

THE DETERMINANTS OF THE INTEREST RATE AND ITS  
RELATION TO SAVINGS, INVESTMENT AND  
CAPITAL FORMATION

by

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## PREFACE

This is a part of a projected larger study on Conflicts in Economic Thought. The present purpose is to set forth a disciplined approach to a particular controversy. That selected--on capital and interest--is one of many in economic theory in which exist historical and continuing disagreements even on basic concepts.

I have gained the impression that current economic writing is much concerned with terminological disputes, with proving someone else wrong, with intensive refinement of small facets of theory, and with overconfident "proof" of hypotheses by somewhat dubious statistical measurements. It seems to me that some of this effort would be better applied to the development of a body of basic theory related to the real world.

In the writings on capital and interest is found an abundance of these superficial and argumentative approaches. I propose instead what I call a "disciplined approach". This involves careful consideration and balancing of opposing theories, and a resort to facts and logic not to destroy but to test and synthesize. That is what I try to do herein.

## CHAPTER I

### INTRODUCTION AND SUMMARY

This is an examination of a field of conflict in economic thought. The concepts with which we deal are savings, investment, capital formation and interest. Definitions of these terms will be worked out in some detail as a preliminary to presentation of the dominant theories of the nature of interest and the determinants of the interest rate. These theories will be classified as follows:

#### Non-Monetary Theories

- Time-Preference
- Abstinence
- Exploitation
- Marginal-Productivity

#### Monetary Theories

- Liquidity-Preference
- Loanable-Funds,

Eclectic theories are also discussed, as:

#### Non-Monetary

#### Monetary

#### Non-Monetary and Monetary.

With the exception of the exploitation theories, the non-monetary group may be reduced to a proposition of the supply and demand of real capital goods, and the monetary group to the supply and demand of money. Thus, the question becomes one of whether interest is a monetary or

non-monetary phenomenon. Certain broad statistical tests indicate the determination of the rate of interest to be a monetary phenomenon. (The supply and demand of real capital may be limiting factors.) However, the existing monetary theories do not explain the facts, for the rates move in the opposite direction to that called for by these theories.

A further investigation of the determinants of the volume of saving indicates that the interest rate is a minor factor therein. Similarly, it appears that the determinants of investment are largely uninfluenced by the interest rate. This leads to a conclusion that savings, investment and the rate of interest may be independent variables. The interest rate seems to be incapable of equating savings and investment in the usual sense in which a price is said to equate supply and demand.

A secondary conclusion is that savings and investment are not equal by definition, although they may be found so in a narrow statistical sense. Savings--investment--capital formation form a sequence; they are not simultaneous; one does not necessarily follow from the other.

These conclusions are tentative. The purpose is to analyze and describe, to clarify and compare the various theories, and not to "settle" the issues.



## CHAPTER II

### THEORIES OF CAPITAL AND INTEREST AND THE DETERMINANTS OF THE INTEREST RATE

#### A. DEFINITIONS

Capital comprises productive accumulation created by savings and investment and compensated by interest. Around these simple concepts rages a "time-honored controversy."<sup>1</sup> "The discussion of the theory of capital has become so involved that students of the problem now have considerable difficulty understanding each other's language;"<sup>2</sup> "occasional pauses in the heated controversy [are] usually traceable to exhaustion or death rather than to any progress toward agreement."<sup>3</sup> Apparently we are going to find differences of opinion here. Let us proceed cautiously by amplifying definitions, therein seeking some common ground.

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<sup>1</sup>J. A. Schumpeter, Introduction to Bernard W. Dampsey, Interest and Unury, (Washington: American Council on Public Affairs, 1943), p. viii.

<sup>2</sup>F. A. Lutz, "Prof. Bayek's Theory of Interest," Economica, v. X (November 1945), p. 302.

<sup>3</sup>F. R. Macaulay, Some Theoretical Problems Suggested by the Movements of Interest Rates, Bond Yields and Stock Prices in the U. S. since 1866 (New York: National Bureau of Economic Research, 1938), p. 6.

We shall be dealing primarily with these four terms:

- 1. Capital,
- 2. Savings,
- 3. Investment,
- 4. Interest,

and the inter-relationships of the concepts they represent. Webster's Unabridged Dictionary (2nd ed., 1946) defines the terms, for the present purposes, as follows:

1. "Capital: A stock of accumulated wealth... An aggregate of economic goods used to promote the production of other goods... The total amount of such goods in continuous existence."

2. "savings: something laid up or kept from being expended or lost."

3. "Investment: A laying out of money or capital in a business or property for income or profit."

4. "Interest: A price or rate of premium per unit of time paid by a borrower for the use of what he borrows; a rate per cent of money paid for the use of money or the forbearance of demanding payment of a debt."

1. Capital: Capital is an accumulation of economic goods. Productive capital consists of capital used in further production of more goods. The concept is not new. It is as old as man's first stockpile, whether of fuel or food, as old as his first tool or weapon.

A notable contribution of Adam Smith in The Wealth of Nations (1776) was a description of capital and of its relation to saving, to production, and to the division of labor<sup>1</sup>--apparently little understood concepts in his day, though then as now surely obvious when recognized. As production is now as it was then the sole source of abundance, so is the existence and formation of capital basic now as then to a prosperous economy and a high standard of living.<sup>2</sup> Capital exists everywhere about us. Its existence is the principal economic attribute of civilization. With the end of World War II we face a great need for rapid augmentation of capital. The need is greatest in those areas where destruction was greatest.

How is capital created?

2. Saving: The economists' answer to the question has always been "by saving." Capital results in the first instance by refraining from present consumption in order to

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<sup>1</sup>Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations (1776), the edition herein cited is the Modern Library Giant (New York: Random House, 1937), pp. 9-10, 262-269, 314-358.

<sup>2</sup>Paraphrased from Policies Advocated by the Chamber of Commerce of the United States (Washington, D. C., 1940), pp. 3-4. See also Saving and Investment in the American Enterprise System (Chicago: Machinery and Allied Products Institute, 1939), p. 3.

lay aside for further production. To Adam Smith this was substantially the whole story: "Capitals are increased by parsimony, and diminished by prodigality and misconduct."<sup>1</sup>

"The frugal man establishes a perpetual fund for the employment of productive hands . . . the prodigal perverts such funds to other uses."<sup>2</sup> Fortunately, frugality and prudence have predominated, the passion for present enjoyment being intermittent but the principle which prompts us to save being "with us from the womb . . . till we go into the grave,"<sup>3</sup> The result has been a gradual but never-ending accumulation.

Some more recent writers have tended to the view that capital may arise other than from saving. Edwin Cannan for example points out that capital may exist in land without saving, and that it may arise from such purely monetary phenomena as a rise in the price level (though this seems to be tangent to the main idea); but he acknowledges that "material equipment" has all been saved from actual products of man's labor in the past . . . that is, they have been produced and not been consumed."<sup>4</sup> And H. J. Davenport, discussing Alfred

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<sup>1</sup>Wealth of Nations, op. cit., p. 321.

<sup>2</sup>Ibid., p. 322.

<sup>3</sup>Ibid., p. 324.

<sup>4</sup>Edwin Cannan, A Review of Economic Theory (London: P. S. King and Son, Ltd., 1935), p. 158.

Marshall's capital-fund doctrine (a synthesis of Adam Smith and subsequent theorists) emphatically denies "that savings are the sole source of lending power"<sup>1</sup> - referring of course to credit institutions. B. H. Anderson follows a similar tack with his "four normal sources of capital: (a) consumer's thrift; (b) business thrift . . . ; (c) direct capitalization, where the farmer uses his spare time in building fences . . . ; (d) governmental thrift . . . and (fifth) new bank credit."<sup>2</sup>

It is difficult to see that any of these distinctions do more than amplify the definition or confuse the issue. Land and capital have long been distinguished. There is no material difference between direct capitalization and the other forms of thrift Adam Smith had in mind. As for capital formation from price rises or bank credit -- these are not sources of capital but at the most sources of relative control over capital, for it is not money but real goods which are productive.

Saving, one way or the other, is the real source of capital. Saving is refraining from present consumption. From the standpoint of today, saving is a form of spending -

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<sup>1</sup>H. J. Davenport, The Economics of Alfred Marshall, (Ithaca, N. Y.: Cornell University Press, 1935), p. 453.

<sup>2</sup>Benjamin H. Anderson, "The Road Back to Full Employment", Financing American Prosperity, (New York: The Twentieth Century Fund, 1945), pp. 44-45.

but for a future rather than a present purpose.<sup>1</sup> Prof. Alvin Hansen's definitions, which are not inconsistent with the above or with Adam Smith's, and which Hansen says follow D. H. Robertson also, are those:

The income received or realized out of the productive process will either be expended for consumption or it will be saved.<sup>2</sup> By saving is meant . . . that part of disposable income (earned yesterday but disposed of today) which is not spent on consumption.<sup>3</sup>

George Terborgh, who often disagrees with Prof. Hansen, agrees in this: "saving will mean . . . the excess of income over all consumption other than the consumption of capital goods,"<sup>4</sup> the qualification referring, of course, to depreciation and being a matter of the definition of gross and net saving not repugnant to the other definitions cited.

Not a great deal has been added to Webster's 10-word definition. It is in the transition from saving (setting aside) to capital formation (creation of productive goods)

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<sup>1</sup>As T. N. Malthus correctly points out, the final object of saving is expenditure -- saving is a means, not an end. (The possible exception of the miser is noted.) Principles of Political Economy (London: Jm. Pickering, 1836), p. 401.

<sup>2</sup>A. H. Hansen, Testimony before T.N.E.C., quoted in Saving and Investment in the American Enterprise System, op. cit., p. 35.

<sup>3</sup>A. H. Hansen, Economic Policy and Full Employment, (New York: McGraw-Hill Book Company, Inc., 1947), p. 187n.

<sup>4</sup>George Terborgh, The Bogey of Economic Maturity (Chicago: Machinery and Allied Products Institute, 1945), pp. 52, 52n.

that our first real conflict lies. This is the subject matter of investment.

5. Investment: Mention was made above of direct capitalization. That is the formation of capital without division of labor. It is the only circumstance in which saving and capital formation are simultaneous. In all other cases there must exist the factor of investment, which is the employment of savings (usually money savings).

Saving is commonly performed at a different time and place and by a different person than is capital formation. Usually a money holding intervenes. The saver holds his savings, his unconsumed product, in money form. This is a prolongation of the temporary money holding that normally intervenes between production and consumption. This money-holding, the usual immediate form of saving, represents a power to control a unit of economic goods and because capital formation when spent for capital goods (or in common occurrence when placed in the hands of someone else for that purpose) -- and that is investment.

Are savings and investment necessarily equal? John Maynard Keynes says: "Everyone is agreed that saving means the excess of income over expenditure on consumption."<sup>1</sup>

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<sup>1</sup>John Maynard Keynes, The General Theory of Employment, Interest and Money, (New York: Harcourt, Brace and Company, 1933), p. 61.

(Keynes branches out from this to one of his basic tenets, that saving is a residual, the decision to consume being primary,<sup>1</sup> but that is not part of the present discussion.) Investment is distinguished as "the purchase of an asset."<sup>2</sup> But Keynes has already committed himself to the hypothesis that Income equals Consumption plus Investment.<sup>3</sup> Therefore, if Income also equals Consumption plus Saving, then Saving must equal Investment.<sup>4</sup> This is basic to Keynes' General Theory, it is reiterated again and again.<sup>5</sup> Here we must suspend judgment. Let us take some more testimony on this point.

There is some confusion, and there is distinguished opinion on both sides. Dr. Dempsey, though he seems to deny "the antecedent equality of savings and investment,"<sup>6</sup> in his discussion of the concomitant effects of saving on the interest rate and the marginal efficiency of capital, seems to deny his previous argument and to support the one he attacks.<sup>7</sup> Similarly B. H. Anderson at least at one time equated saving and investment, and drew fire from H. C. Houlton,

<sup>1</sup>Ibid., pp. 64-65.

<sup>2</sup>Ibid., pp. 62-63, 74-75.

<sup>3</sup>Ibid., p. 29.

<sup>4</sup>Ibid., p. 63.

<sup>5</sup>Ibid., pp. 78-79, 81-83, 84, 184-185, 320 and probably elsewhere.

<sup>6</sup>Dempsey, Interest and Usury, (1945), op. cit., p. 206.

<sup>7</sup>Ibid., p. 59.



the most insistent of those who hold the theory that saving does not equal investment.<sup>1</sup> More recently Anderson acknowledges temporary imbalance of saving and investment but regards such imbalance as "a very superficial thing."<sup>2</sup>

Similarly with Prof. von Hayek, whose analysis is that saving results in a transfer of productive resources from consumers' to producers' goods induced by changes in the relative prices of consumer and capital goods, practically bypassing the investment function.<sup>3</sup> This, Moulton says, "breaks down at its very beginning" in assuming the immediate transfer of savings to capital.<sup>4</sup> (It is doubtful if von Hayek is given a fair hearing by Moulton but von Hayek's writings are somewhat difficult to follow.)

Keynes' view of the equality of savings and investment represents no sharp break from the classical view. Indeed, the earlier economists tended to an identity of the two - they, like Prof. von Hayek, saw almost automatic conversion of savings to capital formation. This was Adam Smith's conception. Moulton presents the proposition fairly: "According

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<sup>1</sup>H. O. Moulton, The Formation of Capital, (Washington, D. C.: The Brookings Institution, 1935), pp. 164-169.

<sup>2</sup>In Financing American Prosperity (1945), op. cit., p. 68.

<sup>3</sup>Moulton, The Formation of Capital, op. cit., p. 164.

<sup>4</sup>Ibid., p. 166.

to traditional views the way in which income is divided as between saving and spending in no way affects the degree to which our productive resources will be utilized. If more money is saved, the greater, it is contended, will be the construction of capital goods; if more is spent, the greater will be the output of consumption goods . . . all money savings automatically become new capital equipment.<sup>1</sup>

This view (as has been indicated) is not that of Moulton himself. He says:<sup>2</sup>

We challenge the assumption that money savings enter the market as direct demand for capital goods . . . such savings merely constitute a supply of money available . . . for use in the construction of new plant . . . (But) the demand for capital goods is derived from the demand for consumption goods. Hence an increase in savings at the expense of consumptive demand will decrease rather than increase the output of capital goods. [Thus excess savings enter the investment market in greater supply than investment can absorb.]<sup>3</sup>

Gottfried Haberler discusses the conflict in these terms, "Whether saving and investment are equal or can be different depends on their definition" -- another terminological squabble in which both sides exhibit their malice --

<sup>1</sup>H. G. Moulton, Income and Economic Progress (Washington, D. C.: The Brookings Institution, 1935), p. 61.

<sup>2</sup>Moulton, The Formation of Capital (1935), op. cit., pp. 156-157.

<sup>3</sup>Ibid., p. 189.

"equality by definition does not tell us anything about the real world."<sup>1</sup> After reviewing the Keynesian identity of savings and investment,<sup>2</sup> and the various definitions of von Hayek, Robertson and Moulton,<sup>3</sup> Haberler tends to the conclusion that the whole discussion is a dispute over meanings not subject to objective statistical resolution.<sup>4</sup> But this gets us nowhere and Haberler is perhaps also guilty of some terminological meandering. These people are all arguing over definitions. It is necessary that we do agree upon a definition of the terms, saving and investment, and having done so an appeal to facts and to logic should throw light on their equality of inequality.

The Keynesian equality of savings and investment is not adhered to by a principal American member of the so-called Keynesian school. Prof. Alvin Hansen holds (apparently with Moulton in this respect) that it is the very inequality of savings and investment that is the crux of our economic difficulties. "Unless there is expansion of productive equipment and new construction there will be no outlets for new

<sup>1</sup>Cottfried Haberler, "National Income, Saving and Investment" in Studies in Income and Wealth (New York: National Bureau of Economic Research, 1938), v, II, p. 150.

<sup>2</sup>Ibid., pp. 161-163. <sup>3</sup>Ibid., pp. 158-164.

<sup>4</sup>Ibid., p. 164.

savings, and if savings are not invested . . . they become hoards or idle funds . . . (which) do society no good, but do positive harm."<sup>1</sup> Later, Hansen has said, "If income rises, investment exceeds saving; if income falls, saving exceeds investment. However, in the statistical sense (ex post) used in estimates of . . . the Gross National Product, saving and investment are always equal in the 'logical' or 'mathematical' formulation of Keynes."<sup>2</sup> This appears to be a fair description of Keynes' real meaning, though it is not so clearly defined by Keynes himself. The over-saving theory so apt to be identified with Keynes appears now to be inconsistent with Keynes' own use of the terms. But there is no question as to the disagreement.<sup>3</sup>

What happens to an excess of savings over investment, if it exists? To Moulton "funds seek employment in one way or another" - they may be loaned abroad, absorbed in bidding up the prices of securities, or remain stagnant in bank deposits, or be used in financing government deficits.<sup>4</sup> This is

<sup>1</sup>Hansen before T.N.E.C., reported in Savings and Investment in the American Enterprise System, op. cit., p. 37.

<sup>2</sup>Hansen, Economic Policy and Full Employment, op. cit., p. 187.

<sup>3</sup>See also Terborgh, The Bogey of Economic Maturity, op. cit., p. 18n.

<sup>4</sup>Moulton, Income and Economic Progress (1955), op. cit., pp. 44-45.

parallel to Hansen's conclusion,<sup>1</sup> except that Hansen places increasing emphasis on deficit financing to draw off the excess,<sup>2</sup> -- and "'gross saving' must equal private investment plus government-loan expenditures."<sup>3</sup>

The preceding paragraph, by indicating perfectly apparent differences between saving and investment -- i.e. hoarding,<sup>4</sup> government deficit-financing, inflation in securities prices, and so on, is entirely consistent with the accepted definitions of saving and capital formation heretofore substantially agreed upon. If we do not stray too far from the dictionary definition of investing we can readily use that concept as a bridge between the other two. Thus savings are accumulated by a withholding of income from consumption, which will normally take the form of money. By the process of investment that money is used to purchase (pay for the labor and material in) capital goods. Savings and investment are thus not the same thing at all; they are not equal by

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<sup>1</sup>A. H. Hansen, "Stability and Expansion," in Financing American Prosperity (1945), op. cit., p. 221.

<sup>2</sup>Ibid., p. 235.

<sup>3</sup>Hansen, Economic Policy and Full Employment (1947), op. cit., p. 35.

<sup>4</sup>For the distinction between saving and hoarding, see D. H. Robertson, Essays in Monetary Theory (London: P. S. King & Son, Ltd., 1940), pp. 65 et seq.

definition. They are part of a sequence (savings, investment, capital formation). Whether they are equal in fact will depend on their determinants, the investigation of which will occupy us later.

4. Interest: "Interest is income accruing in respect of the use of capital and, as such, has been a subject of controversy from very early times."<sup>1</sup> The controversy we are principally interested in has to do with the determinants of the interest rate, the determinants of the volume of saving, and the inter-relationship thereof, if any. We shall be concerned at length with the theories of the source and nature of interest. For the present we want, if available, an accepted definition of the phenomenon of interest itself empirically considered. Harold Somers submits: "the term 'rate of interest' is correctly defined as the rate of payment for a loan of money per unit of money per unit of time."<sup>2</sup> There is no conflict between this and the accepted business definition: "Interest is a payment for the use of money."<sup>3</sup>

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<sup>1</sup>Immund Whitaker, A History of Economic Ideas, (New York: Longmans, Green and Co., 1943), p. 516.

<sup>2</sup>H. Somers, "Monetary Policy and the Theory of Interest," Quarterly Journal of Economics, v. LV (1940-1941), pp. 488-507, reproduced in Readings in the Theory of Income Distribution (Philadelphia: The Blakiston Company, 1946), p. 490.

<sup>3</sup>Donald E. Mackenzie, The Fundamentals of Accounting, (New York: The Macmillan Company, 1946), p. 280; similarly, F. H. Knight, "Interest," Encyclopedia of the Social Sciences (1932).

Adam Smith pointed out that interest is a "derivative" revenue paid from the profit of stock (capital) to the lender of money.<sup>1</sup> These concepts fit neatly into the traditional divisions of income distribution, i.e.:

Labor receives wages,

Landowners receive rent,

Entrepreneurs receive profits, and

Capitalists receive interest.<sup>2</sup>

Interest (in the sense that it is received by individuals) is an income derived from possession rather than from effort<sup>3</sup> and, to Taussig at least, "is an inevitable outcome of private property."<sup>4</sup> Further along the same line, Taylor's text holds that capital and interest "have their roots in the very nature of things."<sup>5</sup> That they are integral in our American private property form of social organization is amply borne out by the various statutes and decisions assigning to

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<sup>1</sup>Health of Nations, op. cit., p. 52.

<sup>2</sup>Of. P. W. Taussig, Principles of Economics, (New York: The Macmillan Company, 1935), v. II, p. 3.

