goods in general; that is durable versus non-durable goods. It is true that during the last stage of prosperity, a small increase in the demand for a finished consumable goods, when it needs readjustment in the scale of plant, will induce a large alteration in the scale of producing instrument goods. Evidently, Robertson has really visualized the secondary relationship of consumption of goods to producers' goods. He only showed why over-investment is possible, but he did not go further to inquire the relation between the consumers' goods and producers' goods as some econ-

1 Banking Policy and the Price Level, p. 9.
Changes in real demand prices. The effect of change in real demand price for a group's products or for the output which is offered for exchange depends upon the elasticity of the group's demand for commodities. If the demand of any group for the goods which is purchased is elastic, then a rise in the real demand price for its product, which is equivalent to a fall in the real price of the commodity which it purchases, will encourage the group to expand its output.

When the group's demand is inelastic, a rise in the demand price for its product will call for a contraction of its output.

The other case is that the lowering of the operating cost of one group can affect the demand of the group for other goods, if the demand is elastic.

During a depression, the increase in demand for other goods occurs in some groups of industry, because of the lowering of its operating cost. From the three cases, we can conclude that lowering of cost or change in the real demand is a fundamental factor in association with economic fluctuation. Lowering of cost is mainly due to "increased efficiency of labor."

When we look at the monetary approach, we can find out how different the presuppositions are. Take Hawtrey as an example. He assumed that under the gold standard, the expansion of bank loan is limited by its resources. He strongly takes the position that there is an inherent tendency toward
fluctuations in the money economy with its existing banking institutions and practices. The flow of money into circulation and back again is one of the consequences of a credit expansion or contraction. Why does the credit expansion and contraction happen periodically? Hawtrey admitted that the flow of money is approximately determined by "consumers' outlay;" that is, by expenditure out of income. According to Hawtrey, consumers' outlay implies, however, not only expenditure on consumers' goods, but also expenditure on new investment goods. Changes in consumers' outlay are principally due to change in the quantity of money. If this quantity of money diminishes, demand falls off, and producers who have produced a certain amount of goods based on the previous results, will find that they cannot sell the usual output at the same price and will be subject to loss as they are compelled to sell at lower price. Then the reduction of output will reduce employment. This will result in decreased national income. At this time, the bank can expand credit by means of reduction of interest. If the rate of interest is sufficiently reduced, merchants are induced to increase their stocks. They give larger orders to the producer. This increased production leads to an enlargement of consumption income and outlay.

It follows that the merchant occupies a strategic position in the course of expansion and contraction of money in circulation. But the main reason given to explain the periodicity of expansion of money flow is that it is chiefly due
to the slow response of consumers' cash balances to credit movements. According to Hawtrey, the increase of wages always lags behind credit expansion. In other words, credit expansion is not immediately accompanied by a proportionate increase in the earnings of the working class. Meanwhile the cash balances would be accumulated in the hands of employer class who accumulate the savings from the big profits. This is the main cause for the economic system's constant oscillating up and down. When the flow of money depletes the bank reserve, the discount rate will be raised at once, dealers borrowing from banks will be decreased, and in the end, business activity in general will decline.

As the banker finds that the excessive reserve remains in his hands, he lowers the rate of discount and so borrowing is encouraged. Prices rise, and then wages, but an interval of time elapses before an appropriate amount of cash flows out, reducing the reserve again.

In the inter-relation of reserves, cash balances, discount rate and the profit rate is to be found the mechanism which produces the oscillation of expansion and contraction. Hawtrey remarked that if the bank changes the discount rate it may stabilize the flow of money and the price level. But he realized the difficulty under price economy.

Another group of economists who follow the Wicksellian theory claim that economic fluctuation is due to the discrepancy between the "natural rate" and "actual rate." According to the Wicksellian theory, there is a complicated
functional relationship between the interest rate, changes in the quantity of money and the price level. If the actual rate is lower than the natural rate, business men are eager to borrow from banks, the quantity of money in circulation immediately increases and as a result, the price level goes very high, and vice versa.

Wicknell distinguishes between the "money rate" as influenced by the policy of the banks on the one hand, and the "natural rate of interest" on the other. If the banks lower the market rate below the natural rate, the demand for credit will arise, and exceed the available amount of savings.

The inter-relation between "natural rate" "actual rate" of money rate, saving and investment, quantity of money in circulation and price level constitutes a profound mechanism of inflation and deflation. According to this theory, economic fluctuation is mainly due to the divergence of the two rates, if the bank makes the two rates equivalent, economic equilibrium can be achieved. The actual rate, in Wicknell's mind, is a long term rate as distinguished from the short-run rate (discount rate) in Hawtrey's system.

With respect to economic stability, Robertson holds a different view, based on the real approach, and states that stability is inconceivable because of the instability which is inherent to the capitalistic system due to the change of the real cost and real demand. According to Robertson the economy proceeds by "discontinuous leaps," these leaps being responses to the underlying conditions of real costs and real
The analysis leads him to conclude that price stability is undesirable so far as the capital formation is concerned.

III Basic concepts of Robertson.

We shall devote this section to introduce some basic concepts Robertson suggested in his analysis. In the preceding section, we have explained what is meant by real cost and real demand. Robertson employed two terms "appropriate" and "inappropriate" to indicate desirable and undesirable changes in business activity. According to Robertson an "appropriate" change is that change which is in response to a change in the real cost and the real demand, and this change in output is entirely justifiable. Inappropriate change is excessive change beyond the appropriate output. One possibility of appropriate change is by reason of the lumpy factor, as Robertson pointed out, which is the feature of an economic institution and the inherent characteristic of large scale production. Because of technical conditions, the investment decision can only be imposed either 100% or zero, but the economic condition only justifies 50%. Robertson also suggests that appropriate fluctuation should be facilitated and inappropriate resisted.

For the convenience of analysis in the following nations, some other basic concepts should be introduced in this section. Lacking is a special term used by Robertson. It is defined that "a man is said to lack, or to do lacking, if his consumption on any day falls short of the value, at the time of its
receipts of the income which he has at his disposal on that
day." It should be made clear here that, in Robertson
sense, saving is not identical with lacking. Assuming we
say that one receives an income of $10 and spends only $8 on
consumption, and if the general situation is unaltered he
does both lacking and saving. Suppose that he spends his whole
$10 and is not saving; but suppose that his $10 only buys less
than previously because of high price. Then he is lacking.
Suppose this man spends only $8 on consumption and buys more
goods than before because of low price. Then he is saving,
but doing no lacking at all. With this example, we can say
that lacking may occur without saving if, in the case of auto-
matic lacking, a person spends the same amount of money in
the purchase of less goods than previously. Saving also can
occur without lacking. When an individual's consumption is
reduced both below what he had intended and below the value
of his current economic output, he is said to perform auto-
matic lacking. Induced lacking may take place in the same
process as automatic lacking do. Whenever automatic lacking
is imposed on certain people, it will reduce the real value
of their money stocks, these people hold money off the market,
and refrain from assuming the full value of their current out-
put, in order to bring the real value of their money stock up
again to what they regard as an appropriate level.

2 Banking Policy and Price Level, p. 48.
3 Ibid., p. 49.
"Day" is defined "the existence of a period of time, is finite but nevertheless so short that the income which a man receives on a given day cannot be allocated during its course to any particular." "Day" is an analytical apparatus which is used to attack the problem of time elements. It will be referred to when we discuss Robertson's saving and investment theory.

IV Forced saving and capital formation. Criticism by J. M. Keynes.

In order to explain forced saving, Robertson states that forced saving is due to an increase in the plan of money without an equal increase in the flow of goods. Obviously, the necessary condition for forced saving is that the demand for consumers' goods does not rise pari passu with the creation of credit. It is because the increment of income lags behind the increase of credit. Prices will thus rise quicker than disposable income, and consumption will be curtailed.

But, according to Robertson, the process of reducing consumption in association with saving is very complicated.

If an individual finds one day that his usual money expenditure on consumption yield him diminished real income, or in other words, the individual's consumption is reduced both below what he had intended and below the value of his current economic output, he is said to perform automatic lacking. In

the process of automatic lacking, the people's cash balances in terms of real goods decreases, and these people at once hold money off the market in order to bring the real value of their money stock again to the appropriate level. It may be called induced lacking. In any case, no matter what form of lacking is performed in public, and despite the fact that forced savings produce the same result as usually brought about by voluntary saving.

If we go further to ask how much of consumers' goods is diverted to capital-forming, Robertson is reluctant to give a definite answer. It would be correct to say that in Robertson's mind, the effect of forced saving does not reduce the total of consumption goods, but only a redistribution consumption in favor of wage-earners, and augments the real-wage bills.

Some other concepts are applied by Robertson as devices to explain the relation between the price level and stock of money associated to forced saving theory.

First, he assumes that \( K \) is equal to average period of circulation of money. \( D \) is equal to the average period of production, which equals the number of days on the average to get goods ready for the consumers. If \( V \) equals the income velocity of money per year, then \( V \) equals that proportion of year which is the period of circulation of money, and which

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5 See Money (Harcourt, Brace and Co. N.Y., 1929) Ch. 5.
equals "the number of days in which, on the average, each piece of money comes to the market in exchange for real income. So we can say that the relation of K to V is virse. According to Robertson, if K is equal to D, the economic system comes to equilibrium. But K and D are easily changeable subject to the following conditions:

1. Change in the flow of money stock.
2. Change in the stock of goods on hand without change in prices.
3. Change in national income.
4. Change in the flow of goods in a period without or less than change in the flow of money in that period.

Among those conditions, any one is able to disturb the equilibrium. If we say that a certain quantity of money comes into circulation. Change in the flow of money stocks is equivalent to decrease in K. That means an increase in income velocity. The flow of goods, however, does not change much at first. The fact is that even though the price level goes up, the quantity of goods on hand still is held down because the owner expects the future price to rise. Meanwhile, the new goods can not be quickly relieved from the process of production because it seems hardly possible in a short period of

6 Banking Policy and the Price Level, p. 47.
Cash balance and velocity. Cash balance theory has been wholeheartedly accepting by the English monetary theorists. Among those members, Robertson is one who, by cash balance theory, is able to develop a profound set of lacking and hoarding theory. It is said that each individual holds a given quantity of money for convenience and emergency.

