1950

Analysis of the liquidity preference theory of interest

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AN ANALYSIS OF THE LIQUIDITY PREFERENCE THEORY OF INTEREST

by

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M. A., Montana State University, 1950

Presented in partial fulfillment of the
requirement for the degree of
Master of Arts

Montana State University

1950

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CHAPTER I

INTRODUCTION

Since the writing of The General Theory of Employment, Interest, and Money by John Maynard Keynes in 1936 the liquidity preference theory of interest has become one of the most controversial subjects in economic theory. The objections to the theory range from minor criticism to a complete rejection of the theory. In the midst of this argument and counter-argument some of the main issues have been forgotten. There has been some misunderstanding and confusion. In addition, there has been a substantial body of criticism that has caused modification and restatement of the liquidity preference theory of interest. Much of the controversy is an anachronism since there are more potent fiscal policies available to maintain, as a primary economic goal, high levels of income, employment, and output.

Purpose. The purpose of this thesis is to make an analysis of the liquidity preference theory of interest. More specifically, I propose, first, to treat the relationship between the liquidity preference theory and other modern monetary theories of interest. This treatment will attempt to show that there is no major incompatibility between these theories and that for the purpose of determining the rate of interest the question of which theory one may wish to use depends upon weighing the advantages and disadvantages of these theories.

Second, I propose to clarify the use of such concepts as (a) stocks and flows, and (b) simultaneous, ex-ante and ex-post, and time lag analysis in the treatment of interest theory. The clarification of these concepts

provide the basis for determining what are some of the principal elements of a theory of interest.

Third, I shall treat many of the arguments advanced against the liquidity preference theory of interest. In addition to the analysis of liquidity preference proper, I shall treat the limitations to theoretical analysis, the concept of a "single" rate of interest, the conventional or psychological motive of uncertainty, the role of interest in economics, and present some statistical evidence that pertains to the theory.

Lastly, I wish to point out some of the weaknesses of the liquidity preference theory itself.

Scope and Limits of Study. There has been a tremendous amount of literature that is critical of the entire theory of John M. Keynes, particularly his liquidity preference theory of interest. It would be a task to treat every argument that attempts to disprove or weaken the theory. It would, also, be a great task to clarify the misunderstanding and confusion of Keynes' terminology, to determine the importance of the theory, and to test its logicality and consistency because of the inherent limitations to theoretical analysis and because of the paucity of data.

The next three chapters are devoted to a history of interest theory with special reference to the cause of interest and the factors that give rise to changes in the magnitude in the rate of interest.

CHAPTER II

THE HISTORY OF INTEREST THEORY

The purpose of this chapter is to trace the development of the theory of interest from the Hebrews through the time of Adam Smith.[1] The next two chapters will be devoted to a history of interest theory to-date. Chapter IV will cover a detailed presentation of the "loanable funds" and the "liquidity preference" theories of interest, since they are, today, the leading interest theories.

Throughout these history chapters emphasis has been placed on the origin and fluctuation of interest rates, and on the treatment of interest from the religious, ethical, and political sphere to the economic sphere where it "rightfully belongs". An attempt has been made to preserve a historical sequence of evolutionary changes in thought which is essential to the understanding of interest theory.

It is assumed throughout this paper that interest is a price paid to a factor of production and that it is unnecessary for the purpose of this thesis to justify its existence.

Hebrews. According to Mosaic law, "Thou shalt not lend upon usury to thy brother; usury of money, usury of victuals, usury of anything that is lent upon usury" (Deuteronomy 23:19-20). However, lending for usury to strangers was permissible.[2] In the case of loans to the

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1 The scope of interest theory in these chapters follows the traditional pattern outlined by Lewis H. Haney, History of Economic Thought and Alexander Gray, The Development of Economic Doctrine.

2 The Hebrews did not distinguish clearly between usury and interest. Usury is usually defined as any payment in excess of the normal or legal rate of interest.

poor, lending was to be regarded as a form of charity (Exodus 22:25), and loans should be made even through the seventh or jubilee year, when debts should elapse (Deuteronomy 15:7-9, 24:13).

Security for loans was forbidden, particularly if the pledge consisted of necessities (Deut. 25:6). "Another rule was that one must not go into the borrower's house and take his pledge, but must let him bring it out; and if the borrower were a poor man his pledge should be returned before the night"(Deut. 24:10-13).[3]

The Hebrews distinguished between two kinds of loans, namely, "Thou shalt not give him (1) thy money upon usury, nor lend him (2) thy victuals for increase" (Leviticus 25:27. Numbers not in original text.).

With the increase in trade and commerce jubilee years were not enforced and the Hebrews departed more and more from these laws. Thus, there is a gradual change from the prohibition to the regulation of interest, such as, the setting of maximum interest payments, cessation of interest on the jubilee year, and distinctions between borrowers.

The Athenian Philosophers. Aristotle recognized money as a necessary, indispensable device to exchange. Nevertheless, he condemned usury on the grounds that it was unjust. In The Politics he says,

> The most hated sort (of making money), and with the greatest reason, is usury, which makes a gain out of money itself, and not from the natural use of it. For money was intended to be used in exchange, but not to increase at interest. And this term usury, which means the birth of money from money, is applied to the breeding of money because the offspring resembles the parent. Wherefore of all modes of making money this is the most unnatural.[4]

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3 Lewis H. Haney, History of Economic Thought, p. 37

4 Aristotle, The Politics, taken from Early Economic Literature, edited by Arthur E. Monroe, p. 20.

Plato seems to have condemned interest; also, he suggested that the principal of a debt need ever be repaid.[5]

It appears that the condemnation of interest was justified by both the Hebrews and the Greeks on the ground that loans were primarily made to the poor since trade had not played a prominent part in the early history of their economies. To the Hebrews loans for usury were a violation of a divine edict; to the Greeks, usury was unjust and condemned on ethical grounds.

The Romans. Early Roman law appears to have opposed interest. The Laws of the Twelve Tables fixed the rates of interest in 357 B. C. at ten per cent, in 347 B. C. they were reduced to five per cent, and in later years interest was altogether forbidden. Later, with the expansion of the Roman Empire, borrowing and lending became a permanent institution with interest rates as high as forty-eight per cent in the provinces. "Finally, the Institute of Justinian fixed rates from four to eight per cent, according to the character of the loan."[6]

On the whole, the Romans made a distinction between interest and usury, first condemning, later regulating the first, while at all times condemning the latter. To them interest was the restitution of an equivalent, while usury is the repayment of more than its equivalent. Interest, then, is the payment of a "just price" for the use of a thing lent, while usury is the payment of more than a "just price". Legislation regulating the rate of interest, for the most part, was ignored and the

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5 Lewis H. Haney, op. cit., p. 61.
6 Lewis H. Haney, op. cit., p. 71.

rate of interest fluctuated with the market conditions.

The Middle Ages. The story of interest during the Middle Ages is, largely, a reflection of the history and evolution of Church doctrine. In the beginning (325 A. D.) usury was forbidden the clergy, and by the end of the twelfth century the prohibition was extended to all. As late as 1311 interest was absolutely illegal. The Church looked to the Bible, to Aristotle, and to civil law as a justification for the condemnation of usury.

The principal arguments against usury may be stated as follows:

(1) The Holy Bible forbids it. There are numerous passages taken from the Mosaic law as noted above condemning usury-taking from a brother. In the New Testament Jesus said, "lend, hoping for nothing again." (Luke 6:35).

(2) Aristotle argues that money can not breed money, for it is barren; and to take interest is unjust.

(3) St. Thomas Aquinas, an outstanding theologian of the Middle Ages, advanced the argument that

> to receive usury for money lent is, in itself, unjust, since it is a sale of what does not exist (since money is regarded as a consumable); whereby inequality obviously results, which is contrary to justice.[7]

The reasoning Aquinas puts forth is that "if a man wished to sell wine and the use of the wine separately, he would be selling the same thing twice, or selling what does not exist."[8] Under these circumstances, the lender

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7 St. Thomas Aquinas, "Summa Theologica", Question LXXVII, "Of the Sin of Usury, Which is Commited in Loans", taken from Early Economic Thought, edited by Arthur E. Monroe, p. 66.

8 Ibid, p. 66.

would receive two compensations, "one as the restitution of an equivalent thing, the other as a price for the use, which is called usury."[9]

(4) Following the argument of Aristotle, Aquinas conceived another reason for the prohibition of usury, namely, that "interest is looked upon as the hypocritical and underhand price asked for a good common to all--namely, time."[10] Since time is a common property belonging to God, no man has the right to sell it.

According to St. Thomas Aquinas a man does not sin nor is it unlawful to "receive a price" for lending a durable good such as a house. Nor is it unlawful for one to receive a free gift which was not asked for or given by any tacit or explict obligation. "Compensation in the form of things which are measured by money may, however, be exacted lawfully, such as good will and love for the lender, or something similar."[11]

The Scholastics, including Aquinas, recognized certain exceptions, as where a loss was incurred by a loan or where a profit was missed. Furthermore, the Scholastics approved the taking of interest by Jews and Lombards as well as the Mons de Piete. There were indirect exceptions, such as: the buying of annuities, the taking of land mortgaged for a loan, discounts on bills of exchange, and the payment of a premium above the cash price when the payment for an article was deferred. Interest taking was permissible in the case of partnership arrangements.

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9 Ibid, p. 66.
10 Eugen Böhm Bawerk, Capital and Interest, translated by William Smart, p. 23.
11 St. Thomas Aquinas, op. cit., p. 67 and 71.

Nicole Oresme, carrying on the tradition of Aquinas, illustrates most clearly the hostility to usury at that time. He says,

> There are three ways, in my opinion, in which one may make profit for money, aside from its natural use. The first of these is the art of exchange, the custody of or trafficking in money; the second is usury, and the third is the altering of money. The first is base, the second is bad, and the third is even worse.[12]
>
> As for usury, it is certain that it is bad, detestable, and unjust, as we learn from Holy Scripture.[13]

Up to this time economic and social organizations were not capitalistic. These organizations were primarily small, local communities that were for the most part self-sufficient. Production was for consumption within the groups; and exchange, what little existed, was primarily barter. Money was scarce. Since economic activity centered in the clan or family, and business affairs were personalized, it is understandable why there was a general condemnation of interest.

Carolus Molinaeus. With the growth of commerce and industry, the breaking up of the manor system, the introduction of craft guilds, and the increased use of money, another group of men, convinced by experience that interest was a necessity, began to write in opposition to the Church doctrines. The first outstanding writer on the subject was Carolus Molinaeus, a great French jurist of the early sixteenth century.

In answer to the argument that money is barren Molinaeus says,

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12 Nicole Oresme, "Traictie de la Premiere Inventoire Des Monnoies", Chap. 17, taken from Early Economic Thought, edited by Arthur E. Monroe, p. 95.

13 Ibid, p. 96.

> for even fields do not fructify by themselves, without expense, labor, & the industry of men; money, likewise, even when it has to be returned after a time, yields meanwhile a considerable product through the industry of man.[14]

> . . .just as exchange would be very cumbersome & even harmful, if we were deprived of the use of money, so if we were deprived of all use of usury, the business of lending money, which is especially necessary for a state, would be very cumbersome & harmful.[15]

His arguments are leveled against canon law. He says the words of the Holy Writ were misinterpreted, since "they are not intended to forbid the taking of interest in general, but only such interest as violates the laws of charity and brotherly love."[16]

> Therefore, all just hating, condemning & punishing of usury should be understood as applying to excessive & unreasonable, not to moderate & acceptable usury.[17]

To Aquinas' argument that interest taking is selling the same thing twice, or is selling something that has no existence at all, Molinaeus answers that the use of money is a thing independent of the capital sum, and may therefore be sold independently.[18]

Molinaeus sums up his arguments by saying,

> First, that it is necessary & useful to retain & tolerate some usury. Second, that it ought to be moderate & restrained as far as possible. . .Third, . . .it is lawful, not only according to human law but also according to all law, divine & natural.[19]

The history of interest theory so far has been that of an argument based on the social and religious justification against interest taking.

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14 Carolus Molinaeus, "Tractatus Contractuum et Usurarum Redituumque Pecunia Constitutorum" (1546), Chap. II, taken from Early Economic Thought, edited by A. E. Monroe, p. 113.

15. Ibid, p. 116.

16 Eugen Böhm Bawerk, op. cit., p. 30.

17 Carolus Molinaeus, op. cit., p. 114.

18 Eugen Böhm Bawerk, op. cit., pp. 30-1.

19 Carolus Molinaeus, op. cit., p. 123.

None has considered it on economic grounds nor has anyone looked into the causes of the origin and fluctuations in the magnitude of interest. With the Mercantilists interest theory begins to come into its own sphere--the economic sphere.

The Mercantilists. There is no complete agreement among the Mercantilists on interest. To most of these writers the volume of trade and the quantity of money rise and fall together, and that a low interest rate would increase industrial activity. A few writers of the time hold that interest is a result rather than a cuase of industrial activity. Also, in this period, is found the idea that there is a connection between the rate of interest and the productivity of capital.

According to Haney,[20] Thomas Mun regarded the rate of interest as the result of industrial conditions. Following the same argument Thomas Manley pointed out that "as it is the scarcity of money (and of borrowers) that maketh the high rates of interest. . .so the plenty of money and a few borrowers will make the rates low."[21]

Sir Dudley North in his Discourses Upon Trade (1691) explains the rate of interest by the productivity of capital. He reasons as follows:

> But as the Landed Man letts his land, so these still lett their stock; this latter is call'd Interest, but is only Rent for Stock, as the other is for land. . .if there be more Lenders than Borrowers, Interest will also fall; wherefore it is not low interest (that) makes Trade, but Trade increasing, the Stock of the Nation makes Interest low.[22]

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20 Lewis H. Haney, op. cit., p. 123.

21 Ibid, p. 123

22 Ibid, p. 124. Taken from Sir Dudley North's Discourse Upon Trade, p. 4, (1691).

Nicholas Barbon came close to the idea of productivity as an explanation in the fluctuations of the rate of interest when he said, "Interest is commonly reckoned for mony:. . .but this is a mistake; for the interest is paid for stock. . .No man takes up money at interest to lay it by him, and lose the interest on it."[23]

Against Mun's idea, Sir Thomas Culpepper wrote two tracts in favor of establishing a low rate of interest (A Tract Against the High Rate of Usurie, 1621 and 1640). But perhaps the most prominent sponsor for a low rate of interest was Sir Josiah Child.[24] His argument was that a low rate of interest would attract capital and make it cheap, yet would compel frugality by making smaller profits necessary. A high rate of interest would make money scarce because savers would send it to the goldsmith.

For the most part the Mercantilists explained the height of the rate of interest by the total quantity of money as pointed out and illustrated by Heckscher.[25]

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23 Ibid, p. 124. Taken from Discourse of Trade, pp. 31-2. Underline not in the original.

24 Ibid, p. 123. Taken from Discourse of Trade, pp. 27, 29, 167, and Preface by Sir Josiah Child. Mun holds that the rate of interest is the result of industrial activity while Culpepper and Sir Josiah Child holds that a lower rate of interest stimulates industrial activity.

25 Heckscher, Mercantilism, Vol. II, pp. 201. These few examples are taken from The General Theory by John M. Keynes, p. 342.

Gerard Malynes stated, giving detailed reason for his assertion, that "Plenty of money decreaseth usury in price or rate." (Lex Mercato ria and Maintenance of Free Trade, 1622). His truculent and rather unscrupulous adversary, Edward Misselden, replied that "The remedy for Usury may be plenty of money" (Free Trade or the Meanes to make Trade Florish, same year). Of the leading writers of half a century later, Child, the omnipotent leader of the East India Company and its most skilful advocate, discussed (1668) the question of how far the legal maximum rate of interest, which he

Locke presents dual quantity theories. In the first, the rate of interest depended on the proportion of the quantity of money to the total volume of trade. In the second, in exchange the value of money depended on the proportion of the quantity of money to the total volume of goods in the market.[26]

Richard Cantillon. Richard Cantillon, a wealthy British merchant of Irish descent, attributes the height of the rate of interest to the "numerical proportion between the Lender & the Borrowers", in the same manner as "the price of things are determined in the altercations of the markets by the quantity of things offered for sale in proportion to the amount of money offered for them."[27] To him the origin of interest comes from the attraction of profit by the borrowers and "this profit must have been in proportion to the needs of the Borrowers & to the fear & the avarice of the Lenders."[28] The merchants, he holds, adjust their rate of profit to the rate of interest.

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emphatically demanded, would result in drawing "the money" of the Dutch away from England. He found a remedy for this dreaded disadvantage in the easier transference of bills of debt, if these were used as currency, for this, he said, "will certainly supply the defect of at least one-half of all the ready money we have in use in the nation.

26 John Locke, Some Considerations of the Consequences of the Lowering of Interest & Raising the Value of Money, 1692, taken from The General Theory of Employment, Interest and Money, John M. Keynes, p. 343.

27 Richard Cantillon, "Essai Sur La Nature Due Commerce en General", Chap. VIII, from Early Economic Thought, Arthur E. Monroe, p. 273.

28 Ibid, p. 273.

Ferdinando Galiani (1728-1787). Galiani states that "interest arises from chance; from uncertainty."[29] Interest, he says,

> is the equalizing of present money and money distant in space, made by an apparent premium, which is sometimes added to the present money, and sometimes to the distant money, to make the intrinsic value of both equal, diminished by the less convenience or the greater risk. . .So true is this, that sometimes in exchange present money is worth less than distant money, and exchange is said to be below par; and the bills representing money, which really are simply future money, are often worth more than cash and this excess is called agio.[30]

Since interest is a premium for risk it appears that the degree of risk measures the magnitude of the interest rate. Galiani adds that all payment in excess of this risk premium is illicit and usurious. He believes the Prince should lower the rate of interest, for a low rate of interest would prevent monopoly of money and would at the same time insure repayment. The easiest method of lowering interest rates is to make the return on the state debts as low as possible.

David Hume (1711-1776). Hume marks the transition in economic theory--the transition to classical thought. According to him the rate of interest is determined by three causes: (1) A greater or smaller demand for borrowing, (2) little or great riches to supply than demand, and (3) great or small profits from commerce.[31] Consequently, interest is not derived from the quantity of money. Hume,

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29 Ferdinando Galiani, Della Moneta, 2nd Ed., 1780, from op. cit., A. E. Monroe, p. 302. Galiani, a native of Chieti, was educated for the Church, but spent most of his life in the service of the state. It is difficult to classify him into a school of thought. I include him here because his interest theory resembles that of John M. Keynes.

30 Ibid, p. 302.

31 David Hume, Political Discourses, 1752, taken from A. E. Monroe, op. cit., pp. 312-13.

also, tries to answer the question whether low interest or low profits is the cause or the effect. To this Hume says, "They both arise from an extensive commerce, and mutually forward each other."[32]

Turgot (1727-1781). In the writing of Anne Robert Jacques Turgot are found many ideas that were to become the principal tenet of economic writers in the next century. The main points of his interest theory may be stated as follows: The rate of interest depends upon the market relation between demand and supply. This relation depends upon the amount of capital in existence, whether in the form of money or capital goods. Assuming no change in the lenders' side of the market, the greater the amount of accumulated capital, including savings from revenues and further profits, the lower the rate of interest. The amount of capital accretions comes primarily from all saving in excess of that required for subsistence. The current rate of interest performs a vital function in Turgot's fructification theory.

> The current rate of interest on money is the thermometer by which we can form an opinion as to the abundance or scarcity of capitals; it is the measure of the degree to which a Nation can extend its agricultural, manufacturing, and commercial enterprises.[33]

> The rate of interest may be regarded as a kind of level below which all labor, all cultivation, all industry, all commerce ceases. . .It is the abundance of capitals which enlivens all enterprises, and low interest on money is at once the effect and the index of the abundance of capitals.[34]

Turgot reasoned that land without any labor will give the least yield

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32 Ibid, p. 318.

33 Anne Robert Jacques Turgot, "On the Formation & Distribution of Riches", 1766, edited by A. E. Monroe, op. cit., p. 371.

34 Ibid, p. 372.

(a yield in perpetuity without the application of labor), interest on money loans will give a larger yield, and investments in agriculture, manufacture, and commercial enterprise give the largest yield. Nevertheless, despite the inequality of the yields in the different employments they are mutually limited and maintained by a kind of equilibrium. Thus, when the yields in one form of employment increases, capital and money will flow in from other employments. Yet, Turgot states that the movement of capital will not cause the yields in all employments to be the same; there will tend to be equality between the yield differentials among the various employments of capital.