<sup>3</sup>Davenport, The Economics of Alfred Marshall, op. cit., p. 459. Marshall distinguished quasi-rents, etc., from true interest but these distinctions need not bother us here. Alfred Marshall, Principles of Economics, 8th ed., (London: Macmillan and Co., Ltd., 1926, reprinted, 1930), p. 421.

<sup>4</sup>Taussig, op. cit., v. II, p. 43.

<sup>5</sup>P. M. Taylor, Principles of Economics, (New York: The Ronald Press Co., 1935), p. 331.

capital a "fair return," as in public utility cases under the 14th Amendment.<sup>1</sup>

While we are discussing interest and savings as they are determined under a system of private capitalism, it is not to be considered essential to our definitions that a system of private property be in vogue; though much attack on the existence of interest from early days to the present has been on that ground. Note that interest, both long-term and short-term, exists in the U. S. S. R., mechanically much as we have it here but under state proprietorship of credit institutions and the instruments of capital. There is obligation to preserve capital, to maintain principle and to pay interest.<sup>2</sup> There were in 1935 more than 57,000 branches of the Russian Government Savings Bank with over 19,000,000 individual depositors, who received, by the way, 3% interest.<sup>3</sup> It is well said that "In an economy where the means of production or the savings are privately owned, borrowers must pay for the use of producers' goods belonging to others. However . . . under every type of economy the real cost of saving . . . must be borne" by those who forego "the

<sup>1</sup>Cf. Charles A. Beard, American Government and Politics (7th ed., New York: The Macmillan Company, 1935), p. 478.

<sup>2</sup>W. H. Loucks and J. W. Hoot, Comparative Economic Systems (New York: Harper and Brothers, 1932), pp. 436, 440-442.

<sup>3</sup>Ibid., pp. 442-443.



immediate satisfaction of wants in order to provide capital funds.<sup>1</sup> Similarly the risks of financial loss, the burden of mistakes, borne by a relatively small group of individuals in the capitalist state, are assumed by society in the collectivist.<sup>2</sup> They are not gone, though they may be hidden.

This brings us to a necessary but non-controversial distinction between what may be called gross and net interest -- the former includes an element of insurance against risk or reward for risk-taking, and often some unsegregated payment for management, and the latter is the pure payment for the use of capital or funds.<sup>3</sup>

5. Etymology, history and differentiation of interest and usury:

The previous discussion has been concerned with interest as an abstraction - a concept largely developed since the time of Adam Smith and resting on the general theorem that capital is an agent of production entitled to and demanding and receiving compensation in the form of interest. In this, which we may call the modern view, interest is regarded in an entirely different light from the companion concept of usury, which now is defined as an "unconscionable, exorbitant and illegal rate of interest."<sup>4</sup> This

<sup>1</sup> Ibid., pp. 16-17.

<sup>2</sup> Ibid., p. 16.

<sup>3</sup> Cf. Alfred Marshall, Principles of Economics, op. cit., p. 588.

<sup>4</sup> Webster's Unabridged Dictionary, 2nd ed., 1946, "usury."

differentiation of interest and usury has not always been so clear.

In earlier times, interest and usury were synonymous and the opprobrium attached to the latter extended to both.<sup>1</sup> A strong feeling against both loans and interest was evident in the ancient world<sup>2</sup> and in the middle ages.<sup>3</sup>

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<sup>1</sup>For historical background see Whittaker, op. cit., pp. 568, 516-527; Dempsey, op. cit., various; J. B. G. Murray, The History of Usury (Philadelphia: J. B. Lippincott & Co., 1886), various -- an excellent anecdotal account.

<sup>2</sup>Rates were high in the ancient world: 18% to 20%, and debtors were often enslaved; Solon's reforms were aimed at this situation. Plato in his "Laws" would forbid entirely the lending of money at interest; in fact he would forbid lending at all. Aristotle condemned interest (usury meant the same thing to him) as the most hated and unnatural sort of wealth-getting, and any sort of wealth-getting he despised. Later, however, in Rome lending and interest, though sometimes illegal, were quite common but the rates were high. Whittaker, op. cit., pp. 516-517. The Old Testament condemned lending "upon usury" except "unto a stranger" (Deut. xxiii, 19, 20). In the New Testament it is apparently permissible to receive usury (Matthew xxv, 27). According to Murray, op. cit., p. 18, usury is nowhere forbidden in the New Testament, as it is in the Old.

<sup>3</sup>In the Code of Justinian (527-565) a distinction between business and other purposes of loans was recognized, but later the religious bans on usury (meaning any loan-interest) developed and grew stronger under the Catholic church. In 1311, Pope Clement V voided all legislation permitting interest and made it a heresy to even say that interest-taking was not sinful. Thomas Aquinas condemned interest-taking in the 13th century. With Martin Luther in the early 1600's, the Reformation returned to the more rigorous attitude after some intermediate growth of lending at interest during the great trade revivals of the 14th and 16th centuries. Whittaker, op. cit., pp. 516-523.

Commonly maximum rates were fixed by law and for considerable periods interest was banned altogether. Later a growing list of exceptions to the ban were gradually admitted, allowing trade to develop on borrowed capital - for without interest, loans and investment simply did not exist.

Although Martin Luther and the Reformation in the early 1500's again condemned and restricted interest most rigorously, the reformer Calvin in 1575 denied that interest in itself was sinful.<sup>1</sup> A distinction between good interest and bad usury has been for the most part maintained since,<sup>2</sup> although the common law of the English-speaking world carries over from Jewish and canon law the old prohibitions of interest.<sup>3</sup>

Thus "early thinkers were too much occupied with discussing the legitimacy of interest from a moral or religious point of view to think about the causes which make interest high or low"<sup>4</sup> or the related problems of capital, saving and investment. Actually, it is the useful distinction between

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<sup>1</sup>Ibid., p. 523.

<sup>2</sup>With some backsliding -- Karl Marx quotes Martin Luther approvingly, and Lord Bacon said "men are so hard of heart, as they will not lend freely, usury must be permitted." As recently as 1920 in the Program of the National Socialist German Workers' Party is a section on "Breaking the bonds of interest slavery."

<sup>3</sup>Webster's Unabridged Dictionary, 2nd ed., 1946, "usury."

<sup>4</sup>Edwin Cannan, A Review of Economic Theory, op. cit., p. 250.

interest and usury which now makes possible the objective study of the phenomenon of interest in connection with the formation and use of capital, without so great hindrance from emotional overtones. "Usury" is (still) a word that may readily become a battle-cry in any period of economic distress.<sup>1</sup> But usury is now applied to extortions from the uninformed or defenseless, (supra, p. 20), usually in connection with loans for non-productive purposes; interest is now usually applied to the earnings of productive capital.<sup>2</sup>

The word usury is derived from the Latin usus, to use, and aera, a mark on money to show its value. Interest is derived from the Latin inter esse - to be between, which refers to business affairs, as an interest in a business. The Latin word for what we herein call interest was faenus. Usura as prohibited in canon law meant both interest and

<sup>1</sup>Dempsey, Interest and Usury, op. cit., p. 3.

<sup>2</sup>This distinction between loans for productive and non-productive purposes is traceable back to Aristotle. Undoubtedly it has been and is easier to explain and justify interest (or usury) on the former than the latter, this being the basis for the exceptions that developed to the various bans of the Middle Ages. The Physiocrats justified agricultural credit as being productive and in this reasoning Adam Smith became their logical successor. Whittaker, op. cit., pp. 517, 519-520, 524-525. Cf. also Faussig, op. cit., v. II, p. 51; Ferguson, op. cit. p. 62 et al.

usury as we know them; this conjunction of the terms is now obsolete. There is some indication that the early condemnation may have been of compound interest--usurae usurarum.<sup>1</sup>

## B. CLASSIFICATION OF THEORIES OF THE NATURE OF INTEREST

As a preliminary to examination of theories of the determinants of the interest rate and of the volume of saving we must know something of the underlying theories of the source and nature of interest. It is commonplace in economic writing to classify the theories in various ways and we shall do likewise, after first taking advantage of the classifications already worked out by others. Several of the most useful of these are briefed below. Webster's Unabridged Dictionary (2nd. ed., 1940) presents the following outline of economists' theories of interest:

1. Interest is the result of difference in value of present and future goods -- time-reference.
2. Interest is the payment to the capitalist for the use of capital.
3. Interest is payment to the capitalist for his abstinence from consumption.
4. Interest is wealth from the exploitation of labor.

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<sup>1</sup>Webster's Unabridged Dictionary, 2nd ed., 1940, "interest" and "usury;" Murray, History of Usury, op. cit., p. 15; F. H. Knight, "Interest," Encyclopedia of the Social Sciences (1932) presents a somewhat different etymology.

The Encyclopedia Britannica (1946: "Capital and Interest" by Frank H. Knight)<sup>1</sup> offers the following:

1. Interest is the excess return to capital for its advances to labor (Adam Smith, J. B. Say).
2. Interest is the reward of abstinence (N. W. Senior, J. S. Mill).
3. Interest is the excess productive value imputed to capital by reason of the gains from roundabout production (Bohm-Bawerk).
4. An eclectic theory of Alfred Marshall combined "productivity" and "psychological" (time-preference) schools.
5. The marginal productivity theory of distribution imputes to capital an increment of value dependent on the cooperation of small marginal units (J. B. Clark and apparently F. H. Knight, the author).
6. Discount of the future, or time-preference is the basis of interest (Fetter, von Mises). This is related to abstinence.
7. Interest is related solely to monetary factors such as liquidity-preference (Keynes et al).

The Encyclopedia Americana (1946: "Interest," author not stated) classifies the chief theories ("each disputed by economists") as:

1. Abstinence.
2. Appreciation of present over future (time-preference).
3. Productivity.
4. Combination of abstinence and productivity as supply and demand--eclectic, and

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<sup>1</sup>Frank H. Knight is also the author of "Interest" in the Encyclopedia of the Social Sciences (1932); both encyclopedia articles are immensely involved and wordy expositions of Knight's ideas, which are by no means the consensus of economic opinion, and with scant attention to others. As a matter of interest, in the Social Sciences article Knight classifies Nassau Senior with the productivity theories but in Brittanica Knight joins Bohm-Bawerk in classing Senior with the abstinence group.

5. Monopoly - a toll levied by capitalists who control means of production.

Eugen V. Bohm-Bawerk, an outstanding analyst of interest phenomena, summarized the leading theories of his day (1899) thus:<sup>1</sup>

1. The "agio" theory -- difference in value between present and future goods (Turgot, John Rae, Jevons, J. B. Clark);
2. Use theories (Karl Menger, Walras and perhaps J. B. Say);
3. The abstinence theory -- waiting (Macvane, perhaps Marshall with some blending of Jevons' theory);
4. Labour theories (Stolzmann, Ricardo, possibly James Mill);
5. Productivity theories (Francis Walker, Welser);
6. The exploitation theory (Karl Marx, Rodbertus);
7. The eclectics -- elements of different theories.

Bohm-Bawerk regarded the use, abstinence, exploitation and labour theories disproven, the productivity theory only half-true, and the eclectics burdened with the several weaknesses of their various theories. He then arrived at the "agio," or time-preference, theory as the most promising at the time. (This seeming difference in classification from that of Knight in *Encyclopedia Britannica* will be dealt with below.)

In the translator's preface to Bohm-Bawerk's Positive

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<sup>1</sup>Eugen V. Bohm-Bawerk, Recent Literature on Interest, 1884-1899, trans. W. A. Scott (London: The Macmillan Company, 1903), entire book.

Theory of Capital (1933), Wm. Smart listed the following theories as dominant:<sup>1</sup>

1. Productivity,
2. Use,
3. Abstinence,
4. Exploitation.

To these and the less important labor and selectio groups, Bohm-Bawerk added the time-preference theory - the discount theory. (Writing long before Keynes and Robertson, Bohm-Bawerk took no account of the recent monetary theories.)

In more recent times, the following summary of current theories presented by William Fellner and Bernard Haley in their Introduction to Readings in the Theory of Income Distribution (op. cit., pp. ix-x):

- A. On the non-monetary level:
  1. Time preference,
  2. Marginal productivity;
- B. The Monetary theories:
  1. Loanable funds,
  2. Liquidity-preference.

These authors point out that relationships exist between these theories, especially in that a particular monetary theory need not be incompatible with a "real" or non-monetary theory (Ibid.).

In the same volume Harold Somers offers a detailed

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<sup>1</sup>Eugen V. Bohm-Bawerk, The Positive Theory of Capital, trans. Wm. Smart (New York: G. E. Stecherl and Co., 1933), pp. v-vi. See also Ferguson, op. cit., pp. 169-171.



outline along similar lines:<sup>1</sup>

- A. Non-monetary theories:
1. Subjective -- time-preference (Fetter, Fisher, Pigeu),
  2. Objective -- marginal productivity (Knight),
  3. Combined (Fisher again).
- B. Monetary theories:
1. Subjective -- liquidity-preference (Keynes),
  2. Objective -- loanable-funds (Haberler, Robertson, Schumpeter, Davenport),
  3. Combined (Hicks, Lerner).

Concluding this digest of digests with Whittaker's analysis:<sup>2</sup>

1. Exploitation theory (Simonsi, Ricardo, Rodbertus, Marx),
2. Money theory (John Locke and the Mercantilists),
3. Capital or waiting theory (Hume, Forget and the Physiocrats, J. B. Say Senior and J. S. Mill with the added idea of abstinence, John Rae, Bohm-Bawerk, Landry, Irving Fisher),
4. Liquidity-preference (Keynes).

What have these various classifications in common?

They are compared in Chart I on the next page.

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<sup>1</sup>H. Seneca, "Monetary Policy and the Theory of Interest" in Readings in the Theory of Income Distribution, op. cit., pp. 477-479.

<sup>2</sup>Whittaker, A History of Economic Ideas (1943), op. cit., pp. 523-549, 551-566.

CHART I

VARIOUS AUTHORS' CLASSIFICATIONS OF INTEREST THEORIES AND THEORISTS

Line No.	Classification of Theories	Author or Source					
		Webster's Dictionary	Knight (Brittanica)	Americans	Bohn-Bawerk	Somara	Whittaker
		Classification of Theorists					
1.	Time-Preference (waiting)	X	Potter van Elsas	X	Turgot Rao, Jevons J. D. Clark Bohn-Bawerk	Potter Fisher Figuu	Turgot Fisher Rao, Say Bohn-Bawerk
2.	Use of Capital	X			Menger Say, Walras		
3.	Abstinence	X	Senior J. S. Mill	X	Marshall		Senior J. S. Mill
4.	Exploitation	X			Marx Rodbertus		Marx Rodbertus Ricardo Siccardi
5.	Excess Return		Adam Smith J. B. Say				

(Symbol X: Theories classified as indicated but theorists not classified.)

CHART I (Continued)

Line No.	Classification of Theories	Author or Source				
		Webster's Dictionary	Knight (Brittanica)	American	Bohn-Bawerk	Somara Whittaker
Classification of Theorists						
6.	"Roundaboutness"	Bohn-Bawerk				
7.	Eclectic (combined)	Marshall	X	Various	Fisher Hicks Lerner	
8.	Marginal Productivity	Knight J.B. Clark	X	Walker Wieser	Knight	
9.	Liquidity-Preference	Keynes			Keynes	Keynes
10.	Monopoly		X			
11.	Labor			Ricardo J.S. Mill		
12.	Loanable Funds (Money)				Invenport Robertson Schumpeter	John Locke Marcan- Mills

(Symbol X: Theories classified as indicated but theorists not classified.)

The following eliminations and combinations may be made:

Line No. on Chart I.

- 2. Use of capital -- eliminate, not significant, as "payment for the use of capital" is a tautology;
- 5. Excess return -- eliminate, unconfirmed;
- 8. Roundaboutness -- eliminate, classify Bohm-Bawerk where he places himself, in the time-preference group;
- 10. Monopoly -- classify with exploitation;
- 11. Labor -- classify with exploitation.

The following economists will be eliminated as not significant or possibly mis-classified:

- Von Mises from Knight's time-preference group,
- James Mill from Bohm-Bawerk's (reclassified) labor group,
- Davenport from Samers' money group,
- Marshall from Bohm-Bawerk's abstinence group,
- J. B. Clark from Bohm-Bawerk's waiting group,
- Fisher from Samers' combined group,
- Locke from Whittaker's money group.

The following suggested classification is thus arrived at. The theories to be described will be taken up in this order:

A. Non-Monetary Theories of Interest:

- 1. Time-preference,
- 2. Abstinence,
- 3. Marginal Productivity,
- 4. Exploitation;

B. Monetary Theories of Interest:

- 1. Liquidity-preference,
- 2. Loanable-funds;

C. Eclectic Theories:

- 1. Non-Monetary,

2. Monetary,  
3. Combined.

C. NON-MONETARY THEORIES OF INTEREST

1. The Time-Preference Theory: With this theory and its variants are associated the names of Turgot (1727-1781), J. B. Say (1767-1832), John Rae (1796-1872), Jevens (1835-1882), Bohm-Bawerk (1851-1914), Irving Fisher (1867-1947), A. C. Pigou (1877- ) and Frank Fetter (1899- ). Basically the theory holds that interest arises from man's subjective preference for present as opposed to future goods. Therefore man will pay more today for goods today than he will pay for future delivery -- he will pay more for present than for future goods. The capitalist-creditor-investor who gives up his present goods will demand and receive a premium in the form of interest as a reward for his waiting to get his principal back. Conversely, the debtor-entrepreneur or-laborer will be willing to promise and pay a future premium in return for the present good. Though not a part of the theory, it is noted that inherent in it is the view that the entrepreneurs and labor are active, suppliant classes; capitalists and landlords are passive, but controlling.

"The opinion that men tend to undervalue present

pleasures as compared with those arising in the future is as old as Aristotle.<sup>1</sup> As John Locke said in the 17th century "Thus most men, like spendthrift heirs, are apt to judge a little in hand better than a great deal to come."<sup>2</sup>

John Rae defined "the effective desire for accumulation" as "the determination to sacrifice a certain amount of present good to obtain another greater amount of good, at some future period," and added that men derive a difference in value between present and future goods from the uncertainties of life itself -- "were life to endure forever, were the capacity to enjoy in perfection all its goods. . . . to be prolonged with it" this difference would not exist. But death may come upon us we know not when, and the approaches of old age "are dulling day by day, the relish of every pleasure." "Why then be providing goods that cannot be enjoyed until times which . . . may never come to us. . . .?"<sup>3</sup>

Bohm-Bawerk followed and credited John Rae, and formalized the theory substantially as it comes to us today in what he called the "agic" theory.<sup>4</sup> "The difference

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<sup>1</sup>Whittaker, op. cit., p. 841.

<sup>2</sup>The Works of John Locke, quoted by Whittaker, op. cit., p. 99

<sup>3</sup>John Rae, The Sociological Theory of Capital (New York: The Macmillan Company, 1905), pp. 4-54.

<sup>4</sup>Bohm-Bawerk, Recent Literature on Interest, op. cit., pp. 145-148.

between the past and present values after providing for the replacement of the goods, is interest" -- "the difference between the formerly future and now present goods."<sup>1</sup>

Irving Fisher closely follows Bohm-Bawerk's theory of time-preference.<sup>2</sup> Interest is a price paid for income now rather than income then, based on "impatience" -- much the same as Bohm-Bawerk meant by "agio."<sup>3</sup>

John R. Commons (1862- ), though primarily interested in the relationship between economics and law,<sup>4</sup> takes a position similar to that of Bohm-Bawerk and Fisher, using the term "futurity"<sup>5</sup> to correspond roughly to "agio" and "impatience." The importance of the role of the future in men's affairs is dominant in Commons' discussion.

F. M. Taylor discusses interest in terms of the supply and demand for "waiting power" which he says is demanded

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<sup>1</sup>Bohm-Bawerk, The Positive Theory of Capital, op. cit., p. xii from the translator's preface, which will be found a useful summary of Bohm-Bawerk's somewhat wordy treatise.

<sup>2</sup>Holl, A History of Economic Thought, op. cit., p. 478.

<sup>3</sup>Irving Fisher, The Theory of Interest as Determined by Impatience to Spend Income and Opportunity to Invest It (New York: The Macmillan Company, 1930), pp. 36, 46, 61-62, 376-377, 496. For further discussion see also Dempsey, Interest and Usury, op. cit., pp. 74 et seq.

<sup>4</sup>Whittaker, op. cit., pp. 737-738; Ferguson, op. cit., p. 203.