The demand for money is the aggregate amount which the community wants to hold in the form of cash balances at home or with the banks. This amount can be expressed as a certain proportion of the annual real income.

A person may desire to hold enough money to be able to buy, say, 1/6 of his annual real income. His cash balance will tend to be equivalent of 1/6 of his annual real income. If everybody would like to hold the same proportion of his income in the form of cash, the total amount of all cash balances would be equivalent to 1/6 of the real national income. The income velocity would be 6, that means the total quantity of money travels six times to buy the real national income. Since K is equal to 1/6 of the real national income, that is the amount of money just sufficient to buy the two national income. At the given price, the national income cannot be bought, until every piece of money comes to the market six times. The income velocity is governed by individual annual income. The speed of income velocity is just inversely proportional to the change in the fraction of their daily real income over which the individual holds in the form of money.
It is not only expansion and contraction of money stock which will influence both income velocity and the average period of circulation of money, but hoarding and dishoarding also influences them. A general movement to hoard which raises the real value of a cash balance would induce an individual to dishoard when he feels his real balances increase beyond what is the appropriate level. It is true that a certain class of people will consume less than previously because of reducing purchasing power, if the price level goes up. But it is not quite true that some people would be forced to take money off the market in order to maintain their cash balances at an appropriate level in terms of real goods, except for some specific reason, such as par cost for future money value and speculation, etc. For the same reason, we can say that general hoarding does not induce one individual's dishoarding. By common sense, general hoarding possibly induces each individual's under-spending by reason of decrease in income or expenditure in more decrease in price in near future.

In summary, if forced saving is accepted, it should shift the argument to employment and time lag rather than to the consideration as Robertson suggested.

Before stating the criticism of Keynes, which deals with the problem of forced saving, we should like to state Robertson's saving and investment theory and the analytical stance, i.e. "period of day." Saving and investment had become the subject of a long controversy until the Swedish approach came to clear the air. Robertson's contribution to the matter is
the introduction of the time element which has been considered as causing factor of trouble to economists. Robertson studies in detail, with the aid of a period analysis, the meaning of fluctuations in saving and investment.

First, he defines saving as equal to the disposable income of the period minus the consumption of the period. He goes further to assume that income earned on Day I cannot be deposited until Day II. Saving on Day II must be compared with the investment on Day II. If investment on that day is greater than saving from the income earned on Day I, income available on Day III will be inflated. The result arises either from additional credit or from "dishoarding" at that "Day".

Assume that credit increases in three units on Day I, it is not necessary to assume that savings must add three units on Day II, although it may save two units, one other unit will be consumed on Day II, hence it can be expected that investment will be stimulated by the additional one unit of consumption on Day III. The process goes on until saving equals investment.

As to Robertson's device is superior to Keynes' fundamental equation, he overlooked a large part of the transaction which are possibly carried out through the clearing system within the period of "Day." Obviously, these transactions will result in the income of the next period, but it disappears in Robertson's device. For example, a shoe maker A bought ten machines from a machine manufacturer B, the man-
manufacturer B put an order to buy a certain amount of metal product from the steel corporation C, and corporation C in turn bought a hundred pairs of shoes from the shoe maker A. If we assume that the transactions take place on Day I, and each is paid by checks, they will be clear out through the clearing house at that Day. The effect does not change bank deposits and loans. In the business world, the credit transactions always take place at any stage in economic process. If we overlook the part of transactions, we shall misunderstand the result.

In his "Treatise on Money," Keynes defined income in such a way that only "normal profit" is included in the income, and windfalls disappear in the fundamental equation. In the fluctuation of price level, saving and investment depends upon the divergence of the natural rate and market rate. If windfalls or net loss occur in the business, it influences neither income nor saving and investment. In his general theory, Keynes made advancement in the saving theory in that saving is no longer a function of interest rate, he produced modified multiplier theory which can be said to be Keynes' one of contributions in modern monetary theory.

The theory of forced savings is open to issue from several angles. Keynes attacked the theory on the ground that changes in the amounts saved which are as a result of redistribution of income do not differ from any other change in the amounts saved due to a change in circumstances. Because change in the aggregate saving is highly variable and depends
upon money factors. The very important one of them is that change in the level of income causes change in the rate of saving. As the creation of credit by the bank to the entrepreneur takes place, except in conditions of full employment, there will be an increase of the volume of output and employment thus both the real income and money income will increase, and the aggregate saving also increase. It follows that change in aggregate saving is entirely due to change in the volume of income and products.

Seems to me, it is given other meaning. If it merely means that investment carried out during an expansion, when prices are rising, will be partly at the expense of the recipients of fixed incomes, forced saving may still be used. The nature of Keynes' objection is erroneous in the sense that he neglects the time lag which must elapse before a change in income can make saving and investment equal.

V Lacking and trade cycle.

In the last section, we tried to explain how Robertson places the lacking theory and forced saving in association with capital formation. In fact, capital formation is a product of economic fluctuation while lacking is a necessity of capital forming. In this section, we proceed to study how Robertson interperalates the business cycle with lacking theory.

8 Keynes, General Theory (Harcourt, Brace and Co.). p. 80.
As stated in the first section, change of real cost in the essential cause of economic fluctuation when the business cycle starts from the phase of recovery, the business activity on the whole calls for finance. At this time, the bank stands ready to meet the demand of business men. As long as the newly created money comes to the market and bids the prices of consumers' goods up, some people will be compelled to disband with the result that the velocity of money increases. Undoubtedly, the purchase power of money is reduced. Retailers feel that it is worthwhile to put more orders from wholesalers and wholesalers do something to producers. Then the process goes on until the price is halted.

In each process of production, money is needed to hire more labor and buy more goods. The round-about method of production is sought to build up more plants and equipment in response to the new situation. It is conceivable that as an effect of the lengthening of the process of production, an increase in cost of production and expanding volume of transaction calls for more short looking from banks.

One point which should be made clear is that in discussing the relation between long looking and short looking, Robertson pointed out that when a durable capital goods is produced, the circulated capital is needed not only in the process of production, but also in that of operation and maintenance. According to Robertson, toward the end of prosperity, scarcity of both short looking and long looking is serious. This is because the wage rates are raised rapidly to such an
extent that "encroachment of wages to profits" kills off the source of the voluntary saving. Thus the bank system is forced to provide both short lacking and long lacking. The investors who see the overshadowing situation, try to hoard instead of investment. Robertson asserted, as other over-investment theorists did, that shortage of saving is the main cause of crisis. But he realized the fact that the true crisis always comes about before the collapse of a constructional boom as the bank system overexpands its credit and is forced to call back its loans. Thus it leads to bankruptcy and shut down of all industries.

VI Banking policy and control.

In the preceding section, we have pointed out that the collapse of a boom is mainly due to the unbalanced development of capital goods to consumers' goods. The lack of balance, if it only means a relative scarcity of consumers' goods, will diminish the incentives to new investment by raising the real costs of both the production and maintenance of durable instruments. Based on the reason, Robertson argued that if the bank would encourage the production of consumers' goods and limit the stimulation of capital production by way of allotting its loans in such a manner that the balance of two kinds of goods can be presumed and economic fluctuations would be minimized at least.

In the discussion of banking theory, Robertson also referred to other factors related to the bank policy: one is the growth of population, the other is the rise of productivity
per capita. In the first case, banking action calls for a proportionate increase in the money supply to offset the building up of balances by the new people. He also suggested that the rate of creating money depends upon: (a) the rate of growth of population (b) the rate at which the people build up balances. In the second case, if the flow of money is kept constant, the price level will go down. Under this condition, the lowering of the price level seems desirable, so that the people can enjoy the fruits.

In his article of "Theories of Banking Policy," Robertson discusses the bank policy in more detail. The discussion is based on the consideration of the real value of bank deposits and the real value of bank assets. In his view, the flow of money must be accompanied by the flow of goods, otherwise forced saving will occur. For the sake of explanation, assuming the volume of the circulating capital in existence at any point of time is equal to one half the value of the community's output in one average period of production of goods. The value of the community's circulating capital is equal to that proportion of the real annual income which the average period of production bears to a year. If the circulating capital is entirely provided by banks and if all of the savings of depositors had been invested by the banks in circulating capital, then the real values of total deposits would equal the real value of circulating capital. Under this condition, the bank can provide the circulated capital without disturbance.

If only part of the public's savings, have been applied
to circulating capital financings and if traders have used their own resources for part of their circulating capital needs, and if traders will be provided with their entire circulating capital needs, forced savings would be imposed on the public. To explain this, it is better to introduce Robertson's formula:

\[ aKR = b \cdot e \]
\[ c = \frac{1}{2} DR \]
\[ aK = \frac{1}{3} bD \]

R is the community real annual income in terms of goods. K is the proportion of this income over which the public wishes to maintain command of the form of bank deposits, so that KR equals the real value of the aggregate of bank deposits. a is the proportion of KR which the banks have crystallized in the form of circulating capital. c is the circulating capital, b is the proportion of c which is supplied by the business world itself or by direct public subscription. D is the average period of production, so that DR is the real income or output during a period of production.

If there is no change in the relative magnitude of the proportion a and b in those of the proportion, K and D, an uniform rate of growth in population and output can be retained without rupture of equilibrium. But it is necessary that the bank system should add bank credit at the same rate.

In case industry comes back from depression, business men

9 Essay in Monetary Theory, p. 46.
are eager to borrow circulating capital from the bank. That means an increase of \( c \) without accompanying the real goods. The effect of the occurrence is that \( c \) is larger than \( \frac{1}{2} DR \) and \( b \) is larger than a KR. The resulting disequilibrium involves the imposition of forced saving on the public by the banking system and a rise in the price level.

**Bank control**

As to the matter of bank control, Robertson suggested that control of bank deposits is a very important one. The effective methods used for control are "change in the rate of interest" and "open market operation."

1. Changes in interest rate.

Changes in interest rate can possibly produce the following effects: (a) The amount of deposits would be increased, (b) Businessmen may be stimulated to provide their own lackings, (c) The expansion of circulating capital can be discouraged. Robertson, in his early works, was confident in banking control of business cycle by manipulating the bank rate. Meanwhile he realized that the interest rate is more effective to control the boom than to stimulate investment in deep depression.