The Physiocrats. The Physiocrats were chiefly concerned with production and exchange. Thus, interest was generally regarded as an expense of production--as an advance from the revenues of agriculture. They held that interest was possible because land produced a "net produit". Typical of the Physiocratic point of view in general was that of Quesnay who rejected "supply and demand" and "risk" interest theories, saying that the level of interest is determined by the price and volume of the "net produit", that is, they rise and fall together.[35] In addition, the price of grain and other commodities as well as the rate of interest is subject to natural law which, under competition, would set a price just enough to cover cost.

Adam Smith. Adam Smith did not lay down a distinct theory of interest; rather, like many other economic concepts and theories with which he dealt, his book contains the elements of almost all the theories

35 Lewis H. Haney, op. cit., p. 62.

to be put forth in the next one hundred years.

According to Adam Smith, an increase in the quantity of capital, which raises wages, tends to reduce profit. In the same business or occupation competition tends to lower profit (Book I, Chap. IX, p. 87).[36] In another place Smith says that profits are "regulated altogether by the value of the stock employed, and are greater or smaller in proportion to the extent of this stock" (Book I, Chap. VI, p. 48). Smith writes that profits are a residue after the payment of wages and rent and that the lowest ordinary rate of profit must be sufficient to cover capital risk. He also writes that "profits must cover the cost incurred by the employing capitalist in advancing wages to his laborers". (Book I, Chap. VI, p. 52.).

Since interest is a part of profit Smith deduces the following determinants of the rate of interest: (1) Interest is regulated by the amount of profit (which hints at the relationship between capital and competition as the determinants). (2) Since profits vary from day to day because of changes in prices, Smith suggests that "the progress of interest. . .may lead us to form some notion of the progress of profit". (p. 88). (3) The idea of risk as a cause for the rate of interest is implied in this quotation: "The lowest ordinary rate of interest must . . .be something more than sufficient to compensate the occasional losses to which lending, even with tolerable prudence, is exposed." (p. 96)

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36 Adam Smith, An Inquiry Into the Nature and Cause of the Wealth of Nations, Cannan edition, The Modern Library, New York, 1937. References in the text are taken from this edition.

(4) The maximum rate of interest is limited by the amount the borrower can afford to pay from his clear profit (p. 96). (5) A defect of the law may raise the interest rate, as for example, in the case where the law fails to enforce the performance of contracts.

Summary. For over twenty centuries the controversies concerning the rate of interest were based on social and religious grounds. Loans were made primarily to the poor and to those in distress. The lender was usually a rich man who was epitomized as a villain who squeezed something from the poor to add to his superfluous wealth. Usury, therefore, was frowned upon.

After the twelfth century the discussion gradually broadened to include the economic aspects. The great controversy, beginning before the time of Molinaeus, was the conflict between the church and those who recognized the utility of interest as a necessary part of production and commerce. At first, the arguments were attacks on cannon law; later when the doctrine of interest became more acceptable, the economic aspects of interest were noted by the Mercantilists and their contemporaries. None of these writers appear to have formed an interest theory, yet the elements of practically all theories may be found in this period prior to Adam Smith.

CHAPTER III

THE HISTORY OF INTEREST THEORY

In this chapter the history of interest theories is concluded. Because of the tremendous amount of literature written on the subject since the time of Adam Smith the various theories will be presented according to the factors that determined their origin. This method will retain to some degree the characteristics of the several schools of economic thought as well as the period of time in which the particular theory evolved.

For the purpose of this chapter interest theory will be classified in the following manner: (1) Colorless theories, (2) Abstinence Theory, (3) Productivity theories, (4) Labor Theory, (5) Time Preference Theory, (6) Exploitation Theory, and (7) Eclectic theories.[1]

Colorless Theories: Theories under this classification are so called because in my opinion they have contributed little to the development of interest theory as a whole. More specifically, these theories fail to present a simple, unified interest theory as is the case of Adam Smith, or the theory was a rewording of the writer's predecessors as is the case of David Ricardo. Perhaps the real justification for including them is because of either the personality of the writer or the peculiarity of the theory.

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1 The writer has adopted the classification of interest theories used by Eugen von Böhm-Bawerk in his Capital and Interest. Where the theory does not seem to fall appropriately under one of these categories, a new one has been added. In placing the different theories of interest in the classification listed above, there is a tendency for rigidity which is sometimes unfair to the theory. This is particularly true where a writer appears, in the course of presenting his theory, to give one that may well come under more than one of the classifications.

The theories of Adam Smith might well fall in this category, since his Wealth of Nations contains the seeds of a number of theories which grew up after his time; yet, he never worked out any of these theories to its logical conclusion.

Ranking high among colorless theories is that of David Ricardo. The peculiarity of his theory of interest comes from his theory of distribution. According to Ricardo, when land is first settled the best land falls under cultivation. As long as there is plenty of land no rent is paid, and the revenue is divided between wages and profits. As population increases and as less desirable land is brought under cultivation the land becomes less productive. Competition tends to bring the rate of profit on all capitals employed to the same level. All surplus obtained from the better land is taken as rent. Consequently, profit and wages, together, are always determined by the returns on the least productive (marginal) capital and land. Of these two factors, wages are determined at subsistence by a hard and fast law. A subsistence wage is one that will just perpetuate the human race, neither increasing nor decreasing. Profit thus becomes a residue or resultant, increasing and decreasing in an inverse relation to wages.

Ricardo fails to distinguish between the portion the two elements--interest and the undertaker's profit--of profit are divided. Hence, interest is determined by the amount of profit. This is stated clearly in his own words:

> If a manufacturer always sold his goods for the same money, for £ 1,000, for example, his profits would depend on the price of the labour necessary to manufacture those goods. His profits would be less when wages amounted to £ 800 than when he paid only £ 600. In proportion then as wages rose, would profits fall.[2]

What determines the magnitude of profits and, thus, the amount of interest? In the Ricardian scheme of distribution profits are determined by wages, wages by the price of necessaries, and the price of necessaries by the price of food. But, also, wages are determined by subsistence; therefore, if the price of necessaries increases wages must also increase. The point to be noted here is that Ricardo did not work out a complete answer to the determinant of profits. He does point out that "profits can never rise so high. . .that enough will not be left to furnish the labourers with absolute necessaries; on the other hand, wages can never rise so high as to leave no portion of this sum for profits."[3]

Ricardo took his argument for the existence of profit from Smith's Wealth of Nations, namely, that if profits were reduced to almost nothing there would be no motive for accumulation or that there must be sufficient profit to compensate for the entrepreneur's trouble and risk.

According to Ricardo there is a natural tendency for profits to fall, for in the progress of society additional quantities of goods are obtained by the sacrifice of more and more labor. This tendency has been happily checked by technology says Ricardo. In another connection

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2 David Ricardo, Principles of Political Economy and Taxation, p. 88.

3 Ibid, pp. 91-2.

he says that "if the market rate of interest could be accurately known for any considerable period, we should have a tolerably correct criterion by which to estimate the progress of profits."[4]

The Abstinence Theory. In Ricardo's theory of distribution value is determined by labor, which, if followed to its logical conclusion, leaves no room for an interest theory; and moreover, it is a confused explanation for the existence of profit. Following Ricardo there were many theories formulated to bridge this gap in classical thought. One group, for example, attempted to show that labor created value and explained interest as being derived from labor and that it was a wage of labor. The most representative attempt was made by James Mill. Another group attempted to correlate fact with theory, and proposed the idea that capital and labor are both productive. But in the midst of this divergence of thought a new theory, the Abstinence Theory, appeared to give an explanation of interest.

Nassau William Senior is the father of the Abstinence theory which first appeared around 1836, although he may have gotten the idea from the earlier writings of Scrope.[5] The main elements of Senior's explanation consist of two primary factors of production--labor and "natural agents". But these,he contended, cannot be combined efficiently unless they are supported by a third factor, abstinence. "Abstinence", says Senior, "expresses both the act of abstaining from the unproductive use of capital, and also the similar

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4 Ibid, p. 281.
5 Eugen von Böhm-Bawerk, Capital and Interest, p. 271.

conduct of the man who devotes his labour to the production of remote rather than of immediate results."[6] Thus, profits are a reward for abstinence, as wages is a reward for labor. Abstinence is the act of deferring enjoyment; profit rewards this act of deferring. Hence, we have three factors of production--labor, "natural agents", and abstinence, the first receives a wage, the second, rent, and the third, profit.

What determines the rate of profit? Senior says, "The rate of profit would depend partly on the productiveness of labour, and partly on the period that must elapse between the time of the advances and of the returns."[7] Interest becomes a reward for abstaining from present enjoyment in response to a future reward.

Like his predecessors, Senior also thought that in the natural progress of society, both capital and population increase while the rate of profit tends to fall.[8]

The Labor Theory. Among the English writers James Mill as early as 1821 expounds an interest theory based upon labor.[9] In this theory interest is a wage for labor rendered by the capitalist. Cost of production regulates the exchange value of goods. Since capital and labor are the chief components of cost, Mill reduces capital to labor believing that capital comes into existence through labor. He concludes, therefore, that labor is the sole regulator of exchange value. In his reasoning wages are remuneration for direct labor, while profit is

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6 Nassau William Senior, Political Economy, p. 89.
7 Ibid, p. 191.
8 Ibid, p. 193.
9 Eugen von Böhm-Bawerk, op. cit., pp. 297-300.

remuneration for indirect labor. Capital, so to speak, is a bundle of stored labor which can be used at any future time.

How does profit arise? Mill does not solve this question; rather, he assumes it. He assumes that capital over its life has a value equal to a number of annual payments including interest which is equal to the assumed total value. So in the final analysis his theory assumes interest which he offers as an explanation of the role of profits--a wage for labor.

Another theory asserts that interest is the wage of labor which consists of saving capital.[10] In this theory there are two kinds of labor--muscular labor and the labor of savings. This latter is explained by a person's foresight and his awareness of future needs. This is a continual moral effort on the part of man; therefore, the capitalist receives a wage in the form of interest to remunerate him. If there were no interest man would spend all his command over goods for current enjoyment. This theory is actually Senior's Abstinence theory in disguise.

The magnitude of interest is determined by the law of supply and demand; it depends upon two opposing forces: the wish and the ability to expend a sum of capital reproductively and a wish and the ability to save this sum.

The labor theories, in summary, are incomplete and fail to add

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10 Ibid, pp. 300-305. Taken from the French writer Courcelle-Seneiul whose works appeared around 1858.

anything new to interest theory. Most of them seem to have neglected the answer to the question, what determines the magnitude of profit and interest? It is perhaps more correct to say that these theorists offered a justification for their attempts to show that interest is a wage to the capitalist.

The Exploitation Theory. One of the most controversial doctrines to come out of the nineteenth century was the Socialist theories of Karl Marx, Lassalle, Rodbertus, and Proudhon. Marx and Rodbertus were the theorists; Lassalle, the propagandist and agitator.

The basic elements of the Exploitation and Labor Theories of interest can be traced to writings before the time of Adam Smith. However, the classical school, in a sense, had been the unconscious godfather of these theories. The chief impetus came from two sources: first, the popularization of the Ricardian labor theory of value, and, second, the great development of capitalistic forms of production which created a gulf between labor and capital.

The essence of the theory is extracted from the economic principle that human labor is the sole determinant of value. Since labor is the source of all value, they reasoned as to why the laborer should not receive the full value of his product. These Socialists argued that the capitalists, since they own the means of production, appropriate for themselves a share of labor's product. The capitalist is able to do this because he is more powerful, and the laborer through his own ignorance is compelled primarily by hunger to sell his labor

power. Thus, interest and profit are the appropriated or defrauded product of other peoples' labor; they are an additional tax on the laborer.

Rodbertus says that only those goods that cost labor are economic goods.[11] All other goods of use value are natural goods and have no economic consideration. The conclusion is that all economic goods are the product solely of labor which includes consumer goods and capital goods. All capital goods are reduced to labor and their source of labor can be traced back for generations. Labor receives only a portion of the value of the good it produces; the rest is expropriated under the name of rent. Rodbertus classifies rent as (1) land-rent, and (2) profit on capital. Rent is here defined as "all income obtained without personal exertion solely in virtue of possession."[12] Rent owes its existence to two factors--one legal, the other economic. The legal factor is the institution of private property in land and capital. The economic factor assumes that laborers produce more than is required to support themselves, presumably at subsistence.

To an answer to the question, what determines the amount of rent and the level of interest these theorists look to the Ricardian analysis. However, Rodbertus says that competition places a limit on the amount of surplus appropriated by the capitalist.

The theory of Karl Marx is a repetition of the main elements of Rodbertus' presentation. The Marxian theory states that in the progress

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11 Ibid, p. 328.
12 Ibid, p. 330.

of society with its accumulation of capital fewer laborers are required to produce the same amount of goods, and therefore, there is created an "industrial reserve army" which competes for the remaining jobs. The rest of the theory is common knowledge to students of economics.

Marx goes deeper into this theoretical analysis.[13] In this scheme the value of all goods is measured by the quantity of socially necessary labor required to make the product. Socially necessary labor is the amount of product made by a laborer of ordinary skill in one hour. For example, a skilled worker who produces in one hour three times the amount of goods that an ordinary laborer produces is credited with three units of socially necessary labor.

How does surplus value come into existence? Suppose it requires five hours of socially necessary labor to maintain a laborer and his family at subsistence. Any worker who works more than five hours produces a surplus good for which he is not paid. This surplus is expropriated by the capitalist. Surplus labor is unpaid labor. Capital in this scheme may be defined as a command over unpaid labor.

Among this group of writers interest is a small and relatively unimportant part of the theory of distribution. The main concern is the determination of wages and profits. No attempt has been made to treat interest as a payment to a factor of production; rather, it has been lumped with profit or surplus value and presumably it fluctuates with changes in the amount of exploited labor.

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13 Ibid, pp. 367-74.

The Productivity Theories. J. B. Say in 1803 and Lord Lauderdale a year later began to explain interest by the productive power of capital. There are many productivity theories which seek to explain interest in whole or in part. In this section, no attempt will be made to explain these theories in detail; rather, the primary object is to point out the main elements of some of these theories and the various meanings associated with the term productivity.

The task of the productivity theories is to explain interest by the productive power of capital. The productive power of capital may assume many forms, but most important is the idea that capital creates a physical and/or a value surplus. Some productivity theories of interest are interpreted to mean that capital has, in simple form, the capacity of serving towards the production of goods; others that capital has the power of producing more value than it has in itself, which is to say that its owner will receive over the life of a capital asset a return over and above the cost of replacing that asset.

Productivity of capital has another aspect. First, productivity may refer to the return attributed to the creation of an additional asset, hence, the marginal productivity of capital. Second, productivity may refer to the sum total of capital at any given instant in society.

Eugen von Böhm-Bawerk in his Capital and Interest states that if surplus value is to be explained by the productive power of capital, it must be shown that capital either by itself or in conjunction with other factors of production must be the cause of this surplus value.[14]

14 Ibid, p. 117-18.

He lists three possibilities of showing a surplus value based upon value productivity, physical productivity, and a combination of the two. The first gives capital itself the power to create value and therefore surplus value; the second, physical productivity, makes surplus value a self-explanatory result (the creation of a surplus of physical goods); the third gives capital the power not only to create more goods than would be made by labor alone but also to create goods that have a greater value.

Böhm-Bawerk classifies productivity theories into three groups: (1) Naive Productivity Theory, (2) Indirect Productivity theory; and (3) Use theory.[15]

The Naive Productivity theories ascribe to capital either value or physical productivity. For the most part this theory assumes capital to be productive. The founder of the Naive Productivity theory is J. B. Say. In his book Traite d'Economie Politique and Cours Complet d'Economie Politique Practique, Say claims that capital has the direct power to create surplus value.[16] However, later in the book he reverses the process of causation and claims that the productive services of capital are a cause and require compensation. The followers of J. B. Say provide many examples of capital productivity, but none in my opinion prove that capital has the power to create value.

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15 Ibid, p. 118-9.
16 Ibid, p. 120.

The Indirect Productivity theorists pursue the subject of value from the starting-point that physical goods is the manifestation of productivity. They attempt to prove that this physical productivity leads to a surplus value.

The first proponent of this school was Lord Lauderdale writing in the year 1804. How does a surplus value arise? Lauderdale in his book An Inquiry into the Nature and Origin of Public Wealth (1804)[17] explains that profits arise from the fact that capital has the power to supplant laborers. In other words, the capitalist gets the wages of the workers displaced by capital. But the entrepreneur would not realize the full value of the wages displaced because competition will force down the price of goods. For example, if a machine will operate under the direction of one man, and this machine does the work of four men, theoretically, the owner could claim the wages of three men. But competition forces this prfit down since the price of goods depend upon supply and demand. Interest is derived from the amount of profit.

Thomas Malthus and Henry C. Carey carry on the tradition of Lauderdale, but it is Johann Heinrich von Thünen who presents the indirect productivity theory in its most logical and acceptable form.

Von Thünen[18] assumes the physical productivity of capital, which has been illustrated by many examples in the history of productivity theories, namely, that a larger product will result from the application of capital than from the application of labor alone. The returns from

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17 Ibid, p. 143.

18 Ibid, p. 164-71, also, Lewis H. Haney, History of Economic Thought, pp. 337-40.

capital is composed of two elements: (1) the amount necessary to replace the capital used in production, and (2) an additional amount which declines as successive units of capital are applied to a given combination of other factors of production. This latter share falls to the capitalists, and is in substance the decreasing marginal physical (also value) productivity of capital. The return on the whole supply of capital is determined by the use of the last unit of capital applied. Should capital be applied until the marginal product is zero, there would still be a surplus because the total proceeds from the preceding units measure the total surplus (net profit or interest) accruing to the capitalist, since wages, also, are determined at the margin. The amount after allowances for depreciation is surplus value.

What explains the existence of this surplus value? Thünen assumes the existence of surplus value by saying that capital enables the worker to produce a surplus product. Thus, capital possesses the power to reproduce itself (depreciation allowance) and to produce something more (net interest or net profit).

In the theories thus far reviewed it is to be noted that competition prevents the capitalist from making a profit equal to the wage of the laborer times the number of workers the capital displaces. Yet, none of these theories has shown why competition should not or could not force the price of goods down to the point where no surplus value existed or even below the point where a part or all of the replacement value is not realized. Secondly, it must be assumed that the rate of interest

fluctuates with the rate of marginal productivity of capital. Thünen suggests, but does not develop, the idea that a capitalist receives his highest total profit when a certain amount of profit is obtained, and that additional units of capital cause a decrease in total profit; consequently, there is a limit beyond which the capitalist will not add successive units of capital.

The Use Theory. J. B. Say was the first to suggest the Use Theory; but it was Menger who gave it the most complete presentation. The fundamental idea of the Use Theory is that in addition to the substance of capital, capital has a use which is independent of its substance and creates or forms an independent value. Thus, in the production of goods there are two sacrifices: (1) the substance of the capital, and (2) the use of the capital.

> Since. . .the value of the product is equal to the sum of the values of the means of production spent in making it, and since, in confomity with this principle, the substance of capital and the use of capital, taken together, are equal to the value of the product, this product naturally must be greater than the value of the substance of capital by itself.[19]

Surplus value is, therefore, the share that is attributed to the "use of capital".

Menger's theory may be explained as follows:[20] The question that has plagued theorists up to this time (1871) has been the question--does the value of the product depend on the means of production, or does the value of the means of production depend upon the value of the product?

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19 Ibid, p. 186.
20 Ibid, p. 209-13.

Menger was the first to attempt an answer and formulate it into a law. According to him the value of the product determines the value of the means of production. Earlier theorists had assumed one or the other. He reasoned that the value of a good depends upon its ability to satisfy wants, since goods could be manufactured without any use value at great expense. Also, there must be a coincidence or identity between the cost of production of a concrete good and the degree of importance the good possesses for the satisfaction of wants. This is the foundation upon which Menger builds his theory of interest.

The transformation of the means of production into products requires a certain period of time, depending upon the type of goods produced. And to do this a person must have the productive goods at his disposal for the entire period of time and bind them with the other factors of production. Thus, Menger, arrives at the principle that one of the conditions of production is the power of disposal over quantities of real capital during a definite period of time.

Now the use of capital, or the disposal over capital, is scarce, causing the "power of disposal" over the capital goods used to give rise to a value in the anticipated article over and above the other costs of production (raw materials, labor, etc.). Surplus value is accounted for by the "use of capital" which at the same time explains the origin of interest. Interest is thus a payment for the use of capital. The peculiarity of this theory is that it presumes that capital has two distinct attributes: (1) the substance which is to replace the

amount of physical depreciation and (2) use value which arises because of the scarcity of capital which is joined with the power of disposal over the capital.