<sup>5</sup>John R. Commons, Institutional Economics (New York: The Macmillan Company, 1934), pp. 390 et seq.

because of:

1. Spendthrift overestimate of the importance of present wants,
2. Anticipated increases in income, and
3. Superiority of time-consuming methods of production;

and the supply of which is limited by:

4. The total income available,
5. The requirements of present wants, and
6. The uncertainties of life and the desire to gratify present wants (the same force acting on the lender as acts on the borrower in 1. above).<sup>1</sup>

The Schme-Bauer view has also recently been supported by Prof. von Hayek.<sup>2</sup>

Under this time-preference theory the rate of interest will be determined by the marginal rate of time preference, which is related to or identical with the "rate of return on consumption" -- the subjective satisfaction gained from a given rate of consumption. This factor is a variable between individuals and time periods and it probably also varies with the rate of interest itself.<sup>3</sup>

2. The Abstinence Theory: This is the theory of Nassau Senior (1790-1864) and J. S. Mill (1806-1873). It is closely related to the time-preference theory, with which it is sometimes confused; and because of that fact and the

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<sup>1</sup>P. M. Taylor, Principles of Economics, op. cit., pp. 472-475.

<sup>2</sup>Infra, p. 44.

<sup>3</sup>H. Somers in Readings in the Theory of Income Distribution, op. cit., pp. 402-404.



considerable germ of inescapable truth in it, has survived a great deal of ill-informed and superficial attack. The theory, stated briefly, is that interest is the capitalist's reward for abstaining from the present pleasures of consumption and undergoing the pain of saving for the future. "To abstain from the enjoyment which is our power, or to seek distant rather than immediate results, are among the most painful exertions of the human will."<sup>1</sup> ". . . the lender or owner . . . practices . . . abstinence; and is remunerated for it by the interest paid to him."<sup>2</sup>

This theory has been made much fun of by reference to the unobvious painful abstinence of many of those who control much capital and collect much interest.<sup>3</sup> Such criticism seems in reality to be directed at the institution of inheritance and at inequality of wealth and income in general. On the whole capital is accumulated by saving (and investing) and on the whole saving does involve abstinence.<sup>4</sup>

<sup>1</sup>W. W. Senior quoted at Ferguson, op. cit., pp. 119-120. Cf. Whittaker, op. cit., p. 341; Davenport, The Economics of Alfred Marshall, op. cit., p. 13.

<sup>2</sup>J. S. Mill, Principles of Political Economy (London: Longmans, Green and Co., 1890), p. 408.

<sup>3</sup>See John A. Hobson (1858-1940), cited in Ferguson, op. cit., p. 199; Keynes, General Theory, op. cit., p. 376; "Interest today rewards no genuine sacrifice." Cf. also Tausig, op. cit., v. II, p. 41.

<sup>4</sup>Taylor, op. cit., p. 115.

Under the abstinence theory interest rates would be determined by the relative desirability of consumption, as with the time-preference theory.

5. The Exploitation Theory: This is a part of the over-all labor theories of value of Karl Marx (1818-1883), derived in part from Ricardo (1772-1823), Sismondi (1773-1842) and Rodbertus (1805-1878). By this theory all goods are the product of labor alone and rightly belong to labor; but labor is exploited by the capitalist classes, along with the landlords and managers (including presumably party and government officials, too), who thus parasitically live on their plunder.

While Ricardo originated a labor theory of value which is Marx's acknowledged starting-point,<sup>1</sup> his own thinking did not go so far; and in fact Ricardo reached no specific conclusion as to interest. He offered the alternative suggestion that compensation for accumulation of capital in some way represented a payment for time.<sup>2</sup> Furthermore he said, "Interest for money. . . . is not regulated by the rate at which the Bank will lend. . . . but by the rate of profits which can be made from the employment of

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<sup>1</sup>cf. Whittaker, op. cit., p. 523; Roll, op. cit., p. 264.

<sup>2</sup>David Ricardo, On the Principles of Political Economy and Taxation (3rd ed.,) (London: John Murray, 1821), pp. 34-36.

capital,"<sup>1</sup> "however subject to temporary variations from other (monetary) causes."<sup>2</sup> Ricardo's reasoning thus covered the field of interest theory and as always impresses the reader with its breadth and insight. Nevertheless it is the labor theory of value that Ricardo accented; and that fathered the exploitation theory of interest, even though Ricardo did not carry through to that conclusion.<sup>3</sup> Ricardo spoke of labor as "the foundation of all value"<sup>4</sup> and it was but a step therefrom and from Sismondi's incomplete labor explanation of interest,<sup>5</sup> to Marx' "General Law of Capitalist Accumulation:"<sup>6</sup>

. . . in a capitalist society - where the labourer does not employ the means of production, but the means production employ the labourer. . . the higher the productiveness of labour, the greater is the pressure of the labourers on the means of employment, the more precarious, therefore, becomes their condition of existence, viz., the sale of their own labour-power for the self-expansion of capital. . . within the capitalist system all methods of raising the social productiveness of labour are brought about at the cost of the individual labourer: all means for the development of production transform themselves into means of domination over, and exploitation of the producers; they degrade him. . . & subject him to. . . despotism

<sup>1</sup>Ibid., p. 436.

<sup>2</sup>Ibid., pp. 349-350.

<sup>3</sup>Roll, op. cit., p. 264.

<sup>4</sup>Ricardo, op. cit., p. 13.

<sup>5</sup>Whittaker, op. cit., p. 529.

<sup>6</sup>Karl Marx, Capital, A Critique of Political Economy (New York: The Modern Library, 1906), pp. 671 et seq.

. . . ; drag his wife and child beneath the wheels of the juggernaut of capital. . . Accumulation of wealth at one pole is, therefore, at the same time accumulation of misery, . . . slavery, . . . brutality, . . . degradation etc. . . . at the opposite pole.<sup>1</sup>

Thus "the appropriation of unpaid labour is the secret of surplus-value,"<sup>2</sup> and the "accumulation of capital is. . . the increase of the proletariat,"<sup>3</sup> "the labour of the poor being the mines of the rich."<sup>4</sup>

Marx reverts to the medieval attitude of denying any right to interest on capital; interest is eliminated as an independent revenue, being shown simply as a part of surplus-value produced by workers and appropriated by capitalists.<sup>5</sup> No account is taken of a time factor, the contention being that "the labourer should now receive the entire future value of his product," as Bohm-Bawerk pointed out.<sup>6</sup>

The productivity of capital goods being solely attributed to the labor in them, not to any capital or time or money factor; and the assessment of interest by propertied classes being simply an exercise of economic power, there is in the socialist theory no justification for interest at any rate

<sup>1</sup> Ibid., pp. 708-709.

Ibid., p. 653.

<sup>2</sup> Ibid., p. 673.

<sup>3</sup> Ibid., quoting John Hollers.

<sup>4</sup> Cf. Whittaker, op. cit., p. 529; Roll, op. cit., pp. 313-314; Ferguson, op. cit., p. 219.

<sup>5</sup> Eugen V. Bohm-Bawerk, Capital and Interest (London: Macmillan and Co., 1899), p. 332.

and no basis for an economic theory of the determination of the rate.

4. The Marginal-Productivity Theory: This is the theory ascribed principally to J. B. Clark (1847-1939) and F. H. Knight (1885- ). Its intellectual heritage is in the productivity theories of Adam Smith, influenced by the so-called marginal utility theories of value developed by the Austrian school (Karl Menger, 1840-1921; Friedrich von Wieser, 1851-1926; and Bohm-Bawerk who, however, went much further into interest theory and with somewhat different result). According to the Austrians and their numerous followers - the marginal theory being dominant in such present-day thinking - the distribution of income to the various producing agencies (land, labor, capital, management) is based in the last analysis on the value in exchange of the least important (and most costly, since the theory is related to a general diminishing-return hypothesis) unit of supply required to satisfy the least urgent unit of demand required to "clear the market." Therefore interest is the minimum payment to a unit of capital, and the maximum payment by a unit of management or labor, that at the margins of supply and demand will just bring forth the total number of units of capital used. Furthermore, since the minimum amount which the marginal capitalist can receive for the

use of his capital is the whole productivity of that marginal unit above its return to him intact, the marginal rate of interest will tend to equal the marginal productivity of capital.

The distinction between this theory and that of time-preference with which we have identified Bohm-Bawerk is more apparent than real. The time-preference theory looks at the problem from a subjective viewpoint on the supply side of capital; the productivity theorists are talking objectively about the source from which the payment for waiting must come - the productivity of capital in the interim of waiting, which is the demand side. This reconciliation of the theories will be discussed later herein.

Although he antedated the marginal theorists by a century and although his discussion of interest was incomplete, Adam Smith's basic contribution to the productivity theory cannot be overlooked. In his chapter on the "Profits of Stock" he notes that the rate of interest must rise or fall therewith,<sup>1</sup> and he later points out that the interest rate must vary inversely with the quantity of real capital,<sup>2</sup> (a diminishing-return theory).

J. B. Clark in his static state saw labor, capital

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<sup>1</sup>Adam Smith, Wealth of Nations, op. cit., p. 88.

<sup>2</sup>Ibid., pp. 94-96, 318-319.

(including land), and businessmen receiving what each created as determined by the doctrine of marginal utility, the return of capital being set by the productivity of the marginal unit thereof--that unit which just pays for itself as additional increments of capital are added subject to a principle of diminishing returns.<sup>1</sup> This is the familiar text-book marginal productivity theory of distribution,<sup>2</sup> into which our interest theory fits comfortably. The marginal productivity is the theory that Keynes called "classical" and against which he directed much of the argument of his General Theory: "the classical theory has inextricably confused. . . the rate of interest and the marginal efficiency of capital."<sup>3</sup> (The marginal efficiency concept Keynes presents, though it perhaps would not be accepted fully by the "classical" theorists, is sufficiently related to marginal productivity to identify this as the theory he

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<sup>1</sup>John Bates Clark, Essentials of Economic Theory as Applied to Modern Problems of Industry and Public Policy (New York: The Macmillan Company, 1907), pp. 126 et seq.

<sup>2</sup>Sperguson, op. cit., p. 245; Tausig, op. cit., v. II, p. 15: ". . . it seems to be agreed that the factor which determines the rate on interest on capital used for production (so far as it is dependent on demand) is the gain in efficiency or output accruing with the last or marginal installment of capital." For Tausig's comments on spend-thrift loans see Ibid., v. II, pp. 20-31, v. I, pp. 61-62.

<sup>3</sup>Keynes, General Theory, op. cit., p. 352.

he had in mind. Keynes' own theories of interest, savings and investment are presented in detail elsewhere herein.)

Currently F. H. Knight, author of the pertinent articles in Encyclopedia Britannica and Encyclopedia of the Social Sciences espouses an involved and difficult but challenging net marginal productivity theory:

"What any source actually produces in any interval of time is its imputed yield for that interval," reduced for "routine maintenance and eventual replacement" of the source itself.<sup>1</sup> "Under real conditions this rate 'tends' to be approximated at the margin of new investment (or disinvestment)."<sup>2</sup> ". . . the rate of interest on loans will tend to be equal to the theoretical rate of yield on real investment."<sup>3</sup> ". . . the marginal productivity of capital [is] the causal determinant of the rate of yield. . . ."<sup>4</sup>

Knight does not ascribe any important position to the "psychological" time-preference-abstinence theories of Bohm-Bawerk, Senior, and Fisher,<sup>5</sup> and ascribes only short-run effect to the monetary theories.<sup>6</sup> He believes that the interest rate will not be appreciably affected by ordinary changes in the amount saved per unit of time,<sup>7</sup> although it will "respond 'permanently' to changes on the side of demand,

<sup>1</sup>F. H. Knight, "Capital and Interest," Encyclopedia Britannica, 1946, reproduced in Readings in the Theory of Income Distribution, op. cit., p. 395.

<sup>2</sup>Ibid., p. 396.

<sup>3</sup>Ibid.

<sup>4</sup>Ibid., p. 397.

<sup>5</sup>Ibid., pp. 397 et seq.

<sup>6</sup>Ibid., pp. 404 et seq.



such as result from an important technological advance. .

. . .<sup>1</sup>

Most important in understanding this productivity theory is the concept that interest is a ratio - a percentage per unit of time - which the investor or lender receives in money in an amount determined by the ratio of "real" excess product to the "real" capital used. The marginal concept then determines the effective rate for all capital and all money investment.

According to Somers, Knight's theory has long-run validity in the sense that "the marginal rate of return on capital may be considered to be the magnitude which tends to be in adjustment with the other marginal rates of return."<sup>2</sup> The Knight theory has been strongly attacked by F. A. von Hayek,<sup>3</sup> who tends to support Bohm-Bawerk just as Knight does J. B. Clark.

#### D. MONEY THEORY OF INTEREST

##### 1. The Liquidity-Preference Theory: This is Keynes'

Ibid., p. 401.

Somers in Readings in the Theory of Income Distribution, op. cit., p. 498.

3. F. A. von Hayek, "The Mythology of Capital," in Readings in the Theory of Income Distribution, op. cit., pp. 355 et seq. and "A Comment," Economics, V. X (November 1943), p. 311.

(1903-1916) General Theory of interest. It is concerned wholly with monetary phenomena and is founded on the presumption that savings are accumulated as a result of individual subjective reactions to changes in the level of income, and irrespective, as far as the saver is concerned, of the rate of interest. These savings appear in the form of money, which the saver prefers to hold in liquid form. The interest rate is set at that point which appeals to the saver, subjectively, as sufficient to persuade him to part with the liquidity of his uninvested funds. "Thus the rate of interest at any time, being the reward for parting with liquidity, is a measure of the unwillingness of those who possess money to part with their liquid control of it."<sup>2</sup>

Interest "is the reward of not hoarding" and "hoarding" is a "first approximation to the concept of liquidity-preference."<sup>2</sup> In more detail, "the three divisions of liquidity-preference" are "(i) the transactions motive, i.e. the need of cash for . . . . current transaction(s) . . . ; (ii) the precautionary motive, i.e. the desire for security . . . ; and (iii) the speculative motive, i.e. the object of securing profit from knowing better than the market what the future will bring forth."<sup>3</sup>

And the current rate of interest depends . . . not on the strength of the desire to hold wealth,

<sup>1</sup>Keynes, General Theory (1936), op. cit., p. 167.

<sup>2</sup>Ibid., p. 174.

<sup>3</sup>Ibid., p. 170.

but on the strengths of the desires to hold it in liquid and illiquid forms respectively, coupled with the amount of the supply of wealth in the one form relatively to the supply of it in the other.<sup>1</sup>

The desire to hold money (for liquidity) tends to keep the rate of interest higher than the return on capital may be and thus tends to retard the growth of capital.<sup>2</sup> Prof. Hansen holds to much the same view, emphasizing the "functional relationship between the rate of interest and the volume of money the public wishes to hold."<sup>3</sup>

The rate of interest to Keynes is "a highly psychological phenomenon," a "highly conventional . . . phenomenon . . . governed by the prevailing view as to what its value is expected to be."<sup>4</sup> According to Somers' analysis, Keynes has not accepted the view that production or thrift can directly affect the interest rate, nor does his theory seem to offer any real explanation of the determinants of the rate.<sup>5</sup> However, the "psychological and conventional" forces above mentioned are the key to the problem. They are the real determinants of the rate of interest to

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<sup>1</sup>Ibid., p. 213

<sup>2</sup>Ibid., pp. 239-242.

<sup>3</sup>Hansen, Economic Policy and Full Employment, op. cit. pp. 229-230.

<sup>4</sup>Keynes, General Theory, op. cit., pp. 202-203.

<sup>5</sup>Somers in Readings in the Theory of Income Distribution, op. cit., pp. 494-496.

Keynes. They thus constitute that rate as an independent variable, not influenced directly by saving and investment, but determined by what men believe it should be worth to part with "liquidity."

2. The Loanable-Funds Theory: This theory has been advocated by J. A. Schumpeter (1883- ), D. H. Robertson (1890- ), and O. Haberler (1900- ) and earlier by J. B. C. Murray (1866) and H. J. Davenport (1913). It also is purely monetary. It is quite similar to liquidity-preference except that it turns on the whole supply of money as a loanable fund available to the demand of borrowers--"money has a market price"--instead of simply on the demand and supply of cash.<sup>1</sup>

The differences between the loanable-funds and liquid-preference theories may be seen as reactions against Keynesian overstatements but they do not go outside Keynes' monetary picture of the interest phenomenon. Thus Haberler sees in Keynes an overestimate of the propensity to hoard, as well as a mistaking of cyclical (short-term) for secular (long term) trends and an excessive pessimism in other aspects of the theory.<sup>2</sup>

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<sup>1</sup>Ibid., p. 496.

<sup>2</sup>Haberler, "The Interest Rate and Capital Formation," Capital Formation and Its Elements, op. cit., pp. 122 et seq.

According to D. H. Robertson "the rate of interest is . . . what people have always supposed it to be - the price of the use of loanable funds. . . . a special case of the general theory of pricing."<sup>1</sup> Continuing:

"The amount of loanable funds which people are willing to put on the market" consists of:

- (1) Current savings,
- (2) "discount savings" (re-investments),
- (3) "net disboardings,"
- (4) net additional bank loans;

and the "amount of loanable funds which people are willing to take off the market" includes:

- (1) funds for new fixed or working capital,
- (2) funds for maintenance or replacement of existing capital,
- (3) funds to be "put into store,"
- (4) funds for expenditure on consumption in excess of current income.<sup>2</sup>

F. A. Lutz follows this theory: "The interest rate is the price for loanable funds in the market and is, like any other price, determined by supply and demand."<sup>3</sup> Schumpeter's correlary theory holds that "Interest is a premium on present over future means of payment, or . . . the price paid by borrowers for a social permit to acquire commodities and

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<sup>1</sup>D. H. Robertson, Essays in Monetary Theory (London: P. S. King & Son, Ltd., 1940), p. 10.

<sup>2</sup>Ibid., pp. 2-3.

<sup>3</sup>F. A. Lutz, "Inflation and Interest Rates," Commercial and Financial Chronicle, v. 163 (June 9, 1946), p. 3055.

services. . . . without having previously contributed other commodities and services to the social stream."<sup>1</sup> Thus "interest is a value phenomenon and an element in price."<sup>2</sup>

### B. THE RECONCILIATION

On the general premises that (a) there is some truth in each of the named theories (and no doubt in others unnamed and un-thought of yet), and that (b) human beings vary greatly in their motivations, it may well be that a wise choice and reconciliation of theories will serve us better than insistence on any one. Efforts to make such reconciliations have been made by the following economists, among others:

(1) Conflicts between the subjective and objective non-monetary theories have been satisfactorily reconciled by Alfred Marshall (1842-1924).

(2) The conflict between the two leading monetary theories, both of relatively recent evolution in their present statements, is the subject of

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<sup>1</sup>J. A. Schumpeter, Business Cycles, A Theoretical, Historical, and Statistical Analysis of the Capitalist Process (New York: McGraw-Hill Book Company, Inc., 1939), v. I, p. 123.

<sup>2</sup>J. A. Schumpeter, The Theory of Economic Development (Cambridge, Mass.: Harvard University Press, 1936), p. 173.

much current discussion; there is no unbridgeable chasm between them.

(3) The over-all conflict between the non-monetary and monetary theories is generally viewed as irreconcilable "in which one side must be right and the other wrong."<sup>1</sup> However, the clarifying approach of Ernst Hirsch (1851-1926), who somewhat anticipated the current controversy, will not be overlooked.

1. Non-Monetary: As to the non-monetary theories prevalent in his time, it was characteristic that Alfred Marshall would present a careful balancing of arguments. To begin with he envisaged a continued expansion of man's wants and thus of the demand for capital and for productive investment.<sup>2</sup> On the other hand he saw the need for a reward for waiting and saving to supply capital, along the lines of Bohm-Bawerk's theses.<sup>3</sup> The analysis lent itself readily to familiar demand and supply terms, the demand side being for capital-investment, the supply side saving-waiting, and interest being the resultant price.<sup>4</sup> "The chief demand for

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<sup>1</sup>J. H. Hicks, Value and Capital (Oxford: The Clarendon Press, 1939), p. 155, quoted by Somers in Readings in the Theory of Income Distribution, op. cit., p. 379.

<sup>2</sup>Alfred Marshall, Principles of Economics, op. cit., p. 223.

<sup>3</sup>Ibid., pp. 234-235.

<sup>4</sup>Ibid., pp. 320-321, 334.

capital arises from its productiveness . . . . The supply of capital is controlled by the fact that, in order to accumulate it . . . . men must 'wait' and 'save,' they must sacrifice the present to the future."<sup>1</sup> An increase in the demand, he believed, would be manifest by a rise in the interest rate and a transfer of capital "from those uses in which its marginal utility is lowest."<sup>2</sup>

This is a satisfactory synthesis of the productivity and time-preference-abstinence theories, not repugnant to either; and there have been no recent developments in either that materially restrict the applicability of Marshall's approach.

As to the socialist exploitation theories of interest Marshall agreed with Bohm-Bawerk (supra, p. 39) that capital is the product not of labor alone but of "labor and waiting,"<sup>3</sup> and he believed that Marx had misinterpreted Ricardo.<sup>4</sup>

2. Monetary: As has been noted, the differences between the liquidity-preference and loanable-funds theories are more superficial than real. The loanable-funds group itself tends to minimize its differences with Keynes.<sup>5</sup>

<sup>1</sup>Ibid., p. 61.