In his article, "Industrial Fluctuation and the Natural Rate of Interest," Robertson discussed the relation between interest rate and capital formation. He tried to explain it with the aid of the Marshallian supply and demand curves:

\[ \text{Ibid.}, \ p. \ 49. \]
One represents to the dealing marginal productivity of new lending in industrial uses (the demand for saving), the other represents to the rate of new increasing saving per unit of time (supply for saving). Changes in the relative positions of the two curves will influence the rates of new lending and saving. The saving curve depends on the level of income and the distribution of total income among the groups. The demand curve for funds (the declining marginal productivity curve) is influenced by the relative scarcity and abundance of capital equipment. At the point of equilibrium, the actual rate of interest equals the natural rate.

When the boom starts, the divergence of natural rate actual rate, business men are eager to borrow from the bank until the actual rate of interest is raised. According to Robertson, it is possible to reach a temporary equilibrium point as saving is accumulated out of profit just meet the demand of businessmen. But this position is unstable. The reason is that voluntary saving will immediately be reduced as soon as the real wages go up. As stated already, the bank should raise the bank rate to encourage voluntary saving from the public and reduce borrowing. Robertson believed that change in the rate of interest is an effective weapon. If the interest rate would fail to work, the second weapon, namely, the open-market should be used.

2. **Open-market operation.**

Robertson admitted that at times, there is difficulty of interest rate control. If change of the bank rate is not
sufficient to halt the expansion of credit. In Robertson's view, the central bank should pour out the government securities on the stock market to extract the expanding credits. During the depression, the interest rate hardly can break out the penusiti domination, open-market operation is more powerful to pour out a large amount of money in stimulation of the business activity. Robertson also suggested that during the deep depression, the government should step in with the collective buying to stimulate the private investment.
I Innovation theory.

Like Robertson, Professor Schumpeter developed his monetary theory from a real approach. Schumpeter, however, lays special stress on innovation and considers it a fundamental force in keeping the capitalistic machine moving. Yet he still considers money as an important part in the process of economic evolution; without money, the process can hardly be complete. In order to explain this point, we should start from the circular flow economy in which every thing works out by itself.

In the hypothetical world of the circular flow, we assume that there is no change in the economic processes and that productive services and goods flow on at constant rate in time. The population is given, and also the tastes of consumers, and there is no change in the physical environment. Business follows the same routine year after year. Here it is necessary to introduce the term, "Production of function." Production function may be defined as a method of combination of productive services in accordance to the different environment and data. In the case of a stationary state, economic data is fixed, and no economic problem arises, because there is no change in the form of the production function. Given these conditions, the flow of goods must be constant. The Productive Process is entirely "synchronized" every factor joining in production is so perfectly adapted at its post that no motives...
arise in an attempt to move from one section of industry to another. The goods produced can be absorbed by the current revenues of all services because the price and value of all factors are just equal to the price and value of the current product of cause. There is no surplus left for businessmen as profits. The business is financed only by its current receipts. The only motivation for saving is the replacement of equipment. For this reason, from the household's standpoint, there is no advantage in transferring any element of its money income from the goods on which it is actually spent to something else, from its present income to future income. For the same reason, no former attempts to increase its revenue by transferring any elements of its monetary resources from the factor on which it is actually spent to any other factor, or from present revenue to future revenue, except for the purpose of replacement. It follows that circular flow implies a general equilibrium economy in which there is only one set of prices and one set of quantities, and price must be the function of quantity if the condition is fulfilled. If money is introduced into the circular flow, it acts in merely technical sense. Because the price system has been determined already, money only comes to determine the price level.

In the exchange between totals of productive services on the one hand, and consumption and services on the other, money acts as a bridge. The values and prices of money must therefore be equal on the one hand to the values and prices of consump-
tion goods, and on the other hand to the values and prices of productive services. Walrasian theory is consistent with this condition. Money is only a factor in the mutual determination of prices, and thus the absolute magnitude of money in the economic system is irrelevant.

In principle, in the case of a constant flow of commodities on the one hand and of productive services on the other, a small quantity of money performs the same service as a larger. If the quantity of money is constant, the same value of money will emerge for every individual, and the value of money in terms of real goods also will be kept constant.

Now we turn to the problem of dynamic economics. It is evident that in the sphere of economic evolution, the stream of goods and stream of money no longer keep a constant flow. These phenomena display characteristics of capitalistic economy. Money acts more than in technical sense. According to Schumpeter, innovation is only the force to change the economic pattern. He dismisses population and individual tastes as the motivating forces for the reason that changes the number of population, distribution of age, and the tastes of households would not cause progressive disequilibrium, because they would be absorbed in the succession of small adjustment by which the equilibrium process works. Briefly speaking, innovation involves a new combination of productive factors; in other words, it presents a new cost curve which would invalidate the old one. In addition, it also involves "technological changes in production, such as the opening up of new markets, or new
sources of supply, improving handle of material, the setting up of new business organization, all of these designated by the term innovation."

When a new man begins to carry out a new production function in an industry, the average cost curve and marginal cost curve are usually lower than that of the old firms. In other words, the marginal productivity of each individual factor employed by the new man will be lower than that of those factors used by the old firms. And of course, if the new product comes up to the market, its price must be lower than that of the old goods. But we should recognize the fact that innovation does not make the cost curve show a permanent decline. It is true that innovation can shift the cost curve down below the old position under certain circumstances. But it also follows that a profit will emerge if the new man produces an amount of goods through the new method by which the difference between the total receipts and the total costs is.

Another feature of innovation is its spontaneous appearance and inability to be sustained for a long time. It arises not in time or in general, but in some specific reaction of industry or in a group of industries. As evidence of this in the capitalistic countries, during the development of railroads after 1850 and the boom in the automobile industry after 1920, in the United States, the prosperity came about not only within those industries, but was spread over all industries. It is

easy to see that innovation tends to appear in clusters or hutches, because at first only few businessmen can visualize the new things, but after the new things have been produced, all firms in the industry immediately follow in the wake of successful innovation. It is not possible, however, to absorb new things easily and smoothly, but only by means of a distinct and painful process. So Schumpeter stated briefly, "The situation and struggle made up of economic disequilibrium and fluctuation." In the course of economic evolution, the decay and rise of the firms and industries become a progressive symbol. According to Schumpeter, the fluctuational phenomena implies the history of capitalistic development in which money and credit problems are involved. In the next section, we shall go on to study how new money comes into the picture.

II The role of money and banking in economic evolution.

In the preceding section, we tried to state briefly the theory of dynamic economics which is given by Schumpeter, while calling attention to the fact that in circular flow there is no savings to finance new firms, and the current receipts only serve to maintain replacement. In this section, we shall devote to discussing the role of money and banking in economic evolution.

When a new man gets a new idea for building up a new firm, new equipment is needed and the problem of finance immediately arises. This kind of problem does not exist in a circular plan economy because the current receipts are sufficient to carry through the business activity. In dynamic economics, the only
way to finance the entrepreneur is creation of credit by banks. Banking then comes into the picture as an important factor in the sphere of economic evolution. The main thesis is that new money is created only for industrial development in which it plays a fundamental part, which is essential to the understanding of the whole process. The essential function of the bank, in this sense, consists in enabling the entrepreneur to withdraw the producer's goods which he needs from their previous employments and thereby to force the economic system into new channels. This is the only way that economic development could arise from the mere circular flow in perfect equilibrium, and this is therefore the key function of modern banking. Thus modern banking is building upon the principle that it is not only beyond the existing gold basis, but also beyond the existing commodity basis. Because purchasing power is created for the entrepreneur without the corresponding production of new goods, granting credit, in a sense, operates as an order or ticket on the economic system to accommodate itself to the purchases of the entrepreneur, and the entrepreneur is legally permitted to share goods and services from the social products. The immediate effect is that the price level will be forced up. After a period of production, at the end of which the new products are carried on the market, the social stream is enriched with the goods whose total value is greater than the credit granted. Hence the equivalence between the money and commodity streams is more than restored, the credit inflation more than eliminated and the ef-
fect upon prices more than compensated.

After we understand the essential function of banking, we come to inquire what is wrong with the commercial theory and the investment theory of banking. We have indicated that the granting of credit is the only function of banking that can be considered an essential element of the economic process.

Of course, there are in reality many other motives for borrowing and lending, but they are only secondary. In view of this function imposed upon the bank, it is easy to find out that the commercial theory disregards the main function of banking. This theory claims that the only function of banking is the financing of current commodities and the lending of surplus funds to the stock exchange. The insistence on short-term loan is based on the argument that if credit extensions are related to short-term commercial loans and if a balanced condition holds in the relationship between bank assets and its liabilities, the creation of bank deposits would be adjusted and related to the flow of goods and services through the economic life. Of course, this is perfectly right so far as the creation of loans with compensation is concerned, because the loans are created by the banking system against the commodities and services which have already come into existence in the sense that the flow of money accompanies the flow of goods. Under this circumstance, it will call forth neither inflation nor deflation.

12 *Business Cycles*, Vol. I, p. 120, also see The Theory of Economic Development (Harvard University Press) Ch. 3.
Schumpeter's analysis has stressed the operation of real forces rather than surface phenomena. But the commercial loan theory is only a superficial view in banking theory. In essence, the commercial loan theory, which views only the current transaction, leads to a narrow view in the function of banking. As a matter of fact, the significant role which the bank must play and which it has already played is the finance capital formation. One strong argument which has brought in by the commercial loan theorists is that the commercial loan is self-liquidity in itself. In this respect, it has been rejected for the reason that if a depression were to spread over the whole business community, any kind of assets would be unliquid, unless the central bank were willing to take it up indefinitely. But this cannot be called self-liquidity at all.

In Schumpeter's view, a good banker should examine carefully the nature of the loan rather than the nature of the borrower's assets. In addition to the banker's understanding "what the transaction is, which he is asked to finance and how it is likely to turn out, he should know the customer, his business, and even his private habits." If the loan made to finance innovation is called "normal," any kind of assets as collateral is justified. A narrow concept of assets in the commercial theory merely leads to a misunderstanding of the banking function and is found to fail.