The theory of interest presented by Böhm-Bawerk in his Positive Theory of Capital has been Classified by different economists as a productivity theory or an exchange theory of interest. His theory of interest concerns the solution as to why, for example, $100, January 1st, is equal to $105, December 31 following. To this question he says we get interest simply because we prefer a remote to a present result. The three main influences that account for interest are: (1) the fact that we discount the future by thinking that less stringent days are ahead, (2) the fact that we over-estimate our means in the future, so we tend to underestimate our future wants, and (3) the superiority of "roundabout methods of production".[21] Interest is discount. It reflects the fact that the capitalist prefers a remote to a present good.

In roundabout methods of production the employment of capital transforms goods of low value, because of their remoteness (time) to satisfy human wants, to goods of a higher value. As a result of the time element there is a growth of excess value or surplus value which accounts for interest.[22]

Böhm-Bawerk's theory links interest to capital, but he ascribes no independent power to capital, directly or indirectly, as the cause of interest. It might be better for purposes of classification to term his

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21 Alexander Gray, The Development of Economic Thought, pp. 359-61.
22 Lewis H. Haney, op. cit., p. 555.

theory of "waiting" or an "exchange" theory of interest.

The modern productivity theory of interest is that of John Bates Clark first disclosed in his publication, The Distribution of Wealth, 1908. According to this theory the specific productivity of labor determines wages; the specific productivity of capital yields interest. If the amount of goods attributed to each is ascertained the rate of interest can be determined.[23] "Paying interest is buying the product of capital, as paying wages is buying the product of labor. The Power of capital to create the product is, then, the basis of interest."[24]

The complete theory may be stated in a series of propositions. Interest is fixed by the earning power of the marginal increment of social capital. This increment consists primarily of the instruments of production (rather than the intrument in its physical form). Competition acts as a leveler which causes the earning power of this incremental capital to conform to a normal level. Therefore, any marginal capital earning less is not used. When the final products of all the different capitals are brought to equality, the earning power of capital (that is, the marginal capital) determines interest.

The Eclectics: The eclectic theory is so called because it combines two theories to explain interest. The most outstanding theories in this group is that of Alfred Marshall. Briefly, the theory states that the rate of interest is determined by the supply of and the demand for capital. The supply price is accounted for by time-preference--that most men prefer

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23 John Bates Clark, The Distribution of Wealth, p. 47.
24 Ibid, p. 135.

present gratifications to those which are deferred. The demand for capital is determined by productivity, more particularly, the gain anticipated in its use.

The supply of capital is the total amount of productive wealth in a country, and savings made in any short period of time constitutes but a minute fraction added to it.[25] This "Accumulation of wealth is generally the result of a postponement of enjoyment, or of a waiting for it."[26]

> The accumulation of wealth is governed by a great variety of causes: by custom, by habits of self-control and realizing the future; and above all by the power of the family affection.[27]

Marshall says that on the average the general tendency is that an increase in the volume of savings will result from an increase in the rate of interest. Consequently, the lower the rate of interest, the "lower the margin at which a person finds it just not worth while to give up present pleasures for the sake of those future pleasures that are to be secured by saving some of his means."[28] Marshall notes that there are exceptions to this rule.

The demand for capital is determined by the net annual surplus of capital in relation to the rate of interest. Theoretically, if the net annual surplus of capital is three per cent any interest rate above

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25 Encyclopedia of Social Science, Vol. VIII, pp. 136

26 Alfred Marshall, Principles of Economics, Vol. I, 4th ed., (1898), p. 313.

27 Ibid, p. 316.

28 Ibid, p. 314.

this amount will prevent capital accumulation, and any rate of interest below this amount will lead to investment.[29] Investment will be pushed up to the point where the net annual surplus equals the rate of interest which is the equilibrium level. The aggregate demand for all capital is explained by Marshall as follows:

> Each undertaker having regard to his own means, will push the investment of capital in his business in each several direction until what appears in his judgment to be the margin of profitableness is reached; and the margin is. . .a boundary line cutting one after another every possible line of investment, and moving irregularly outwards in all directions where there is a fall in the rate of interest at which extra capital can be obtained.[30]

The demand, as it is seen, for capital consists of the demands of all individuals in all lines of business and obeys the laws of supply and demand.

The equilibrium rate of interest, which is the price paid for the use of capital, is that rate where "the aggregate demand for capital in that market. . .is equal to the aggregate stock forthcoming. . ."[31]

It is to be noted in Marshall's theory that the rate of saving is highly inelastic, since it comprises a small amount of total capital. The demand for capital on the other hand is highly elastic. Under such circumstances, a sudden and violent increase in the demand for capital will not cause an immediate increase in savings to meet the capital demand. The rate of interest in such a case will rise. Provided the increased demand is maintained, the rate of interest will gradually

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29 Ibid, p. 590.
30 Ibid, p. 591.
31 Ibid, p. 606.

fall as the volume of savings become large enough to satisfy demand. This general situation requires considerable time. The emphasis in this theory is on the demand for capital, supply being treated for the most part as a given condition.[32]

While it is impossible to give a complete account of all the interest theories, a brief history of interest should not be complete without the fine work of Irving Fisher,[33] a theory that might be called either a psychological, a time preference or an agio theory of interest.

This theory is important partly because the name of Fisher is associated with interest theory; but, also, because he worked out the theory in such great detail. Since interest theory is but a small part of production and distribution, the economists prior to that time usually place emphasis on wages and profits, often neglecting to account in an adequate way for the origin and the magnitude of interest rates.

According to Irving Fisher the rate of interest is the result of three sets of principles which he calls (1) the market principles, (2) the principles of human impatience, and (3) the principles of investment opportunity. In a sentence, the theory of interest is the relationship between the impatience to spend income and the opportunity to invest it.

With respect to impatience to spend, Fisher draws the analogy between the theory of prices and the theory of interest. Just as the ratio of exchange between two articles is based upon the marginal

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32 Ibid. p. 607.

33 Irving Fisher, The Theory of Interest, 1930, The Macmillan Company, New York. The page number in parenthesis denotes the source of the material from this book.

preference (a psychological or subjective element) of an individual, the rate of interest is based upon the marginal preference of future goods over present goods. Marginal preference is called time-preference or human impatience (p. 61). Time-preference is essentially what Böhm-Bawerk calls the "perspective undervaluation of the future".

The degree of time preference varies from one individual to the next, and depends upon the size, time-shape, and probability of this income stream which extends from the present into the indefinite future. (p. 71). Individual differences arise from six factors which Fisher calls (1) foresight, (2) self-control, (3) habit, (4) expectation of life, (5) concern for the life of others, and (6) fashion (p. 81).

The opportunity to invest is the opportunity to shift one's income stream from one option to another, that is, to modify one's future income by lending and borrowing which will change the shape of this income stream in the future in terms of real goods. For example, a person who borrows today thinking his income stream will be larger in the future enjoys a larger real income today and will reduce his income stream in the future. He has modified his income so as to enjoy a larger real income in the present at the expense of a decreased real income in the future.

Theoretically, an individual has an infinite number of options to modify his income stream. By the principle of comparative advantage he is faced with advantages (returns) and disadvantages (costs). "This hypothetical rate of interest which if used in calculating the present worth of the two options compared would equalize them or their differences

(cost and return) may be called the rate of return over cost."[34] Of the options, the income stream selected is the one which maximizes present value reckoned at the market rate of interest. Of the options, the individual, by the principle of comparative advantage, selects the one which entails the fewer disadvantages. The principle of return over cost means that the individual, of the options, will select the one which yields a return equal to or greater than the market rate of interest. This rate of return is the marginal rate of return on cost (p. 165).

According to the market principle, the rate of interest must be such that it equalizes supply and demand and will clear the market. Also,

> the loans must be equivalent in present worth to repayments, or. . .the additions to any individual's income, brought by borrowing or selling, in some time interval must be equivalent in the present worth to the deductions from his income in other time intervals brought about by lending and buying.[35]

> Thus, the rate of interest is determined so as (1) to make the most of opportunities to invest, (2) to make the best adjustment for impatience, and (3) to clear the market and repay debts.[36]

Summary. In retrospect, the following conclusions may be derived from the history of interest over the past one hundred and twenty-five years.

(1) For the most part, the magnitude of the rate of interest was determined by the forces of supply and demand.

(2) The origin and cause of interest was attributed to a number of factors. One group related interest to the productivity of capital of

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34 Ibid, p. 155.
35 Ibid, p. 148.
36 Ibid, p. 149.

which there were several meanings given to "productivity". Other groups found causation in abstinence, in the exploitation of the worker, and in time and psychological factors.

(3) As a whole, the early theories were not completely worked out; rather, they were a by-product of the system of distribution. The chief concern was the determination of wages and rent. Profit was a residue and interest formed a component part of profits. The most widely accepted theories compounded productivity with some psychological law to account for interest.

(4) The importance of money as a determinant of interest was neglected, which, as will be shown in the next chapter, is an important part of economic theory.

CHAPTER IV

THE LIQUIDITY PREFERENCE AND THE LOANABLE FUNDS THEORIES OF INTEREST

This, the last chapter on the history of interest, is devoted to an explanation of the "loanable funds" and "liquidity-preference" theories of interest. The primary reasons for the treating of these two theories together are: (1) the controversy between the two theories, real and imaginary, and (2) their popularity and prominence among economists today.

The Loanable Funds Theory.[1] The formulation of the loanable funds theory varies among its adherents. Nevertheless, the main elements of the theory are present in all the versions. According to the hard core of this theory the rate of interest is determined by the supply of and the demand for loanable funds. Dennis H. Robertson traces the earlier development of the theory from Marshall's "free or floating capital", which later writers have called "capital disposal" or "command over capital", and which today is referred to as either "loanable funds" or "investable funds".[2] In this theoretical scheme, the rate of interest

> can be conceived as emerging from the interaction of schedules of supply and demand, showing the amount of loanable funds which, at given hiring-prices, people are respectively willing to put on to, and to take off, the market during the slice of time selected for observation.[3]

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1. Dennis H. Robertson, Essays in Monetary Theory, pp. 1-38, 1940. Gottfried von Haberler, Prosperity and Depression, Chap. 8, 1941. George N. Halm, Monetary Theory, pp. 312-35.

2 D. H. Robertson, op. cit., p. 2.

3 Ibid, p. 3. The complete theory presented by Robertson, one of the leading proponents of the loanable funds theory, appears in his many writings since 1933. It has undergone change since that time, and nowhere is there to be found the theory in complete form. Rather one gathers the threads of this theory by adding together all his writings.

What determines the supply of loanable funds? Robertson names four sources, some of which may be negative.

> (i) current savings effected during the period:
> (ii) "disentanglings," i.e. savings which have been made in the past and are being currently released from embodiment either in fixed capital. . .or in working capital . . .and so becoming available for re-embodiment either in the same or in different forms:
> (iii) "net dishoarding," i.e. previously saved, or previously disentangled, money now being withdrawn from store and placed on the market, less money which is being currently saved, or currently disentangled, and withheld from the market:
> (iv) net additional bank loans, i.e. the gross amount of new bank loans during the period less repayments to banks out of current disentanglings or current savings.[4]

The demand for loanable funds fall into four classifications:

> (i) funds destined for expenditure on building up new increments of fixed or working capital:
> (ii) funds destined for expenditure on the maintenance or replacement of existing fixed or working capital:
> (iii) funds destined to be put in store:
> (iv) funds destined for expenditure on consumption, whether individual or collective in excess of current income.[5]

George N. Halm presents the theory in greater detail and in somewhat revised form. According to Dr. Halm people who spend less than their disposable income offer money for loan and people who propose to invest in the means of production demand money. "The sums of money supplied and demanded in the credit market may be called loanable funds."[6] Halm enumerates six sources and/or conditions influencing the supply of funds.

First, savings of individuals and corporations, except the amount of corporate funds intended for investment. Savings in this sense is

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4 Ibid, p. 2.
5 Ibid, p. 3.
6 George N. Halm, op. cit., p. 315.

defined as aggregate disposable income earned in one period minus the amount of aggregate expenditure in the next period, which introduces a lag between expenditures and income. There are some additional exceptions as when dissaving occurs and when funds awaitning investment are offered temporarily on the credit market.

Second, savings minus dissavings constitute a supply of loanable funds if they are made available in the market. This involves two decisions: the act of saving and the act of making the savings available in the market. Savings not made available in the market are called hoarding, which result in a reduction in the income velocity of circulation. The motive for hoarding is the desire for liquidity (via the transaction, precautionary, and speculative motives), which as will be shown below, constitute the core of Keynes' theory. Halm does not say that liquidity is the primary or only motive which causes hoarding, but that it can and does happen since it reduces the amount of savings actually supplied as loanable funds. The act of hoarding carried to its logical conclusion reduces income in the next period. Saving is, consequently, a function of income. However, Halm states that the total quantity of loanable funds is partly independent of incomes, since over many periods dishoarding may take place which would increase income.

Third, the effects of hoarding and dishoarding on the supply of loanable funds (and income) can be theoretically offset by changes in the quantity of money. Thus Halm concludes that commercial banks are the main factor determining the supply of loanable funds. The offset is

accomplished by increasing the quantity of money when hoarding increases and decreasing the amount when dishoarding appears.

Fourth, another source of the supply of loanable funds is amortization quotas. Halm would include them in "gross savings", but would exclude them from "net savings". This is consistent so long as we remember that the difference between gross and net investment is the amount of the allowances for capital replacement. The reason for including these reserves in the supply of loanable funds is because they are potentially available.

Fifth, the recurrent turnover of working capital is another source which is similar to the amortization quotas described above; that is, they are potentially available in the market when not tied up in production.

Sixth, the last factor determining the supply of loanable funds includes "all those measures of economic policy which influences the decisions of people taken as a group as to what part of their incomes will be saved or spent on current consumption."[7] An example of this would be social security reserves of all types, which amount to involuntary saving.[8]

In the operational scheme, some changes in the supply of loanable funds will have no effect on the flow of money (money, M, times velocity, V). A change in either the velocity of money (V) or in the quantity of money (M)

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7 Ibid, p. 320.
8 Ibid, p. 316-20.

will affect the supply of loanable funds, which will produce entirely different results depending on whether V or M changes. For example, changes in the velocity of circulation of money will have either inflationary or deflationary consequences, while variations in the total amount of money spent will change total demand, money incomes, and possibly total output. The effect on the latter, total output, is indeterminate. What the relation between MV, trade (T), and the price level (P) will be depends "largely on the existence of an unused investment potential."[9]

The Demand Schedule of Loanable Funds. The demand for loanable funds consists of both producer and consumer demands, since they are both used to finance a time consuming process. Consumer demand reflects itself in the purchase of durable consumer goods whose services will be used over a period of time, just as the service of capital goods is used by the producer over a period of time.

The producer's demand for loanable funds is determined by the anticipated profitability of the planned investment. The degree of profitability can be arranged in a descending scale so that

> the degree of profitability determines the eagerness of the competing entrepreneur to obtain the necessary loanable funds and their disposition to pay rates of interest only slightly lower than the expected profits, should competition force them to do so.[10]

The anticipated profits rest primarily on past experience and on the

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9 Ibid, p. 321.
10 Ibid, p. 322.

entrepreneurs' estimate of changes in cost and demand conditions. According to the demand schedule for loanable funds an increasing number of producers will be willing to use increasing amounts of loanable funds at a decreasing interest cost. Now the interest rate is not a single, homogeneous rate, but refers in this schedule to the different rates of interest in the different loan markets for the different types of loans--a complex of rates.

Part of the demand for loanable funds is a demand for cash balances rather than a demand for capital goods which appears to be identical with Keynes' transaction and precuationary motives.

The Supply Schedule of Loanable Funds. The factors that determine the supply of loanable funds include not only the present rate of interest and present income, but also the expected future income and interest rates. Aggregate consumption and saving habits are difficult to determine. Thus, the basic assumption to the supply of funds is that the supply curve of loanable funds moves upward to the right--that people tend to save more at higher rates of interest. Halm, however, is aware that persons with fixed income goals may save less at a higher interest rate.

As to the influence of income on savings, Halm accepts as a first approximation the Keynesian consumption function, that "men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income."[11]

Hoarding, too,depends on the rate of interest. Thus, in Halm's

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11 John M. Keynes, The Theory of Employment, Interest, and Money, p. 96.

loanable funds theory interest is considered in part as a "reward for parting with liquidity".[12] Hoarding is limited to "cases of spontaneous changes in the demand for cash balances and not to. . .cases in which cash balances tend to adjust themselves to changes in the money income received".[13]

While the loanable funds theory states that the rate of interest is a function of the supply of and demand for loanable funds, Halm modifies this by noting that changes in income may have more influence on the rate of interest than variations in interest rates.

In summary, the origin and magnitude of the rate of interest is determined by the supply of and the demand for loanable funds in the loan markets. The demand for loanable funds is governed chiefly by profit expectations; the supply is explained by present and future income and present and future rates of interest.

Liquidity Preference Theory of Interest.[14] According to John M. Keynes an individual has two distinct sets of decisions to make with

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12 Ibid, p. 167.

13 George N. Halm, op. cit., p. 326. It is not clear whether Halm is referring to the distinction between the transaction and the precautionary motives on the one hand, and the speculative motive on the other. A careful reading of Halm's presentation of the loanable funds theory shows it to be, with minor exceptions, the liquidity preference theory of Keynes. This will be taken up below.

14 There are abundant sources explaining liquidity preference. Among these are J. M. Keynes, The General Theory of Employment, Interest, and Money, Chap. 13 and 15; J. M. Keynes, "The General Theory", The New Economics, edited by Seymour Harris, pp. 181-93; J. M. Keynes, "The Theory of the Rate of Interest", Readings in the Theory of Income Distribution, edited by the American Economic Association, pp. 418-424; Kenneth K. Kurihara, Monetary Theory and Public Policy, Chap. 6, pp. 105-120; Alvin H. Hansen, Monetary Theory and Fiscal Policy, Chap. 5; Lawrence R. Klein, The Keynesian Revolution, pp. 84-90.

respect to his income. First, he decides what portion of his income he will spend and what portion he will reserve for future consumption. This is the Keynesian "consumption function", and the proportion of expenditures out of a given income depends upon the psychological propensities of the people and the capital and institutional structure of the economy. Second, he decided the form in which he will hold his savings. He may hold cash or he may invest it in assets or securities which will return to him a yield. This applies not only to individuals, but also to corporations and other business enterprises. Corporations which make a profit are confronted with the choice of holding the money in idle balances, investing in assets to expand plant and equipment, or temporarily purchasing securities on the market during the time the funds are not needed.

It is this psychological time-preference of individuals which give rise to liquidity preference, the desire to hold cash instead of parting with cash in exchange for some less liquid asset for some period of time. Hence, Keynes defines the rate of interest as "the price which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash".[15] It is the reward for parting with liquidity, since cash is the most liquid form of wealth and the safest form in which to hold this wealth.

The demand for cash is a schedule of liquidity preference which shows the amount of cash individuals will desire to hold at different

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15 John M. Keynes, The General Theory of Employment, Interest, and Money, p. 167.

rates of interest. Given liquidity preference, an increase in the quantity of money will cause a fall in the rate of interest. Given the quantity of money, a change in liquidity preference can take place in two ways. First, individuals may shift their position up or down the liquidity preference curve, and second, the entire curve may shift. however, it is not always possible to decrease the rate of interest by increasing the quantity of money, since the liquidity preference curve may shift faster (denoting an increase in the desire to hold cash) than an increase in money. This will cause the rate of interest to rise.

It has been seen that the demand for money is a desire to hold money in idle balances or a demand for liquidity, as a store of value. The question may be asked, why do people prefer money to interest-bearing assets? The necessary condition to prefer money to securities is uncertainty, particularly uncertainty as to the future of the interest rate.

Uncertainty may be explained in three forms. First, people desire money to carry on normal transactions of business and exchange; second, people hold money "to provide for contingencies requiring sudden expenditure and for unforeseen opportunities of advantageous purchases, and also to hold an asset of which the value is fixed in terms of money to meet a subsequent liability fixed in terms of money"[16]; and third, people withhold from spending in order to gain speculative profit through future changes in prices. These are named the transaction, precautionary and speculative motives, respectively.

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16 Ibid, p. 196.

The transaction and precautionary motives are a function of income. As income increases, the size of these cash-balances increase; as income decreases, cash-balances decrease. Interest may have a minor effect on these two motives, since a high rate of interest may cause individuals to economize on cash balances.

However, the speculative motive is entirely a function of the rate of interest, and it is this motive together with the amount of cash available to satisfy this motive that determines the rate of interest. While the precautionary and transaction motives are relatively interest-inelastic, the speculative motive is interest-elastic for the marginal holder of cash; that is, it is highly flexible and subject to erratic fluctuations, since it depends upon the relation between the current rate of interest and the state of expectations.