<sup>2</sup>Ibid., p. 534.

<sup>3</sup>Ibid., p. 537.

<sup>4</sup>Ibid., p. 503.

<sup>5</sup>Somers in Readings in the Theory of Income Distribution, op. cit., p. 478.



Bear in mind that:

According to the loanable-funds theory, the rate of interest is determined by the demand and supply of loanable funds. According to the liquidity-preference theory the rate of interest is determined by the demand and supply of cash. These statements are mutually consistent, provided that we interpret the liquidity-preference theory . . . to mean that the demand and supply of cash determines the marginal rate of return on cash, which . . . is made equal to the rate of interest by a process of mutual adjustment.<sup>1</sup>

The two theories are thus an "identical multi-dimensional device."<sup>2</sup> Indeed the liquidity-preference theory may be viewed as "the methodology of the loanable-funds theory in disguise."<sup>3</sup> (Another reconciliation of the two theories which accepted interest as a wholly monetary phenomenon suggests that Schumpeter's theory represents the supply side and Keynes' the demand side of the savings-investment picture. "Both find their basis in the uncertainty of human events."<sup>4</sup>)

<sup>1</sup>Ibid., pp. 496-497.

<sup>2</sup>Em. Fellner and H. M. Somers, "Alternative Monetary Approaches to Interest Theory," Review of Economic Statistics, v. 23 (February 1941), p. 43.

<sup>3</sup>Ibid., A. F. Lerner objects to the secondary importance assigned to liquidity-preference by Fellner and Somers, in "Interest Theory; Supply and Demand for Loans or Supply and Demand for Cash," Review of Economic Statistics, v. 26 (May 1944), pp. 88 et seq. Fellner and Somers reply to Lerner, Ibid., p. 92.

<sup>4</sup>A. Smithies, "The Quantity of Money and the Rate of Interest," Review of Economic Statistics, v. 23 (February 1941), p. 65.

5. Non-Monetary and Monetary: No eclectic has evolved an adequate compromise between the non-monetary and monetary schools. Theodore Morgan's "joint formulation of Fisher and Keynesian interest theories" evolves of Fisher's "time-preference" and Keynes' "estimate of the future" a "marginal utility of a future marginal utility" and relates also the yield of capital through income expectations to liquidity preference; but the reasoning is tenuous and the impression remains that the basic differences are more accentuated than reconciled.<sup>1</sup>

The approach of the Swedish economist, Knut Wicksell, deserves much more attention. He believed that the marginal productivity of capital is a chief limiting factor on interest rates, and that there is a normal money rate which corresponds to this natural rate (not the "natural rate of interest" of early writers); but that the market rate in a credit economy is a monetary phenomenon determined by money borrowed and lent as distinguished from real goods which are bought and sold. The market rate can deviate from the normal rate because of the expansibility of bank credit but changes in the general price level will accrue accordingly.

<sup>1</sup>T. Morgan, "Interest, Time Preference and the Yield of Capital," American Economic Review, v. 33 (March 1943), p. 51.

Wicksell's argument runs:

He who borrows money does not, as a rule, intend to keep it but to exchange it at the first suitable opportunity for goods and services, by the productive use of which he hopes to be able to acquire. . . . a surplus value, which constitutes the real rate of interest and more or less corresponds to the interest on the loan which he must himself pay.<sup>1</sup>

Capital is saved up labor and saved up land. Interest is the difference between the marginal productivity of saved up labor and land and of current labor and land.<sup>2</sup>

Real capital goods [are not] actually borrowed and lent; they are now bought and sold.<sup>3</sup>

It is money which is lent, and the commodity capital is then sold in exchange for this money.<sup>4</sup>

Money does not enter into the process of production; it is in itself, as Aristotle showed, quite sterile.<sup>5</sup>

[Thus there are two factors:] (1) the amount of loanable funds, and (2) the amount of goods to be bought with borrowed funds and so used as to enable the borrower to repay his obligations.<sup>6</sup>

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<sup>1</sup>Knut Wicksell, Lectures on Political Economy (189 ), trans. E. Classen (London: George Routledge and Sons, Ltd., 1934), v. II, p. 191.

<sup>2</sup>Ibid., v. I, p. 154.

<sup>3</sup>Knut Wicksell, Interest and Prices, A Study of the Causes Regulating the Value of Money (1893), trans. R. F. Kahn (London: Macmillan and Co., Ltd., 1936), pp. 102, 136.

<sup>4</sup>Ibid., p. xxvi.

<sup>5</sup>Wicksell, Lectures, op. cit., v II, pp. 190-191.

<sup>6</sup>Boassey, Interest and Usury, op. cit., p. 8, (discussing Wicksell).

The rate of interest charged for loans [is a factor both of the] movement of prices [and] the natural rate of interest on capital, . . . the rate which would be determined by supply and demand if real capital were lent in kind without the intervention of money.<sup>1</sup>

But money . . . is elastic in amount.<sup>2</sup>

The supply of money is more and more inclined to accommodate itself to the level of demand.<sup>3</sup> [and thus will tend to equate the market and normal rates.<sup>4</sup>]

Thus the rate for money is not necessarily the rate for real capital.

Economists frequently go too far when they assume that the economic laws which they have deduced on barter assumptions may be applied without qualification to actual conditions in which . . . the use or misuse of money may in fact actively influence actual exchange and capital transactions.<sup>5</sup>

Wicksell accepted Say's law of the equivalence of supply and demand for goods<sup>6</sup> (in which he differs from Keynes<sup>7</sup>), so variations between the market interest rate, determined by money loans, and the normal or natural rate, determined by the yield of real capital, if the variations persist for a considerable period of time, will be reflected in changes in the price level.<sup>8</sup>

<sup>1</sup>Wicksell, Interest and Prices, op. cit., p. xxv.

<sup>2</sup>Ibid., p. 133. <sup>3</sup>Ibid., p. 110. <sup>4</sup>Ibid., pp. 104-105.

<sup>5</sup>Wicksell, Lectures, op. cit., v. II, p. 6.

<sup>6</sup>Wicksell, Interest and Prices, op. cit., p. 213.

<sup>7</sup>Keynes, General Theory, op. cit., p. 28.

<sup>8</sup>Wicksell, Interest and Prices, op. cit., pp. 106-107.

Remember that Wicksell was a contemporary of Marshall, not of Keynes. Interest and Prices antedated the General Theory by 60 years. No purely monetary theory received wide or serious consideration between Adam Smith's partial rout of the mercantilists in 1776 and the General Theory in 1936. Thus the eventual place of monetary theories of interest has not yet been found in history's perspective; adequate testing in the real world has not yet taken place; generations of thinkers have not yet considered and compared. That the theories will find a place in economic thought can not now be doubted in view of convincing statistical evidence now available, and which will be later considered herein. However, that is not to say that the non-monetary theories are dead and buried. A synthesis of the two schools seems more than likely, in which event Wicksell's work will no doubt become better known.

## CHAPTER III

### SOME EMPIRICAL TESTS OF MONETARY V. NON-MONETARY THEORIES

#### A. RELATIONSHIP OF MONETARY AND NON-MONETARY THEORIES TO THE QUANTITY OF MONEY AND THE PRICE LEVEL

As a point of view from which the purely non-monetary v. monetary conflict may be further examined, the quantity-of-money theory of prices naturally comes to mind. If the monetary theorists are right in whole or large part, the interest rate should react in some way with the general price level. If the non-monetary theories are valid, interest as a rate should not in the long run change with changes in the quantity of money, being uninfluenced thereby except temporarily. The dollar price of a certain interest rate and the dollar price of the related capital would fluctuate together with the price level and their percentage relationship would remain unchanged.

It is not questioned by either school that interest is a "price," in the sense that it has exchange value expressed in monetary terms and responds to the demand and supply of

something.<sup>1</sup> The question is whether or not it is a member of the general family of prices subject to the influence of the quantity (and velocity, etc.) of money. If a matter of the demand and supply of cash or money funds, then interest by definition will be responsive to greater or less money supply (inversely according to the theories--more money, lower interest; and vice versa), and should vary closely but in opposite direction to the general price level (which fluctuates directly with the supply of money, velocity, etc., considered). If such is not the case the conclusion should

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<sup>1</sup>Marshall: "Interest, being the price paid for the use of capital in any market, tends towards an equilibrium level such that the aggregate demand . . . is equal to the aggregate stock forthcoming." Principles of Economics, op. cit., p. 334.

Issig: "The rate of interest for long periods . . . depends on the demand for capital with reference to a supply . . . It depends on a race between accumulation and improvement." Principles of Economics, op. cit., v. II, p. 27.

Irving Fisher: "The rate of interest must be such as will clear the market, that is, equalize supply and demand." The Theory of Interest, op. cit., p. 149.

Schumpeter: "Interest is a value phenomenon and an element in price -- we have this much in common with every scientific theory of interest." The Theory of Economic Development, op. cit., p. 173.

Keynes: "The rate of interest is not the 'price' which brings into equilibrium the demand for resources. . . with the readiness to abstain . . . It is the 'price' which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash." General Theory, op. cit., p. 167.

B. M. Anderson: "Right interest rates are those which equate the supply of capital to the demand for capital." In Financing American Prosperity, op. cit., p. 29.

go against the monetary theories.<sup>1</sup> (In either case the extraneous factors of risk, etc., should be eliminated so far as possible.)

1. Non-Monetary Theories and the Quantity of Money: As we have seen, the non-monetary theorists hold the opinion that since interest is a ratio, it will not in the long run be influenced by the quantity of money. These theories are reducible, as Marshall has shown, to a proposition of the supply and demand of real capital, just as the monetary theorists speak of the supply and demand of money.

Adam Smith's term, "the quantity of stock," refers to real capital goods as contrasted to monetary capital funds. In his Lectures on Justice, Police, Revenue and Arms, delivered in 1763 in the University of Glasgow and reported by a student, he said:

Of Interest: . . . . It is commonly supposed that the premium of interest depends upon the value of gold and silver. The value of these are regulated by their quantity. . . . However . . . . the premium of interest is regulated by the quantity of Stock.<sup>2</sup>

In Wealth of Nations the point is reiterated:<sup>3</sup>

<sup>1</sup>cf. A. Smithson, "The Quantity of Money and the Rate of Interest," op. cit.

<sup>2</sup>Adam Smith, Lectures. . . . (1763), in Patterson, Readings in the History of Economic Thought, op. cit., p. 52.

<sup>3</sup>Adam Smith, Wealth of Nations, op. cit., p. 334.



Loans are made in money but what the borrower wants and gets is goods . . . . The quantity of stock . . . . or of money which can be lent at interest . . . . is not regulated by the value of money . . . . but by the value of that part of the annual produce [which is destined to be used as capital.]

A capital lent at interest may . . . . be considered as an assignment from the lender to the borrower of a certain considerable portion of the annual produce; upon the condition that the borrower in return shall annually assign to the lender a smaller portion, called the interest; and at the end of it [an equal portion] called the repayment.<sup>1</sup>

As the quantity of stock to be lent at interest increases, the interest, or the price which must be paid for the use of that stock, necessarily diminishes . . . . As capitals increase in any country, the profits which can be made by employing them necessarily diminish. . . . (and the) rate of interest [the price which can be paid for the use of capital] must necessarily diminish with them.<sup>2</sup>

It is utterly impossible that the lowering of the value of silver could have the smallest tendency to lower the rate of interest. . . . The proportion between the value of the capital and that of the interest, must have remained the same.<sup>3</sup>

Similarly with J. B. Clark:

It is the increase of capital in kind that fixes the rate of loan interest . . . . Loan interest varies more or less from the marginal earnings of capital; but interest as paid in money accurately expresses interest as determined in kind by the play of economic forces.<sup>4</sup>

<sup>1</sup>Ibid., p. 335.

<sup>2</sup>Ibid., p. 336.

<sup>3</sup>Ibid., p. 337.

<sup>4</sup>J. B. Clark, Essentials of Economic Theory, op. cit., pp. 547-548.

As previously noted, F. S. Knight follows closely J. B. Clark. For the productivity school of thought the picture of interest as influenced by a quantity of real capital-- "a continuous organic whole, a fund measured in value units"<sup>1</sup> is fairly clear. While in Knight's work the question of whether or not the quantity of money has other than a short-term effect on the interest rate, is not squarely faced,<sup>2</sup> the theory of interest as a marginal productivity ratio of real physical goods produced, to real capital used, would seem to deny that it has.<sup>3</sup>

J. S. Mill of the abstinence theorists is explicit:

The rate of interest, then, depends essentially and permanently on the comparative amount of real capital offered and demanded in the way of loan; but is subject to temporary disturbance . . . from increase and diminution of the circulating medium.<sup>4</sup>

For the time-preference theory, the most complete presentation is that of Irving Fisher, who devotes a considerable part of his Theory of Interest to the relationship

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<sup>1</sup>F. S. Knight, "The Quantity of Capital and the Rate of Interest," Journal of Political Economy, v. XLIV (August 1936), p. 460.

<sup>2</sup>Of. F. S. Knight, "Capital and Interest," Readings in the Theory of Income Distribution (1946), op. cit., p. 407.

<sup>3</sup>And this conclusion is supported by Tausseig's analysis. Principles of Economics, op. cit., v. I, p. 352; v. II, p. 6. Cf. supra p. 49.

<sup>4</sup>J. S. Mill, Principles of Political Economy, op. cit., p. 667.

between interest and prices. Nevertheless, although noting the historical correlation between the two,<sup>1</sup> his conclusion is that "the rate of interest and the purchasing power of money are two different things." He denies that "the rate of interest is the price of money."<sup>2</sup> He finds that "interest rates follow price changes closely in degree, though rather distantly in time" through "the intermediation of changes in profits and business activity" and concludes that monetary influences are important disturbing factors but are not the "fundamental and more normal causes" of interest and its rate.<sup>3</sup> P. M. Taylor, a chief text-book writer of the time-preference theory (supra p. 34), goes further than Fisher, denying any long-run influence of the quantity of money on interest rates although acknowledging a short-run influence.<sup>4</sup>

Alfred Marshall concluded: ". . . there is no substantial difference between the loan of the purchase price of a horse and the loan of a horse."<sup>5</sup> But ". . . the rate of interest which the borrower is willing to pay measures the benefit that he expects to derive from the use

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<sup>1</sup>Irving Fisher, The Theory of Interest (1933), op. cit., pp. 399-451.

<sup>2</sup>Ibid., pp. 46-47.

<sup>3</sup>Ibid., p. 431.

<sup>4</sup>P. M. Taylor, Principles of Economics (1925), op. cit., p. 479.

<sup>5</sup>Marshall, Principles of Economics, op. cit., pp. 595-596.

of capital only on the assumption that the money has the same purchasing power when it is borrowed and when it is returned."<sup>1</sup> Marshall emphasized that "the rate of interest is a ratio,"<sup>2</sup> and it follows from his reasoning that the quantity of money as such would not exert long-run influence on the rate.<sup>3</sup>

2. Monetary Theories and the Quantity of Money: When interest is viewed as a payment for money rather than for capital, as a price of loanable funds, the quantity of money is by definition a determinant of that price ("money has a market price" supra, p. 47). That the quantity of money is also a determinant of interest under the liquidity-preference branch of monetary interest theory is evident in Keynes' writing:

As a rule, we can suppose that the schedule of liquidity-preference relating the quantity of money to the rate of interest is given by a smooth curve which shows the rate of interest falling as the quantity of money is increased.<sup>4</sup>

<sup>1</sup>Ibid., pp. 393-394.

<sup>2</sup>Ibid., pp. 73, 412.

<sup>3</sup>However, Marshall was not a follower (or student) of the quantity theory of money. Ibid., p. 393 for example (cf. Whittaker, op. cit., p. 663); and in his Principles, Marshall takes little or no account of general changes in the price level, op. cit., p. 62.

<sup>4</sup>Keynes, General Theory, op. cit., p. 171. Cf. also Ibid., pp. 197, 208-209, 293. This appears the opposite of Keynes' position in his Lectures on Money (New York: Harcourt, Brace and Company, 1930), v. II, p. 192.

Prof. Hanson adds: ". . . an increase in the money supply will tend to lower the rate of interest" and thus "The fiscal and monetary authorities can create any desired volume of money and this will assure a low rate of interest."<sup>1</sup>

The monetary theories are thus bound to the proposition that the supply of money is a determinant of the rate of interest, and that the greater the relative supply to the volume of trade, the lower should be the rate of interest. Their historic background in this goes back to John Locke, from whom the preceding phrase is almost verbatim.<sup>2</sup> Inasmuch as the general price level is generally regarded as a measure of the same relationship, a correlation between the price level and the interest rate should be of great significance to this inquiry. By this it is meant that the general price level over long periods of time is regarded as a reflection of monetary phenomena. The greater the quantity of money (including bank credit) and its velocity in circulation, in relation to the volume of trade in goods and services, the higher will be the general price level. The lesser the relative volume of money so defined, the lower will be the price level. It is submitted that if the interest rate is

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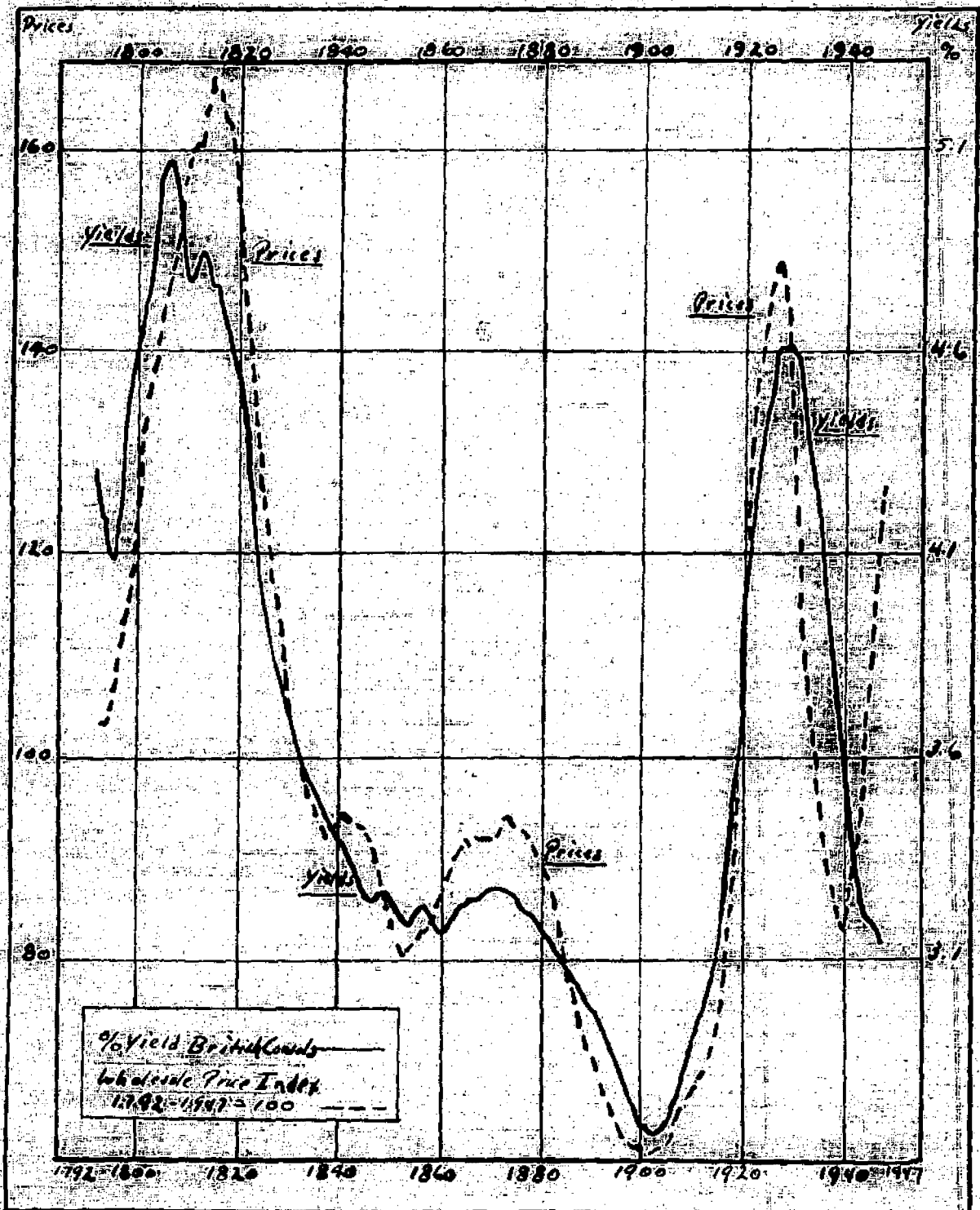
<sup>1</sup>Hanson, Economic Policy and Fully Employment, op. cit., p. 229.