Unlike the commercial theory, the investment theory prefers quantitative control rather to qualitative control. This theory holds that the quantitative control of bank de-
deposits very important because bank deposits are perfect substitutes for standard money. According to this theory, the price determination can be attributed to the standard money, and in turn attributed to bank deposits, since it is held that deposits are price determining or income determining. Following this line of argument the investment theory goes further to hold that the full utilization of national resources and high income can be reached, if the bank system is assumed to be able to regulate the flow of quantity of money in such a way as to sufficiently facilitate the investment. But how much purchasing power in the form of bank deposits a community requires is a very controversial problem facing these theorists. There is disagreement, not only as to the quantitative criteria to be applied in order to provide that volume of purchasing power a community requires, they tried to introduce various assumptions in their analysis of the actual economic environment, as to the various economic factors in changeable economic processes. Despite the different opinions, quantitative criterion of money and credit are always involved. The flow of money is never determined by the bank. The law and custom always are subject to change with the new economic environment. The legal reserve of bank never has been restricting the economic development. On the contrary, the legal reserve ratio of banks has to be changed due to fundamental causes. The uncontrolled forces always act beneath the monetary surface. Banking plays only a passive role with regard to the new environment.
III Saving and investment and interest theory.

The saving and investment theory has been employed to explain the business cycle for a long time. But this theory was made more scientific and systematic by J. M. Keynes. Keynesian theory rests on the concept of natural rate in both treatise on money and general theory. The natural rate has developed by earlier orthodox economists, at a later stage, it began to be associated with another idea -- that of forced saving. The classical writers usually referred to the discount rate; it was that which must be equal to natural rate. Wicksell felt that the short-term rate is not of primary importance, he changed the classical analysis by applying it to the long-term rate. In the stage of developmental monetary theory, this has been considered a main contribution.

Schumpeter deals with these problems differently from other theorists. First, he advocated that interest is a reward for creating money to finance the entrepreneur in carrying out the new production. He denies the classical saving theory on the ground that saving is not a function of interest rate, because the abstinence theory never justified the rise of interest. For this reason, he goes further to claim that the classical theory that saving is equal to investment is a fallacy.

Even though Schumpeter objects to any attempt to link value theory with monetary theory, he denies the interpretation of the real world without taking account of money. If we try to take away the veil of from theorists of money in order to
describe the process of the production and consumption of goods in spite of the process of monetary flow, we shall be bound to fail. In fact, capitalistic society is a monetary economy and every economic problem is directly and indirectly related to monetary problems. In his view, the failure of classical saving and investment theory is due to the emphasis of the real world as if money were not a part of this real world. In a monetary sense, saving and investment are quite different things. Because the behavior of people endeavoring to save is different from the behavior of the people trying to invest. The linking of saving with investment involves more than just the problem of interest. However, the ground the classical theorists stood by is that savings can never be excessive, for if they increase beyond a certain limit, the rate of interest will fall so low that people will prefer to spend their money and the volume of savings will fall. But this argument only holds in the absence of hoarding. If a part of the increased savings was withheld from the investment market and hoarded the theory would break down, but hoarding is not regarded as significant by the classical school.

In order to understand Schumpeter's opposing view, first of all we have to look at the definitions given by him. He defined saving as earmarking of an element of its current receipts by a household, for the acquisition of titles to income or for the repayment of debt. If a firm does the same thing with an element of its net receipts from the sale of products and services, we speak of accumulation. Mean-
while he calls the reader's attention that the concept of saving, in his sense, is confined to monetary phenomena, and not referred to the real commodities. For the same reason, if the decision to acquire titles to income is carried into effect the action may be called investment. By definition, we can say if saving is done by the household or firm it is only a change in the flow of money, but not in response to the flow of goods. Saving and investment, as defined, are two distinct processes. In the first place, even though people save money for income titles, it may happen to stay away in any stage on its way, it might be possible to be held by the dealer, if the saver invests his money on securities.

Sometimes, savings are put in the hands of the consumers or borrowed for the repayment of debts. In the case of the repayment of loans, saving doubtless annihilates bank deposits and the effect will induce deflation. So pointed out already, saving, even if invested, need not issue into real investment as readily as the reasoning of the classical theorists implied. There is a lag between decision to effect the investment and the emergence of the corresponding equipment goods. This lag gives room for accidents and incidents to take place, which are not due to maladjustment of interest rate.

In Schumpeter's view, it will do harm, if we explain the

14 Ibid., p. 75-76.
interest rate with the aid of Marshallian demand and supply curves, because the nature of the relation between saving, investment and the rate of interest cannot be represented by means of the two independent functions of the rate of interest. Since this relation is the net result of the interaction of all the variables of the system, it can be expressed only in terms of the Walrasian apparatus. Secondly, Schumpeter asserted that the function of saving assigned by the orthodox economists never can be fulfilled in any case. The reason he gives is that savings do not serve any social purpose, because their task to finance the entrepreneur is fulfilled by credit creation. The argument is based on the assumption that there is no motive to stimulate people to save, as far as the source of saving is concerned, since most of it comes out of profits or some other incomes, but there are no such things in circular flow. In reality, however, the fluctuations of saving in the business cycle are considerable, saving to the great variability of the profit; but these are only a consequence of the cyclical situations, cannot be interpreted as a cause of depressions.

We may say that Schumpeter attacked other theories in order to build up the theoretical structure of his own innovation theory. As stated already, his monetary theory and interest theory can be considered as a part of the whole theoretical

body. From his view, interest is nothing more than a product of economic development. Profit is only the source of interest paid for the use of money. Thus his interest theory is entirely concerned with his capital theory. But the notice of capital in Schumpeter's mind is quite different from that of the orthodox economists. Capital is a purely monetary concept. Saving, if you please, can be contained in it, but may be ignored. The main source of capital is the banking system. In other words, the bank is a machine for manufacturing capital. In this sense, capital may be defined as "an accounting concept" or a "monetary quantity" created by the banking system.

In attempting to carry out the new combination of productive services, the entrepreneur at first must borrow money from the bank. That means the bank offers tickets to the entrepreneur to permit sharing goods and services with other people, but the entrepreneur has not yet contributed any thing to the social stream. Thus the entrepreneur has to return something as payment for the use of capital borrowed from the bank, if he makes a fortune in his venture. For this reason, Schumpeter defines "interest is the price paid by borrowers for a social permit to acquire commodities and services without having previously fulfilled the condition which is the institutional pattern of capitalism is normally set on the issue of such a social permit." It follows that before the interest emerges, to be sure, two classes of people must exist in society: the entrepreneur who is capable of making profit by undertaking a venture, on the one hand, the capitalist who makes profit by
way of manufacturing credit on the other. In essence, innovation is the cushion of interest, because in the process of economic development, emergence of profit is most possible to the entrepreneur and interest can thus be paid out of yields.

Schumpeter dismisses the natural rate which has developed by the classical economists, Wicksell and Keynes, and he argues that interest is the pure monetary phenomena, it is brought about through monetary transaction. It might be said, however, that a natural rate exists in the real world, and if people borrow bushels of wheat, the interest would be paid in terms of wheat. As a matter of fact, the loan transaction is always carried out in terms of money. So long as the decision made by the entrepreneur is concerned, two rates, long-term and short-term are under consideration.

Determination of interest will be interesting to us, if we are close to the facts. Most economists hold that the rate of interest can be determined by the demand for and supply of loanable funds. It should consist of all source of capital in the money market. For Schumpeter, the amount of actual and potential funds in the market is irrelevant to the rate interest, and that it is only the proportion of these funds to the total of balances actually in circulation which is relevant to the rate of interest. Saving is irrelevant to the rate of interest. It does not mean that the amount of saving is too small to influence the money market, because saving is not used to finance the productive expenditure, it is used to make repayment of debts or finance consumers' deficits.
IV Business cycle and price theory.

In his business cycle theory, Schumpeter lays more stress on innovation than other students. He remarked that innovation is the prime motivator of business cycle. Even though he does not treat monetary matters according to the business cycle theory, money is put in very important position. In this section, we only pick up several points to discuss which are related to his monetary theory.

Prosperity

As everyone knows, prosperity starts from the entrepreneur's expenditure for carrying out a new combination of productive services. When the purchasing power is transferred from the hands of the entrepreneur to the owners of material means of production and to the workers, it is immediately spent on consumers' goods.

As a result, the prices of all existing consumption goods will be raised. Old firms will react to this situation and some of them will speculate; the retailers are eager to put more orders and the manufacturers will endeavor to expand production. Under these conditions, not only the prices of consumption goods and productive services are bid very high, the prices in general also soar up. The cost of products in old firms is higher than before. As soon as the new products are brought into market, the receipts of the old firms will be reduced because their customers will be drawn away by the entrepreneur. For some firms, the new commodity and new methods create new economic space, but for some, they will be forced
to die. According to Schumpeter, the process of adjustment from prosperity to depression is natural, because in prosperity the forces which create equilibrium must work themselves toward equilibrium through liquidation and a painful process of readjustment prices, quantities and values in response to the new level. The main causes of breakdown of a business cycle are slackening of innovation and auto-deflation. Capital goods industry declines first and induces general depression. Hence Schumpeter denies any cause given to interpret business cycle, such as over-saving, deflation of bank loans and so on.

Recession and depression

In recession, the new equilibrium is established. But it is easy to draw away toward disequilibrium caused by purely psychological forces, such as the mentality and temper of the business community and public. It is purely a psychological matter, no theoretical background confined the prevalence and occurrence of depression. Schumpeter indicates that depression is not an essential part of the business cycle and that the cyclical part will be complete without it.

Recovery

According to Schumpeter, the revival is not due to increment of demand for consumers' goods, but due to increase in investment on capital goods industry. Consumers' goods industry is comparatively stable in cyclical fluctuation. Because consumption is more or less stable, most of the new investments are induced by the reduction of costs, new methods and technical inventions, and so on. It is because at the end
of depression, all elements which constituted the depressed forces will be gradually reduced through diffusion of effects. Meanwhile, he emphasized that the stable general demand for consumption goods can contribute to recovery. He denies interest as a factor to induce investment. Because the expectation for profits is the only stimulus to induce the entrepreneur to make investment. As the new equilibrium is reached (recovery), the only possibility to bring out the profit in production is innovation.

**Price theory**

It might be said that Schumpeter's price theory is derived from his business cycle theory. He admitted that price fluctuation is mostly present the cyclical pattern. But price movement is not the causal factor for the prosperity, because the entrepreneur can make a profit at the low price level so far as innovation is the impulse of prosperity.