We may summarize the liquidity function by the following formula. Thus,

$$M = M_1 + M_2 = L_1 (Y) + L_2 (r),$$

where M_1 is the amount of money necessary to satisfy the transaction and precautionary motives (L_1) which is a function of income (Y), and M_2 is the amount of money needed to satisfy the speculative motive (L_2) which is a function of the rate of interest. The total quantity of money (M) is equal to M_1 plus M_2.

The Neo-Keynesian Theory of Interest. The theory of interest which is presented by John Maynard Keynes in The General Theory and above is essentially static, but it renders itself readily to dynamic treatment. It is the purpose of this section to present the neo-Keynesian theory of interest which will show that the Marshallian and the Keynesian theories are but a special theory of interest, the first assuming income as given or constant at full employment, the second treating the subject under conditions of less than full employment.[17] In this more general theory the rate of interest is determined by a system of four equations.[18]

The operational aspects of this theory may be stated as follows: (1) The first equation, $M = L(i, Y)$, states that there is a functional

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17 This analysis is an extension of Keynes restricted analysis in The General Theory. Oscar Lange and John R. Hicks have attempted to combine the Marshallian and Keynesian theories into their more general theory. This is perfectly compatible since the Marshallian theory had undergone considerable revision at the hands of his followers. The fundamental ideas are to be found in the following articles: Oscar Lange, "The Rate of Interest and the Optimum Propensity to Consume", Readings in Business Cycle Theory, published by the American Economic Association; John R. Hicks, "Mr. Keynes and the 'Classics'; A Suggested Interpretation", Readings in the Theory of Income Distribution, The American Economic Association. The fundamental equations were first worked out by W. B. Reddaway, "The General Theory of Employment, Interest and Money", The Economic Record, June, 1936. Alvin Hansen treats liquidity preference theory of interest in a similar manner in his book, Monetary Theory and Fiscal Policy, Chap. 5, pp. 82-92, but he fails to show or stress the relationship between orthodox or classical and Keynesian theories. The articles referred to above by Oscar Lange received the approval of Keynes before he died. For this see John H. Williams' article, "An Appraisal of Keynesian Economics", The American Economic Review, May, 1948.

18 A comparison of Lange's equational system with that of Keynes, Hicks, the followers of Marshall, and Hansen shows that the variables that influence the autonomous variables differ because of the importance or lack of importance the writer attributed to them. These differences will become more clear as we develop the neo-Keynesian model. The theories may be stated mathematically as follows:

relation between the total amount of money held in cash balances (M) to the rate of interest (i) and to income (Y), M and Y being measured in terms of wage-units. The cash balances decrease in response to an increase in the rate of interest, and they increase in response to an increase in income.[19]

(2) The second equation, $C = \phi (Y, i)$, expresses the idea that consumption (C) depends (ϕ) on income (Y) and the rate of interest (i). This is an expression of Keynes' psychological law that consumption increases as income increases, but by not as much as the increase in income, with the exception of the influence interest has on aggregate

Lange	Hicks	Hansen	Keynes	Marshallian
1. $M = L (i, Y)$	$M = L (Y, i)$	$L = L (\underline{Y}, \underline{i}, A)$	$M = L (i)$	$M = kY$
2. $C = \phi (Y, i)$		$C = C (\underline{Y}, A, i)$		
3. $I = F (i, C)$	$I = C (Y, i)$	$I = I (\underline{i}, Y, A)$	$I = C (i)$	$I = C (i)$
	$I = S (Y, i)$		$I = S (Y)$	$I = S (i, Y)$
4. $Y \equiv C \not\leftarrow I$		$Y = I \not\leftarrow C (Y)$		

In the Hansen equilibrium sense, $I = I (i)$, $C = C (Y)$, $L = L (i, Y)$, $M = L$, and $Y = I \not\leftarrow C (Y)$. M is the quantity of money, L the liquidity preference, i the rate of interest, Y aggregate income, C the amount of consumption or the propensity to consume, I aggregate investment, k the Cambridge k for cash balances, S aggregate savings, and A is Marshall's aggregate assets. The symbols ϕ means "depends upon" and $\equiv$ is an identity. The variables underscored in Hansen's system of equations indicates that these are the main functions of the autonomous variables. These equations may be found in the works cited above.

19 Lange's equation has the advantage that the rate of interest has an influence on the size of cash-balances. Keynes does not deny this possibility although he assumes that it has a minor effect. It is difficult to say that Lange's equation is an improvement over the Keynesian one since the proof is subject to emperical evidence. Keynes' accounts for income via the transaction and precautionary motives. For purposes of simplicity the phrase, measured in terms of wage-units, is eliminated in the following analysis, although it is to be understood that all the variables are expressed in this numeraire.

expenditures for consumption. According to Lange, this latter function follows no general rule.[20]

(3) The investment function, $I = F(i, C)$, states that the amount of investment per unit of time is a function of the rate of interest (i) and of aggregate consumption expenditures (C) or the propensity to consume.[21] The rate of investment per unit of time operates to equalize the net rate of return to the rate of interest. The net rate of return is derived from the marginal efficiency of capital. Investment (I) depends upon the propensity to consume, which introduces the acceleration principle that was neglected in The General Theory as a factor affecting the marginal efficiency of capital.[22] The demand for investment is derived from the demand for consumption, and a decrease in consumption dampens investment.

(4) The above equations give the fourth equation, the identity that $Y = C + I$.

With the aid of the following diagrams, page 54, we can readily illustrate the determination of the rate of interest from the four equations.[23]

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20 Oscar Lange, op. cit., p. 171.

21 Underscore not in the original. Note that the amount of investment per unit of time refers to a flow; while the marginal efficiency of capital refers to the expected rate of return on a stock. This will be elaborated on more thoroughly under the section comparing the liquidity preference and loanable funds theories of interest.

22 Keynes assumes consumption to be a passive variable and to be relatively stable. On page 124 of The General Theory he indicates that the propensity to consume is not entirely passive, but the effect is temporary.

23 Oscar Lange, op. cit., p. 173. The three diagrams are taken directly from Lange's article, except that the symbols have been made to conform with those used throughout this thesis.

Liquidity Preference Theory of Interest

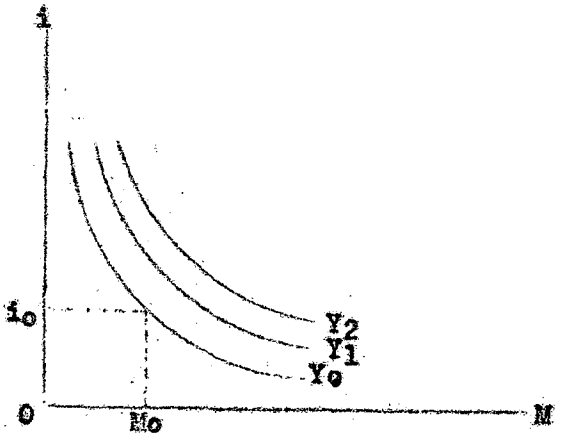

Figure 1

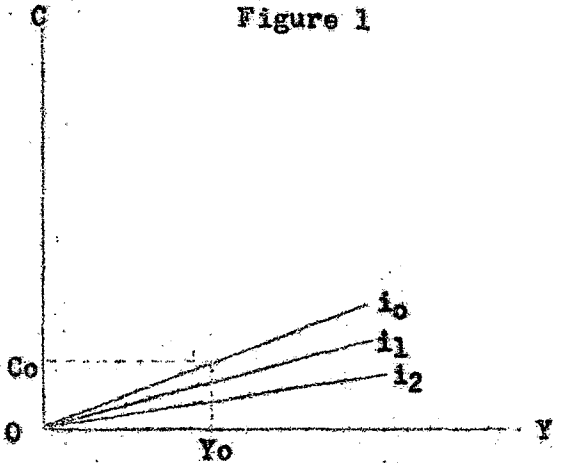

Figure 2

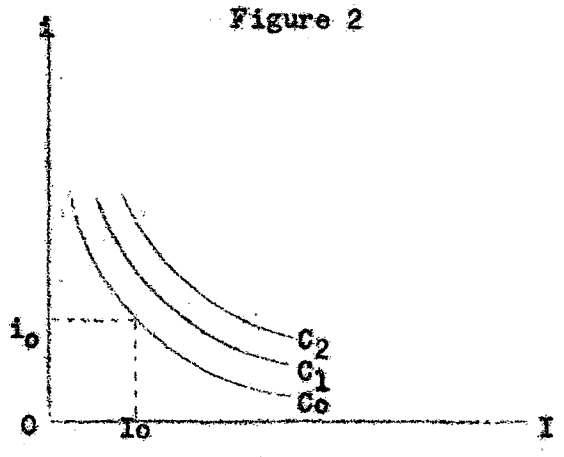

Figure 3

In figure 1 let OM be the quantity of money and Oi the rate of interest. The curves Yo, Y_1, etc., give us a family of liquidity curves that correspond to different levels of income. Higher levels of income are denoted by a shift upward of the Y curves.

In figure 2, income is measured on the horizontal axis and consumption expenditures on the vertical axis. i_0, i_1, etc., are a family of interest curves, one for each rate of interest which relates income and expenditures on consumption.

In figure 3, OI represents investment per unit of time and Oi represents the rate of interest. The family of curves C_o, C_1, etc., shows the amount of investment that corresponds to each value of the rate of interest on the vertical axis. From these curves we get the marginal net return on each amount of investment per unit of time.

In figure 1, if we assume the amount of money (OM_0) and income (Y_0) as constant, income determines the liquidity preference curve and the amount of money determines the rate of interest. The rate of interest (i_0 in Fig. 1) determines the position of the consumption curve (i_0 in figure 2, which is the propensity to consume. When this latter curve is determined, it is possible then to determine from the rate of interest i_0 the amount of investment per unit of time, I_0 in figure 3. We thus have the amount of expenditures on consumption (OC_0 in Fig. 2) and the amount on investment (OI_0 in Fig. 3) which gives us the fourth equation ($Y = C + I$). This latter, when in equality, is an equilibrium position.

In its operational aspects, if consumption and investment are not equal to the given income, the liquidity preference curve in figure 1 shifts to correspond to a new level of income. Because of the shift of the liquidity preference in figure 1 and of the change in the level of income, there will be a new level of consumption (Fig. 2) and hence a new level of investment (Fig. 3), which in turn will give a different level of income and so on. This process will continue until the curves in the three diagrams have reached a position, theoretically at least, in which, barring exogenous influences, there will be no change, or to say the same thing, until equilibrium is reached.

This skeleton model shows that the rate of interest is functionally related to the other independent variables in the Keynesian system, but Lange's main contribution to the liquidity preference theory is that there is a unique relationship between the rate of interest, consumption, and investment. This relation is stated in a lucid manner by Lange.

> Since investment per unit of time is a function of both the rate of interest and expenditure on consumption (Equation 3 above) a decrease of the propensity to consume (or an increase in the propensity to save) has a twofold effect. On the one hand the decrease of expenditure on consumption discourages investment, but the decrease in the propensity to consume also causes. . .a fall in the rate of interest (Equation 1) on the other hand. The optimum propensity to consume is that at which the encouraging and the discouraging effect of a change are in balance.[24]

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24 Ibid, p. 183. Words in italics not in the original quotation. A decrease in consumption lowers the marginal efficiency of capital (the discouraging effect) and a decrease in the rate of interest (the encouraging effect) widens the gap between the marginal efficiency of capital and the rate of interest. This is essentially the Keynesian analysis of The General Theory.

We might restate the central ideas, perhaps at the sacrifice of some accuracy, by saying there is for each rate of interest a unique relationship between the amount of investment, consumption, and income. This does not mean that a particular rate of interest is at all times associated with a particular level of income, though it may be true for a short period of time. To do so would mean that the autonomous variables in the Keynesian model are fixed or rigid.

The above analysis does not tell us the shapes of the investment-savings schedule (or the schedule of the marginal efficiency of capital) and the liquidity preference schedule. In figure 4, page 58, Oi is the rate of interest, and OY is the amount of income.[25] The liquidity preference curve, LM, gives the relation between the rate of interest and the level of income (See equation 1 above). The curve slopes up and to the right to indicate that the demand for money is an increasing function of income. From equations 2 and 3 above we can derive the investment-savings (IS) which shows the relation between income and interest that must be maintained to make savings and investment equal. This curve slopes down and to the right since investment is an inverse function of interest. This IS schedule or the marginal efficiency of capital (MEC) determines the value of investment at any given rate of

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25 This diagram is taken from Alvin Hansen's works, op. cit., pp. 76-82. John R. Hicks employs the same analysis. LM is derived from the equation L = M, where L is the desired cash and M is the actual cash. Similarly, in the same manner IS is reduced from the equation I = S, which are always equal in Keynes' scheme.

The Neo-Keynesian Theory of Interest

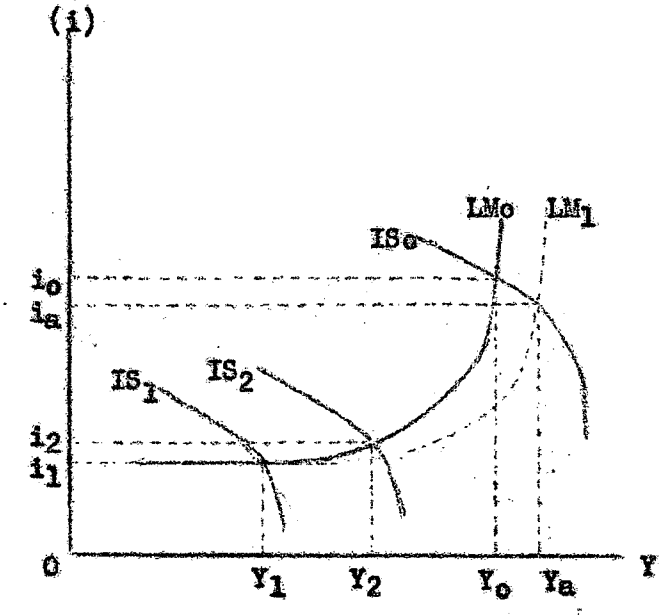

Figure 4

interest, while the multiplier tells us what level of income must be maintained to make S equal to I. The rate of interest and income are determined by the intersection of the IS and LM curves. This method is analogous to the modern theory of supply and demand which determines price and output.

According to figure 4 the LM schedule is interest-inelastic at high levels of income, interest-elastic at low levels of income. Conversely, the IS schedule is interest-elastic at high levels of income and interest-inelastic at low levels of income. The reason for assuming the shape of these curves is as follows: At low levels of income, which we can think of in terms of the depression phase of the business cycle, the LM function tends to be elastic with respect to income because there is a minimum level below which the rate of interest will unlikely go. At high levels of income the LM function becomes interest-inelastic because there is a maximum level of income which can be financed with a given amount of money. An increase in the quantity of money will cause the LM_o curve to shift to the right to LM_1. Where the LM curve is perfectly interest-inelastic, we may think of this in terms of a full employment economy. At low levels of employment the marginal efficiency of capital (MEC) or the IS schedule is low, and below the point of intersection of the IS and LM schedule the IS curve becomes inelastic to interest.

The first approximation, ISo curve, shows that an increase in the quantity of money from LM_o to LM_1 will increase income from Yo to Y_1 while the rate of interest will fall from i_o to i_1. Note that the

Quantity Theory of Money comes into its own, and the determination of the rate of interest is a good approximation of the Marshallian analysis.

The second approximation, IS_1 curve, shows that at low levels of income the LM schedule is interest-elastic and the IS curve is interest-inelastic. The rate of interest cannot be lowered and if it could it would not stimulate investment, as during a depression. By increasing money from LM_0 to LM_1 employment cannot be increased since all money will enter idle cash balances and the rate of interest and income will remain in the same position. That is, Y_1 and i_1 are in the same position before and after the increase in the quantity of money. This special case approximates a strict interpretation of Keynes' liquidity preference theory of interest.

As a third approximation, a shift in the IS_1 curve to IS_2, the following results will appear. An increase in the quantity of money from LMo to LM_1 would cause the rate of interest to decrease from i_2 to i_1 and income will increase only slightly, which is the horizontal difference between the interesection of the IS_2 with LMo and the IS_2 with LM_1 curves. This third approximation falls into Keynes analysis of interest theory.

Finally, should the IS and the LM curves move simultaneously to the right as during a period of inflation there would be a little effect on the rate of interest. If the IS curve shifts faster than the LM curve the rate of interest will rise. This last case is the Wicksellian inflationary process.

From this analysis it becomes clear that a general theory of interest includes both Keynes and Marshallian theories, and that liquidity preference is both a function of income and the rate of interest.

In summary, the rate of interest and income are determined by four factors: (1) the investment-demand schedule or the MEC, (2) the consumption function or the propensity to save (which Lange uses to form the idea of savings), (3) the liquidity preference schedule, and (4) the quantity of money. An increase in the MEC affects the rate of interest through its effect on income (Y), and income affects the liquidity preference schedule. The first two variables gives us the IS curve, the last two the LM curve. The uniqueness of this theory of of interest is that there is not always a direct relation between the quantity of money and income as is assumed by the classical school of thought, nor does Keynes theory supplant Marshallian theory; instead, it supplements it.

CHAPTER V

A DIGRESSION

In this chapter we shall treat a number of topics which have been the center of controversy and/or misunderstanding among economists since the publication of The General Theory of Employment, Interest, and Money. While some of the controversies are only of historical significance, this chapter will attempt to (1) clear up some of the "misunderstanding" associated with the works of Keynes in interest theory, (2) to eliminate many of the criticisms of the liquidity preference theory of interest which are "irrelevant", and (3) to clear up differences in terminology. This chapter should also serve to point out some of the elements that are essential to an adequate theory of interest.

Keynes Objection to the Classical School.[1] Keynes' objections to the classical theories of interest are analogous to his objections to the general body of classical thought. The classical school attributes the equality between savings and investment to the rate of interest; Keynes the equality to income.[2] Second, Keynes holds that the classicists are

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1 Many economists question Keynes' use of the word "classical economists" to include the followers of Ricardo including J. S. Mill, Marshall, Edgeworth and Pigou. Traditionally, "The classical economists" are thought to include the predecessors of Ricardo and Maes Mills. It would seem more appropriate to include those economists who base their theories on the assumption of full employment as Keynes' adversaries in economic thought. Even at this it must be remembered there is no consistent body of thought which follows from these assumptions. Other economists have used the words "traditional" and "orthodox". I do not choose to settle the terminology, but I wish to point out there are many facets to this terminology, and, perhaps, ambiguities in labeling as "classical" all that Keynes objected to.

2 John M. Keynes, The General Theory of Employment, Interest, and Money, Chap. 14. Also, J. M. Keynes, "The Theory of the Rate of Interest", Readings in the Theory of Income Distribution, American Economic Association, Chap. 22, pp. 418-424. This distinction becomes more clear when he treats

incorrect in assuming that income is constant while asserting that the rate of interest is determined by the intersection of investment-demand (ID) schedule and the savings-income (SY) schedule. In this respect Keynes states that savings and investment are determinates, not determinants. Savings and investment are the twin result of the propensity to consume, the marginal efficiency of capital, and the rate of interest. If the assumption of constant income is relaxed it is still impossible to determine the rate of interest, since the ID and the SY curves are independently determined and it is quite possible that they may not even intersect. According to the classicists, a fall in the demand for investment leads to a fall in the rate of interest which will discourage savings sufficiently to accommodate the fall in investment. Or when people desire to save more, the rate of interest will fall to encourage the demand for investment which will absorb the increased savings. Thus, a decrease in consumption will accommodate the increase in investment, and vice versa, which is another way of stating that there will be no changes in aggregate employment and income when consumer demand declines. Thus, Keynes arrives at the conclusion that the classical theory of interest is one step short of a determinate solution. The missing step is the one which states that the rate of interest is determined by the quantity of money and the state of liquidity preference.

The classical assumption of full employment depends upon Say's law,

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the theory by expressing all commodities and money in terms of their own rates of interest. For this see The General Theory, Chap. 17, pp. 222-39 and the above article in Readings in the Theory of Income Distribution.

that supply creates its own demand. Say's law implies two other propositions which are questioned by Keynes: that wants are unlimited, and that there are unlimited investment opportunities. This is a denial of the possibility of hoarding.

Further, classical theory is based upon perfect competition; namely, that the rate of interest is the automatic, self-regulating mechanism that equates savings and investment. Classicists hold that rigidities, time lags, etc., tend to thwart the efficient operation of competition to adjust supply and demand to equilibrium levels. According to the Keynesian thesis competition is not sufficient to insure equilibrium at full employment, for so long as there is hoarding, competition becomes ineffective. H. Gordon Hayes states that hoarding is an integral part of economic theory which is augmented by inequality of income distribution and large-scale industry.[3] Another way of stating this argument is that the classical theory assumes a constant and definite state of expectations.