<sup>2</sup>Quoted by Whittaker, op. cit., p. 531; Gorman, Review of Economic Theory, op. cit., p. 251.

essentially a monetary phenomenon, and a member of the general family of prices, it will be affected by the same influences as affect the general price level and the two will move together. If the two do move together a presumption will arise that they are affected by the same forces. This would support or perhaps be tantamount to a presumption that interest, like the price level, is a monetary phenomenon. If no relationship persisted over long periods a presumption is ~~indicated~~ that the interest rate is not such a phenomenon. The purpose is to inquire into whether a correlation of prices and interest rates has existed, as a test of the monetary or non-monetary character of the interest rate.

3. Statistical Correlation: Attention is here invited to Chart II on the next page. A close positive correlation between long-term interest rates and the general price level is at once apparent. As with any statistical correlation, a conclusion of cause-and-effect or of a common cause does not necessarily follow; but that is not to deny that there might be a causal relationship. The existence of such a close and consistent correlation as is here the case raises a strong presumption that the interest rate is a monetary phenomenon.

CHART II  
Movement of Wholesale Prices in Britain and Yield of British Consols  
1792-1947



Source: G. E. Jackson, formerly Professor of Finance, Univ. of Toronto and Adviser to the Bank of England, "Interest Rate, Price level and Keynesian Ideology," *Commercial and Financial Chronicle*, CLXVI (July 10, 1947), p. 33. Basic data attributed to Jevons, "The Statist" for wholesale prices and Gordon and Pearson and "The Economist" for yield of Consols (perpetual govt. debentures). Five-year moving averages are used.

But that the correlation is positive is no comfort to the dominant monetary theorists because according to their theories the correlation should be negative (supra, pp.

63-64 ). It would seem that the non-monetary group must explain the correlation away. The monetary group must almost deny that it exists to justify their positive statements quoted above.

Yet this correlation exists and has prevailed consistently for 150 years - as long as reliable measures have been available, except for the sharp opposite trends of the past half-dozen years. As to these recent years governmental controls have been all-powerful; also we may have but a time-lag - there is some indication to that effect. It is easier to explain six years than a century and a half.

Many studies of this interest rate-price level correlation have been made. The most detailed is that of F. R. Macaulay for the National Bureau of Economic Research (1938), covering the periods 1857-1936 for the United States and 1780-1936 for Great Britain<sup>1</sup>. This work surveys the

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<sup>1</sup>F. R. Macaulay, Some Theoretical Problems Suggested by the Movements of Interest Rates, Bond Yields and Stock Prices in the U. S. Since 1850 (New York: National Bureau of Economic Research, 1939); see especially charts, pp. 168, 178, 181 and pp. 163-208 and the supporting tables.



problem so exhaustively, from so many angles, with such a wealth of original data and so commendable a caution of generality and forecast, that there seems little room for doubt that as an historical fact during the period studied, interest rates have varied directly and closely with the general price level. For the United States, Macaulay used railroad bond yields and wholesale commodity prices; and for Great Britain he used the yield of British consols (perpetual government debentures) and wholesale prices. The latter are also the basis of G. E. Jackson's independent study, which is the source of Chart II herewith.<sup>1</sup> Macaulay's study is confirmed by Jackson for Great Britain for the period 1792-1940, and Macaulay found even closer correlation in the United States (Jackson presented no American data): bond yields vary directly with prices; bond prices vary inversely with general prices. O. K. Burrell's American data brings him to the same conclusion. Burrell tends to the monetary loanable-funds theory, and further emphasizes psychological factors accompanying inflationary and deflationary movements.<sup>2</sup>

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<sup>1</sup>G. E. Jackson, "Interest Rate, Price Level and Keynesian Ideology," Commercial and Financial Chronicle, v. 166 (July 10, 1947), p. 33.

<sup>2</sup>O. K. Burrell, The Behavior of Bond Prices in Major Business Cycles (Eugene, Oregon: University of Oregon, 1932), pp. 5, 6, 11-13, 15; the opposite conclusion on p. 62 is inadvertent.

Apparently Macaulay lived with his project for some time, and the more he studied it the more troubled he was, because, like Irving Fisher (supra, p. 62), he could not reconcile the obvious correlation with the existent theories. He cannot be accused of jumping to a conclusion, and he is too honest to fit the statistics to theory. He tends to conclude that the correlation may be purely empirical, a coincidence. From his work we learn as he many times points out that the statistical answer is not and cannot be an end in itself but a tool of logic. Burrell, as with Macaulay, warns against too hasty conclusions from empirical correlations of this sort.<sup>1</sup>

However, making use of such facts as are available to us for whatever they may be worth, it must be acknowledged that there exists marked statistical evidence that interest is a monetary phenomenon.<sup>2</sup>

#### B. LONG-TERM AND SHORT-TERM INTEREST RATES

It is an easy answer to the monetary - non-monetary conflict to interpret long-term rates as a function of productivity and abstinence, and the short-term as

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Ibid., pp. 12-13.

<sup>2</sup> Cf. Rees and von Salliski, "The Determination of Interest Rates," Journal of Political Economy, v. 50 (August 1942), p. 501.

essentially monetary phenomenon.<sup>1</sup> Whether this is indicated by the record is not so clear.

Over a considerable period of time, long-term rates have been remarkably steady while short-term tend to fluctuate considerably. There is little or no correlation between the levels of long and short-term rates; and not much between their directions of movements, although it is possible to discern gradual secular trends in which both participate.<sup>2</sup> The short-term rise in 1946, unaccompanied by any long-term companion movement, means nothing in the long run, there being numerous temporary factors always at work. There simply is not a "natural level" of the short-term rates and no fixed relationship between them and the long-term.<sup>3</sup>

It is perfectly apparent that "Interest rates on loans vary according to the condition of the money market, the position of the borrower, and the duration of the loan."<sup>4</sup> This empirical observation serves as a reasonable and understandable "business" definition. It may contribute nothing

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<sup>1</sup>Cf. Whittaker, op. cit., pp. 550-560.

<sup>2</sup>J. L. Daniel, "Interest Rates, Long-term v. Short-term," Economica, v. 7 (July 1940), p. 172.

<sup>3</sup>J. H. Clarke, "Trend of Interest Rates," Commercial and Financial Chronicle, v. 165 (February 20, 1947) p. 939.

<sup>4</sup>Jordan, Investments, op. cit., p. 167.

to theoretical analysis. Yet is that the case? May it not be after all real support for a monetary theory of interest? That short-term rates may be monetary in nature does not mean that long-term are non-monetary by definition. Long-term rates by their very nature, being contracts for relatively long periods of years or even in perpetuity, are exempt from much day-to-day, month-to-month, even year-to-year influence because of the great stabilizing effect of long-term sacrifice of liquidity.

F. A. Lutz' conclusions based on his study of this problem seem to be tenable:

- (1) The long-term rate can be conceived as a sort of average of the short-term rates, but
- (2) The long-term cannot fluctuate as widely as the short-term;
- (3) The rates may move temporarily contra-wise;
- (4) Only the long-term rate affects investment;
- (5) Because of changing expectations, there is no such thing as "the" rate which determines investment; but
- (6) A wide temporary gap between long-term and short-term may considerably influence borrowing;
- (7) The relationship between interest rates on different maturities is determined in the main by expectations as to the future course of interest rates; and finally
- (8) Since the short-term rate is frequently for long intervals above the long-term, the liquidity-preference theory of interest rates is not tenable.<sup>1</sup>

Conclusion (8) is important--liquidity-preference

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<sup>1</sup>F. A. Lutz, "The Structure of Interest Rates," Quarterly Journal of Economics, v. LV (1940-1941), pp. 36-53, in Readings in the Theory of Income Distribution (1946), op. cit., pp. 499-529.

requires that short-term rates be consistently and markedly below long-term, and the more distant the maturity the higher should be the rate. This conclusion is the same as that following from the direct correlation between prices and rates, and inso facto the quantity of money. The existing monetary theories demand inverse correlations between prices and rates and between rates and liquidity. Neither condition exists.

Thus, while interest is apparently a monetary phenomenon, it is not explained by the present dominant monetary theories.

### C. THE INCREASE IN PRODUCTIVITY AND THE TREND OF INTEREST RATES

Having tested monetary theories against the price level and against the short-term v. long-term comparison we may well seek some measure by which to judge the non-monetary theories. Let us consider the productivity of capital.

It is recognized that marginal theories of value and distribution do not necessarily equate the interest rate to the whole productivity of capital but to that of the marginal or least productive unit used. Nevertheless had the interest rate varied with productivity in the past, productivity theorists would have been entitled to regard that fact as evidence on their side. It is well, therefore, to

look into the facts as to what the past accumulation of productive goods has contributed to human production in comparison with the return received by the owners of capital. Since capital's productivity has increased steadily and substantially while interest rates have shown no secular increase whatever, the inference must be strong that productivity is not the sole, and perhaps not an important, determinant of the rate. To hold otherwise is to assume complete elasticity of both the supply and demand of capital--savings equal to all demand and investment equal to all supply.

The long-time stability of interest rates has been quite marked. For three hundred years the rate for good security (high-grade private and governmental bonds) has fluctuated generally within the range from 3% to 5%, occasionally approaching 0%.<sup>1</sup> Around the turn of the 18th-19th centuries in Holland,<sup>2</sup> and now again in the United States in the 1940's, the best governments have yielded as little as 2%. (International Bank for Reconstruction and Development 2% of 1937 and 3% of 1972, floated in July, 1947 in

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<sup>1</sup> Tausanig, op. cit., v. II, p. 26.

<sup>2</sup> Ricardo, op. cit., p. 340; Malthus, op. cit., p. 235; J. S. Mill, op. cit., p. 780.

the limited amount of \$250 millions<sup>1</sup> were selling August 1, 1947, at 101.5 and 102.6 respectively. U. S. Treasury 2½s of 1967-1972, the longest-term outstanding, were quoted the same day for 102.19-102.21, a net yield of just under 2½%.<sup>2</sup> In the past quarter-century Aaa American corporate bonds (the lowest-risk) have ranged from 6% to 2.6%, the current yields being near the low point.<sup>3</sup>

Yet in the same three centuries, and most particularly in the last, and very much in America in the last 25 years, the productivity of capital has grown by leaps and bounds. This we shall measure in productivity per man-hour of labor and in national output per unit of the total population. Table 1 of the Appendix sets forth the former for the years 1909-1940 and Table 2 the latter for 1959-1964 with projections to 1980 and 1990. That these developments are properly attributable to the productivity of capital we evidence by the striking substitution of mechanical energy for human and animal work in the same periods--see Table 3. Here are some summary figures from these tables:

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<sup>1</sup>Business Week (July 13, 1947), pp. 73-74.

<sup>2</sup>Wall Street Journal, Pacific Coast Edition (August 1, 1947).

<sup>3</sup>Hansen, Economic Policy and Full Employment, op. cit., pp. 130-131.

1. Output per Labor-Unit-Manufacturing Industries

<u>Year</u>	<u>Index Nos., Base 1930</u>
1909	49.8
1914	56.2
1919	56.2
1928	83.3
1930	100.0
1935	116.7
1940	135.9

2. Output per Labor-Unit All Mechanical Industries  
v. White-Collar

<u>Year</u>	<u>Index Nos., Base 1930</u>	
	<u>Mech. Ind.</u>	<u>White-Collar</u>
1928	88.8	100.1
1930	100.0	100.0
1935	116.1	103.8
1940	134.7	116.4

3. Net Output per Man-hour, 1940 Prices

1850	.173	1900	.357	1944	.793
1860	.20	1910	.401		
1870	.218	1920	.481	1950	.875 (est.)
1880	.232	1930	.523		
1890	.236	1940	.740	1960	1.034 (est.)



4. Sources of Energy Output  
(% of total)

<u>Year</u>	<u>Mineral Fuels and Water</u>	<u>Work Ani- mals</u>	<u>Human Wor- kers</u>	<u>Year</u>	<u>Mineral Fuels and Water</u>	<u>Work Ani- mals</u>	<u>Human Wor- kers</u>
1860	5.8%	79.8%	15.4%	1940	90.0%	6.4%	3.6%
1869	6.5	79.2	14.3	1941	90.5	6.8	3.7
1870	11.5	75.1	15.4	1942	90.6	5.5	4.0
1880	17.3	69.6	14.2	1943	90.4	5.3	4.3
1890	27.5	60.5	13.0	1944	91.4	4.8	4.1
1900	37.3	51.7	10.5				
1910	56.9	34.7	8.4	1950	94.0	3.0	3.0
1920	73.5	20.8	5.7				
1930	83.7	11.7	4.6	1960	96.3	1.3	2.4

These data are not conclusive. They invite a presumption. The great increase in productivity of labor is not attributable entirely to increasing productivity of capital, nor even to increasing use of capital. Other factors might be increasing efficiency of labor or of management. These may or may not be present. No account is taken of the marginal productivity of capital. But the accompanying great and increasing use of capital is evidenced by the increasing application of mechanical energy. Taken together it is hard to escape a presumption that capital in total is

increasingly productive. If the interest rate were fixed by non-monetary forces it might well have tended to increase. That it did not increase, and in fact shows no secular trend, does seem to indicate the operation of other than purely non-monetary influences. Taken together with the correlation between prices and interest rates, it would seem that the rate is more likely monetary than non-monetary in nature.

## CHAPTER IV

### INSTITUTIONAL DETERMINANTS OF THE INTEREST RATE

By "institutional determinants" are meant non-economic forces such as governmental action and the pressure of social and individual habits. Since we are here concerned with conflicts in economic thought it is not proposed to do more than acknowledge the existence of these other determinants outside the field of economic theory.

That governmental action may be taken to control (generally to lower) the interest rate is an historical commonplace, just as are all sorts of price control by governments. Currently "the maintenance of a low rate of interest . . . is the announced policy of all modern democracies,"<sup>1</sup> the purpose being to lighten the tax burden of servicing heavy public debts, and, under the influence of various monetary theorists, to contribute to economic stability and full employment. The methods include direct controls, or nearly-direct such as the Federal Reserve or

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<sup>1</sup>Hanson, Economic Policy and Full Employment, op. cit., p. 146.

private bankers may practice;<sup>1</sup> "influencing . . . the demand and supply of loanable funds;"<sup>2</sup> and open market operations (buying and selling) and pegging the market (guaranteed sale and repurchase prices) in Federal securities, to directly make and support a market and a predetermined yield. These latter war-time practices the Treasury has been fearful of abandoning, though recently a tentative step in that direction has been announced.<sup>3</sup>

The government's operations in its own bonds exert a powerful influence on private interest contracts, since commonly the prevailing rate on the longest-term Treasury bonds is regarded as the "common denominator of all investment values . . . , a continuous standard by which to judge the riskless rental value of money."<sup>4</sup> Furthermore, the increasing volume and growing popularity of Government bonds and the substantial decline in municipal and corporate offerings diverts to the Government market funds which

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<sup>1</sup>Which is only partially effective, since it takes two to make a loan. Robertson, Essays in Monetary Theory, op. cit., p. 42.

<sup>2</sup>Somers, Headings in the Theory of Income Distribution, op. cit., p. 497; also Hansen, supra, p. 64. Keynes himself was skeptical of this procedure. General Theory, op. cit., p. 166.

<sup>3</sup>Wall Street Journal, Pacific Coast Edition (July 3, 1947), pp. B, B.

<sup>4</sup>Jordan, Investments (1946), op. cit., p. 120.

formerly went elsewhere,<sup>1</sup> and more firmly establishes in the public mind the government rate as the prevailing one.

Private direct interest rate manipulations are of course not unknown, ranging from the petty practice of usurers to the legitimate common practice of "supporting the market" in new security issues during the period of sale.<sup>2</sup> But these practices of whatever sort, being limited by the consciences and financial capacities of individuals, pale into insignificance beside the enormous manipulations of governments.

The pressures of habit and similar social inertias also influence the interest rate as they do all economic manifestations. What Ricardo called "the unwillingness which a particular class of persons feel to divert their funds to any other employment than that to which they have been accustomed . . . . elevates the price . . . . and consequently depresses the rate of interest on these securities below the general market rate."<sup>3</sup> Frank Knight mentions the consequences of ignorance, error, psychological and institutional factors, and innumerable "prejudices."<sup>4</sup>

<sup>1</sup>Ibid., p. 220.

<sup>2</sup>Ibid., p. 93.

<sup>3</sup>Ricardo, op. cit., p. 361.

<sup>4</sup>Knight, "Capital and Interest," in Readings in the Theory of Income Distribution, op. cit., p. 403.

But these are inconsistent and contrary forces, they operate spasmodically, and perhaps they tend to average out. It is not in their direct effects on the interest rate but rather on the volume of saving and investment that these factors are most effective. This will appear in the next chapters.

## CHAPTER V

### THE DETERMINANTS OF THE VOLUME OF SAVING

Interest being a price resultant of supply and demand forces, what then are the determinants of the supply and of the demand?

We shall not now concern ourselves with the conflict between the monetary and non-monetary theories of interest, but shall rather view the problem from the simple standpoint of the formation of capital by savings and investment. Whether the interest rate be immediately determined by demand and supply of money or of real goods, in the long run it is the process of saving and investment which forms capital. Thus, for the present purpose the question is re-phrased: What are the determinants of saving and of investment? What determines the supply of savings and what the demand for investment?<sup>1</sup>

First as to saving.

#### A. THE INTEREST RATE AND THE VOLUME OF SAVING

Theories of what Whittaker calls "The Form of the

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<sup>1</sup>Following Haberler, "The Interest Rate and Capital Formation," Capital Formation and Its Elements (1939), pp. cit., p. 120.

Supply Curve of Capital"<sup>1</sup> he divides into three groups:

- (1) Higher interest encourages saving;
- (2) Higher interest discourages saving; and
- (3) The balancing of arguments.

This grouping is adequate for our purposes. Who has held each opinion and what have the arguments been? It will be found that economists are not termed in the same groups in this conflict of thought as they were as to the nature of interest.

1. Higher Interest Encourages Saving: This is the traditional view, or as Prof. Hayes calls it,

the neat, equilibrium analysis, which was a part of the economists' general theory of competition, . . . the conclusion that the volume of savings was dependent upon the prevailing rate of interest. Hence any failure to secure the going rate would cause money to be spent that would otherwise be saved. The rate of interest demanded by the savers who were on the margin of spending and received by them as the price of saving, was available as well to the non-marginal savers. There was no place in this doctrine for un-invested savings.<sup>2</sup>

This is the attitude which Haberler calls "healthy optimism, at least as far as long-run tendencies are concerned, . . . toward the elasticity of demand for, and supply of, capital, and toward the elasticity of investment and saving

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<sup>1</sup>Whittaker, op. cit., pp. 549 et seq.

<sup>2</sup>H. C. Hayes, Spending, Saving and Employment (New York: Alfred A. Knopf, 1946), p. 19.



in respect to the rate of interest."<sup>1</sup>

Ricardo held to this view: "there is no limit to demand - no limit to the employment of capital while it yields any profit."<sup>2</sup> And "neither would there be any deficiency of money to be lent, if the borrowers offered good security, and were willing to pay the market rate of interest for it."<sup>3</sup> In this Malthus seems to agree with Ricardo.<sup>4</sup> Similarly with J. S. Mill: "There is at every time and place some particular rate of profit that will induce the people of that country and time to accumulate savings, and to employ these savings productively."<sup>5</sup> And J. B. Clark, with some qualification, essentially took the same view, that the disposition to save varies with the rate of interest.<sup>6</sup>

More recently H. J. Davenport says, "It is past denial that the volume of savings has something to do with interest rates."<sup>7</sup> "Interest has to be paid to get that waiting done."<sup>8</sup>

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<sup>1</sup>Reborner, op. cit., p. 181.

<sup>2</sup>Ricardo, op. cit., p. 347. <sup>3</sup>Ibid., p. 436.

<sup>4</sup>Malthus, op. cit., pp. 405-406.

<sup>5</sup>J. S. Mill, op. cit., p. 723.

<sup>6</sup>J. B. Clark, op. cit., pp. 339 et seq.; see also P. F. Homan, Contemporary Economic Thought, op. cit., pp. 64-66.

<sup>7</sup>Davenport, The Economics of Alfred Marshall, op. cit., p. 460.

<sup>8</sup>Ibid., p. 467.

Frank Knight, although holding that interest is determined largely on the demand side (by the productivity of capital) adds that "Savers find a certain rate of return obtainable, fixed by the marginal productivity of new investment in the economy, and they save enough of their income to make their 'marginal time preference' equal to this rate."<sup>1</sup> Thus savers will in effect save more or less depending on the interest rate which capital can and will pay.

2. Higher Interest Discourages Saving: Adam Smith took the view that high interest discourages saving by destroying parsimony, making unnecessary the putting aside of the maximum amount otherwise saved, and thus operating against the accumulation of capital.<sup>2</sup>

On a somewhat different theory a strong case has been built to the same conclusion by other writers, including W. S. Sargent (1867), Fleeming Jenkin (1868), and Sidney and Beatrice Webb among others more recently.<sup>3</sup> This argument is that saving for interest return is essentially saving for income, and that the object is a certain amount of income, not of capital accumulation. Therefore, as

<sup>1</sup>Knight, "Capital and Interest," Readings in the Theory of Income Distribution, op. cit., p. 401.