As mentioned already, innovation always tends to cluster, and comes about in hitches in nature. The variation of the price relationship from a very small group of goods spread over the price structure. In order to understand the change in price system, we have to realize the nature of individual goods in relation to the group of goods. When innovation comes about in the single industry, the effect of the new goods will stimulate expansion of outputs in its compensatory goods and reduce the production of the substitute goods.

The effect on individual price is that some prices go down and some prices go up, it depends upon inter-relationship to each other. The results are possibly different at any different point of time. Anyhow, it seems nearly impossible to trace the influence on each other. It is correct to say that in prosperity price level goes up in general. Recently some economists strongly held that the economic fluctuation could be avoided or at least mitigated to some extent if the price level can be stabilized at an appropriate level by means of monetary policy. So far as the fundamental problem is concerned, what is the essential cause of economic fluctuation. If the business cycle is purely a monetary phenomena, as some monetary theorists stated, bank policy and fiscal policy might be considered as effective weapons against the economic fluctuation. But it can hardly be accepted by those economists who hold an opposite view.

On his price theory, Schumpeter suggested a pair of terms -- price level and price system. The relationship between them is that "change in the level can in practice hardly ever come about by way of changes in the system -- changes in the system in practice hardly ever come about without enforcing a change in the price level."

In dynamic economics, not only the price level but also the price system is subject to change as soon as economic fluctuation starts in its course. The reason for this is that

change in the inter-relationship of physical quantities will be reflected in both price level and price system. As a matter of fact, the price of any single commodity is made up of two components: the price level and the price system. If the price level and price system were constant, the price of the single commodity would be constant. But price level and price system are constant only in a stationary state. In dynamic society, the price system changes as frequently as the price level. It also changes according to changes in the flow of money. If the effective money expression is changed, it will be reflected in both price level and price system. In an attempt to stabilize the price level, the price system must be stabilized first, otherwise only the effective quantity (MV) is kept constant; and as a result, the price relationship would be disturbed, and the economic structure would be shot down.

There comes the second problem with respect to the determination of personal change value of money. According to Schumpeter, personal exchange value of money is only determined by the exchange between money income and real income where personal exchange value and the price of money is formed. Hence he suggested that the value of money or price level should be measured by the prices multiplied by the quantities of all commodities and services actually and directly bought by households. The reason for the establishment of this principle is that the price of the individual and services depends upon the use of the commodity and consumer. As we said a moment ago, price level is derived from the relation between the flow of money
and flow of goods. The flow of money runs through all stages in economic sphere. Roughly, those stages can be classified into three categories: consumers' goods market, producers' goods market, and money market. It is easy to realize that every single unit of money can play a different part in different stages, but it can only fulfill one job at any one point of time. Schumpeter refuted the quantity theory with the argument that "there is no meaning to a combination of items from different spheres, or to the whole of all the items of different spheres or phases of the monetary streams." The reason is that "a variation in one direction of a price in the market of consumers' goods is not compensated for by an equivalent variation in the other direction of a price in the market of producers' goods."

For our purpose, the consumers' goods is most suitable because a certain quantity of money comes to be exchanged for a certain amount of goods and services in a certain interval of time. That is a whole picture. Every unit of money comes out at a certain time to carry through the transaction. Here, we speak of income velocity. Income velocity is in response to money efficiency. In other words, the rate of spending affects the income velocity, but the rate of spending depends upon the system of expenditures. So that the income velocity forms a cyclical pattern. Here we should like to remind the

reader that when we study the concept of income velocity and
forced saving in Robertson's theory, we understand how the in-
come velocity is related to cash balance theory through de-
mand for and supply of money. In Schumpeter's theory, income
velocity is influenced by the rate of spending, it also can
be said that income velocity is influenced by the system of
expenditures, and it is no longer associated with cash balance.

V System expenditures and national income.

Modern monetary theorists have turned their attention
from the study of purely monetary phenomena to that of the high
national income. It seems to have been generally accepted that
money and credit are to be regarded as means to achieve high
national income. In this aspect, there are several different
theories advanced to deal with the problem. National income
depends upon the rate of investment if the profit margin is
large enough to induce investment, the national income can be
maintained at a correspondingly high level. The interest rate
is considered as an important factor to determine the rate of
investment, yet in dynamic economics, the decision made by the
entrepreneur to take a risk depends on the future price; in
other words, expenditure always plays an overwhelming role
and the interest rate may be ignored by the entrepreneur. The
relation between investment and consumption has been the sub-
ject of a long dispute. On the one hand, the neo-classical
and Austrian school treated the two as independent. They
would never, of course, have denied that the ultimate purpose
of investment is consumption -- even J. B. Say recognised that
production is made for consumption -- but they did believe that a fall in the prosperity to consume could be followed by an increased inducement to investment.

The classical and neo-classical schools established the theory of the Law of market. According to this theory, the interest rate is determined by saving and investment. Saving is dependent upon the rate of interest. If this is true, there would be no idle saving, and saving would equal investment through the adjustment of interest rate; at the end there will be no change in income and prices.

We can go further to argue (they used to be) that an increased propensity to save cannot have a deflating effect, because equilibrium will be restored in the very short period by a fall in the rate of interest so that the supply of savings, in spite of high propensity to save, will decline to its previous level.

Hayek has put forward an argument in this manner that if the people do more saving and invest it on the productive industry, the immediate effect of the increase in demand for producers' goods and the decrease in demand for consumers' goods will be that there will be a relative rise in the price of the former and a relative fall in price of the latter. On the other hand, under-consumption theorists believe that investment depends on consumption and if over-savings take place in one community, the people will consume less and less, and at

20 Hayek, Prices and Production
last investment in producers' goods will be reduced. The only way to prevent our economy from fluctuation is stabilization of the effective demand.

Recently, the deliberate exposition of the relation between investment and consumption has been made by some economists with the so-called principle of acceleration. This principle has occupied a central position in business cycles. It definitely explains that the breakdown of prosperity is mainly due to the decline of capital goods before consumption goods. Meanwhile, it shows that the relation between investment and consumption is relative. The relationship is changeable in two different stages. I am going to discuss this in more detail when I turn to Professor Hansen's theory. Now I pass to Schumpeter's view of this problem.

In study of his innovation theory, we shall definitely say that investment in the capital goods is the only motivating force to start prosperity. The production of consumers' goods does not exhibit the same regularity of change during the business cycle. The alteration between periods of boom and slump is fundamentally a variation in the production of fixed capital, and has no direct connection with the production of consumers' goods. As long as the entrepreneur starts to build up the equipments and plants, the new purchasing power he borrowed from the bank, is spent on the employment of productive services, the money income of the consumers will readily increase as much as the entrepreneur's expenditures. From this description, we can conclude that the two forces -- the entre-
preneur's expenditure and the consumers' expenditure -- are combined to create the prosperity. Yet we should realize the fact that the fundamental impulse comes from the entrepreneur's expenditure and that the individual merely reacts to it. According to Schumpeter, the secondary phenomena is the reaction business world in general. For the sake of readjustment and expansion, the old firms also go to the bank asking for loans. Therefore "new borrowing will no longer be confined to entrepreneurs, and deposits will be created to finance general expansion, each loan tends to induce another loan, each rise in prices induce another rise."

So prosperity goes in full swing, the household will borrow for the purpose of consumption in the expectation that the future incomes will increase, and business will borrow in the expectation that demand will permanently increase. In this situation, owing to optimistic expectation; it is easy to induce over-spending in both consumers and business, and consequently the velocity of money is very high. At this stage, high national income increases more than the real income. All of these factors push the price level very high.

At this point, we come to the conclusion that monetary quantities -- money income -- occur in the course of a cyclical process of evolution which is brought about by changes in totals of business and households expenditure which can be considered as the results of the complexion of business. But

the initial mover is the entrepreneur. It follows that every phenomena can be traced to the impulse made by the entrepreneur.

Like under-consumption theorists, Schumpeter admits that there seems to be a fundamental relationship between productive and consumptive expenditure. Both of them are interdependent: producers' expenditure expands and contracts according to consumption expenditure exactly as consumers' expenditure expands and contracts according to producers' expenditure. That is to say, change in income is in response to changes in productive expenditure. Schumpeter points out that these changes are not direct in proportion. To be sure, he also is reluctant to indicate definitely what relationship exists between the initiate investment and consumption and the repercussion to the secondary investment. He found another relation in them, such as that consumption expenditure is not only a function of producers' expenditure, but also a function of its rate of exchange. That is to say, "Producers' expenditure mold consumers' expenditure, not only by supplying households with money to spend, but also by shaping their willingness to spend, and the willingness largely depends on the rate of change of income streams at the moment."

It can be conceived that during prosperity, most consumers suddenly find themselves richer than previously. The increased spending rate is not only on necessities, but also on

luxury goods, desire to spend rather than save for a rainy day is dominated by expectation sentiment and advertising stimulation.

As pointed out in the section on the business cycle, the main cause of the downward trend is not due to under-consumption or over-saving, but due to the slackening of innovation and auto deflation. The first effect is the dwindling of the entrepreneur's expenditure. The reduction of productive expenditure means decrease in the source of national income. Thus consumption expenditure will be cut off. These results lead to general depression. In addition, underspending takes place when both consumers and business men spend less than in normal times in order to hold on to their money, thus the velocity of money slows down than in normal times.

From the analysis made above, we see that the cyclical fluctuation of national income which is due to change in totals of production and consumers' expenditure, and which can be traced back to the impulse of innovation, is characterized by the process of economic development. The cyclical pattern is inherent in the progress of capitalistic organism. We still repeat our statement that the maintenance of national income and full employment by means of the artificial manipulants is of little help until there is a fundamental change in the economic institution.