If one follows the classical assumptions to their "logical conclusions", an increase in the rate of interest will lead to an increase in savings. On the other hand, Keynes argues that an increase in the rate of interest will lead to a decrease in savings, because an increased rate of interest dampens investment which leads to a decrease in income

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3 H. Gordon Hayes, "Hoarding and the Competitive Equilibrium", The American Economic Review, 28:89-91 (1938). Note that price rigidities are not essential to the Keynesian model which is an answer to those who say that Keynesian economics would fall to the ground if rigidities are eliminated. See also, J. M. Keynes, The General Theory, Chap. II.

and out of a smaller income less will be saved. Actually Keynes treats savings as a function of income, with savings and income increasing and decreasing together. Savings, he asserts, is the passive factor, investment is the active factor and determines the amount to savings.[4]

On the whole there has been little criticism of Keynes' fundamental ideas regarding classical assumptions. Furthermore, there is no dispute among economists in defining savings as income minus consumption, so long as we treat the potentially available part of savings in a consistent manner. That is, in the gross formulation the potentially available portion of savings must be included in the supply as well as the demand side of the equation.

A Note on the Loanable Funds and Liquidity Preference Theories of Interest. After the publication of The General Theory a controversy developed between Keynes on the one hand and Dennis H. Robertson, Bertil Ohlin and R. G. Hawtrey on the other over the determination of the rate of interest. John R. Hicks and Abba P. Lerner, by two different routes, attempted to reconcile the divergences between the disputants, and they

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4 If we choose we may distinguish between two versions of the classical theory of interest. The first version places emphasis on the rate of interest as the automatic regulator between savings and investment. The second view attributes the equality to Say's law. This assumes unlimited investment opportunities which leads to the impossibility of overinvestment. These theorists (L. Mises, F. Hayek, L. Robbins and others) conclude that overconsumption is the principle cause of depression. Note that all of these assumptions are interrelated since they stem from two basic assumptions: (1) Say's law of the markets and (2) perfect competition.

With respect to savings and investment, the amount of savings is determined by the propensity to consume together with income. Investment determines the amount of saving that will be absorbed in an economy during a given period of time. According to Keynes ex-ante saving is the cause of decreases in employment, output, and income, since the normal situation in advanced capitalistic countries is one of a low propensity to consume. Investment thus fails to absorb the desired or planned savings.

both came to the conclusion that the loanable funds and liquidity preference theories of interest are essentially the same and the theory which one uses is more a matter of convenience than a matter of real divergence between the two. Harold M. Somers and William Fellner defended the loanable funds theory, while Lawrence R. Klein and Alvin Hansen supported the liquidity preference theory against the attempts of Hicks and Lerner's reconciliation.[5]

Hicks employs a system of simultaneous equations for all commodities, money and loans. There are n equations and n unknowns. As Hicks sees it, the money equation may be eliminated. The interest rate like the price of commodities would be determined by supply and demand. That is, the

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5 The controversy over the liquidity preference theory of interest and other theories are found in the following articles: J. M. Keynes, Dennis H. Robertson, R. G. Hawtrey, "Alternative Theories of the Rate of Interest," The Economic Journal, Vol. 47, 1937, pp. 241-52 and 423-43; J. M. Keynes, "The 'ex-ante' Theory of the Rate of Interest", The Economic Journal, 1938, p. 663-9; D. H. Robertson, "Mr. Keynes and Finance", The Economic Journal, 1938, pp. 314-18, reply by J. M. Keynes, Ibid, p. 318-22; D. H. Robertson, "Mr. Keynes and 'Finance': a Note", The Economic Journal, 1938, pp. 555-6.

The controversy, still going on, confined itself to the liquidity preference and the loanable funds theories of interest.

J. R. Hicks' defense of the identity between the two theories of interest may be found in his Value and Capital, 1940, pp. 155-162; Abba P. Lerner by a different route arrives at the same conclusion. For this see his article, "Alternative Formulations of the Theory of Interest", The New Economics, edited by Seymour Harris, pp. 634-54; also, Lerner's "Interest Theory--Supply and Demand for Loans or Supply and Demand for Cash", Review of Economic Statistics, May, 1944, pp. 88-91.

For a defense in favor of Keynes theory see Lawrence R. Klein, The Keynesian Revolution, pp. 118-123.

For a defense in favor of the loanable funds theory of interest see Harold M. Somers, "Monetary Policy and the Theory of Interest," Quarterly Journal of Economics, 1940-41, pp. 488-507; William Fellner and Harold M. Somers, "Alternative Monetary Approaches to Interest Theory", Review of Economic Statistics, Vol. 23, Feb. 1941, pp. 43-8; also, "Note on 'Stocks' and 'Flows' in Monetary Interest Theory," Review of Economic Statistics, Vol. 31, 1949, pp. 145-6.

rate of interest would be determined by the supply and demand for loans. This is essentially the method employed by Ohlin and Robertson. In like manner, the loans equation can be eliminated which Keynes does.

> If this is done, the n-1 ordinary prices and the one rate of interest are determined by the n commodities, including money. Of course, as always, each equation plays its part in the determination of all prices; but since it is natural to 'match' the price of each commodity with the demand and supply equation for the same commodity, the rate of interest is bound to be 'matched' with the equation for the demand and supply of money.[6]

Hicks concludes that this method is legitimate and that the choice of interest theory one may use is a matter of convenience which is discussed more adequately below.

Abba P. Lerner begins his analysis by pointing out that there are two steps to be taken from the classical theory to the modern theory of interest.[7] The first of these two steps is the recognition that hoarding, dishoarding, and changes in the quantity of money affect the supply of credit and the rate of interest. The second step is the recognition that savings and investment for the whole economy are always equal irrespective of the level of the interest rate.[8]

By taking the first step one finds that

> The rate of interest is the price that equates the supply of "credit", or saving plus the net increase in the amount of money in a period, to the demand for"credit", or investment plus net "hoarding" in the period.[9]

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6 John R. Hicks, Value and Capital, p. 161.

7 Abba P. Lerner, "Alternative Formulations of the Theory of Interest", The new Economics, edited by Seymour Harris, pp. 634-54.

8 For an explanation of the equality of S and I irrespective of the level of the interest rate see Lerner's article, "Savings and Investment", The New Economics, edited by Seymour Harris, pp. 619-625.

9 Ibid, p. 637. Specifically, in a schedule sense, supply of credit consists of a schedule of the amount that would be saved at each rate of

This does not solve the interest problem since in the absence of net hoarding savings would not necessarily equal investment, because some money comes from financial institutions, not from savers.

By taking the second step, it is recognized that savings always equals investment since for each scale of investment there is a level of income which is determined by the propensity to consume. Given the propensity to consume, its counterpart the propensity to save is determined. Hence, savings equal investment. This can be shown as a single schedule showing the functional relation between savings and income and between investment and the rate of interest. Figure 5 is constructed so as to treat the various modern theories of interest.[10]

The rate of interest is measured along the OY axis. The supply of and the demand for "credit" is measured along the OX axis. Thus, L is the liquidity function which shows the changes in the net amount of hoarding at the various rates of interest, and OM is the net changes in the amount of money. The savings-investment (SI) curve shows the amount of saving and investment that corresponds to each rate of interest, and it is equal to OA in figure 5. By adding the net increase in the amount of money (M) and the changes in the amount of net hoarding (L) to the SI curve we get the S $\not$ M and the I $\not$ L curves, which means, respectively, that the rate of interest (i) is determined where savings (S) plus the net increase in

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interest plus the M curve showing the increase in money during the period. The demand schedule consists of a schedule showing the amount of investment that would take place at each rate of interest plus the L curve showing the increased amount of money that would be hoarded at each rate of interest.

10 Ibid. p. 639.

Determination of the Rate of Interest

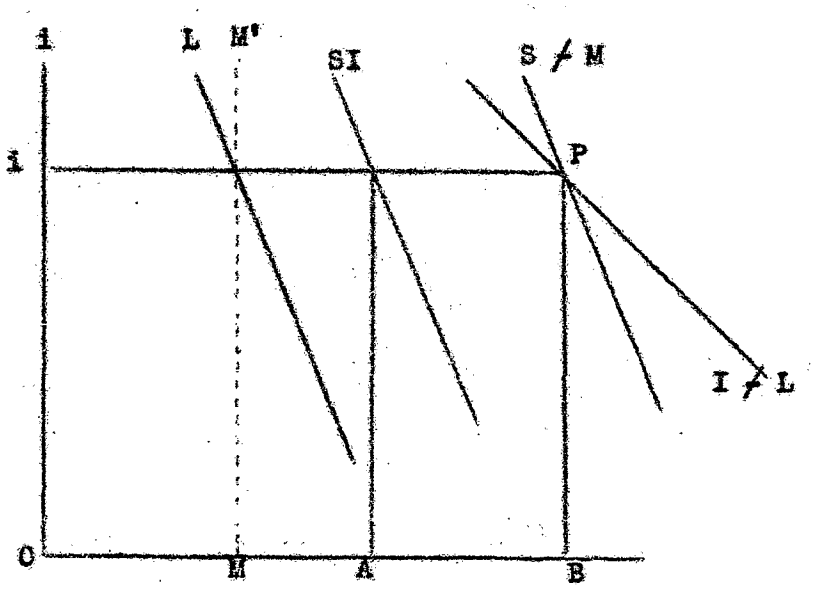

Figure 5

the quantity of money (M) is equated to investment (I) plus net hoarding, or where the supply of "credit" is equated to the demand for "credit".[11] In this scheme there can be no difference between S and I, nor can there be a divergence between an increase in the supply of money in the period and the amount of hoards.[12]

Savings and investment are in the nature of flows which means they are measured as "so much per unit of time" or "so much during a given period". Savings, investing, and hoarding respond to maladjustments, such as, changes in the marginal efficiency of capital, the state of liquidity preference, the quantity of money, and the propensity to consume which changes income, employment and output. The first two variables, savings and investing, have a tendency to wipe out maladjustments because savings increase the value of assets held by an individual, while investing increases the stock of capital which causes a lowering of the marginal efficiency of capital. Hoarding on the other hand is the result of

> inequality between the marginal utility of the stock of money held initially by an individual and the rate of interest which is the price that has to be paid. . .for the sake of enjoying such a maladjustment which arises when there is a change in the rate of interest.[13]

In this "scheme" the level of savings and investment depends on the level of interest rates, while hoarding depends on changes in the rate of interest.

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11 Bertil Ohlin uses the word "credit", while Robertson uses "loans".

12 The intersection of the M and L curves show that hoarding is equal to the increase in the supply of money.

13 Abba P. Lerner, op. cit., p. 642.

Or, in figure 5, the total supply of money may be substituted for the changes in the net amount of money, and the demand for money (liquidity preference) may be substituted for net hoarding. This will have no effect on the diagram except to shift all the schedules to the right, since the total supply of money in existence is always in cash-balances. By eliminating the SI curve, which is unnecessary to the analysis, since by definition they are equal and independent of the rate of interest, we then have the Keynesian formulation of the rate of interest.[14]

By the use of figure 5, Lerner tests Ohlin's net formulation of the rate of interest.[15] The net supply of credit is the amount of savings minus any net dishoarding (or plus net hoarding) while the net demand for credit is the amount invested plus any net hoarding (or minus any net dishoarding). Substituting in figure 5, the M curve is the amount of net hoarding by lenders and the L curve is the amount of net hoarding by borrowers, while the SI curve retains its previous meaning. For simplification, the SI curve may be eliminated since it is excess-baggage. The rate of interest is, then, determined by the intersection

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14 The need for eliminating the SI curve to form the Keynesian system may not be so obvious since there are more than one step in the process. First of all, it is incompatible to include the SI curve since it has no meaning except when it is thought of in terms of a period of time. The total amount of money and the schedule of liquidity preference is independent of time. Yet, since the saving and the investing in the aggregate are always equal, being determined by income, it preforms no real function by adding it to the diagram. The relevant portion of the preceding analysis is to be found in changes in hoarding, not in the level of savings and investment which depend on the level of the rate of interest. The determination of the rate of interest is a function of change.

15 Abba P. Lerner, op. cit., pp. 645-46.

of the L and M curves with their new meanings or where net hoards equal zero.

Ohlin's gross capital formulation can be compared directly with Keynes' liquidity preference theory of interest by the use of figure 6.[16]

In figure 6 the vertical axis measures the rate of interest, the horizontal axis measures the amount of money. Let ON measure the amount of money (supply) in the economy. The line LPQ is the liquidity preference schedule which shows the amount of money the people desire (demand) to hold at each rate of interest. AEQ is the amount of assets in the economy. At the rate of interest B people hold an amount of money equal to BD (ON), and assets whose money value is equal to DE. But they desire to hold assets whose money value is equal to CE at the current rate of interest and the amount of money equal to BC. In this case people will exchange CD amount of money for assets which tends to increase their price. This process will continue up to the point where the liquidity curve intersects the M curve giving a rate of interest NP.[17] This must follow because the demand for money is always equal to the supply of money. Otherwise, people would hold less money than there is in

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16 Ibid, p. 648.

17 That the value of assets increase as the rate of interest decreases may be shown by an illustration. Assume a $1,000 bond bearing 5% interest. Should the rate of interest drop to 4% the value of this bond capitalized at the lower rate of interest would be $1,250. This illustrates another point, the reason why the balances held for the speculative motive is so sensitive to changes in the rate of interest. Assuming a rate of interest at 4%, with the expectation of an increase to 5%, a holder of idle cash would be able to buy the same income for $1,000 instead of $1,250 if he would wait until the rate of interest changes. If the rate of interest were to decrease the speculator would buy now and sell after the decrease in interest rate.

Keynes' and Ohlin's Gross Formulation of the Interest Rate

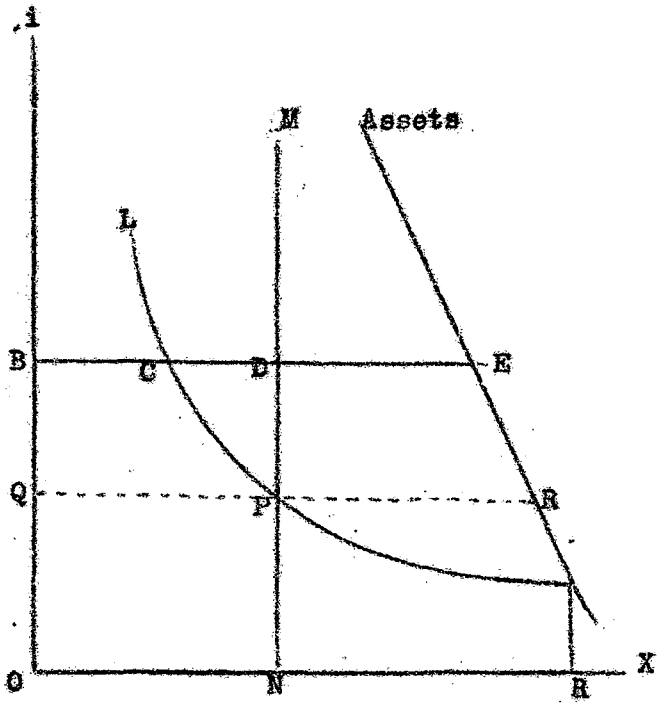

Figure 6

existence which is an impossibility as soon as we realize that all money is in someone's cash balance.

According to Lerner, Ohlin's gross formulation of the rate of interest can be explained with the use of figure 6. Starting from the right side of the diagram, let the line MN be the supply of credit and the line LPQ be the demand for assets. At the rate of interest B, the demand for assets or "claims" is equal to CE, while the supply of money is equal to BD. Since people have a demand for assets, or "claims" in the amount of CD, they will be willing to exchange the amount of money (CD) for claims. This process will continue until the supply of and the demand for claims are in equilibrium with the amount of money, ON. The equilibrium point (P) is the rate of interest where the supply of "credit", OP, is equal to the demand for "credit", PR. This becomes clear when it is emphasized that Keynes stresses the supply of and demand for cash. Ohlin on the other hand stresses the supply of and demand for assets. By analogy Keynes enters the building from the north; Ohlin enters the same building from the south. The ex-post and ex-ante concepts as well as the saving-investment curve have been left out for this treatment without affecting Ohlin's interest theory.

In comparing the modern theories of interest Lerner points out that

> the difference between Professor Ohlin's formulation of the theory of interest and that of the other "modern" but not quite Keynesian economists, like Dr. Hicks and Mr. Robertson, are very slight.[18]

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18 Abba P. Lerner, op. cit., p. 650.

Lerner continues by saying of Hicks, Robertson, and Ohlin that

> any differences between these can only be in the nature of some arbitrary variation of the base line for measurements which affect supply and demand equally and give the same rate of interest as the answer.[19]

> Dr. Hicks emphasizes the arbitrary nature of the choice between speaking in terms of loans or of cash, declaring that, if we equate the supply and demand for money, the equation of the supply and demand for loans follows automatically, and, if we equate the latter, the former equation is otiose.[20]

This is shown in figure 6.

To Hicks and Lerner the problem of interest resolves itself into weighing the advantages and disadvantages of each theory and using the one which seems the more appropriate.[21]

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19 Ibid, p. 650. Robertson speaks of "loanable funds", Hicks of "loans" and Ohlin of "credit". Robertson's account of this where he agrees to use Keynesian terminology is found in "Alternative Theories of the Rate of Interest", The Economic Journal, Vol. 47, 1937, p. 428.

20 Ibid, p. 650.

21 According to Lerner (Ibid, pp. 651-4), Ohlin's gross formulation has the advantages that it makes it difficult to forget that there is a rate of interest for each kind of credit, that it stresses the effect of interest to changes in asset values, that it lends itself more readily to the treatment of the long and short term rates of interest as well as the whole interest rate structure. Against these advantages Lerner states as disadvantages Ohlin's emptiness of treating saving-investment in the net formulation and that one might give too much attention to this savings-investment formality which leads to the illusion that it is the rate of interest that equates savings to investment. Keynes fell into this illusion. See Ohlin's statement, "Alternative Theories of the Rate of Interest", The Economic Journal, Vol. 47, 1937, p. 224 and Keynes criticism in the same journal, pp. 241-52, particularly, p. 245.

The advantage of Keynes' theory lies in its simplicity since it deals with one rate of interest and one asset. Furthermore, according to Hicks, Value and Capital, p. 162, Keynes stresses the close connection between money and interest. A more liberal interpretation of Keynes, Robertson, Ohlin, and Hicks theories of interest would give them essentially the same advantages as well as the many disadvantages.

Of course this synthesis of Hick's and Lerner's did not stand without criticism. Lawrence Klein says Hicks' analysis is essentially right, but it does not prove anything.[22] It does not tell how the rate of interest is determined. Furthermore, numeraire problems are never essential problems in economic theory.[23] Hicks' treatment shows that there is no inconsistency in determining the rate of interest by either of the methods used.

With respect to Lerner's net formulation of interest theory, Klein argues that it is incorrect to make the IS schedule coincident, for to do so would lead to an indeterminate solution of the rate of interest, and might finally rest on Say's law.[24] Klein's criticism is not "legitimate" since the IS schedule refers to only a point on the schedule as being relevant and that point is at the intersection of the L and M schedules. It is a given rate of interest for a given income. And for each level of income there is a point, given the rate of interest, where savings equals investment. This misunderstanding in Klein's criticism is to assume, that in figure 5 above, the IS curve is postulated on the traditional saving and investment schedules where actually it is the Keynesian formulation that savings is by definition always equal to investment. Klein says that Lerner treats income as an arbitrary constant.[25] This is true for the purpose of simplicity. The curves could be redrawn to include changes in income, interest, and the other

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22 Lawrence R. Klein, The Keynesian Revolution, pp. 118-9.
23 Ibid, p. 96.
24 Ibid, p. 120.
25 Ibid, p. 121.

variables, but this would complicate the analysis since it would involve the construction of a three dimensional diagram. For example, it is assumed for analysis that the amount of money is constant. Klein's third criticism is that (I / delta L) and (S / delta M) might not intersect in the relevant portion of the graph.[26] This criticism is an extension of the first criticism and is based on classical or traditional analysis of savings and investment and Say's law.

However, Klein is ready to admit that if the liquidity preference and loanable funds theories of interest are stated in terms of stocks "they will come to the same thing and there is nothing to choose between them".[27] Fellner and Somers admit that there is no difference between the two theories in determining the rate of interest. Their primary criticism is that the two theories would be identical, "and that they imply the same ceteris paribus assumptions, if the liquidity preference theory applies to the demand and supply of money during a period of time."[28] The stock versus flow analysis will be discussed below.