<sup>2</sup>Adam Smith, Wealth of Nations, op. cit., p. 578.

<sup>3</sup>Wittaker, op. cit., pp. 352-354.

interest return rises the amount necessary to be saved to provide the desired income falls, and as interest falls so must the amount saved increase.

This latter view is widely held in business circles, and indeed is so common a phenomenon today as to be overlooked entirely. Consider for instance the purchase of life insurance contracts--the desired capital amount of which is fixed by the anticipated income requirements of dependents or old age and the premium cost of which varies accordingly. The amount required to be accumulated rises as interest returns fall; and also the premium required for a given capital amount rises as interest falls. "Life insurance holdings that might have been considered adequate just a few years ago fall about 50% short of making minimum requirements today."<sup>1</sup> The same reasoning applies to savings bank deposits, government bonds and all the manifold forms of invested savings. One must save more today to provide for tomorrow than he saved yesterday to provide for today, as a direct consequence of falling interest rates. "The prolongation of the easy money policy . . . shifts burdens to the thrifty who find the returns from their savings proportionately reduced and who in seeking

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<sup>1</sup>J. A. Holain, President Guardian Life Insurance Co., quoted in Oregon Vector (June 23, 1947), p. 34.

security for their dependents must pay more for protection."<sup>1</sup>

It is to this view that Keynes' theory leads, but for another reason: "The extent of effective saving is necessarily determined by the scale of investment and . . . the scale of investment is promoted by a low rate of interest."<sup>2</sup> (More of this theory appears in a later section.)

5. The Balancing of Arguments: Much influenced by the preceding argument Haberler points out that the weight of the various factors seems so considerable on each side that there is a tendency to view them as cancelling out, "that it is safest to assume that the interest rate has no influence on the rate of saving."<sup>3</sup> (And Irving Fisher found the issue so much in doubt that he leaves the "much debated question" with the suggestion that under given circumstances "the amount saved and lent out of this year's income will first increase and then decrease."<sup>4</sup>)

However, Haberler does not leave the question at that.

<sup>1</sup>Policies Advocated by the Chamber of Commerce of the United States (1940), op. cit., p. 35.

<sup>2</sup>Keynes, General Theory, op. cit., pp. 373, 110.

<sup>3</sup>Haberler in Capital Formation and Its Elements, op. cit., pp. 129-132; see also H. C. Wallin, "The Significance of the Interest Rate," American Economic Review, v. 36 (December 1946), p. 776.

<sup>4</sup>Irving Fisher, The Theory of Interest, op. cit., p. 266; nor do his older books seem to offer a key to solution.

but concludes:

I find it difficult not to assume that between a zero rate of interest and a rate of interest which makes it profitable to save, there should be a rate which is just sufficient to induce the community as a whole to refrain from consuming its capital.<sup>1</sup>

This is the opinion of Marshall,<sup>2</sup> Faussig,<sup>3</sup> and Pigou<sup>4</sup>— that on the whole, while there are factors which operate in a contrary fashion, the balance of arguments (except for the Keynesian viewpoint) is in favor of a positive correlation of the interest rate and the volume of saving.

6. The Assumption of Intelligent Maximization: The interest rate theorists of all shades of opinion are inclined to assume something of an "economic man,"<sup>5</sup> and a skillful one. Selected at random from an excellent article to which reference has been made several times are these statements:<sup>6</sup>

Each holder of securities should be able to indicate

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<sup>1</sup>Inhaberler, Capital Formation and Its Elements, op. cit., p. 133.

<sup>2</sup>Marshall, op. cit., pp. 232-236.

<sup>3</sup>Faussig, op. cit., v. I, p. 79; v. II, pp. 16, 20-23.

<sup>4</sup>A. C. Pigou, The Economics of Welfare (London: Macmillan and Co., Ltd., 1933), pp. 690-691.

<sup>5</sup>Samuels, "Monetary Policy and the Theory of Interest," Readings in the Theory of Income Distribution, op. cit., pp. 481, 482, 483-484, 485, 486.

at what rate of interest on the standard security he would be on the point of indifference as to whether he should sell all his securities and buy a like amount of the standard security.

This rate of return, . . . the marginal rate of substitution between cash and securities, may be considered to be an objective indicator of the subjective satisfaction expected to be derived from holding the cash.

It is necessary to make a distinction between the marginal productivity of capital and the marginal efficiency of investment.

The rate of return on consumption is thus made dimensionally comparable with the return on securities, cash and production.

Thus we have rates of return on securities, cash, production and consumption.

Now a distinction should be drawn between what actually does happen and what might be expected if men knew all that was relevant and acted logically. It is easy to assume a degree of rationality in human affairs that does not exist.<sup>1</sup> As G. O. May wrote to Lord Keynes, it is necessary to discount the "views of people like Mr. Frankfurter who think that prices are determined by intelligent analysis."<sup>2</sup>

As an example, consider D. S. Tucker's 1932 study of 200 investors at a time when yields on high-grade bonds

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<sup>1</sup>See Macaulay, Bond Yields, Interest Rates and Stock Prices, op. cit., pp. 4, 7.

<sup>2</sup>G. O. May, Twenty-Five Years of Accounting Responsibility, op. cit., p. 409.

were abnormally high--i.e. the long-term interest rate was high due to low bond prices. (Those questioned were apparently of average intelligence or better, he says, though it seems hard to believe.) Only 10% recognized the connection between bond prices and interest yields without having it pointed out to them, and only two out of the 200 were trying to save more because of the opportunity to invest at an abnormally high return. (Neither of the two was actually accomplishing that end.) It was properly concluded that short-period changes in the interest rate did not seem to materially affect the volume of saving.<sup>1</sup>

Thus it seems that while theorists differ, they tend to the view the interest rate encourages saving, but that theory is not adequate to explain fully the phenomenon of saving. We must look for further determinants of the volume of saving.

#### B. SUBJECTIVE DETERMINANTS OF THE VOLUME OF SAVING

In 1943 Elmo Roper conducted a survey for the Savings Bank Association of the State of New York. He sampled the population of that state by cross-section on motives, form

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<sup>1</sup>p. S. Tucker, "Interest Rate and Saving," American Statistical Association Journal, v. 38 (March 1943), p. 101.

and need of individual savings.<sup>1</sup> The "urge to save" was found "very strong" and "compulsory saving" in the form of war-bond drives was generally approved. According to Roper these people were saving for the following purposes: (The percentages are on the total number of family units and will add up to over 100% because apparently an average of about 1½ reasons to save were given.)

#### Why People Save

To buy a home or other real estate	25.7%
For "general security" or emergencies	22.9
For old age	21.8
For education (of children, etc.)	16.4
For furniture and equipment	13.3
For a new automobile	10.1
For various "things to buy"	6.5
To get married or have children	9.2
To start a business	7.0
For "other investment"	1.3
Miscellaneous	7.1
No reason	13.5

A 1943 survey by the same agency had shown about the same intentions, but the 1945 check showed that the 1943 savings had been drawn upon and used for the following purposes:

(1) For sickness	27%
(2) For "general bills"	22
(3) For education	2 (sic).

<sup>1</sup>Elmo Roper, "Savings: A Summary," Fortune, v. 32 (November 1945), p. 280.



The careful reader will take some time at this point to study these data and, checking with his own experience of himself and of people, will reflect for a moment on its significance. Consider what this means as to the difference between savings and investment and the importance of institutional investment as opposed to private saving. (Pigou and Clark found that in England as early as 1936 all current savings were in institutional forms--life insurance, savings banks and so on, because of the weight of personal taxes.<sup>1</sup> Gerhard Colm finds the same trend in this country and for the same reason.<sup>2</sup>) Consider again also in the light of this information the statement quoted above (supra, p. 26-27) to the effect that a low interest rate rather than being a deterrent to saving is simply a penalty on thrift.<sup>3</sup> Bear these figures in mind in weighing the theories offered below as to various non-interest motives to save.

Certainly this type of information, expressed in this

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<sup>1</sup>A. C. Pigou and Colin Clark, The Economic Position of Great Britain (1936), cited by A. H. Hansen in Capital Formation and Its Elements, op. cit., p. 8.

<sup>2</sup>Gerhard Colm, Capital Formation and Its Elements (1939), op. cit., pp. 77-78.

<sup>3</sup>i.e. 6% savings of \$6 per week for 30 yrs. will pay a young man \$20 weekly thereafter for life; but 4% the same savings will purchase a life annuity of only \$8.60. Jackson, "Interest Rate, Price Level and Keynesian Ideology," Commercial and Financial Chronicle, v. 168 (July 10, 1947), p. 33.

way (i.e. as numbers of people and not as amounts of money) and gathered by direct questioning, does not tell the whole story--but remember we are talking about man's motives and these are highly subjective things. One cannot escape the conclusion that whether the interest rate be a positive or negative influence on the volume of saving, it may be but a secondary factor in either case.

The emphasis which theorists have given to these non-interest factors has varied considerably. Marshall recognised such factors, as did J. S. Nicholson, J. S. Mill, the Webbs and others.<sup>1</sup> J. M. Keynes lists eight individual and four similar business and governmental motives of a subjective character, of which but two have to do with the enjoyment of interest.<sup>2</sup> (Although of course his theory, to be discussed later, depends not at all on "Precaution, Foresight, Calculation, Improvement, Independence, Enterprise, Pride or Avarice. Virtue and Vice play no part."<sup>3</sup>)

These various subjective non-interest motives fall into the following groups:

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<sup>1</sup>cf. Whittaker, op. cit., pp. 555-557.

<sup>2</sup>Keynes, General Theory, op. cit., pp. 107-108.

<sup>3</sup>Ibid., pp. 111-112.

1. Provident Forethought: John Rae, following Cicero, said that provident forethought distinguishes man from the inferior animals<sup>1</sup>—though the bee and the squirrel and many another come to mind to refute the distinction. Adam Smith, of course, pointed out that the most obvious means to better one's condition is to save and accumulate.<sup>2</sup> It is unnecessary to drive home so familiar a point with a multitude of authorities and examples. Let it be remembered, though, as J. S. Mill aptly put it, that carried through to conclusion, this sort of saving leads to off-setting dis-saving when old age or other eventuality ensues; the net effect may be less than expected.<sup>3</sup> Rae mentioned another though less credible qualification, to the effect that as some men will find it impossible to accumulate enough to become capitalists, their vanity and frustration may turn them to wasteful and extravagant spending.<sup>4</sup> However, no real disagreement exists on the point, all authorities considering the subject mention this urge to provide for the future at the top of the list of non-interest motives and the

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<sup>1</sup>John Rae, The Sociological Theory of Capital, op. cit., p. 8.

<sup>2</sup>Health of Nations, op. cit., p. 325.

<sup>3</sup>J. S. Mill, Principles of Political Economy, op. cit., p. 729.

<sup>4</sup>John Rae, op. cit., p. 231.

common experience of all of us supports them.

2. Family Affections: To provide not only for one's self but also for one's family is of course also a common need and a common experience. Malthus, Rae and Marshall and a host of others make the point.<sup>1</sup> It is well expressed by Fr. Dempsey: "Human life in its fullest development is therefore the supreme economic value . . . ; initiation and safeguarding of life within the family is the mainspring of economic activity. . . . Children are the principal investment of each generation."<sup>2</sup>

3. Power and Prestige: With Pigou it is easy to agree that "A part of the stimulus to accumulation consists in the power and prestige that riches confer," that there is a love of action in economic affairs, that "capital is one of the instruments of the game."<sup>3</sup> or as John Ruskin phrased it, among the advantages of wealth are the powers to select scarce things and to direct the labor of the poor.<sup>4</sup>

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<sup>1</sup>Malthus, op. cit., pp. 405-406; Marshall, op. cit., pp. 228-234; Whitaker, op. cit., pp. 543-544.

<sup>2</sup>Fr. W. Dempsey, "Price and Quantity of Money," Commercial and Financial Chronicle, v, 161 (February 22, 1945), p. 257.

<sup>3</sup>Pigou, Economics of Welfare, op. cit., pp. 718-719.

<sup>4</sup>John Ruskin, Manera Pulveris, in Patterson, Readings in The History of Economic Thought, op. cit., p. 803.

Tausig mentions also the love of distinction, activity, and power and the factor of emulation.<sup>1</sup>

4. Hoarders and Hoisers: There is some of the miser in most of us and a lot of him in some of us. So it is with economic theory. "The motive of accumulation is . . . just perpetual accumulation" to G. B. Ayres and apparently to Stuart Chase.<sup>2</sup> Marshall points out that the desire for security of the hoard in some cases might be so great that negative interest would be paid to secure it.<sup>3</sup> Hoarding on the down phase of the business cycle is a familiar phenomenon.<sup>4</sup>

Very interesting in this connection are the studies of the Monetary Standards Inquiry (1943) on the need for precious metals in the monetary systems of the Near<sup>5</sup> and Far East,<sup>6</sup> where saving occurs with no thought or knowledge of interest, where gold is too valuable for the tiny

<sup>1</sup>Tausig, op. cit., pp. 19-20.

<sup>2</sup>Stuart Chase, Goals for America (New York: The Twentieth Century Fund, 1942), p. 137.

<sup>3</sup>Marshall, op. cit., p. 532.

<sup>4</sup>Dampney, Interest and Usury, op. cit., pp. 92-93.

<sup>5</sup>Hawin Groedelose, Near Eastern Postwar Monetary Standards (New York: The Monetary Standards Inquiry, 1943).

<sup>6</sup>G. B. Levens, Far Eastern Postwar Monetary Standards (New York: The Monetary Standards Inquiry, 1943).

individual hoards of the great masses of people, and where economic and political insecurity and the desire for adornment of women and durability of the hoard make not investments but silver the accepted store of value--a "preference for liquidity" which Keynes says has impoverished India.<sup>1</sup>

As to the true misers - who enjoy wealth for its own sake - Karl Marx sees them behind every capitalist lurch: "Accumulate, accumulate! That is Moses and the prophets . . . Original sin is at work everywhere."<sup>2</sup>

5. Habits of Saving: Whittaker aptly mentions the "customs and standards . . . that measure commercial prudence and success."<sup>3</sup> Hume saw both parsimony and extravagance as matters of habit.<sup>4</sup> Another writer says that one-third of the population cannot help saving, one-third are incapable of saving, and the remainder fall in neither classification. (Of 6600 credit unions Arthur Pound studied, he says a third of the members joined to save money and two-thirds to borrow it.<sup>5</sup>) Gladstone is cited by

<sup>1</sup>Keynes, General Theory, op. cit., p. 337.

<sup>2</sup>Marx, Capital, op. cit., pp. 649-652.

<sup>3</sup>Whittaker, op. cit., p. 549.

<sup>4</sup>Ibid.

<sup>5</sup>A. Pound, "The Virtues of Thrift," Scribner's Commentary (January 1942), p. 89.

Irving Fisher on the habits of saving as "an arbitrary matter."<sup>1</sup> One need but be reminded to acknowledge that these things exist, in greater or less degree, in most men, though Haberler in assigning to Keynes assumed psychological floors to both interest rates and the volume of saving, seems to doubt that either exists.<sup>2</sup> (Looking at it another way, Hobson sees consumption as based on social convention and a calculation of necessities, with the balance - including saving - "hit or miss."<sup>3</sup>)

6. Acquiring a "masse de manoeuvre": Roper's study (op. cit., p. 91), it will be recalled, found 7% of his subjects saving "to start a business." This is what Keynes has in mind in broader terms when he uses the French phrase above.<sup>4</sup> Both individuals and businesses like to have cash on hand for the flexibility of action it permits, to pay bills, to speculate, to operate with. Probably the first unit of saving in most cases is to achieve this minimum - achieving it along with other purposes of course, for the

<sup>1</sup>Irving Fisher, The Theory of Interest, op. cit., p. 378.

<sup>2</sup>Haberler, Capital Formation and Its Elements, op. cit., pp. 123 et seq.

<sup>3</sup>Sperguson, op. cit., p. 202.

<sup>4</sup>Keynes, General Theory, op. cit., p. 103.

cash fund is a part of liquid assets and of total assets too.

In the 4th degree this motive is the liquidity-preference of Keynes' General Theory discussed in detail above (p. 44 et. seq.), the urge to hold funds in liquid form. To Keynes it has a strongly speculative flavor. Whether or not that facet is as important as he holds it to be, it certainly has a place in a listing of the motives to save.

7. The Purchase of Durable Goods: This motive is to be given greater attention, as there is considerable evidence that it is of very great importance in determining the saving of individuals and families. Furthermore, it may be a reflection of the whole list of subjective motives.

When a family buys a durable consumer good it is saving to the extent that a part of the good is put aside from current consumption, whether the period be 20 or 50 years as with a house or piano, or 5 to 10 as with a car or a refrigerator. I am saving, none the less if I buy a house on a contract, paying \$50 monthly on the principal amount in excess of the house's depreciation, than if I set aside \$50 monthly in a savings bank with which to pay rent in the later years of my life.

The amount of durable consumers' goods in the country,



both quantitatively and in relation to our total wealth, is very great, as will be set out below. To buy something durable is an automatic saving, the more especially if it be bought and paid for on credit. As John Ree said,<sup>1</sup> the chief manifestation of the effective desire for accumulation in lower-income classes will be in a change in the type of goods purchased, furniture instead of liquor, a house instead of a trip to the beach. Nor is this confined to low-income groups. In a greater or less degree as to all groups, to save in liquid assets may be quite uneconomic. (The direct capitalization of the farmer comes also to mind - he saves none the less by building a fence of his own timber with his own hands, than by selling the timber and working elsewhere, saving his money and buying the fence.) Money savings are made when and because they expedite transactions.

The annual formation of durable consumer goods varies from one-third to one-half of gross capital formation and it is very much more stable than the formation of business capital goods. When combined with residential construction, the total frequently exceeds business capital formation and generally amounts to several times the amount of public capital-use formation (see Table B of the Appendix). In the aggregate, the accumulated stock of consumers goods,

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<sup>1</sup>John Ree (1908), op. cit., p. 224.

including residences, is around 55% of the gross capital in existence, as the interesting studies of Notre Dame University show:<sup>1</sup>

Summary-Value of Physical Assets of the U. S., 1930

For "production"	\$188 billions
For "comfort"	222 "
	<u>\$410 "</u>

A most important and interesting fact of the consumers' capital situation relates to residential construction. Such capital formation has absorbed about 3 $\frac{1}{2}$ % of the nation's Gross National Product during the past forty years, but the annual proportion has varied widely from as low as 1 $\frac{1}{2}$ % to over 6%. New construction is the most unstable element. The number rather than the value of homes is the chief variable, as the average cost per unit varies much

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<sup>1</sup>H. A. Keller, A Study of the Physical Assets, Sometimes Called Wealth of the United States, 1922-1933 (Notre Dame: University of Notre Dame, 1939), pp. 33-39 et al.

less than the number of new units built.<sup>1</sup>

The number of families has been increasing steadily and rapidly and the number of dwelling units - over the long pull - at about the same rate; but the number of persons per unit has steadily declined, due of course to declining family size. (The staggering irregularity of housing construction as compared to the regularity of population growth must be a source of considerable social strain.) It is of course the increase of families, not of population, that maintains in part the demand for new

Additional data on residential construction is presented in tabular form in the Appendix for the convenience of those who may wish to explore this matter further. Table 9 shows annual amounts spent for major repairs and alterations to existing homes, and for new home construction, for the years 1921-1940. The low point in this period came in 1933 when but 93,000 new homes were built. In that year residential construction of \$370 million was just over 1% of the gross national product. Half this amount was in repairs and alterations and half in the new homes built. On the other hand, in 1925, a total of 937,000 new homes were built--over ten times as many as in 1933. Their value was \$4,750 million, which added to \$640 million of repairs and alterations resulted in a total of \$5,400 million for all residential construction. This was 6.3% of the 1925 gross national product. By 1940 residential construction had recovered from the 1933 low to a total of \$2,677 million, including 550,000 new units valued at \$2,652 million. However, the 1940 totals are less than one-half of 1925, the high year.

Table 10 shows similar data, condensed, in annual averages for 10-year periods from 1899 to 1938. As might be expected the low decade was 1929-1938 and the high decade was 1919-1928. The ratios of residential construction to gross national product for these two periods were respectively 2.1% and 4.6%.

housing.<sup>1</sup>

Table 12 of the Appendix shows in some detail the 1940 condition of American housing. It is apparent that an enormous backlog of demand for further capital accumulation here exists. For instance, more than 40% of the nation's residences are over 30 years old, and 18% of the total need major repairs. Nearly half of all Americans live in homes without private bath or without toilet, and nearly one-third do not have inside running water. Other major needs are for electric lighting (one-fifth of the homes do not have electric lights), and for improved heating and refrigeration. However, over four-fifths have radio sets.