Finally, we proceed to discuss Schumpeter's idea of velocity. It has to be noted that Schumpeter uses two terms instead of velocity of money. These two are efficiency of money
and the rate of spending. He admits that consumers and busi-
ness men usually hold a proportion of money to income, and if
we assume that this proportion is equal to unity in equilibrium
then the proportion possibly is drawn below unity in the phase
of prosperity and above unity in depression because households
and business men always over-spend in the former period, and und-
er-spend in the latter period. Efficiency of money entirely
depends upon the behavior of business and household expenditures
which is in response to the external forces. If a person
holds money, it does not mean that he likes hoarding; nor does
he intend to maintain his balance at an appropriate level in
terms of real goods; it simply means that there is no chance
to invest his money, or that he intends to delay his spending.
Demand for money is different from demand for goods. If we
see someone displaying a wish for bread, it is because the
bread can produce utility to him. But if someone displays a
wish to hold cash, this in itself means nothing at all. We
only say that a person wants a super normal amount of cash,
simply because his and other's actions happen to produce that
result, which in itself is not one of the objects he wishes
to obtain by those actions.
I Theoretical background

In "Fiscal policy and Business Cycles," Hansen has pointed out that the trend of modern monetary thinking runs in the direction of emphasizing the factors which cause fluctuations in total money income rather than factors influencing the constituent elements in the total volume of money payments, namely the quantity of money and the velocity of turnover. Indeed, it has widely been accepted by the modern monetary theorists that the source of money is no longer the significant problem. Money has been considered as a means to achieve full employment and high national income.

The fundamental tools selected to analyze the relationship of income and employment to other economic elements are the consumption function and the investment function. This is a part of the popular Keynesian system. The modern Keynesian school generally accepted Keynes' theory. Some points have been improved but others rejected by his successors. The modern version of the stagnation theory is an outgrowth of the Keynesian development in American economic thinking. This theory is always associated with the name of Professor Hansen. The opposite theory of the neo-classical school is a natural outgrowth of the classical theory. Economists who belong to this group advocate that the only way to save the capitalist system is to turn back to the automatic mechanism of private

enterprise and free competition. The government function should be restricted to such a degree that economic freedom should not be interfered with. Hansen looks at the economic problem from a different point of view. His theory is based on his special interpretation of the economic development. He followed Spithoff, Cassel, Robertson and Schumpeter and emphasised the real factors as the fundamental causes of business cycles. But he is the only one in the group to assert positively that some factors such as the growth of population and the opening up of new territory have reached maturity. Hence new investment outlets have narrowed down to a certain degree. Meanwhile he realised the fact that the unreasonable distribution of income and the institutional setup may lead to under-consumption. In an attempt to achieve full employment through fiscal policy, he suggested a program based on those assumptions. In order to retain effective demand and investment outlets. The government must not only make further investments, but it must also use its taxation policy to redistribute income in order to increase effective demand and stimulate private investment. In short, Hansen's monetary theory tells how the monetary policy and fiscal policy should be used to achieve a high level of national income and employment.

II Business cycle theory

The group of writers who accepts the real approach to the business cycle theory lays stress on external forces such as innovations, discoveries, the opening of new markets,
the growth of population and so on, which provide an investment opportunity. But some of them give different emphasis to those factors. Schumpeter lays stress specially on innovation; Hansen emphasized three factors: (1) the growth of population, (2) opening up of new territory and (3) innovation, as the fundamental causes of economic fluctuation in the nineteenth century.

According to Hansen, the history of business cycle roughly falls into three periods: (1) The period of the Industrial Revolution, (2) The period of Railroadization, (3) The period of Motorization. Each period presents a long wave which persists in good times and bad times. The first long wave dated from the emergence of the Industrial Revolution up to the end of the eighteenth century. The second period is characterized by the railroadization of the world during the third quarter of the nineteenth century, and in the third, electrification and motorization of the western world played a considerable role from the beginning of this century up to the thirties.

According to Hansen the expansion of capital formation in the nineteenth century was intimately associated with the growth of population and the discovery of new territory for settlement and exploration. The effect of population growth upon capital formation is that it really played an important role in determining the character of output, the composition of the flow of final goods; but it should be in conjunction with factors in the widening and deepening process of capital formation. The widening of capital is a function of an increase in final output,
which in turn is due partly to an increase in population and partly to an increase in per capita productivity. On the other hand, the deepening of capital arises partly from cost-reducing changes in technique, partly from reduction in the rate of interest and partly from change in the character of output as a whole.

Intensive and extensive investments reinforce each other. For example, the growth of population and its exploitation will widen the market and consequently expand the development of mass productive techniques. With the cessation of the growth of population and with the disappearance of new territory under way, the capital will be directed to intensive investment which may change the economic structure.

Prosperity and depression.

Like Schumpeter and Spiithoff, Hansen asserts that the business cycle starts from the capital industry and is stimulated by external forces.

Spontaneous expenditures on investment goods always play an initial role. Durable consumption goods especially automobiles has a resemblance to investment goods on this point. During an upswing, the expenditures on equipment and construction combined generate new income, and rising income in turn induces and increases consumption expenditures. Continuous interaction between investment and consumption reinforces the cumulative process. Every industry which grows up due to the
external forces is unstable. As soon as the external forces disappear, it would "die a natural death." In the dynamic economy, it is net investment, generated by innovational developments, the growth of population, and discovery of new market, that raises and determines the new level of consumption. In Hansen's view, consumption is only a minor factor in the beginning of the revival expected of a business cycle. The autonomous investment falls off sharply, voluntary individual consumption cannot rise sufficiently to fill the gap left by the receding tide of investment. Total expenditure declines, and the economy falls toward an equilibrium self-perpetuating income level which falls short of full employment. Based on this analysis, Hansen came to the conclusion that the gap can only be filled by public investment and the measure of technological advancement.

III Stagnation theory

It is correct to say that economic thinking is based on its background and reflects the essential economic problems, of the time. David Ricardo advanced his rent theory against the background of the Corn Law controversy in his time. J. M. Keynes wrote the general theory after the great depression. Hansen's stagnation theory is based on the assumption that the great depression is mainly due to the maturity of the modern economy. The result is that there is an absolute decline in the capital return. It has become popular to criticize the stagnation thesis and argue that the capitalistic economy is still a young, vigorous, expanding economy. It may be true
that technological change is expected to continue.

Undoubtedly, the capitalistic economic structure has been changing not only in form but also in substance. For these reasons, the governmental function has been extending in economic life.

There is no doubt that the forces of expansion and progress have been slowing down because of the decline of the external forces. The outlet for investment, nowadays, are rapidly narrowing to those created by the progress of technology.

The prodigious growth of population in the nineteenth century mounted decade by decade in the United States it reached the highest level in the last decades of the century. Now it has been presenting a downward trend in both Europe and America.

The expansion of new territory which brought about tremendous outlets for investment in both Europe and America in the last several decades, has come to an end. There seems little opportunity to find new areas for exploitation and settlement. It is true that there is a long way to go to industrialization of some backward countries; but the opportunity for investment is so small compared with the growing national income of the industrial countries.

Now, the main problem of our time is the problem of full employment. From secular standpoint, we are compelled to consider those factors which tend to make business recoveries weak and which tend to prolong and deepen the causes of de-
pression. This is the essence of secular stagnation. Some critics object to the stagnation theory with the reason that these factors declined long before the thirties. Obviously, the failure of full-fledged recovery to reach full employment after 1933 in favor of the stagnation theory.

IV Monetary policy and full employment

A. Analysis of the inter-relationship between consumption, investment and national income.

As mentioned in the first section, the stagnation theory grew out of the Keynesian theory. It is proper here to make a comparison of Hansen's theory with that of Keynes. Keynes wrote his general theory after the great depression. The feature of his work is the use of the consumption function to attack the economic problem. Some people regard Keynes as the under-consumptionist while some think that Keynes' theory is only applied to the depression. Hansen accepted the Keynesian theory in general and disagreed only in specific points. Hansen starts out from a different hypothesis. Generally speaking, Hansen's theory is based on the maturity of economy which is mainly concerned with the slowing down of the growth of population and narrowing of therientor for investment outlet.

In essence, the basic hypothesis of the Keynesian theory is that people make two kinds of decisions in the present type of economy, they decide on the basis of their income, whether to save or spend; and they decide on the basis of the rate of interest to hold either cash or security -- this is the Liq-
uidity Preference theory. The interest theory is a part of Keynes' theory and closely associated with the investment theory which is different from that of Hansen. The disadvantages of the Liquid Preference theory as Keynes advanced it, cannot be explained in this paper. It is worth mentioning, however, that Keynes rejected the saving-investment theory of interest and replaced it with a saving-investment theory of the determination of income. The simplest Keynesian theory is that: income is a function of investment, consumption is a function of income, but that the marginal propensity to consume is frequently smaller than unity. Saving as a function of the level of income always equals investment. The rate of investment which on the one side depends on the rate of interest, on the other depends on the marginal efficiency of capital, so that the market rate of interest and the return of investment determine the investment. But recently statistical investigations have already shown the influence of the interest rate on both saving and investment to be very small or absent. As to the relationship of saving and interest, it has been said that in modern society, most people save for security and emergency. But the main reason why there is no relation between saving and interest rate is that some saving responds positively to variations in the interest rate, while other saving responds negatively to variations in the interest rate. On the balance, the total effect is in doubt. It has been pointed out by Hansen that in the modern society, savings are regulated largely by habits and considerations of economic security and have little
to do with rate of interest. On the side of investment, it is well known that businessmen make capital outlays on the basis of a very short horizon (usually five years) and that the shorter the horizon the smaller is the effect of interest rate. The rate of interest undoubtedly has had a bearing upon durable, long-term, fixed capital projects. But there involves certain unfavorable elements such as risk and uncertainty which are able to offset the effect of interest rate. Risk, therefore, becomes in many cases a more important determinant of investment than moderate variations in the rate of interest. Furthermore, since most businessmen have tended recently to accumulated the excess profits, depreciation allowance and replacement, the effect of internal financing minimizes the effect of interest rate on both short-term and long-term investment. For these reasons, we can conclude that when a businessman makes a decision for a project, the probability of uncertainty, risk and the expectation of future price are always to be considered first, and the rate of interest is no longer considered as an important item in the form of investment decisions. In fact, the conception of interest-inelasticity of both saving and investment is one of the fundamental improvement Hansen has made on the Keynesian theory.

Hansen realized that the rate of consumption to income is not easily increased. This fact is the basis of modern economic problems. Institutional development, habit and security as an attraction to people to save tend to lower the ratio of consumption to income and to increase the proportion of income
In connection with the consumption-income problem, Hansen goes further to analyze investment in more detail. He divided investment into two parts: one is the investment for maintenance of equipment or replacement and is related to the level of consumption, and the other part is the net investment which is very important to sustain and increase the level of income. Whenever this stops, income falls off to such an extent that they are not only reduced by the amount of the decline in investment expenditures, but also by reason of the induced decline in consumption while the nature of the net investment outlet is peculiarly spontaneous, if the private investment is declining. The government should step in to fill the gap, otherwise the level of income and employment would fall short of full employment. As soon as the income declines, consumption follows down at the lower level.