It should be pointed out that the two theories are not identical in all respects, nor can it be assumed that the controversy between the two has ended, even though a major part of the misunderstanding has been cleared up. Such a thing, for example, as the role of liquidity preference, must always remain a controversial subject.

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26 Ibid, p. 121.

27 Ibid, p. 122.

28 See William Fellner and Harold M. Somers' articles cited in footnote 5 above, particularly, "A Note on 'Stocks' and 'Flows' in Monetary Interest Theory, Review of Economic Statistics, Vol. 31, 1949, p. 146.

Stocks and Flows. One point of controversy is concerned with the concept of stocks and flows. Traditionally, the "loanable funds" and Ohlin's "credit" theories treat the supply and demand for loans or credit as a flow measured as so much per unit of time, while Keynes' liquidity preference theory is a stock analysis.

To say that the supply of and demand for loans determines the rate of interest is to leave out part of the analysis of interest. We, therefore, must deal with the concept of stocks and flows. In the concept of flows, the changes in the rate of interest depends on the rate of change in the supply and demand for loans, while the level of the rate of interest depends on the level of the supply and demand for loans. Lerners' analysis above shows that if the stock of cash is added to both sides of the supply and demand for loans and subtract the decrease in demand for cash from both sides the supply and demand for loans is translated into the supply and demand for cash.

The classicists contend that it is price that is the allocator between two flows, particularly commodities whose stocks are small and of a perishable nature. But, in the case of a commodity, such as assets and money, whose stocks are of significant size, the equation of supply and demand may not lead to the same result. T. de Scitovszky[29] states

> When, however, the volume of stocks is a function of price and is large relatively to current production (as in the stocks of securities and money, possibly wheat), then supply will no

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29 T. de Scitovszky, "A Study of Interest and Capital", Economica, VII (ns), 1940, pp. 293-317. T. de Scitovszky by a very neat argument substantiates the assumptions regarding the shape of the liquidity preference curve.

> longer be equivalent to production, but will--at certain prices--be temporarily augmented by a reduction, or temporarily reduced by an accumulation, of stocks; and this factor may become so important relatively to current production as to render the above picture of the determination of short-period equilibrium incorrect and misleading.[30]

The nature of the retardation of stocks to respond to price depends on the limits set by the size of stocks, the price-elasticity of stock-holding, and the time rate at which price can change. When price fails to equate the changes in supply, the change will be brought about by changes in income. Thus, the greater the value of the current stocks to all other stocks together, the more sticky its price will be, and the more quickly will the level of income adjust itself through changes in the activity of other parts of the economy. Since interest is earned on existing stocks of securities or assets as well as on the current flows, the rate of interest and changes in income become the allocating mechanism between the holdings of earning and non-earning assets.[31] From this it is evident that a complete theory of interest must take into account stocks of all securities as well as the stock of money. Note that this is not a contradiction of the net formulations of loan theories, but supplements and completes these theories. It is also perfectly consistent with the Keynesian formulation.

Ex-ante and ex-post vs. time lag, vs. simultaneous concepts. It is possible to treat savings and investment in several ways, most important of these are the Swedish School of ex-ante and ex-post, the Robertsonian

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30 Ibid, p. 295. Words in parenthesis not in the original.

31 For an excellent illustration of this see, Ibid, p. 297-8, where T. de Scitovszky uses, for an example, large stocks of wheat.

time lag, and the Keynesian simultaneous concepts. There exists some confusion or misconception regarding the equality of savings and investment. It was pointed out above that by definition savings is always equal to investment in the same sense that expenditures are the same as receipts, both being different aspects of the same transaction. It is obvious there can be no difference between receipts and expenditures in this sense.[32] What is dealt with here is something different.

Savings are equal to income in one period minus consumption in the same period according to Keynes. Robertson introduces a time lag which makes savings equal to yesterday's income minus today's consumption. Investment and savings will differ by the amount of yesterday's income minus today's income. In the Swedish school, the difference between I and S represents unexpected depletion of stocks plus unexpected income.

Which concepts will be used in interest theory depends on the advantages and disadvantages of each as well as emperical evidence. Keynes was aware of the possibility of a time lag between income and

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32 Abba P. Lerner, "Savings and Investment: Definitions, Assumptions, Objectives", Readings in Business Cycle Theory, American Economic Association, p. 161-2. Alvin Hansen, "A Note on Savings and Investment", Review of Economic Statistics, Vol. 30, 1948, pp. 30-3. Hansen says, "Evidently there are two concepts with respect to the relation of actual savings to investment: (1) that they are always identically equal, and (2) that actual savings equal investment when the "multiplier" process has raised income to a level sufficiently to induce that much saving. These two concepts are, however, not contradictory or inconsistent. What is true is that actual savings may or may not be at a point corresponding to the normal relation of savings to income." pp. 30-1.

For a neo-classical interpretation see Friedrich A. Lutz's article, "The Outcome of the Savings-Investment Discussion", Readings in Business Cycle Theory, AEA, pp. 131-157. Lutz holds there are only two concepts: (1) Keynes and (2) the Ohlin, Robertson, and Hawtrey concept which can be converted into each other.

expenditure on consumption, but thought it small enough to ignore, since it simplifies the presentation of his theory.[33]

According to Alvin Hansen the evidence tends to support the view that the lag is so small that we may for practical purposes neglect it, although he does favor Robertson's formulation for other reasons.[34]

With respect to Keynes' definition, it is the simplest and most convenient to use. Robertson's definition is useful in analyzing income fluctuations, the inflationary gap, and the multiplier process. The Swedish concept emphasizes future expectations. Keynes' concept suffers from the static presentation of a dynamic theory. Many economists favor the Robertson time lag concept since it appears logical to assume a lag between income and expenditures on consumption. The amount of lag may be one day, one week, one month, three months or any amount of time one wants to choose. To define the length of time is the critical problem.

The Concept of Hoarding. There exist differences with respect to the concept of hoarding as used by the modern theorists of interest. Keynes identifies the propensity to hoard as identical with liquidity preference which expresses the desire to hold money as opposed to securities or other assets. This does not mean there is an increase in the amount of

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33 John M. Keynes, The General Theory of Employment, Interest, and Money, pp. 123-4. Note that the simultaneous concept does not mean that, for example, expenditures out of disposable income occurs instantaneously, but that in period 1 all expenditures out of disposable income earned in that period will be completed in the manner determined by the propensity to consume.

34 Alvin H. Hansen, "The Robertsonian and Swedish Systems of Period Analysis", Review of Economic Statistics, Vol. 32, pp. 24-9, 1950. Evidence was taken from book by Lloyd Metzler, Income, Employment and Public Policy.

money since all money is in someone's cash balance. It is an increase in the desire to hold money, and if the quantity of money does not increase, the rate of interest will rise until the propensity to hoard is equal to the available quantity of money in existence. This may be expressed as a desire or a change in sentiment of the public. This may occur in two other ways: (1) by an increase in total wealth and (2) by an increase in the requirements of active circulation. Note that this is not the same as the decrease in the velocity of circulation of money since hoarding refers to the cash which is sensitive to the rate of interest.[35]

Hoarding may be thought of as an increase in the cash balances of an individual. This argument defeats itself because what one individual hoards another individual dishoards by the same amount. Without an increase in the total quantity of money aggregate hoarding is equal to the total amount of money in existence.

Hoarding may also be thought to mean idle balances which is total money minus the quantity of money used for active circulation. Hoarding may be thought of as an increase in the actual stock of money held by the public in their cash balances, which results from an increase in the quantity of money by financial institutions. These concepts may also be expressed in terms of real resources instead of money, in the same manner we can express wages in terms of money wages and real wages.

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35 John M. Keynes, The General Theory of Employment, Interest, and Money, p. 174. Joan Robinson, "The Concept of Hoarding", The Economic Journal, 1938, pp. 231-36. The latter article points out six distinctions in the concept of hoarding.

In the Keynesian system it is the first explanation that is significant. Hoarding is a propensity, not a physical increase in money, that is identified with the liquidity preference theory of interest.

Summary. The treatment of the concepts of hoarding, stocks and flows, ex-ante and ex-post, time lag, and simultaneous treatment of savings and investment should tend to clear up some of the misunderstanding associated with the theories of interest, and eliminate much of the argument and counter-argument concerning definitions. The synthesis of the modern monetary theories by Lerner and Hicks serves to show that these various theories come to substantially the same thing. The primary differences as it will be seen in the next chapter come primarily from varying emphasis on the relevant factors that determine the rate of interest.

CHAPTER VI

AN ANALYSIS OF THE LIQUIDITY PREFERENCE THEORY OF INTEREST

In this chapter the liquidity preference theory of interest will be treated in the following manner. First, the assumptions of the General Theory will be stated. It will be unnecessary for the purpose of this thesis to deal with an analysis of all of these assumptions since they pertain either to the entire theory, or are logically essential to economic theory--both classical and Keynesian. In treating the liquidity preference theory itself the analysis will be divided into six parts: (1) uncertainty, (2) the Keynesian use of a "single" rate of interest, (3) an analysis of liquidity preference proper, (4) an examination of statistical evidence relative to the theory of interest, (5) an analysis of the importance of the interest rate in determining the amount of investment together with supporting statistical studies that are available, and (6) "a miscellaneous treatment" of some of the objections to Keynes theory of interest. The nature of this last section cannot, of course, cover every argument since they appear to be almost infinite, so an attempt will be made to treat them by way of an example. It should be remembered that Keynes is to blame for much of the misunderstanding, since The General Theory contains a rough outline of the problem with which he was dealing. Further, from the controversies that followed the writing of The General Theory, it was apparent that Keynes did not fully comprehend the full meanings and implications of some of his ideas and terminology. Otherwise, there would not be as many

degrees of Keynesians as there exist today.

It is known that an economy such as that of the United States is highly complex, dynamic, and composed of many heterogeneous "situations". Consequently, in dealing with any theoretical subject, it is necessary to assume certain conditions that seem characteristic of the real world in which we live. Of equal importance, it must be realized that because of the limitations to theoretical analysis, the economist is attempting to generalize on observed situations. As a result, no one theory can cover all possible situations; yet, he tries to strike a balance between simplicity and the number of significant variables to be included in a theoretical model. For this reason theory never approaches reality, nor can it ever. Generalization of individual situations is part of the problem that all social scientists encounter; their findings represent "norms", "averages", etc.

No one is concerned with theory as an end in itself; but they are concerned with it as a tool for description, analysis, and prediction.

Because of the limitations that are inherent to theoretical analysis and because of the paucity of data, it is necessary to treat the liquidity preference theory with some reservations. The conclusions for the most part can not be based on emperical observations. One is forced to rely on certain established economic principles plus ones own observations and reasoning together with what little data exists. An analysis such as this could not possibly settle for all times such problems as what determines the level of interest rates, what determines

changes in rate of interest, and what theory of interest satisfies all the conditions of a general theory of economics. At most, it should be possible to clarify some of the issues involved in the tremendous amount of literature put forth on the subject since 1936. Also, it should be possible to point out some of the strengths and weaknesses of the liquidity preference theory.

The Assumptions of the General Theory.[1] The General Theory is based on the following assumptions: It assumes stable money wages and a stable price level in the short period, a closed system, no government interference in formal analysis, and the given state of the arts. It assumes competition; more specifically, it neglects the role of monopoly. Keynes' presentation is basically static, and it assumes that the normal equilibrium position is one of less than full employment.

Uncertainty: In the Keynesian scheme uncertainty is the cause of money as a store of value. In chapter V it was shown that uncertainty is the basis for the precautionary, transaction, and speculative motives. It is the uncertainty as to future rates of interest that lies at the base of the speculative motive, and, hence, the rate of interest. In the other motives uncertainty is a function of income. Uncertainty is a psychological motive which eludes measurement; it has no fixed and definable boundaries. For this reason, there is some question as to the validity

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1 Arthur Smithies, "Effective Demand and Employment", The New Economics, edited by Seymour Harris, pp. 558-571. For a critical analysis of these assumptions see the following articles: Wassily Leontief, "Postulates: Keynes' General Theory and the Classicists", Ibid, edited by Seymour Harris, pp. 232-42; James Tobin, "Money Wage Rates and Employment", Ibid, edited by Seymour Harris, pp. 572-87.

and usefulness of such a concept in economic theory. Uncertainty in the field of economics is relatively untouched. It requires the help of others in the fields of social science to reduce psychological preferences to scales and norms.[2]

In spite of these limitations uncertainty is a reality and it is a essential part of economic theory, particularly, of interest theory. According to Arthur Smithies, if all else could be assumed away the uncertainty of human mortality would still remain.[3] Furthermore, it is equally obvious that if all uncertainty were assumed away, there would be no use for money as a store of value and "we are confronted with Schumpeter's compelling argument that. . .there is no room for the phenomenon of interest".[4] Keynes has shown and history is filled with examples which show that people will substitute other goods as a store of value if deprived of money.

Most economists, however, agree that uncertainty is the major determinant of changes in the size of cash balances, that is, it is the main cause of liquidity preference. L. M. Lachmann believes that liquidity preference can be explained either by convention or mass psychology or by the institutional setting. Since so little is known about the former, he prefers the latter.[5] If Keynes is correct, the

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2 Albert G. Hart, "Liquidity and Uncertainty", The American Economic Review, Vol. 29, 1949, pp. 171-81.

3 Arthur Smithies, "The Quantity Theory of Money and the Rate of Interest", Review of Economic Statistics, Vol. 25, 1943, p. 69,

4 Ibid, p. 69.

5 L. M. Lachmann, "Uncertainty and Liquidity Preference", Economica, Vol. 4 (ns), pp. 295-308.

strength of liquidity preference can be measured by changes in interest rates, even at that, this is a crude measure. An attempt in this direction is the use of indifference curves as a substitute for the marginal utilities concept.

Lachmann argues that uncertainty can be accompanied by a diminution in the demand for money, as for example, when there is a flight from the currency which would result in the purchase of goods that are ordinarily illiquid. This is not a serious objection because many commodities could satisfy the desire for liquidity. This is evident by the number of different articles that were used as a common medium of exchange as well as a store of value at different periods of time in history. With respect to Lachmann's argument, money in this case loses most of the properties that make it a common denominator. It ceases to become scarce, it fails to be taken without enormous discount in exchange and in the discharge of debts, and it has an extremely high degree of substitutability. Lachmann is confusing when he says that "money performs one function for which there are not substitutes and that is it will serve to discharge a debt."[6] If money means any article that serves as a common denominator, he is quite correct. His statement implies there can be no other substitute for the Federal Reserve Note, for example, and yet he denies that no other commodity can serve as a standard of value as well as a medium of exchange. It is by this method that he is able to say that money can not perform the function as a "store of value", that

6 Ibid, p. 305.

it is demanded only for the purpose of discharging a debt.

What actually happens is that assets that are ordinarily illiquid perform the functions of money. That is not an exception to the liquidity preference theory since there was a shift in the common unit of exchange and value. Under these circumstances gold, jewels, and a few other scarce commodities become substitutes for money. His argument does not prove that the demand for money as used in his sense is not at all times elastic. It could also be argued that this example is not essential to Keynes' liquidity preference concept since it deals with circumstances which are not ordinarily peculiar to any economy. Lachmann raises the question "why is the motive of an activity purporting to secure profit from speculation described as 'uncertainty'?"[7] He answers this question by saying that the speculator works on a hunch. Keynes would say he is uncertain whether the present valuation of the market is the correct one.

Lachmann criticizes Keynes' statement, "for in the absence of an organized market, liquidity-preference due to the precautionary-motive would be greatly increased. . ."[8] His criticism is that Keynes' market is a hybrid market and

> it is just because Mr. Keynes' market is not an organized forward-market that here 'bearishness' entails liquidity-preference! For on a market which is organized for intertemporal exchange, everybody is able to express his expectations of the future by buying and selling for delivery in the future.[9]

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7 Ibid, p. 360.

8 John M. Keynes, The General Theory of Employment, Interest and Money, p. 170-1.

9 Lachmann, op. cit., p. 301.

Lachmann assumes that because of a forward-market there is "no opportunity for wide fluctuations in liquidity-preference due to the speculative motive."[10] That is, a forward market eliminates or balances out the divergence in opinion as to future rates of interest. Lachmann's argument appears to be confusing. An organized market in securities does not eliminate divergence of opinion; it provides the mechanism by which these divergences can be registered. A forward market facilitates transactions when changes occur without the need for liquidating past purchases; that is, a change in opinion as to future rates of interest can be accomplished most easily by hedging without the use of additional cash. It provides the means of minimizing the use of cash; it does not eliminate the use of cash as Lachmann implied when he says, "on an organized forward-market both individuals could express their expectations by forward-transactions which do not require any cash."[11]

Lachmann disagrees in part with Keynes' explanation of the precautionary motive where he says it is used "to provide for contingencies requiring sudden expenditures and for unforeseen opportunities of advantageous purchases".[12] He thinks, for the purpose of meeting unforeseen circumstances, money is just as good or as bad as any other good, and it all depends upon the nature of the circumstances. This argument would seem to depend upon the definition of money. Money held for this purpose

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10 John M. Keynes, op. cit., p. 171.
11 L. M. Lachmann, op. cit., p. 301.
12 John M. Keynes, op. cit., p. 196.

might be in the form of cash, checking accounts, savings accounts, bonds for which there is a ready market, or in some less liquid form where it can be readily converted into cash depending on the nature of the unforseen contingency. It appears that the criticism or confusion concerns the clarification or definition of money.

With respect to the transaction motive Lachmann says that uncertainty here is of causal significance. Since "trade creates its own means of payment; there is therefore no such thing as a necessary relationship between total output and the size of business-funds."[13] The relation is between business funds and the rate of increase in their short-term liabilities. This does not appear to be an argument, as much as a misunderstanding, since there is a functional relation between cash balances for the transaction motive and output, as well as an increase in short-term liabilities. It is the increase in output that gives rise to the increases in short-term liabilities, or, perhaps more correctly, it is an anticipated as well as an actual increase in trade and effective demand that gives rise to short-term liabilities.

For the most part Lachmann's article deals with the complications of uncertainty and the motives which cause liquidity preference. His article does point out the limitations to the use of psychological motives in treating economic phenomena and that perhaps the problems involved are not as simple as Keynes assumes them to be. On balance, Albert G. Hart and Arthur Smithies sum up the problem by saying that uncertainty cannot

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13 L. M. Lachmann, op. cit., pp. 305-6.

be ignored as an economic factor, and that it is an intangible which eludes measurement and forms no concrete boundaries. It would seem to the writer that the real problem is concerned with the relative importance liquidity preference plays in determining the rate of interest. Other modern monetary theories give it as one of the factors, while Keynes places it as the most important factor determining the rate of interest, and, hence, the volume of employment, effective demand, and income. This must remain a controversial issue because of the very nature of psychological phenomena.

Keynes' single rate of interest. Many economists criticize Keynes' use of a single rate of interest, for it implies homogeneity in the interest rate structure. It further implies that all rates of interest fluctuate together. This is a "legitimate criticism", but the problem resolves itself into a matter of choice.

Against this criticism it might be said that to include a larger number of variables unduly complicates the theoretical analysis, and that for the purpose of analyzing the causes and behavior of the interest rate, the scales are in favor of a single rate, particularly long term rates on high grade bonds, because of its simplicity for the purpose. Hicks holds that differences in rates for the various loans are due to "differences in the risk of default by the borrower" or the rate for each type of loan is the pure rate of interest plus a risk premium.[14] Because of competition the pure rate of interest, it is assumed, will be the

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14 John R. Hicks, Value and Capital, p. 143.

same for all types of securities.

Keynes in stating that his single rate of interest is actually a complex of rates for all types of securities, assumes that they move together in the same direction. The evidence does not bear out this blanket assertion fully unless Keynes is concerned with only long term rates on high grade securities. Edward Marcus plotted the monthly average of yields for the period January, 1928, through December, 1934, for U. S. government bonds, high-grade municipal bonds, and Moody's Aaa, Aa, A, and Baa ratings.[15] The evidence indicates that all these categories moved together in the same direction, except for the year 1933-1934 when the U. S. government and high-grade municipal bonds moved upward together, while the remaining groups moved downward. The evidence also indicates that the rate of change between the various categories, in absolute spread and in relative spread, varied. In the case of Moody's four grades, the pattern showed that the lower the grade of bond the greater the change in the rate of interest. Marcus' conclusion is that "the various rates of interest do not move in a fixed relation, and, in fact, may even move in different directions."[16] Marcus points out that government policy to reduce the rate of interest tends to raise the rate of interest on second grade bonds, which will account for some of the divergence.

Before any conclusions can be reached it will be necessary to

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15 Edward Marcus, "The Interest Rate Structure", Review of Economic Statistics, 1948, pp. 223-6.