The significance of this housing data in relation to savings is that it shows potential savings, especially of lower-income groups, which are based on needs and demands for specific durable consumer goods, but which will not be expressed directly by investment in productive capital. Nor does it appear the interest rate plays a very important direct part in determining the volume of such saving.

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<sup>1</sup>Table 11 of the Appendix shows the total number of dwelling units in the United States at 10-year intervals from 1900 to 1940 in relation to population and the number of families.

9. THE LIMITATIONS OF THE SUBJECTIVE DETERMINANTS--  
ACCUMULATIONS OF LIQUID ASSETS

The savings we have been discussing have been means to an end of personal satisfaction. It must be now noted that many people seem to measure the financial magnitude of the ends in view, and the adequacy of their means to those ends, well within finite limits. Subjectively regarded and with exceptions, it is an error to assume that saving will proceed indefinitely, that it will continue in every event to be a limiting factor on consumption. Indeed the opposite may be true - that having achieved a backlog of savings regarded as adequate, people tend (1) to hang on to the backlog, and (2) to spend current income on increased consumption.

The Monthly Labor Review recently reported a survey in the first quarter of 1946 by the Department of Agriculture, which showed that much less was expected to be saved by individuals and families in 1946 than in 1945, and that the large majority had no expectation of using their saved liquid assets for any purpose in 1946.<sup>1</sup> These liquid assets are

<sup>1</sup>"Savings and Intended Purchases," Monthly Labor Review, v. 63, (August 1946), p. 256. The Elmo Roper Survey previously mentioned arrived at similar conclusions.

thus not intended for consumption, but their existence encourages people to maintain consumption at the expense of current saving.

Thus it is doubtful that generally people intend to live on their wartime savings;<sup>1</sup> they intend to live better and save less on their current income by reason of the security afforded by war-time savings.

For the average consumer, the largest reserve against a rainy day he has ever had will be a powerful incentive to spend more and save less, than he would otherwise. In other words, the existence of these enormously increased reserves should increase the 'propensity to consume' and reduce the 'propensity to save' (particularly) for the middle and upper income groups, who hold the bulk of wartime savings.<sup>2</sup>

In this connection the amount and growth of certain liquid asset holdings of individuals and business in recent years has been as follows:<sup>3</sup>

<sup>1</sup>And W. A. Paton is barking up the wrong tree when he lists among "current economic fallacies": "That people can live on war savings without producing." Of course that would be a fallacy--it is a truism to say so; but people aren't trying to do that. W. A. Paton, "Current Economic Fallacies," Commercial and Financial Chronicle, v, 162 (August 23, 1945), p. 825. See also Dr. R. Likert (Univ. of Michigan for Federal Reserve Board, "Survey of Consumer Finances," Business Week (June 14, 1947), p. 15--40% of 3,000 families added to savings in 1946 and 40% withdrew therefrom, mostly for emergencies; total liquid assets increased \$8 billion in 1946.

<sup>2</sup>F. L. Dewhurst et al, America's Needs and Resources (New York: The Twentieth Century Fund, 1947), p. 73.

<sup>3</sup>"Estimated Liquid Asset Holdings of Individuals and Business, December, 1939 to June, 1946," Federal Reserve Bulletin, v. 32 (November 1946), p. 1236.

	<u>Billions of Dollars</u>			<u>Current Additions Personal</u>
	<u>Total</u>	<u>Business</u>	<u>Personal</u>	
December 1939	\$65	\$19	\$46	
1940	70	22	48	2
1941	81	26	55	7
1942	118	39	78	19
1943	131	56	95	22
1944	160	68	122	35
1945	221	74	147	35
June 1946	225	71	152	10 (annual rate)
March 1947 <sup>1</sup>				8 (annual rate)

These figures include currency, demand and time deposits and U. S. Government securities; they do not include savings and loan shares, insurance and pension reserves nor corporate and municipal securities. Holdings of governments and of financial institutions are excluded. In Table 13 of the Appendix the classification and amount of individual savings for the years 1940-1946 are set forth. The Twentieth Century Fund estimates that the "surplus of actual wartime savings over 'normal' savings amounted to some \$60 billion at the end of 1945."<sup>2</sup>

As to life insurance, a most important form of

<sup>1</sup>Computed from chart in Portland Oregonian, July 13, 1947; data attributed to Securities and Exchange Commission.

<sup>2</sup>America's Needs and Resources, op. cit., p. 71.

individual saving often not adequately reflected in statistics,<sup>1</sup> Table 14 of the Appendix shows the great increases of this century in the United States, most pronounced in the period prior to 1929 and again in the recent years 1942-1947. Here are summarized figures:

Life Insurance Amounts in Billions

<u>Year</u>	<u>New Business</u>	<u>Total in Force</u>	<u>Total Assets</u>
1900	\$ 2.0	\$ 2.6	\$ 1.7
1910	2.6	16.4	3.9
1920	9.4	43.3	7.3
1930	17.3	107.9	18.9
1940	11.4	117.8	30.9
1946	23.4	174.0	68.1

The assets and investments of the companies are set forth in Appendix Table 15, most noteworthy being the increased investment in bonds, primarily U. S. Governments, as elsewhere discussed.

**D. FORCED AND PRESSURED SAVING**

This thesis is not primarily concerned with inflation, deflation or war-time finance. However, a brief digression

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<sup>1</sup>The ratio of the increase in cash surrender value to premium paid ranges from .75 to 2.0 for varying types of policies for an "average" policy-holder. G. S. Fulcher, "Life Insurance Savings of American Families," Review of Economic Statistics, v. 26 (May 1944), p. 93.



on the subject of inflation must be made.

"Inflation exists when money income is expanding more than in proportion to 'income-earning activity'.<sup>1</sup> There are two general types of inflationary movements: wage-induced and deficit-induced. Wage-induced inflation is the familiar wage-price spiral in which this country has been engaged for the two years since the war, and which was but partially controlled during hostilities. Deficit-induced inflation results from the government's efforts to command resources without demanding direct relinquishment by the public of all of the resources required, in the form of taxes or non-bank loans;<sup>2</sup> this form of inflation combined with direct controls of the civilian economy by rationing and price-control, was partially substituted for wage-induced inflation in this country and in Great Britain during the war. The result was "frustrated inflation," a "suppressed inflationary potential,"<sup>3</sup> which is the equivalent of forced saving; since money income pumped into the economy could not be spent and could not react on the price level.

<sup>1</sup>From A. C. Pigou's classic article, "Types of War Inflation," Economic Journal (December 1941), pp. 439-449.

<sup>2</sup> Cf. Mr. Fellner, "War Finance and Inflation," American Economic Review (June 1942), pp. 255-256.

<sup>3</sup> Cf. F. Carter, "More Thoughts on Inflation," Royal Economic Society Memo 108 (December 1946), pp. 13-19.

The danger of this forced saving is "dis-saving-induced inflation"<sup>1</sup> which results with the removing of controls while liquid assets are above normal savings levels, and which in turn leads to wage-induced inflation. It is this situation in which we found ourselves in the Autumn of 1945 and the pressure of which has been felt ever since (though offset very considerably by the intentions of the public to hold on to liquid reserves).

By pressured saving is meant such means as the patriotic appeal of the war-bond drives. In World War II high-pressure advertising techniques were used to excellent advantage, in contrast to the less subtle (tar-and-feather) selling devices of the 1918 Liberty Loan drives, to soak up individual savings in Government deficits as a dual substitute for taxation and inflationary use of the banking system.

### B. INEQUALITY OF INCOMES AS A DETERMINANT OF SAVING

It has long been accepted as fact that the savings of

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<sup>1</sup>Ibid.

<sup>2</sup>All sorts of devices are of course used: e.g. Speak Unto the People That They Go Forward: a Leaflet on Thrift For Ministers (W. S.: Treasury Department Savings Division, 1919), and so on.

individuals come largely from the well-to-do,<sup>1</sup> that the existence of interest tends to perpetuate inequalities,<sup>2</sup> and that the greater the total amount of income in high-income groups, the greater the amount and proportion of income saved.<sup>3</sup>

This hypothesis was subjected to statistical investigation by a W.P.A. project sponsored by the National Resources Committee and other government agencies and covering a 12-months period in 1935-1936.<sup>4</sup> Substantial degrees of concentration of income and saving were found. However, evidences of extreme bias and unsound statistical basis have been brought to light by subsequent re-examinations of the study. The findings of that study, of studies of the

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<sup>1</sup>cf. Whittaker, op. cit., p. 364; Taussig, op. cit., v. II, pp. 41-43; Moulton, The Formation of Capital, op. cit., p. 160.

<sup>2</sup>"Higher interest rates increase savings because they increase the incomes of the wealthier classes, who do most of the saving," H. C. Wallich, "Changing Significance of the Interest Rate," American Economic Review, v. 38 (Dec. 1948), p. 761. However, in the same article Wallich subscribes to Keynes' view that higher interest reduced saving because it reduces investment and thus gross income; he concludes that the effects of the rate directly on saving are small and offsetting.

<sup>3</sup>cf. Moulton, Income and Economic Progress, op. cit., p. 40; Haberler in Capital Formation and Its Elements, op. cit., p. 150. It is this capital-formation justification for inequality of income that Keynes' theories undermined by attacking saving itself.

<sup>4</sup>Hildegard Ineeland and staff, Consumer Expenditures in the United States (U. S. : National Resources Committee, 1935).

study, and of other studies of the same subject, together with a discussion of the points at issue, will be found in considerable detail in an Appendix. Based on the appendix discussion, it appears that a correlation between income and the rate of saving is not conclusively proven by the available statistics. Informed current opinion is that "there is no evidence of a consistent tendency for the proportion of disposable income saved to increase pari passu with the increase of disposable income."<sup>3</sup> A more extended discussion on this point will be found in subsection H. 1 of this chapter.

#### P. THE BURDEN OF TAXATION AS A DETERMINANT OF SAVING

Taxation as a negative determinant, adverse to saving, will not be dealt with at length here. The issues involved are complex and have been the subject of extended study. We can but touch on the limited aspect of certain adverse effects felt directly, not on the broader field of taxation and business policy generally.

That taxation reduces individual and business incomes is prima facie the case, though of course to the extent that government expenditures come back in the income stream they

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<sup>3</sup>Peckhurst et al, America's needs and resources (New York: The Twentieth Century Fund, 1967), p. 71.

contribute to income too. However, there is little evidence of government saving from tax incomes, such quasi-savings and capital formation as permanent public works having been financed from deficits in recent years. On the other hand taxes certainly are not paid exclusively from amounts otherwise destined for consumption. In fact, among the great body of people in this country whose standard of living is adequate to their comfort and who contribute the bulk of both savings and taxes, it seems fairly likely that taxes will be primarily an offset to saving rather than to consumption.

Reference has already been made (supra, pp. 92v ) to Prof. Hansen's citation of the Pigu and Clark study in Great Britain which showed that the burden of taxation there by 1956 had all but eliminated "net personal savings," current savings coming almost exclusively from institutional sources. Hansen concludes that as a result the savings are going far more into "consumers' capital and to a far less degree into producers' capital"--i.e. residential construction, roads, public works, etc. instead of manufacturing plants.<sup>1</sup>

It is significant that the six economists whose

<sup>1</sup>Hansen, Capital Formation and Its Elements, op. cit. p. 5.

usually contradictory opinions are presented in the symposium Financing American Prosperity (op. cit.): B. H. Anderson, J. M. Clark, H. S. Ellis, A. H. Hansen, S. Slichter, and J. H. Williams, were all agreed in 1965 that the personal income tax should be reduced and that the corporate income tax should be reduced.<sup>1</sup> The reasons offered vary, tending principally to the necessity for greater incentive to individual initiative in business ventures<sup>2</sup> and the stimulus to consumption.<sup>3</sup> J. M. Clark, however, mentions the penalizing effect of high taxes on savings in the high brackets.<sup>4</sup> In another publication Gerhard Colm expressed the view more strongly: "It is obvious that the higher rates of the individual income and estate taxes . . . must curtail individual and corporate savings substantially."<sup>5</sup>

Colm goes on to point out that while classical economics postulated that a tax should be "economically neutral,"

<sup>1</sup>Financing American Prosperity, op. cit., pp. 428-490.

<sup>2</sup>Ibid., Anderson, p. 53; Hansen, p. 244; Slichter, p. 276.

<sup>3</sup>Ibid., Ellis, p. 136; Slichter, p. 274; Williams, p. 277.

<sup>4</sup>Ibid., p. 91.

<sup>5</sup>Colm, "Tax Policy and Capital Formation," in Capital Formation and Its Elements, op. cit., p. 76.

that principle is a "dead issue" now.<sup>1</sup> There is no question that the use of taxes for other than revenue purposes is well established. The controversy between orthodox doctrine and the new "oversaving" theories is thus naturally reflected in tax controversy.<sup>2</sup> But "A discussion of the effects of taxation still relies to a great extent on assumption and guess,"<sup>3</sup> so we are not only disagreed on the objectives to pursue but also on the programs to be followed to produce a desired effect. Cole does not think the New Deal tax program quantitatively had much effect on savings, but qualitatively the effect was great, and presumably it is becoming progressively greater. This is because of the effect on

. . . the composition of the national capital supply. Under the impact of progressive taxes the capacity of the wealthier to save is more restricted than that of the middle or lower income groups. . . . The emphasis on individual savings is shifted downward. . . . In the lower and middle groups institutional savings (especially through life insurance and banks) and the investments in real estate play a much greater role than in the higher groups. Also direct investments in consumer goods will be less curtailed than other forms of saving.<sup>4</sup>

In other words, the effect of a heavily progressive tax system may be to shift the process of saving from those

<sup>1</sup>Ibid., pp. 73-75.

<sup>2</sup>Ibid., pp. 73-75.

<sup>3</sup>Ibid., p. 80.

<sup>4</sup>Ibid., pp. 77-79.

who may save to invest and to whom the interest rate may be a factor in saving, to those who save primarily for the subjective reasons we have outlined, and to whom a low interest rate is not necessarily a deterrent. These people may indeed save more to achieve their desired ends. This would be consistent with Adam Smith's statement that a high interest rate discourages parsimony and capital formation (quote, p. 85 ).

A following chapter, (VI, section D), discusses the effects of taxation on investment; Tables 19, 20, and 21 of the Appendix present data on the national debt, government expenditures and current Federal income tax rates. The increasing importance of public debt and expenditures in the national economy in recent years is clear. Certainly far-reaching implications as to saving and investment are inherent, but just what they are is not yet clear. For our purposes it is sufficient to note that these are forces to a considerable extent not contemplated in the interest-rate theories generally held. It would seem that increasing concentration of savings in government deficits and increasing dependence on government for goods, services, and individual incomes, would tend to an increasing importance of institutional and monetary determinants of interest rates and a lessening influence of the non-monetary factors such as the productivity of capital or time-preference between individuals.



### G. THE INTERNAL SAVINGS OF BUSINESS

It is the practice of business to charge to earnings a regular provision for depreciation, depletion, and obsolescence of durable assets. The amount is a periodic pro-ration of the cost of the asset, so that over the asset's life its cost will be deducted from the gross income to which its use contributed, in the determination of net income. During the asset's life its "book value" (original cost less accumulated depreciation) on the business' accounts is correspondingly reduced, so that at the conclusion of useful life the asset will no longer be counted among the total of business assets. Depreciation provides no fund for replacement purposes; it is an accounting device for matching an asset's cost with the revenues it produces over its useful life. Thus, no specific fund in money or other assets is set up; the business capital is maintained intact but there is a change in the form of assets as some are depreciated and others acquired, providing the business enjoys income sufficient to cover depreciation. The immediate effect is a transfer of assets from fixed to "working capital" form (more liquid). Depreciation is referred to by accountants as an expense not requiring current funds, as it is an amortization of an expenditure previously made.

Depreciation provisions, being charges to (deductions

from) income, do not remain in or ever become a part of the "surplus" of a corporation. Thus, they are never available for distribution to stockholders as dividends. They are "saved" as an offset to an identical capital consumption as the related asset progressively deteriorates in value. The amount of such savings is not dependent on income, on the interest rate, or on any subjective factors. It is fixed in advance by an estimate of the useful life of the asset, which estimate is rarely changed. (The income tax influence is usually to make the estimate more rigid.)

It is perfectly true as Prof. Hansen has often pointed out, that the depreciation allowance in many cases provides sufficient internal saving along with other undistributed income, to obviate the need for outside savings for financing either of replacement or expansion of facilities.<sup>1</sup> Expansion is achieved out of depreciation primarily through technological progress - new machines more productive than the old. But so long as capital is simply maintained

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<sup>1</sup>Testimony of A. H. Hansen, E. R. Stettinius, Owen D. Young, Alfred P. Sloan, Jr., before T.N.E.C., reported in Saving and Investment in the American Enterprise System, op. cit., pp. 10, 13-15; Hansen, Economic Policy and Full Employment, op. cit., p. 150; Hansen, "Stability and Expansion," Financing American Prosperity, op. cit., pp. 228-233.

intact, this form of "saving" exactly offsets the dis-saving of capital consumption, a point sometimes overlooked.

It is the practice of businesses not only to maintain intact but to increase their capital. While the dangers of over-expansion are more widely recognized today than in times past, it is true that businesses do not like to contract in size. A certain magnitude once achieved is regarded as a base to maintain or from which to further expand. The most elaborate guarantees against reduction of dividends in periods of recession, given by managements as justification for withholding larger dividends in periods of prosperity have generally come to grief against the reluctance to shrink in size even when earnings shrink.<sup>1</sup> Indeed managements are much more likely to dissipate substantial surpluses in continued losses than in excessive dividends; a change in dividend policy is accepted less reluctantly than a change in management, though occasionally a corporation having arrived at an unprofitable stage will liquidate instead of dissipating its assets in further operations--often surprising everyone with the eventual satisfactory recovery by equity holders.

The fact is that this compelling tendency on the part of corporate management to put aside, to provide for

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<sup>1</sup>Jordan, Investments, op. cit., p. 46.

permanence and growth without external financing, is a form of forced savings by many stockholders. This is, of course, combined with forced reinvestment in the same company of earnings which belong to the stockholders and which they might prefer to invest elsewhere or to consume. This forced saving growing out of undistributed earnings is encouraged by the double tax on distributed earnings, which are subjected both to the corporate tax rates and the individual tax on the dividends to stockholders. Thus, stockholders are encouraged to leave the earnings in the corporation rather than pay the tax penalty on distribution.

This factor of undistributed earnings is very important in periods of prosperity, less so, in fact negative altogether, in depression times. The depreciation provision continues year in and year out at a stable figure. (To be remembered is the fact that over-all figures do not adequately reflect individual business practices, which vary widely.)<sup>1</sup>

<sup>1</sup>Table 16 in the Appendix sets forth for information the estimates of one investigator, of sources and investment of funds in tangible assets of business for 1920-1930. (The picture of retained earnings especially would be different today, the 1930's having been red-hot years for business.)

B. GROSS INCOME AND EMPLOYMENT, THE PROPENSITY TO CONSUME,  
AND NET SAVINGS AND INVESTMENT: THE KEYNESIAN THEORY  
OF THE DETERMINANTS OF SAVING

John Maynard Keynes' The General Theory of Employment  
Interest and Money, as it bears on the volume of saving,  
runs as follows: Income, which is the value of current  
output, depends on the volume of Employment and is equal  
to Consumption plus Investment. But Savings equal Income  
minus Consumption, so Savings equal Investment.<sup>1</sup> Unless  
Investment (equals Saving) increases, Employment and Income  
cannot increase, but will decrease to the level set by In-  
vestment and Consumption.

Total income and the "propensity to consume" determine  
the rate of saving. The propensity to consume is a "fairly  
stable function." When employment and income increases,  
consumption will increase but "not by so much"--this is a  
"psychological law."<sup>2</sup>

One would think up to this point that increased saving  
(equals investment) would be a good thing--it would increase  
income and employment. But not so. Increased saving in-  
stead of increasing investment, reduces employment and income  
instead.<sup>3</sup> According to the theory this is because the interest

<sup>1</sup> Keynes, General Theory, op. cit., pp. 23, 25.

Ibid., pp. 26-29, 29-31. <sup>2</sup> Ibid., p. 128.

rate is the determinant of investment and the rate is determined by liquidity-preference.<sup>1</sup> "The more virtuous we are, the more determinedly thrifty, the more obstinately orthodox in our national and personal finance, the more our incomes will have to fall when interest rises relative to the marginal efficiency of capital."<sup>2</sup> It is the latter relationship which determines the volume of investment but not of saving.<sup>3</sup>

In review: Income and Employment depend on Consumption and Investment. Investment equals Saving. Saving depends on Income and Consumption. Saving tends to increase faster than Consumption and Income. Investment depends on Income and the Interest Rate. The Interest Rate depends on Liquidity-Preference, an extraneous independent variable.<sup>4</sup> To elaborate further is to make the reasoning appear circular.<sup>5</sup>

Keynes' theory seems to be in trouble at two points--

<sup>1</sup>Ibid., p. 440 et seq.