Meanwhile, the fact should be recognized that the volume of consumption is determined not merely by the size of the income, but by the particular stage in the cycle at which this income is received. The propensity to consume will be changed as the cyclical changes in income occur for each income group. During prosperity, the consumption income pattern at high income level appears very constant. This is because change in income level accompanies change in both marginal propensity to consume and marginal propensity to save. It can be conceived that during prosperity the consumption elasticity of the capitalists is larger than that of the workers. Statisti-
cal investigation in the United States disclosed the fact that on the high income level, more than twenty-two per cent of the gross national products is saved out of profit and personal income. Hansen goes further to argue that the nature of the modern economic problem is the difficulty of finding investment outlets. If the margin of profit is large enough to stimulate private investment by reason of the discovery of new territory, the growth of population and technological change, then the high national income can be continuously maintained, and there is no unemployment problem, even if the consumption income pattern persists our economic problem is not therefore due to over-saving but due to exhaustion of investment outlet. But in practice, the persistent consumption income pattern can intensify the depression and delay full employment. According to Hansen, there are several reasons which make the income-saving ratio increase for both individuals and corporations.

First, the great development of life insurance facilitates the ability to save. This expanding flow of savings causes the ratio of consumption to income to decrease. Second, another institutional development is the introduction of amortization in real-estate loans and mortgages which affects the flow of savings. Third, the spread of the corporate form of organization and the progressive development of accounting procedures have, in the last few decades raised changes in depreciation reserves to a level which makes the items by far the largest

26 Fiscal Policy and Business Cycles, p. 244.
single source of funds available for investment. Fourth, another source of investment funds is the savings of public bodies, and individual savings which flow into commercial and saving banks. For these reasons, the flow of annual income to the stream of savings is likely to increase steadily.

In Hansen's view, public spending is most important as to achieveing full employment so long as the private investments decline. Public spending is not only able to maintain community consumption and full employment, but also induces private investment. The effect of public expenditure upon consumption and investment and the financing of the public expenditure are very interesting problems to us. The follow­ing sections will be devoted to discussing them in detail.

B. Multiplier and Acceleration principle.

During the depression, the government spends money on public projects in order to raise the level of income and achieve full employment. But the conelent consumption is added to and private investment induced when the new money is poured out to the community by the government involves theoretical consideration of the multiplier and acceleration principle. It also has been called "pump-priming." Pump-priming indicates that deficit spending is a temporary process and that the economy will be able to continue to operate without further outside help. The expenditure may effect consumption and in­vestment. The first effect can be explained by the multiplier principle and the second by the acceleration principle.
Multiplier principle.

In the first place, we assume that newly created money has been spent for wages of workers employed in the public project. The incomes of workers would be spent through the several channels to retailers, to wholesalers and at last back to producers as their incomes. In each of these different steps of production, part of the money received is distributed as income among those who contributed to this particular stage of production, while a part of it is passed on to the preceding stage of production, where the same process goes on. When the last unit of money spent becomes "secondary" income in a remote stage of production through a long interval of time, the first unit of money has become the "secondary" income of other people through the spending of the first receiver. Thus it is clearly seen that the multiplier principle is related to the income velocity of money. Distinction must be made here between the average time interval between successive consumption expenditures and average period of circulation of money. The term average period of circulation of money has been defined in discussion of Robertson's monetary theory. If the income velocity per year is six, the average period of circulation of money must be two months. The multiplier analysis makes use of a similar approach to show that the total effect of an initial expenditure of newly created money upon income may be considerably greater than the original expenditure. These two intervals are by no means identical. If we assume that the average income velocity time interval (K) is four
months. Whereas the time interval between the successive consumption expenditures involved in the multiplier analysis might well be two months.

**Leakage**

In the above analysis, we assume that every unit of money is spent as soon as the receiver gets it as income. Here we should consider that the amount of money spent by the government will not wholly materialize down through various stages. It is possible that a part of money may be held by the entrepreneur. If a part of the money is paid to banks or used to wipe out indebtedness, then this part of the money is directed from becoming a part of the income stream by being drained off into idle balances or debt cancellation. Even though the fund wholly materialized as the increases of individual is not all used for consumption expenditures, some may be saved or hoarded. Saving may be used either to pay off debt, held in idle balances, or to make financial investment in mortgage, securities and so on. Thus the magnitude of leakage effects the secondary effects of the initial expenditures upon the volume of consumption expenditures. It follows that the multiplier is high if the magnitude of the leakages is low and vice versa.

**Marginal Propensity to consume and multiplier principle.**

By definition given by Keynes, the size of multiplier is determined by the "marginal propensity to consume," that is 27}`}`
by the relationship of an increment of income and the expenditure on consumption out of income. A marginal propensity to consume of one would have a multiplier of infinity, a marginal propensity to consume of zero to a multiplier of one. For the same reason, the magnitude of the multiplier can be stated in terms of the marginal propensity to save.

**Acceleration Principle**

The multiplier shows the effect on income through expansion of consumption when a given amount of money is provided. We consider only the effect of initial expenditure on consumption. The acceleration principle concerns exclusively the effect of a net increase in consumption expenditures upon induced investment expenditures. In the discussion of the multiplier principle above, we assumed that the initial expenditure is only confined to consumption goods. But it is also possible to assume that a net increase in consumption will induce additional investment. When income generally increases, the need for durable goods also increases. But the fund provided by the initial expenditure is no longer adequate to take care of this increase in production of durable goods. New funds have to be supplied in the form of loans financed by bankers or private investors. The relation between consumption goods demand and investment goods demand is very complicated. An increase of a small per cent of demand for consumers' goods leads to a large increase in capital equipment.

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28 Fiscal Policy and Business Cycles, p. 274.
As we know, only the volume of replacement investment expenditures is determined by the volume of consumption expenditures. New investment is not directly affected by the level of consumption expenditures. It is only changes in the volume of replacement investment which is determined by the volume of consumption expenditures. The degree of acceleration depends not only on the ratio between new demand and replacement demand but also on the durability of the investment goods. The greater the durability of the equipment is, the more fluctuation of capital goods production will be.

From the analysis, we know that multiplier analysis explains how under certain conditions a new income level will be reached. Given marginal propensity to consume and the multiplier period, we can predict how soon the income level will be reached and how high it will be. If we combine the multiplier with the acceleration principle, we introduce a dynamic element which can explain fluctuations as well as a constant increase in national income, depending on which assumptions we choose concerning the marginal propensity to consume and the ratio between a net increase in consumption and the induced investment. If we assume that the ratio is zero, continued initial expenditures lead to a level of national income which is increased by the amount of the initial expenditure per multiplier-period times the multiplier. If we assume that marginal propensity to consume and the ratio equal unity, the fluctuation of income will be violent. For the purpose of explanation, the national income can be divided
into two components: "basic national income" which is the margin filled by net investment (private and public), and by the consumption induced by the net investment and induced investment. It is this dynamic income which is extremely unstable and within the area of which the fluctuations of our economic life occur.

However the point should be made that the acceleration principle may be very effective on the cyclical pattern, while from the long-run standpoint it is incapable of raising the level of the national income.

C. Interest policy and debt management.

The problem of financing public spending.

In an attempt to achieve full employment there is not only the problem of how to finance the public expenditure, but there is also that of distribution of income. Hansen has suggested that a balanced program has to include these items: (1) high incentive taxation, (2) low rate of interest, (3) redistribution of income, (4) a wage-price policy designed to promote high consumption. In other words, the government should assume the responsibility to attain a high national income and full employment by means of fiscal policy and monetary policy.

In a dynamic society experiencing growth and progress, the maintenance of full employment involves a continuing increase in real income. That means an increase in productivity per capita. In this case, money income must rise if the volume of money is to be kept stable. Saving from the disposable income earned during the last period of production in a growing full-
employment society, must be less than the realised savings springing from the higher income earned at this period. If "realised saving" exceeds "disposable saving," there must be a new level of income and employment, and new investment must be financed from sources other than saving.

It naturally follows that in a dynamic fully-employed society, investment can always be over saving. For the purpose of stability of price level, new money has to be created or the velocity of money has to be increased to match the expansion of the real income. If the income velocity of money remains constant, the money supply will rise in direct proportion to increase in output. If this occurs, money income will pace with real income. But a rise in money income in proportion to increases in real income may be accompanied by a change in the income velocity of money.

The increase in the real income should, therefore be accompanied by the same proportional increase in MV (the flow of money income) what will be effected in V or M depends upon the method of financing. Public spending may be financed by the following methods:

(1) Borrowing from the banks. The loans made by the banks result in an expansion of the money supply (M).

(2) Borrowing from accumulated idle balances held by corporations and individuals. This will increase the velocity of circulation.

(3) Borrowing from the current income of the individual and corporations. With this method of finance, only pur-
chasing power is transferred from the individuals and corporations to the public. There will be no change in the velocity of money. But it should be noticed that if this is idle money which is borrowed otherwise it would be hearded for a time, the velocity of money will be changed through the government spending.

In any case, whether new money is created or idle money is put to active use, the income stream (MV) is increased. But the process will not cause a price inflation so long as the flow of goods is able to match the increasing stream of money income. Once full employment is reached, it is no longer possible to increase the flow of real income. Up to this point, the public spending should be financed by the borrowing from private incomes or by taxation.

During the depression, the unemployed resources can be equipped by carrying out deficit policy. At this time, the creation of money supply is desirable. The means of payment are inadequate at this point to circulate the expanding output. It is permissable to finance a large part of government expenditure through the sale of short-term bills to banks. While the national income is still rising, the expenditures may be largely loan-financed. But after the national income had approached full employment levels, tax-financed is advisable to balance the budget.

According to Hansen, the fiscal program should be divided into two parts: compensatory program and development program. Compensatory program aims at count balance of the
business cycle. It requires continuous adjustment from phase to phase in the business cycle. At times, it calls for restraint and curtailment; at times it calls for stimulation and expansion. In a surging investment boom, taxes should exceed expenditures; national debt should be reduced. In a depression, productive expenditures should be made.