16 Ibid, p. 225.

cover a longer period of time and to account for any exogenous factors affecting the interest rate structure. The argument resolves itself into choosing whether to reformulate interest theory to cover more than one rate of interest or whether, for the purpose, a single rate with its simplicity is sufficient.

Liquidity Preference Proper. This section consists of the main body of criticism concerning Keynes' interest theory.

P. T. Ellsworth asserts that liquidity preference is not an independent variable, because, he asserts, it varies with income.[17] How does he arrive at this conclusion? According to Ellsworth, the rate of interest is determined by liquidity preference and the amount of money. If the average propensity to consume changes because of variations in the marginal propensity to consume , savings changes along with income and employment. Since savings depends on the amount of income, the scale of liquidity preference depends on the volume of savings. The quantity of money varies directly with income and employment because of the nature of our banking system. This being true the rate of interest becomes one of a series of interdependent equations in which all the elements become mutually interdependent.

The criticism is partly "legitimate", but Ellsworth is not so secure in his reasoning. He is incorrect in assigning the volume of savings as the cause of changes in liquidity preference. The argument

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17 P. T. Ellsworth, "Mr. Keynes on the Rate of Interest and the Marginal Efficiency of Capital", Journal of Political Economy, December, 1936, p. 767.

becomes more clear when it is carried out to its conclusion, which can be restated as follows: Since liquidity preference determines the rate of interest, and since liquidity preference depends on the volume of savings, therefore, the rate of interest depends upon the volume of savings, which is the classical contention. If this is Ellsworth's point, then, in my opinion, this is not a correct statement of Keynes theory; instead, it is a strict interpretation of classical theory stated in Keynesian terminology.

There is no argument with respect to the statement that liquidity preference varies with the amount of income, but it can not be concluded from this that income is the causal factor. If income is to have any effect on liquidity preference it would be, in part, of an indirect nature. Since, income is a resultant, determined by the volume of investment and the propensity to consume, Ellsworth must show that the state of liquidity preference comes from investment and/or consumption. Keynes has shown that liquidity preference is a function of income with respect to the transaction and precautionary motives, and it is the state of liquidity preference in the speculative motive that, together with the amount of money, determines the rate of interest.

A change in income is, for the most part, a reflection of the state of confidence and expectations as it affects the marginal efficiency of capital. It is the state of confidence or uncertainty that affects the desire to hold money rather than part with it for an interest bearing security. It is quite possible, that an increase in the state of confidence

or a decrease in uncertainty towards future rates of interest will result from increased investment, income, and employment in the same analogous manner as an increase in investment increases consumption and, hence, income, and that increases in consumption will stimulate further increases in investment, etc. This latter is the familiar acceleration principle.

It remains for Ellsworth to show that the variables of the Keynesian system are mutually interedependent for if this were true it might be possible to expect such a condition in which income becomes the determinant of investment and consumption.

If Ellsworth means that the independent variables of Keynes system are not wholly interdependent he is quite correct, and Keynes accounts for this in The General Theory.

The remaining criticism of Ellsworth are (1) that it is not clear how changes in the rate of interest work out their effects on investment and employment,(2) that it is impossible to arrive at a theoretical solution until "money" is rigorously defined, and (3) that the distinction between the activity of those who borrow the funds required for investment purposes and those who supply these funds is by no means clearly maintained by Keynes.[18]

The first criticism may be ignored since this is explained adequately in The General Theory. With respect to the second criticism, money can be defined as any asset that satisfies the desire for liquidity; viz, cash and demand deposits being the most important. It is not essential that

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18 Ibid, p. 775.

money be rigorously defined in view of changes in institutions and changes in the type of instruments that may assume the functions of liquidity. Government securities, such as the series E bonds held by individuals, may be included in cash since they are easily and readily convertible into cash. Or, any asset that satisfies liquidity is one that does not bear interest. This definition would exclude savings deposits and government bonds. While there may not be complete agreement on a definition for money we must arbitrarily draw a line between liquid and non-liquid assets, in the same manner that we arbitrarily draw a line between investment and consumption goods. A dividing line might well be drawn for purposes of liquidity between money in circulation and money in banks plus demand deposits as against all other assets. With respect to the last criticism, such a distinction is not necessary since the same person may be both lender and borrower at different time in the same market. From Ellsworth's article it is not clear whether he subscribes another interpretation to this last statement.

Ellsworth and others have made the statement that substantial funds are not subject to liquidity preference. He has in mind the idle funds of corporations that are withheld from earnings.[19] This arises from a possible misunderstanding of the theory. A corporation, like an individual, desires to hold cash, and it is faced with the same choice that an individual is faced when he is in possession of idle funds.

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19 Ibid., p. 777.

The corporation may (1) hold the funds idle, (2) invest in plant and equipment, or (3) lend it out at interest by purchasing securities. What the corporation does depends upon the state of confidence and expectations--that is, the marginal efficiency of capital for investment, and uncertainty as to the future rates of interest.

Carl Landauer points out that the two Keynesian assumptions, (1) that the rate of interest is determined by "liquidity preference" of the investor, and (2) that the marginal efficiency of capital declines with an increase in the amount of capital, are incompatible.[20] More specifically, Landauer asserts that interest is not the price for hoarding and that it is not highly conventional. Second, the marginal efficiency of capital has been misinterpreted by Keynes when he asserts that it must decline because of the law of diminishing returns. In this case one factor of production is held constant while the others are increased, which would bring about diminishing returns. Landauer declares that "no observation of the kind can be made if land, labor and capital are increased in equal proportions."[21] In other words, the principle of diminishing returns refers to "optimum proportion of the elements in production".[22] This analysis he sums up by saying that,

> if all kinds of capital goods are proportionately increased, it is not clear that the returns will decrease because in this case we have no reason to assume that the exchange value of the products will be altered.[23]

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20 Carl Landauer, "A Break in Keynes Theory of Interest", The American Economic Review, June, 1937, pp. 260-66.

21 Ibid, p. 261.

22 Ibid, p. 261.

23 Ibid, p. 261.

Furthermore, interest is the equilibrating factor between investment and consumption. It is the result of the actions of lenders and borrowers. The rate of interest arises because there is a rival use for money in the minds of owners. That rival use is consumption. Hence, liquidity preference is not an ultimate purpose for lending. And since, consumption is the rival purpose with investment, the function of the rate of interest is to check the propensity to consume. Interest then is really the price for postponing consumption or for waiting. If this is true "the marginal efficiency of capital requires a theory of interest of the general type as the theories of Marshall and Böhm-Bawerk."[24]

Another view by Landauer is that a direct analysis of the incentives to liquidity preference would show that they are not likely to be of such a strength that the rate of interest could be derived from them. Landauer gives no reason for this.

In reply to Carl Landauer, R. H. Riley points out the most obvious errors which are briefly listed as follows:[25]

a. "His (Landauer's) proof of this incompatibility (between the two assumptions of Keynes) is fatally defective because he declines to be bound by the postulates of the system he seeks to test."[26]

b. As to the marginal efficiency of capital Keynes regards the diminishing efficiency of capital as the decreasing adaptability of capital to employ the available units of labor as output increases.

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24 Ibid, p. 264.

25 R. H. Riley, "Rejoinder", The American Economic Review, June, 1938, pp. 213-19.

26 Ibid, p. 312. Words in parenthesis not in the original.

c. Landauer assumes that capital funds and capital equipment are "capital" and treats them as equivalents. This identity of capital funds and equipment neglects the dynamics of Keynes theory of an increase in consumption and investment together.

d. There can be no competition between investment and consumption for resources except in the special case of full employment.

e. Landauer proceeds to argue his case on the assumption that investment is made from past accumulation. Keynes' restatement of the quantity theory does not support this conclusion.[27]

Max Millikan asserts that Keynes uses six different and incompatible theories of interest, some by implication, in The General Theory.[28] Millikan breaks these down into two classifications which he calls "formal" meanings and "substantial" meanings. Formal meanings are those defined by reference to some relation not directly dependent on the common sense notion of liquidity, while substantial meanings are the common sense notion of liquidity which is identical with the banking and community notion of liquidity. Under the formal meanings Millikan lists four which are as follows:

(1) Instantaneous total demand curve for money: The liquidity preference demand curve is instantaneous in the sense that it represents those demands for money which would immediately arise in the given situation of income, expectations, etc., if the rate of interest were

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27 John M. Keynes, op. cit., pp. 295 ff.

28 Max Millikan, "The Liquidity Preference Theory of Interest", The American Economic Review, June, 1938, pp. 247-60.

placed at any given figure, all other factors remaining unchanged. In a schedule sense it would be diagrammed as follows:

Schedule of Liquidity Preference Theory of Interest

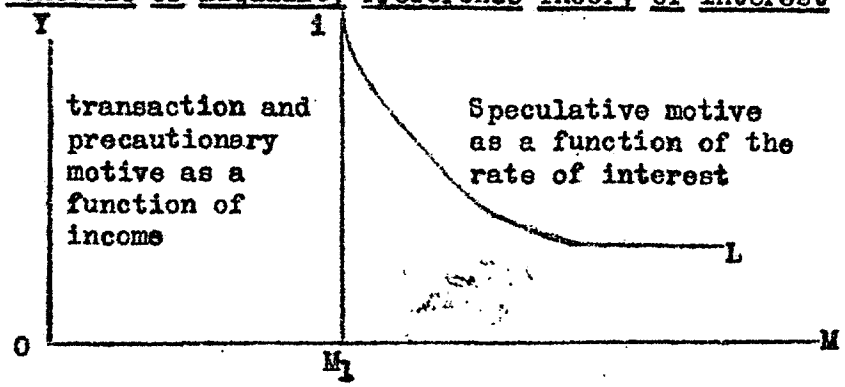

Figure 7.

The liquidity preference curve (L) slopes down and to the right, on the vertical axis (M_1i) is the rate of interest, and on the horizontal axis is the quantity of money (OM). Any change in liquidity preference would be a shift in the L curve either to the right or to the left. The precautionary and transaction motives are a function of income (OY) and the size of the total cash balances are OM_1 of the total quantity of money OM, and is omitted from this theory of interest.

(2) The instantaneous partial demand curve. This is a modification of the one previously given, except that the demand for money is broken down into two parts: the transaction and precautionary motives are a function of income only and the speculative motive is a function of the rate of interest only.

(3) The equilibrium total demand curve for money. This demand curve is the same as the first one presented above except that it represents a series of equilibrium positions rather than a series of instantaneous alternatives. The demand curve is held constant and changes in demand

are along the demand curve. Each rate of interest corresponds to each level of income.

(4) The equilibrium partial demand curve for money is a modification of the one preceding except the demand is broken down into two parts in the same manner as "the instantaneous partial demand curve".

The two substantial meanings are as follows:

(1) Liquidity preference is essentially the same as the propensity to hoard. One interpretation is the demand for idle balances. It is the amount of money that people will try to hold in the form of idle balances at various rates of interest. The second interpretation of the propensity to hoard is the percentage of their total assets (including idle balances but excluding active balances) which people will try to hold in the form of idle balances at various rates of interest. Part of these balances are a function of income, and part are a function of the rate of interest.

(2) The second meaning, the liquidity preference proper, consists of a liquidity preference index for all assets. This index is determined by (a) the length of time required for realizing in cash the full value of the asset (or the period of maturation in the case of a loan), (b) the probable amount obtained from quick liquidation of an asset, and (c) the loss of part of the principal by risk, such as, by default, fire, and damage. Therefore, for an individual there is, in a given set of circumstances given the rate of interest, income, and state of expectations, a given average liquidity which is preferred to others. An individual

will increase his liquidity by moving into cash, by changing from long term to short term assets, and by moving from a high to a low degree of risk.

Millikan holds that Keynes uses all these theories of interest as a unified theory and that all of these are incompatible, that is, there is incompatibility between the various formal and substantial meanings. Furthermore, each requires certain assumptions which are different from those required by the others. In Millikans' words, "only under very strict limiting assumptions can any of the formal meanings be made equivalent to any of the substantial meanings. The assumptions are such as to destroy completely the generality of the theory."[29] By using the substantial meanings the formal meanings are incorrect; by using the formal meanings the substantial meanings are neither useful nor fruitful tools of analysis.

As soon as the assumption of a constant or given income is dropped these objections are removed. It is not clear why there should be incompatibility between formal and substantial meanings as outlined by Millikan.

Millikan rejects the instantaneous total demand curve for money because it assumes all factors influencing demand for money other than interest are constant. This would be true because in an instantaneous picture of the economy all elements would be constant, much like a click of the camera would give an instantaneous picture of the view

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29 Ibid, p. 251.

exposed before the lense. The rate of interest, also, would be constant. The writer can find nothing in The General Theory that assumes the liquidity schedule can change when the other relevant variables in this scheme are constant. This type of reasoning is applied to the other formal concepts of liquidity preference stated above. Millikan's objection to the remaining formal concepts are of this nature and form no significant objection to the Keynesian theory. It really boils down to the fact that Keynes has used a static presentation of a subject that is highly dynamic for the purposes of analysis for in a two dimensional scheme it is necessary to hold one or more of the variables constant, though Keynes and others realize that in the real world income, liquidity preference, the rate of interest, and the quantity of money are constantly fluctuating.

The second formal objection, the incompatibility between the instantaneous and the equilibrium concepts, can readily be disposed of in much the same manner. The first covers a given instant of time, the latter is independent of time. It shows that there is a unique relation between the level of income and the rate of interest and the quantity of money. This unique relation applies when the rate of interest has worked its full effect on income. The liquidity preference curves show a series of points that hold in an equilibrium sense. This does not imply that income is stable and expected to remain indefinitely at the existing level as Millikan asserts.

The instantaneous and equilibrium total demand curves are incorrect as an explanation of Keynes' theory of liquidity preference, although Keynes is perhaps to blame for some of this misrepresentation. On page 168 of The General Theory Keynes says that the liquidity preference is a potentiality or functional tendency that may be written by the following equation: $M = L(r)$. It is not clear whether money is the total amount of money or the portion of that amount accounted for by the speculative motive. Yet on page 199 he points out clearly that the rate of interest is determined by only that part of the total amount of money that satisfies the speculative motive.

The relevant concepts of liquidity preference theory of interest are the instantaneous partial demand curve, the equilibrium partial demand curve of the formal meanings, and the first of the substantial meanings which states that the liquidity preference is the same as the propensity to hoard. The second substantial meaning is not inconsistent with Keynes theory, instead it is a refinement which would include more alternatives than either cash or securities. John R. Hicks and David W. Lusher have used this latter concept as an explanation of liquidity preference.[30]

Millikan's objection to all these theories is Keynes' use of the assumption of a given level of income, which has been shown above to be but a minor objection, namely, that for the purpose of analysis Keynes

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30 John R. Hicks, Value and Capital, p. 163. Also, David W. Lusher, "The Structure of Interest Rates and the Keynesian Theory of Interest", Journal of Political Economics, 50:272-9, April, 1942.

has used a two dimensional static analysis. A reading of Chapters 13 and 15 of The General Theory shows that Keynes never intended that the liquidity preference curve could shift under conditions of a given level of income.

It has been stated that if there are other factors affecting the rate of interest which do not affect either liquidity preference or the quantity of money the Keynesian theory of interest is incorrect. Three such conditions have been listed by Millikan: (1) If the physical productivity of capital is increased, as by inventions, and if demand does not call for an equivalent increase in the quantity of money it will raise the market rate of interest, yet it will not affect idle balances, the propensity to hoard, or liquidity preference proper. (2) If the banking system does not increase the supply of money, an increase in income will increase demand for active balances and thus increase the rate of interest. (3) If the marginal efficiency of capital increases, the rate of interest will change without affecting liquidity preference.[31]

With respect to the first condition it is not so clear that an increase in demand, because of an increase in physical productivity, will not affect liquidity preference. Several alternative results might appear when there is an increase in demand caused by an increase in productivity. Increased productivity may lead to a decrease in price, and without an increase in demand, the balances arising from the

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31 Max Millikan, op. cit., p. 253.

speculative motive will increase, and, assuming no other changes, the rate of interest will decrease. If the increased productivity is financed by increased capital investment, it will increase the demand for cash either by an increase in money from the monetary authorities or by an increase in demand on the idle balances held for the speculative motive. In the latter case the rate of interest will increase.

In the second case an increased demand for active balances without an increase in money, will reduce the balances of the speculative motive and thus affect the rate of interest as well as liquidity preference.

In the third case an increase in the marginal efficiency of capital, because of the brightening of long and/or short term expectations, will increase investment which will increase the demand for money and, hence, affect liquidity preference. If there is no increase in investment with a rise in the marginal efficiency of capital, an unlikely possibility, and there is no increase in demand, the quantity of money and the other variables in the economic system will remain constant. Another possibility is that an increase in the marginal efficiency of capital may be expected to be of such a short or temporary duration by lenders there will be an increase in the propensity to hoard and a rise in the rate of interest.

R. G. Hawtrey states that the marginal efficiency of capital is adjusted to the rate of interest in the very short run, but the assumption made in the classical theory that the rate of interest adjusts to the yields of capital is true, only if subject to a time lag.[32] Actually

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32 R. G. Hawtrey, Capital and Employment, pp. 196-7.

the long term rate of interest is relatively stable, while the marginal efficiency of capital fluctuates violently. Nicholas Kaldor replies in answer to Hawtrey that,

> the rate of interest has no business to behave in the way it actually does behave, but ought to fluctuate widely with the slightest change in the demand for investment. In my view, the mere stability in the short period level of the long-term rate of interest provides the strongest emperical proof of Mr. Keynes' view on the long-term rate of interest and the functioning of the capital market.[33]

D. H. Robertson, one of the greatest critics of Keynes, points out that Keynesian terminology is a pretty rough description of the determination of interest, although at times he is too severe.[34] For example, he is quite correct in showing that liquidity preference does not satisfactorily handle the situation in which changes in the velocity of circulation operates directly on prices and then on interest, while it does handle the situation where changes in the quantity of money acts directly on interest then on prices.[35] According to Dr. Hicks Robertson has failed to solve this problem too.[36]

Robertson questions Keynes transaction motive. Keynes says that cash is held:

> to bridge the interval between the time of incurring business costs and that of the receipts of the sale-proceeds; cash held by dealers to bridge the interval between purchase and realisation being included under this heading.[37]

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33 Nicholas Kaldor, "Review of Capital and Employment", Economica, vol. 5, ns, 1938, p. 465.

34 D. H. Robertson, Essays in Monetary Theory, Chap. 1, pp. 1-38.

35 Ibid, pp. 21-4.

36 John R. Hicks, "The Monetary Theory of D. H. Robertson", Economica, Vol. 9, ns, 1944, pp. 55-6.

37 John M. Keynes, op. cit., p. 195.

Robertson and others say that this is the interval during which the person in question does not hold money, but has parted with it.[38] Robertson assumes that all costs incurred are paid by cash immediately, hence, there is no need to hold cash. He can even assume that all transactions are financed by loans which fall due when the sale of goods are completed which would require no holding of cash. This is not an accurate interpretation of Keynes. Cash held refers to the normal concept of cash-balance which is a function of the size of income being determined by the value of current output or economic activity. For example, cash is required by a manufacturer between the interval he incurs cost for production of goods and the time he receives receipts from the sale of goods. This cash is held to meet recurring contingencies. such as wages, fixed costs, and raw materials. The size of the cash balance depends on the size of income received, the frequency of income payment and the frequency of expenditures. This applies to the individual as well as the corporation. If everyone received income in cash and paid expenses in cash simultaneously, there would be no need to hold money balances, for there would be no interval to bridge. It thus becomes illogical to argue that individuals and corporations do not hold cash between the interval between purchases and receipts or costs and sales.

There is no inconsistency in the statement that "the desire to save does not promote investment" and that "it is thriftiness which makes investment possible. . .in an age of expansion, thriftiness appears as

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38 Dennis H. Robertson, op. cit., p. 12.

a cause of investment."[39] Savings, during a period of less than full employment, depresses investment, while a decrease in the propensity to save will increase consumption which ordinarily will stimulate effective demand, employment, and investment. But during a period of expansion where there is full employment savings is necessary for the promotion of investment, namely, to prevent inflation. Joan Robinson in her second statement does not say savings is the cause, but that it appears to be the cause, of investment in the sense of the nineteenth century expansion.

John R. Hicks points out that Keynes reduces all interest to two types of risk: part of interest is attributed to default risk and part is attributed to uncertainty of the future rates of interest.[40] Interest, he concludes, is nothing but a risk premium. This includes the cost of lending, that is the trouble involved in lending funds.