A developmental public investment program designed to ensure an expanding economy must be based on the modern economic characteristics of growth and technological advancement. The funds for developmental spending should be borrowed from banks, because this is a new investment and will create new economic priced and new goods to the community, and so new money should be created adequately to the community.

As to the interest rate, we have made a statement and concluded that in the dynamic society, interest is no longer an important factor to determine the private investment. But under certain circumstances, a low rate of interest is favorable when the new money is justified and the community needs adequate liquidity. One of the reasons for low interest policy is that in industrial countries, the total value of private property claims held in the form of long-term securities, public and private represents a high proportion of the aggregate money value of all property claims, under these circumstances, substantial variations in the rate of interest would have serious consequences upon property values. Such fluctuations in the value of a major portion of outstanding property claims would have a serious effect upon the business world and would
unfavorable effect the volume of outlay, for both new investment and consumption.

The magnitude of the public debts.

There is no absolute magnitude of debt in a dynamic society. Account must be taken of rates of change and the magnitude of the public debt in relation to other magnitudes such as change in the size of population, the productivity per capita, consumption and saving function, especially the ratio of debt to national income. Some economists object to the size of the deficit spending. If the magnitude of the public debt is burdensome, the whole economy would be damaged. Of course, there is an appropriate magnitude of public debt to the economic condition, whereas within the limit public debts are not a burden of the people. The reason is that in case the government spending increases at the bottom of the depression, the initial expenditure will bring about the larger amount of national income. The fact has showed in the analysis of the multiplier and acceleration principle that public expenditure may lift the national income to a high level and maintain it. In these circumstances, the public expenditure merely makes use of unemployed factors of production. If deficit spending increases the money supply at a time of substantial under-employment of economic resources, it can be expected that the increase in the flow of money (MV) will be compensated in its general effect upon prices by an increase in the value of

29 Economic Policy and Full Employment, p. 147.
goods (T). Even if the funds for deficit spending are borrowed from the banks or from individual balances which otherwise would have remained idle. In high income level, money taken from the rich class is used to pay interest on the debt or to retire the debt it goes back to the owners of the debts. The national income is not decreased. The transfer of money from tax payer to bond holder may influence income distribution, consumption and saving. However, the above analysis must be with the qualification that the government issues have been in the hands of the poor class. If this is so, propensity to consume may be expected to be raised through the repayment of debts or its interest, because the pattern of the consumption elasticity of income is comparatively larger in the poor class than the rich. But, actually most of government debentures are frequently held by the rich class. This is one of the problems left to be considered by the financial authorities.

D. The appropriate mechanism of price-cost relationship to full employment.

This section is going to deal mainly with the relation between wages and profits. In other words, what is the appropriate wage policy to maintain full employment? Wages can be looked at from two sides: on one side, they are considered as income, on the other side, they look like a cost of production. In the private economic system both the effective demand and the margin of profit are very important if we want to increase the volume of employment and high national
income, wage and non-wage group. One type of analysis is to look at wages only as a demand factor and not at wages as a cost factor. The argument given is that a redistribution from profits into wages will always increase income and employment. Many economists who belong to the Keynesian school have relied very slightly on redistribution of income as a powerful anti-depression policy. They have often overemphasized the demand aspects of wages to the neglect of the cost aspects. There is another group of economists who see wages only as a cost factor and neglect the influence of wages as a demand factor. Most of the supporters of cutting wages as a policy for curbing depressions are in this category. Among this group, Professor Pigon is an important advocate. He argues that, if wage rates are cut, capitalist will have lower costs and hence will be able to expand their plants. He goes further to argue that so long as the wage rates are cut, the price level will immediately decline, there will be plenty of funds waiting for use which will push the interest rate down, and thus the capitalist will be willing to undertake the risk. The argument, certainly, is wrong because it does not take into account the possibility that a fall in wages will decrease the effective demand. The correct way to view wages is to give proper weight to the effect of wages as a cost factor and to wages as a demand factor. The consumption function distinguishes between wages and profits as separate demand factors, while the investment function depends on profits, which means that wages enter as a cost factor.
According to Hansen, the ratio of wages to profits is very high in every period of depression. On the other side, in boom periods the ratio of profits to wages is disproportionately large. Nevertheless he objects to the wage-reduction policy. The reason as stated above, is that wage reduction not only decreases unit costs; it will also reduce the wage income of all employed workers. Therefore unless monetary and fiscal action is taken to prevent liquid assets from falling along with the decline in income, no increase in employment will occur. There are two ways which can be used to improve the ratio of wage rate to profit: the first one is the continuous process of cost-reducing methods of production; the other is to raise the aggregate demand. The latter may be accomplished either by an increase in private investment or through public outlays.

The wage rate should be based on the productivity of workers. If the rise in productivity springs from fuller utilisation of existing capacity and from change in techniques, the fruit should be enjoyed by both labor and capital since it is not only able to increase the effective demand but also increase employment. It may be called a full employment wage policy in our dynamic society.
V Conclusion

In the introduction, we traced the development of monetary theory and stated that it turned to the real approach in which Robertson, Schumpeter and Hansen are the main figures. In the last three chapters, we made a study of the theoretical work of these men in connection with the problem of money. In the present chapter, we shall attempt to make a critical comparison of their central ideas and I hope it aids in the understanding of the development of monetary theory in this stage.

Basic Hypothesis Given

In Robertson's view, the changes of real cost and real demand are the fundamental causes of economic fluctuation. It was seen that some of the factors are "real" in the sense that they refer to changes in the effort required to produce goods and the effort which will be expended in order to command goods in exchange. The theory of over-production which is in terms of sacrifice and disutility is hardly convincing because in the business world economic fluctuations are the product of human behavior motivated not by considerations of disutility or sacrifice, but by pecuniary considerations of the sort that force the entrepreneur. In connection with the concept of the real effort and sacrifice, Robertson suggested the standard of a appropriate and inappropriate in variation. According to him, the appropriate variation is justifiable because it is in terms of efforts and sacrifice; beyond that there is inappropriate variation which should be controlled.
The standard is inadequate to formulate a practical policy until the real factors are stated in terms of money costs and receipts.

Schumpeter's theory centers on the innovation. According to him, innovation is the pillar of the dynamic economics from which the problem of money arises. In general, Hansen agrees with Schumpeter's innovation theory. But he considered the growth of population and opening up of new territory as main factors in dynamic economics. It is true that the true factors are related to one another when they exercise an influence on the business activity.

The Role of Money and Banking

Briefly speaking, Robertson's banking theory is concerned with the banking operations which facilitate capital formation. When he developed a theory of capital formation and lacking. It showed how the banking system can be operated to force saving from the community. In an attempt to explain the relation between forced saving and capital formation he introduced analytical devices such as the average of circulation of money and the average period of production. In the equilibrium, it must be under such a condition that the average period of circulation of money is just equal to the average period of production. The concept of circulation of money in his sense depends upon the behavior of individuals in maintaining cash balances on command over real goods. The whole discussion, following the traditional approach, assures that the individual has a certain balance in mind and will save to
build up his cash balance if a rise in prices reduces its real value. In modern monetary theory, the idea of real balance has been shifting to the base of cyclical consideration in order to explain the cumulative process of business expansion and contraction.

But Robertson tried to show how the money system can influence peoples' behavior and how the banking system should be managed under these circumstances. On this point, Schumpeter is clear. In his view, the rate of spending depends mainly upon the system expenditures. The individual varies his holding of money under various circumstances. Hansen believes that the expansion of the effective quantity of money (MV) is desirable in response to the increment of the new goods in the dynamic economy. In his mind, the velocity of money can be managed by way of monetary policy and fiscal policy.

In discussion of the fluctuation of banking, Schumpeter rejects the traditional banking theory and holds a strong view that the bank is a machine of creating purchasing power to the person who carries out the new production function. From this viewpoint, neither the available commodities and services nor the gold are the basis of the loans. The making of loans should be based on the nature of production, that is production or unproduction. Hansen lays stress on the same argument. He further argues that banking policy should be in coordination with the fiscal policy for the purpose of full employment.
Economic Control

Robertson's theory of economic control centers around the concepts of appropriate and inappropriate fluctuations of economic activity. The principle of the central program is that the system should respond to these changes only to an appropriate degree. In the response goes beyond these limits, central mechanism should be used to limit further expansion. It appears that the inappropriate expansion always takes place in the business cycle. The problem is how to control a business cycle as it expands beyond the inappropriate standard. The anti-cyclical weapons suggested by Robertson are "interest rate" and "open-market operation." It has been realized these double-edged weapons have lost their positions in modern monetary theory.

One important element in the modern trade cycle is the fluctuation in inventory accumulation. But variation in the rate of interest has never been effective as a control mechanism. If conditions favor an inventory boom, a rise in the rate of interest has virtually no effect. Because the prospective gains from a rise in inventory prices over-shadow any effect from an increase in the rate of interest.

Open-market operation is based on the theory that the supply of money is a function of the volume of commercial loans. Thus the central bank can regulate the quantity of circulation of money through the commercial banks to central business activity by means of the "open-market operation."

For the time being, commercial loans have been declining
to a tremendous extent but nevertheless a large volume of cash and securities is held by business concerns. The "open-market operation" is not as effective as formerly. Both Schumpeter and Hansen realize this. Nevertheless, Schumpeter is reluctant to suggest any measure of control. In his view, the economic development is a natural process in a capitalistic system. The external force (innovation) underlying our economic structure cannot be controlled by such artificial manipulation as monetary control. On this point Hansen holds a different view believing that if recovery of a depression is delayed due to the disappearance of outlets for private investment, there is no way for the monetary authorities to create outlets and it must have recourse to public spending.

The controversial issue is, how far the government should go in a private economy. Some argue that it should leave the economy essentially free to expand under the impulse of private investment. Hansen believes it is desirable for the government to make large expenditures to equip the unemployed resources in case private investment is too weak to absorb idle saving and to maintain national income and employment at a reasonable level. It is hardly believed that fiscal policy should try to maintain a "full employment" level. It is conceived that if the public spending is continuous in the high level of employment, the investment potential of the economy would be reduced to such an extent that it is hard to start private investment.
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