Statistical Evidence Bearing on the Liquidity Preference Theory. James Tobin has plotted the relationship between average idle deposits and average commercial paper rates for (1) all commercial banks between 1922-1941, (2) New York City Banks, 1922-45, (3) banks in 100 centers outside of New York City, 1922-45, and (4) Chicago banks, 1922-44.[41] Figure 8 shows a rough estimate of the general shape of the liquidity function.[42] It shows that at low rates of interest the changes in the

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39 D. H. Robertson, op. cit., p. 20. Here Robertson criticizes Joan Robinson's statements in her Introduction to the Theory of Employment.

40 J. R. Hicks, Value and Capital, p. 163.

41 James Tobin, "Liquidity Preference and Monetary Policy", Review of Economic Statistics, 1947, pp. 124-131. The purpose of Tobin's article is to refute Fellners statement that the L function is inelastic with respect to the interest rate in his book Monetary Policies and Full Employment.

42 The lines of regression are rough estimates and I have drawn

size of average idle balances are interest-inelastic, and that at higher rates of interest the changes in the size of idle balances are interest-

Ratio Between Average "Idle" Balances and the Rate of Interest

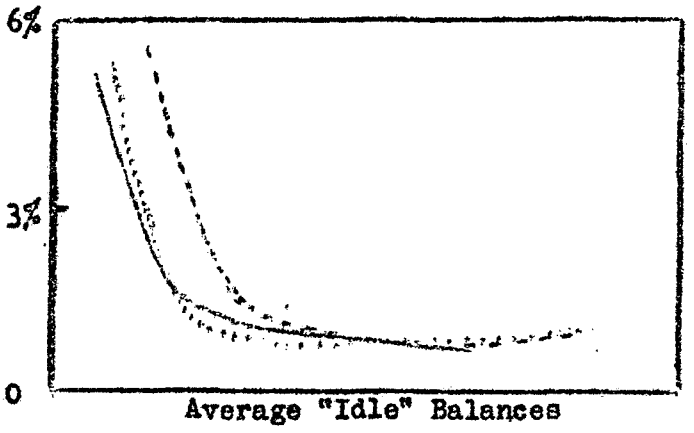

Figure 8.

elastic. In other words, Tobin concludes that "the relationships are of the general form postulated by the liquidity preference theory of interest."[43]

M. Kalecki points out that the marginal convenience of holding cash is an increasing function of the velocity of circulation.[44] The short-term rate of interest is connected with this marginal convenience since with a higher rate of interest there is an inducement to lend. With a low rate of interest it is profitable to withdraw from short-term assets and acquire cash. Equilibrium is reached when the short term interest

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them free hand rather than computing them by the method of least squares because the statistical data was not available.

43 Ibid, p. 131.

44 M. Kalecki, "The Short-Term Rate of Interest and the Velocity of Cash Circulation", Review of Economic Statistics, Vol. 23, 1941, pp. 97-9. The statistics used were taken from the London Clearing Banks from 1928-1938 comparing the velocity of circulation of Treasury Bills.

rate is equal to the marginal convenience of holding cash.[45] From this Kalecki concludes that the short term rate of interest is determined by the amount of cash offered by the banks and by the volume of transactions.

According to Keynes the classical theory requires two more propositions:

> (1) the rate of interest depends upon the marginal efficiency of capital assets other than money, and (2) the scale of investment will not attain its equilibrium level until the point is reached at which the elasticity of output as a whole has fallen to zero, i.e., capacity production for the economy as a whole is reached.[46]

Charles F. Roos and Victor von Szeliski attempts to substantiate these two propositions by statistical analysis. The following procedure was employed: Moody's Aaa bonds covering a period of twenty years (1920-1939), adjusted for time trend, were used. Correlations were made between (1) demand for commercial loans and the supply of funds, (2) government securities and the supply, (3) bills discounted and excess reserves, and (4) security loans and the supply of funds.[47]

The significance of these correlations may be summarized as follows:

(a) That Moody's Aaa yields were due not only "to the business demand for short-term and long-term funds but also in considerable part to monetary factors, such as bank deposits, security loans, government

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45 Ibid, p. 97.

46 Charles F. Roos and Victor von Szeliski, "The Determination of Interest Rates", Journal of Political Economics, Vol. 50, 1942, p. 502. The account of Keynes statement of these two propositions expressed in these terms are found in his article titled "The Theory of the Rate of Interest", Readings in the Theory of Income Distribution, pp. 418-24.

47 For a statistical and diagrammatic presentation of this see his article, op. cit., pp. 518-22.

securities outstanding, etc."[48]

(b) The study favors the monetary theories of interest (as against the "pure" theory of Wicksell) and that it is "within the power of monetary legislation and monetary authorities to control long-term interest rates with a close approach to exactitude."[49]

> (c) The introduction of expectations as measured directly by new orders for goods received by manufacturers is a tacit recognition of Keynes' observation that the rate of interest depends upon the marginal efficiency of capital assets other than money.[50]
>
> (d) The positive sign of the new-orders, or demand for commercial-loan term in the equation bears on Keynes's second observation that the scale of investment will not attain its equilibrium level until the point is reached at which the elasticity of supply of output is zero.[51]

The conclusion is that the most important factors affecting interest rates are

> (a) the money supply or liquidity-assets supply, which is largely demand deposits, (b) the business demand for funds as measured by the volume of new orders being placed with business in relation to the working capital of corporations, (c) the security market's demand for funds. . ., (d) the government demand for funds, (e) the bank's ability to extend credit and (f) the supply of bonds outside of government agencies.[52]

The Role of Interest Rates. In spite of the tremendous literature concerning interest theory during the past fifteen years, it is somewhat

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48 Ibid, p. 523.
49 Ibid, p. 523.
50 Ibid, p. 524.
51 Ibid, p. 525. In other words, when the elasticity of supply of output as a whole is zero at the top of the business cycle the rate of interest according to the "pure" theory should be in equilibrium. Instead speculation sets in because of the inability of merchants to receive deliveries. The result is equilibrium can not be maintained.
52 Ibid, p. 532.

of a paradox to assess the importance of interest in the realm of economic theory and practice. Most economists feel that interest plays a small part in determining decisions to invest and a small part in the determination of changes in the business cycle. It is strange that Keynes gave it such an important role in The General Theory.

P. T. Ellsworth says "moderate changes in the rate of interest will not appreciably affect the expected profitability of proposed improvement of existing plant".[53] J. Tinbergen concludes that changes in interest rate play a minor role or no role at all in the changes in investment activity.[54] Benjamin Caplan thinks a fall in the rate of interest will tend to hasten the abandonment of capital, but this does not mean there will automatically be an increase in new investment.[55] John B. Canning does not deny that interest may have some influence on the decisions of entrepreneurs to invest, but he feels they are grossly overstated.[56]

J. Franklin Ebersole studied 762 cases from a total of 13,119 collected by the Harvard Graduate School of Business Administration since December, 1920 concerning the cause of entreprenur's decisions to invest. Of the 762 cases studied there were 118 cases involving problems of

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53 P. T. Ellsworth, "General Interest Theory", The American Economic Review, Vol. 28, 1938 (supplement), p. 72.

54 J. Timbergen, Statistical Testing of Business-Cycles, Vol. I, A Method of Its Application of Investment Activity; Vol. II, Business Cycles in the United States of America, 1919-1932 (Geneva, 1939) quoted by Trygve Haavelmo, "The Effect of the Rate of Interest on Investment: a Note," Review of Economic Statistics, 1941, p. 49.

55 Benjamin Caplan, "Reinvestment and the Rate of Interest", The American Economic Review, Vol. 30, 1940, p. 561.

56 John B. Canning, "Rate of Interest", The American Economic Review, Vol. 28, 1938 Osupplement), p. 74.

expansion in which interest rates might have been a factor, 91 cases in which interest was not mentioned, and of the 27 cases in which interest was mentioned only 10 said it was a factor, and none said it was the controlling factor.[57] It is obvious that a lowering of the interest rate will not stimulate investment. Note that these statements are not a contradiction of Keynes' interest theory itself, it is independent of any theory of interest. It does, however, apply to the importance of interest in the theory of the business cycle. The primary importance of a low interest rate is the ease with which the national debt can be handled. To control the business cycle there are too many other fiscal policies that can be used without manipulating the interest rate. Deficit spending, consumer subsidies, redistribution of income to low income classes by taxation, public works, unemployment compensation are a few of these policies. These policies are more effective, and results will appear in a shorter period of time.

The Economics of Illusion.[58] I treat Hahn's book as an example of

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57 J. Ebersole, "Rate of Interest", The American Economic Review, Vol. 28, 1938 (supplement), p. 74-5. The statistical technique has some limitations. (A) Limitations to the technique of sampling. (B) Possibility of overweighting one phase of the business cycle. (C) the disadvantage of interpreters to interpret and record and of the business executives to recognize and describe their decisions to invest. (d) The written reports maybe a simple statement of a complex situation. (e) preconceived notions and bias may have crept into the interpretations of these actions or incentives to invest.

58 The Economics of Illusion by Albert Hahn is purported to be a complete refutation of Keynesian theory, that he claims to have anticipated Keynes ideas by several years, and that he has found them to be utterly false, or in a more popular expression, to be "false economy". There is no question that there is much anti-Keynesian literature subsidized by leading interests. For reference and authority see Seymour Harris' book, The New Economics. Other books included in this category is Henry Hazlitts,

much of the literature in the field of economics that has been, I think, typical of much of the faulty criticisms of Keynesian economics. Much of the fallacious reasoning is self-evident and requires little comment. This is not a defense of Keynes; it is an attempt to correct false ideas concerning Keynesian thinking that is prevalent in economic textbooks and journals. In this section I shall be concerned only with the liquidity preference theory of interest, for to deal with the entire book would be a large tome in itself.

Hahn says

> It is the contention of this chapter that the concept of liquidity preference is not applicable under present conditions (post World War II). In part, it has always been superfluous, moreover, the aspects to which it was once appropriate have lost practical importance through institutional changes that have taken place in the last decade.[59]

That the great expansion of purchasing power resulting from World War II has destroyed liquidity preference is not clearly proven by Hahn. An increase in the quantity of money will satisfy the desire to hold money, but it does not mean that it has destroyed this desire in the sense that people would be as willing to hold illiquid assets over money irrespective of the rate of interest. This becomes more obvious when we realize that the function of the rate of interest is to modify the price of assets to the point where the desire to hold cash is in equilibrium with the

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Economics in One Easy Lesson and George Terborgh's Bogey of Economic Maturity. The book Economics in One Easy Lesson is based on the classical assumption of full employment, unlimited investment opportunity, and Say's law of the markets.

59 L. Albert Hahn, op. cit., p. 147. Words in parenthesis not in the original. In the succeeding analysis of Hahn's book the page numbers will be included in parenthesis rather than footnoting to avoid reference to many footnotes.

available cash. It is only in the unusual circumstance of post World War I Germany that we see anything akin to Hahn's contention, and even in this case the base for liquidity preference has shifted from cash to assets that ordinarily are illiquid. Under these circumstances liquidity performs its vital function in an economy..

Hahn rejects Keynes monistic interest theory in favor of the loanable funds dualistic interest theory, since the dualistic theory recognizes both the demand for money to spend as well as to hoard, and the supply of money to save as well as to dishoard (147-49). The General Theory adequately treats both saving and spending as well as hoarding and dishoarding. Hahn is not too clear if by hoarding he means saving or the propensity to save. In either case his dualistic "loanable funds" theory is monistic like Keynes. Actually hoarding and dishoarding have no place in Hahn's scheme since the monetary theory developed in his book is based upon Say's law, which is a denial of the possibility to hoard, and in parts of his book he assumes the classical view of full employment and unlimited investment opportunities.[60]

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60 For example, "under one condition alone could investment create saving it could not absorb: if the increased income led to a decrease in consumption" (197). "Savings cannot really hinder production and employment (p. 98)". "Savings creates its own investment opportunities (p. 99)". "The incentive to invest in machines is the necessary correlative to delay consumption (p. 58)" and savings stimulates investment. "Investment is always sufficient to absorb the saving it creates"(p. 197). "Employment is dependent solely upon the wage level and the marginal productivity of labor (p. 193) and "income rises when employment increases after wages have been reduced (p. 191)". Hahn's remedy is to correct maladjustments in the cost-price relationship, hence, "national income depends on the amount of labor it pays to employ (p. 212)".

Hahn seeks to escape liquidity preference by referring to the idle balances of corporations as subject to investment preference (p. 151). When investment prospects are dim, the idle balances of corporations are still subject to liquidity preference. It then becomes a matter of deciding in what form to hold these idle-balances--in cash, or lend them out at interest by purchasing securities. What the corporation does depends in part on the existing level of interest rates and future expectations of of the marginal efficiency of capital.

Hahn holds that the difference between the spread between high grade and low grade investments is not due to liquidity preference, but is caused by "the blocking of the flow between the pure money and capital markets and the investment markets".[61] Whether Hahn means "rigidities" or some other economic force is not clear.

Hahn's monetary policy, as can be expected from above, is one of regulating the quantity of money and the rate of interest to control inflation and deflation. Thus, higher interest rates will prevent inflation (p. 130), and "lower interest rates. . .facilitates production."[62]

> In the interest of truth, however, one should not speak of doller scarcity until one has tried to increase the supply of and decrease the demand for domestic capital through higher interest rates in order to avoid the alleged crisis of the balance of payments.[63]

> The only reliable way to regulate prices is through controlling the quantity of spendable money by a strict financial and interest rate policy.[64]

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61 Ibid, p. 153.
62 Ibid, p. 174.
63 Ibid, p. 182.
64 Ibid, p. 82.

Hahn's basic argument is a crusade for the return to policies advocated by pre-Keynesian thinkers because these policies are adequate to cope with economic maladjustments.

Conclusion. It has been shown above that many of the arguments against the liquidity preference theory of interest are either irrelevant to the theory or fails to destroy liquidity preference. They do point out one thing, that the theory is a crude and rough draft of a complete theory of interest. It is defective in many aspects, and in conclusion I should like to summarize the short-comings and questionable assumptions of the theory.

(1) It is essentially static.

(2) It places little significance on time lags.

(3) It fails to account for changes in the velocity of circulation of money and its effect on price and the rate of interest.

(4) It assumes that the resting place for all idle balances is either in the speculative or finance motive.

(5) It assumes that the demand for money is infinitely elastic.

(6) Keynes failed to differentiate always between stocks and flows, sometimes using flows, even if by implication, which is alien to Keynesian tradition.

(7) He can be accused of oversimplifying the interest rate structure which points out another short coming, that the theory can not deal with the interest rate structure.

(8) He has simplified the alternatives--between cash and securities.

(9) The strength of liquidity preference as a determinate of the rate of interest may have been overrated by Keynes.

CHAPTER VII

CONCLUSION

The history of interest since the time of Adam Smith has been a minor element of the theory of distribution. For the most part, the theory of distribution emphasized the determination of wages, profits, and rent. Few economists, indeed, developed a complete theory of interest, not only in theory, but as a guide to economic policy and the treatment of economic diseases. It is to Eugen von Böhm-Bawerk and Irving Fisher that we can look to for the most outstanding development of interest theory. It is now known that the role of interest has been greatly over-exaggerated, though it still has a function to perform in any type of economy. If Keynes has overemphasized the role of interest, he has also helped to correct an underemphasis.

Chapter VI shows that it is possible to determine the rate of interest by either the liquidity preference or the loanable funds theories of interest. This is a simple matter when it is realized that the question involves what actually constitutes the supply of funds, This by the way is a matter of accounting for all funds that are sensitive to the rate of interest. The gross and net formulations come to the same thing, since in the gross formulation we include allowances for capital replacement on both sides of the equation. It is generally agreed that savings equal investment irrespective of the interest rate. The real problem of interest is how much emphasis shall we place on specific factors that determine the rate of interest. This remains controversial.

The difference between Keynes and the other interest theorists is a matter of emphasis in the general theory of economics.

(1) Keynes emphasizes the willingness of people to hold cash; Ohlin approaches the problem from the other side and says it is the willingness of people to hold claims or securities. Robertson and Ohlin place as much emphasis on savings as on investment. Keynes stresses the importance of investment and treats savings as a resultant, being determined by the propensity to consume and the size of income. Keynes holds savings equal to investment by definition and gives them no important role in the economic system. Ohlin, on the other hand, agrees to Keynes definition, but still asserts there is some relation between the rate of interest and the saving-investment process.[1] Robertson recognizes the importance of liquidity preference, but in the final analysis he feels the rate of interest is determined in the long run by "prospectiveness and productiveness".[2] Liquidity preference in Keynes theory is the dominant determinate of interest rates. In the other modern monetary theories liquidity preference is only of the the factors. Some of the theories treat liquidity preference in the sense of "bankers liquidity". The loanable funds theory includes bankers' as well as people's liquidity. In this theory it is a factor affecting the supply of loanable funds; in Keynes theory it is treated on the demand side of the equation, which is a much broader concept of liquidity preference.

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1 Bertil Ohlin, "Alternative Theories of Interest", The Economic Journal, Vol. 47, 1937, pp. 424 and 427.

2 John R. Hicks, "The Monetary Theory of D. H. Robertson", Review of Economic Statistics, Vol. 9, 1942, p. 56.

(2) Part of the distinction between Keynes' interest theory and the other interest theories stems from the difference in describing and analysing the real world in which we live. Keynes' theory is concerned with income, the classical and neo-classical school are more concerned with prices. In this respect, Keynes emphasizes the volume of expenditures or the deficiency in effective demand, not the lack of money as the cause of inflation and deflation. The other school holds that it is the variation in the quantity of money that explains income. In the Keynesian system the amount of money and its velocity are regarded as changing in response to changes in aggregate outlay, income, wages, and prices. Classical theory is based on one or more of three assumptions: (1) full employment, (2) Say's law of the markets, and (3) unlimited investment opportunities. Keynes denies these assumptions and holds that the normal economic situation is one of underemployment. Full employment is a special case and is rarely found in capitalism today. The Keynesians state that the classical world of full employment with its theory of distribution is more characteristic of a socialist economy. Classical theory holds that fluctuations in the economic system are caused by price rigidities, deficiencies or excesses in the quantity of money, maladjustments in the cost-price structure, particularly, wages, and the rate of interest. To the Keynesians the nature of the business cycle is found to fluctuate within the limits set by the consumption function and the acceleration principle. The cause is the violent fall in the marginal efficiency of capital.

The truth is that Keynes' treatment of underemployment is an addition to the Marshallian view of full employment. They support and complement one another in the sense that Marshallian theory is a good description of the case for full employment, while Keynes is a good description of underemployment. The complete theory lies in the synthesis of Keynes and Marshall.

Keynes has made three major contributions to interest theory.

(1) He has convincingly shown why the rate of interest will not fall to zero, in other words, why the rate of interest must be always positive. It is now generally accepted that at some point before it reaches zero the liquidity preference curve becomes infinitely elastic.

(2) He has stressed the importance of holding money as an alternative to holding assets. This has increased the importance of the role of money in economic activity, not only as a function of effective demand, but as a store of value which points to one of the major defects of capitalism--the part is plays in causing a deficiency in aggregate effective demand.

(3) It is becoming increasingly clear that the marginal efficiency of capital is lower than had been generally assumed in economic theory and that uncertainty plays a very significant part of economic activity.

David McCord Wright says,

> It is in the case of unemployment that Keynes's interest theory makes its greatest contribution. For if the rate of interest be explained primarily in terms of demand and supply

> for free resources, or "capital disposal", how can one explain the existence of a rate of a time when "free resources"--starving men--are walking the streets unclaimed?"[3]

While Keynes and the Keynesians do not have the last word in interest theory we may speculate on the future role of interest. The rate of interest in the future depends upon the character of economic institutions. Thus, in the near future it seems quite logical to assume a continutation and intensification of the present trend toward a lower rate of interest because the national debt will be significant, if not increased, in the future.

The type of interest policy and the importance of the rate of interest depend upon the type of economic situation and economic institutions with which we are faced. This assertion is based upon the assumption that the changing structure of economic institutions and the increasing role of the government in economic affairs call, not for a theory of interest and interest policy that are immutable, but for theories of interest that best characterize the economic situation in which we live.

It seems quite possible that a highly capitalized country which approaches the stationary state will face the problem of excess savings because of a low propensity to consume. But it may not be denied that any far reaching changes in technology and innovations can reverse the process, and, for a while, a situation may develop where the demand for capital seems almost infinite. War has been a boon to investment

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3 David McCord Wright, "The Future of Keynesian Economics", The American Economic Review, Vol. 35, 1945, p. 304.

reaching importance almost as great as the discoveries of gold and the exploitation of new territory. So long as fiscal policy can be used to maintain an economy at a high level of employment and output, the future rate of interest will assume a minor role in the determination of economic activity.

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