<sup>2</sup>Keynes, General Theory, op. cit., p. 111.

<sup>3</sup>Ibid., p. 165.

<sup>4</sup>Ibid., pp. 107, 245.

<sup>5</sup>Ibid., on p. 88, "saving equals investment;" on p. 375 "the extent of effective saving is necessarily determined by the scale of investment." Thus are saving and investment determined by themselves? What Keynes intends is that they are determined by the interest rate, an independent variable.

that Savings increase at a faster rate than Income, and that Savings equal Investment. Yet he does not concede that they are not equal, because to do so would open the door to the whole range of determinants of saving hereinbefore listed, whereas his theory demands that saving be a purely objective factor, a residual of employment-income and the propensity to consume.

That income is a determinant of saving would be hard to dispute. That both consumption and saving must come out of income is true by definition. That some consumption has a first claim on income is no more than a reaffirmation of the instincts of survival. But that consumption tends to be stabilized at a low and stable level and that people tend generally to save an increasing proportion of increments of income - these are something else again. This is the sort of question that can be subjected to statistical examination and that we shall do below.

(The identity of savings and investment Keynes insists is vital to his theory.<sup>1</sup> Essentially then the determinants of investment are also determinants of saving. His and

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<sup>1</sup>Although Keynes' "school" veers off sharply toward Houlton's position that savings do not equal investment and that excesses of saving over investment are at the root of economic ills. Supra, p. 15

other theories as to those determinants are the subject of a later section.)

1. Studies of the Propensity to Save: Keynes' theory holds that consumption increases with income but not so fast; that the proportion of income saved increases with increases in income.<sup>1</sup> Is this true?

Three possible approaches suggest themselves:

(1) Is the proportion of individual income saved greater in higher income brackets than in lower?

This question was examined (supra, p. 110). The results were inconclusive, although it appeared that there is no evidence of a consistent tendency for the proportion of disposable income saved to increase pari passu with the increase of disposable income.

(2) Is the proportion of national disposable income saved by individuals greater in years of high income than low? Statistical compilations of pertinent data are presented in several tables in the Appendix, (referred to below) reference also being made to the note in the Appendix pertaining to the meanings of the terms "Gross National Product,"

"National Income," etc.

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<sup>1</sup>Keynes, General Theory, op. cit., pp. 28-29, 29-31. See also Altman, T.N.B.C. Monograph No. 57, op. cit., p. 107.



Table 4 of the Appendix shows National Income, Personal Savings, and certain other components of Gross National Product for the years 1909-1944; Table 5 shows certain of the same data on uniform price bases. The ratio of Individuals' Savings to Disposable Income of Individuals appears in the last column of Table 4. A comparison of these ratios to the amount of disposable income (at current prices) follows:

Individuals' Disposable Income (in billions)  
and Per Cent Saved 1909-1944

<u>Year</u>	<u>Inc.</u>	<u>\$</u> <u>Saved</u>	<u>Year</u>	<u>Inc.</u>	<u>\$</u> <u>Saved</u>
1909	27.3	6.6	1927	73.5	10.2
1910	29.0	6.9	1928	78.4	9.3
1911	29.5	8.3	1929	70.3	11.1
1912	31.3	5.1	1930	70.7	9.2
1913	33.3	6.9	1931	59.0	9.1
1914	32.2	10.2	1932	49.0	5.7
1915	33.4	10.3	1933	44.0	9.2
1916	41.0	16.3	1934	51.0	6.3
1917	50.0	10.2	1935	50.3	7.3
1918	55.9	20.0	1936	63.2	9.6
1919	63.5	17.0	1937	69.2	9.7
1920	66.3	13.3	1938	62.9	7.0
1921	58.3	4.4	1939	67.7	8.9
1922	57.0	8.3	1940	72.9	10.0
1923	63.9	12.3	1941	69.7	16.0
1924	66.7	8.7	1942	110.6	23.2
1925	70.0	10.2	1943	124.0	26.7
1926	73.2	9.4	1944	137.4	23.3

The period 1909-1914 shows no discernable correlation; 1916-1918 support the theoretical expectation but 1914-1916 and 1919-22 do not; 1921-1929 though an extended period of increasing income shows a remarkably level rate of saving; the downswing of 1930-1933 and the recovery of 1933-1940 exhibit the expected pattern as do the war years 1941-1944 in especially marked degree. The war periods of 1916-1918 and 1941-1944, being distorted by forced saving, must be ruled out. Thus, we have the periods 1909-1915 and 1921-1929 not supporting the theory and 1931-1940 supporting it. Comparisons between comparable income levels in different years are confusing. Altogether there appears a long-term tendency toward a savings rate of about 11% of disposable income.

Turning to an even longer period and the different concept of Net Capital Formation, computed by decades in Appendix Table 6, no trend except the sharp depression drop is noticeable, though the national income advanced in enormous strides throughout most of the period.

Appendix Table 7 shows capital formation as compared to the different concept of Gross National Product for the shorter period 1919-1940. The

result is the case--no secular trend either way with rising income but a sharp drop and recovery to previous levels in the depression and post-depression periods.

From the standpoint of national income studies, therefore, we seem to have here not a "general" but a "special" theory; an empirical description of a phase of the depression of the 1930's.

(3) Does the theory hold good under field survey of particular families, individuals and communities? Here the work done in recent years has been most enlightening.

The Federal Reserve Bulletin for March, 1947<sup>1</sup> reports on 3,000 interviews in 1945-1946 by Department of Agriculture personnel for the Federal Reserve Board. The conclusion is that while individual savings rise and fall with changes in individual incomes, the change in saving will be less in proportion with increases in income and more nearly proportionate to decreases. Saving was found to vary with education, self-employment, nature of employment, and residence. Little age-group variation was found. Liquid assets

<sup>1</sup>Young and Holthausen, "Values and Limitations of Consumer Financial Surveys for Economic Research," Federal Reserve Bulletin, v. 33 (March 1947), pp. 244-252.

were found a deterrent to further saving (see supra p. 104), being held not for spending but for reserve.

Another report, this one on a definite test of Keynesian theory, is that of Chas. Madge in the Economic Journal for December, 1940.<sup>1</sup> An investigation was made by direct inquiry of a large number of working class families in the three communities of Blackburn, Bristol and Coventry in England. The first was selected as a poor community, the second medium and the third prosperous. The results, obviously contrary to expectations, showed what the author called, speaking in comparative terms as between the communities studied, a "remarkable propensity to save" in Blackburn where least expected; and "propensity not so strong" in Coventry. Bristol, "a useful mirror of the country as a whole," was more like Blackburn than Coventry. The conclusion reached was that the per cent saved by families seemed to decline slightly with larger incomes--"The higher the standard of living of these working class families, the less willing are they to save at its expense," and they save for emergencies, not for wealth.

<sup>1</sup>Chas. Madge, "Propensity to Save in Blackburn and Bristol," Economic Journal, v. 50 (December 1940), p. 410.

The evidence seems to support Sumner Slichter's over-all conclusion that the propensity to save does not rise with rising incomes; if anything the propensity to consume rises faster.<sup>1</sup> This is consistent with the whole theory of subjective determinants and their limitations herein above discussed. Saving is an individual matter not mechanically determined as far as the individual is concerned by the mere volume of income available to save, and very possibly not amenable to broad generalization.<sup>2</sup>

<sup>1</sup>S. Slichter, "Public Policies and Postwar Employment," Financing American Prosperity, op. cit., p. 300.

<sup>2</sup>Herbert H. Kessler in "Statistical Investigations of Saving, Consumption and Investment," American Economic Review, v. 32 (June 1942), p. 272, sets out to "test" Keynes' theory but is non-committal as to what he found in that regard. He says saving is "functionally related" to level and change of income but he sidesteps the matter of the ratio of saving to income and to changes in income. Saving exceeded investment in the 1920's and 1930's both, he finds; and he draws attention to the housing cycle as a determinant of both savings and investment. Interest rate reductions have not stimulated investment.

## CHAPTER VI

### THE DETERMINANTS OF INVESTMENT

Investment has been defined (supra, p. 10) as the transition between money savings and capital formation. What, then, are the factors that influence men to invest or not to invest, and that determine the selection of the investment?

#### A. REFINEMENTS OF THE DISTINCTION BETWEEN SAVINGS, INVESTMENT AND CAPITAL FORMATION.

The phenomenon of investment does not occur independently in the case of direct capitalization; nor is it easily recognizable in the case of personal savings for durable consumer goods, especially when purchased on credit. These cases are distinguished as implying common antecedent motives and decisions to save and invest. There is little new to add in such cases to what has been said about motives to save - the motive to invest is the same: the desire to own something, combined with forethought et al. The effect of the interest rate is simply to make the achievement more or less difficult as the growth of the accumulation is retarded or hastened.

But much saving results in the accumulation of liquid assets without fore-knowledge or decision as to the time or manner of their conversion if at all to capital formation. The savers' abstinence has freed materials and labor of their product from consumption; savers retain control of these means or products. Through a flexible credit system that control may be transferred to others with or without the savers' specific consent. These transfers may result in consumption by another or creation of new productive goods. Similarly the saver may voluntarily surrender to others through institutional use of his savings (insurance, savings banks, government deficit financing) his right to direct the use thereof. But at some point the saver, borrower, institution or government either assigns the savers' savings to consumption by another, or by investment assigns them to capital formation. Someone must become an investor before liquid savings can become capital goods.

Investment is a two-sided proposition. An investor must decide to commit his funds and an entrepreneur, or the government, must decide to use them. Both, then, are making a decision to "employ" the funds.

Entrepreneurs do not usually use invested funds for their own consumption; investments in enterprises so applying invested funds, soon cease: there is no productive capital from the earnings of which to repay principal or pay

interest. In our society it is generally immoral and can readily become illegal for an entrepreneur simply to spend on consumption, investment he has accepted for presumably productive enterprise.

The entrepreneur in the usual case applies invested funds to direct capital formation. He spends money for materials and labor, thus returning the savings to the income flow where they are consumed by laborers, rentiers, etc., or by them in part re-directed to saving-investment-consumption. In the absence of waste outright (leaving potatoes to rot in dump-piles) savers' non-self-consumed production is always consumed by someone. There are no liquid savings until after a product has come into existence and been exchanged for liquid assets. The product does not then disappear. It is either consumed or wasted.

Savings invested in capital formation are both consumed and saved. In this way society eats its cake and has it too. Products are consumed by labor and conserved in durable products of labor.

The materials God gives us in the land and the labor of living men - these are the sources of economic goods and they are in part permanent and in part transitory. The crop that might have been grown and harvested but was not, the labor of living men who did not work today - their potential product is lost forever. These losses and the losses of waste or



destruction as in war or misuse in inefficiency - these are the only real losses the economy can suffer. Some of the land's good remains in it passively awaiting use - in mines. Some is continuously regenerative and may be used or lost - in timber and crops. Labor is of the latter order. The labor of living men is not a storehouse like a mine, but a flow like a river; once gone past it never exists again, but its use today need detract nothing from tomorrow's flow. Life is a perpetual motion economic machine. The earth's crops and man's labor can maintain man. They will maintain him intact when capital formation equals its consumption or when there is no capital; man can enrich the earth and himself by a net capital formation; or he can leave it poorer than he finds it. But it is certain that goods consumed in production of capital are both consumed and saved.

There is no such thing as "giving employment." There are only the use, non-use or mis-use of labor. It is wrong to speak of "increasing the consumption function" as though consumption were opposed to saving and capital formation. The decision is between wasting products, consuming them merely maintaining life and capital intact, or consuming them in creating capital. Saving does not fore-ordain that decision.

Saving creates a pool of control over decisions as to units of product, by postponing decision when the products are first available. Investing is a decision to use the controlled products in capital formation or an assignment of the

right to decide, the assignee then facing a decision of the same nature. Capital formation results from the consumption of previous products in the construction of durable goods. Liquid assets are the pool of control over postponed decisions.

Waste results alike from a decision not to use, or from a decision to use in maintaining non-productive or inefficiently productive labor - life without work. Consumption is the use of products, -- anything other than the waste of non-use. The important decision is on whether and how to use the labor that consumption supports.

#### B. CONSUMER LOANS

As was mentioned above, the credit system can simply transfer the savers' forbearance to dis-savers' consumption. This is consumer credit - charge accounts, "small loans," and instalment selling.<sup>1</sup> Similar are government deficit-financed non-capital activities. The rule is that the consumer (including the taxpayer) must return to the saver the control over products which has been lent, plus another re-transfer of the premium of interest. The loan and the

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<sup>1</sup>In re instalment credit see Haberler, Consumer Instalment Credit and Economic Fluctuations (New York: National Bureau of Economic Research, 1932); also Schorman, The Promises That Men Live By (New York: Random House, 1938), pp. 35-56.

repayment are simply transfers of control over goods. The borrower must restore from future decisions of his own to the lenders' pool of decision. Thus a consumer loan further postpones the lenders' decision. He does not rid himself of it. There is no harm in consumer loans unless the borrowers' judgment is inferior to the lenders', unless the lenders' later decision is inferior to his current decision, or unless the borrower wastes and never repays the product that the lender might have put to better use. These loans are but temporary commitments, assignments between individuals of control over current products available for consumption, which the borrower must restore to the lender by the borrower's own subsequent saving. They neither increase nor decrease the sum total of savings, because the borrowers' saving is a restoration of his initial dis-saving, except that the interest paid is a net additional saving by the borrower, controlled by the lender. Simple time-preference seems to explain the existence of interest here, but not necessarily its rate.

### C. PRODUCTIVE INVESTMENT AND THE RATE OF INTEREST

When savers invest in capital formation they apply the labor and material and the products thereof in their control,

to durable construction, either of goods which will be consumed over a period of time for the satisfactions of their use, or of goods which will be consumed over a period of time in production of further goods. What moves the saver to become an investor in productive capital goods?

Here the significance of the rate of interest again is to be considered. Does the saver demand a certain premium of interest for relinquishing his liquid savings, which represent a pool of control over goods, a right to postpone decision, a freedom of choice; to commit them by investment to

productive purpose? Does the rate of interest exert a profound influence on the decision of the entrepreneur or the

<sup>1</sup>Here a digression must be made. Investment in modern practice is only to a limited extent regarded as lending and borrowing. The investor regards himself as making a transfer of assets from one form to another. To a considerable extent (especially through the operation of the securities exchanges and markets) liquidity is not relinquished. The distinction between the purchase of an equity (stocks) and the making of a loan or acquiring of a debt (bonds) is primarily a technical one of law and formal contract rather than any subjective distinction to go into business for one's self instead of to lend to someone else. The subjective distinction rather is between more risky and less risky investment, the prospective earnings tending to vary with the degree of risk.

The purchaser of a stock acquires an asset subject to considerable variation in value and with a relatively uncertain income return; the purchaser of a bond acquires the present value of a future sum plus the present value of an annuity of the anticipated interest collections, also with some, but a much lesser, degree of risk of non-collection. The present value of the anticipated interest collections is the major factor in all long-term bond purchases. Jordan, Investments, *op. cit.*, p. 255.

The feature of risk is the principal quantitative determinant of the nominal interest rate as between different securities, the investor's primary concern being for integrity of principle. *Ibid.*, p. 261; also von Hayek, "The Maintenance of Capital," Economics (August, 1935), p. 241, quoted by Keynes, General Theory, *op. cit.*, p. 60. Thus a mere nominal rate of interest, while it might not prevent the accumulation of savings, would prevent their investment, because of the lack of an insurance feature against loss. A. Smithies, "The Quantity of Money and the Rate of Interest," Review of Economic Statistics, v. 26 (February, 1943), p. 69.

There is no such thing as a riskless investment, but only varying degrees of risk. "The safest bond you can buy is only gilt-edged insecurity." R. A. Lovett, The Saturday Evening Post (April 5, 1937) quoted by Jordan, Investments, *op. cit.*, p. 170; see also *Ibid.*, pp. 161, 196.

That bond prices in periods of depression are influenced primarily by the quality of the bond and that pre-depression standard security ratings as to quality have proved reliable is amply demonstrated by O. K. Barroll, A Study of Investment Mortality (Eugene, Oregon: University of Oregon, 1937).

Government to avail of a saver's investment in order to construct capital goods? Opinions vary, especially on the latter question.

1. The Keynesian Accent on the Importance of the Interest Rate

The principal modern theorist to accent the interest rate as an important determinant of capital investment is Lord Keynes. It was his opinion that the rate of interest, though itself determined by other factors, is itself the price determinant of whether investment takes place. Investment in turn is required to maintain income and employment above the lower equilibrium set by the propensity to consume (supra, pp. 120-121 et seq.).

Keynes held that "no one doubts that the investment demand-schedule falls with a rising rate of interest"<sup>1</sup> and that "the rate of investment will be pushed to the point on (that) schedule where the marginal efficiency of capital in general is equal to the market rate of interest."<sup>2</sup> As Slichter points out, Keynes seems

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<sup>1</sup>Keynes, General Theory, op. cit., p. 102.

<sup>2</sup>Ibid., p. 157.

to view the businessman simply as one "who puts additional increments of capital to work until the marginal efficiency of capital equates the rate of interest."<sup>1</sup> In this, Keynes reminds one of Alfred Marshall, to whom interest was a payment offered for the use of capital because of the gain anticipated therefrom, the current rate being at the temporary equilibrium of supply and demand. However to Marshall these factors determined the rate, which tended to be at the marginal efficiency of capital.<sup>2</sup> To Keynes the rate is independently variable with monetary factors, and investment proceeds to the extent permitted at that rate by capital's marginal productivity.

Keynes recognized that it was probably the entrepreneur's estimate of capital's future efficiency that was really determining whether investment would be accepted at the going rate, the "state of confidence" being an important factor.<sup>3</sup> (This would tend to increase the investment that would otherwise be made, since historically experience of investment has often disappointed

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<sup>1</sup> Slichter in Financing American Prosperity, op. cit., p. 323.

<sup>2</sup> See the discussion of Marshall on interest in Homan, Contemporary Economic Thought, op. cit., pp. 249-251.

<sup>3</sup> Keynes, General Theory, op. cit., pp. 149-150.

investors.)<sup>1</sup> He did not regard moderate changes in the interest level or the prospective level of efficiency as likely to have any very great effect on the rate of investment,<sup>2</sup> nor would great changes in the rate induce investment in unusual circumstances.<sup>3</sup> He did imply that the banking policy could, by raising interest rates, nip a boom in the bud.<sup>4</sup> But he apparently would not take such action. Instead he recommends lowering the rate in a boom to make the boom last -- the remedy for the business cycle is not to abolish the boom but to abolish the slump.<sup>5</sup>

### 3. Theories Minimizing the Importance of the Interest Rate

Turning now from Keynes, there is considerable doubt in some minds that the interest rate is as important a factor as he believed. Because of fundamental differences in premises, these other views cannot be absolutely contrasted with the Keynesian theory; but they tend to the position that

The main root of the instability of our economic

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<sup>1</sup>Jordan, Investments, op. cit., pp. 161-163.

<sup>2</sup>Keynes, General Theory, op. cit., p. 250.

<sup>3</sup>Ibid., p. 207.

<sup>4</sup>Ibid., p. 327.

<sup>5</sup>Ibid., p. 322.



order lies in the fact that our interest mechanism is not able to balance savings with investment, wherefor tendencies toward deflation are produced at certain times and tendencies toward overinvestment at other times.<sup>1</sup>

Similarly "low rates tend to encourage hoarding" - with falling rates, savings will decline somewhat and investment will increase but not sufficiently to keep the savings invested, because "the rate of interest is perhaps usually one of the least important of the items considered by businessmen when they are contemplating a business venture."<sup>2</sup>

This belief is also held by H. G. Moulton, whose 1933 Brookings Institution reports are summarized in Income and Economic Progress (op. cit.). He still holds to the same view, that the interest rate is negligible

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<sup>1</sup>Gernard Colm, "Tax Policy and Capital Formation," in Capital Formation and Its Elements, op. cit., p. 31. Hans Meisser's statement that "it has never been doubted in modern theory that the rate of interest equalizes the supply of money funds to be lent and the demand for money funds to be borrowed" can hardly be taken seriously. "Saving and the Rate of Interest," in Studies in Income and Wealth (New York: National Bureau of Economic Research, 1938), v. II, p. 174.

<sup>2</sup>Hayes, Spending, Saving and Employment, op. cit., pp. 85-86.

in the calculations of businessmen, and that money saving, investment, and capital formation are independent variables.<sup>1</sup>

Objective investigations of businessmen's subjective reactions to the interest rate as a determinant of investment are scanty. That of H. D. Henderson in England in 1936<sup>2</sup> is most pertinent - and apparently it surprised the assembly of economists to whom it was first presented.<sup>3</sup> Henderson, an Oxford economist, found in interviews with businessmen that they denied that their actions were influenced by the rate of interest to any appreciable degree. Following Henderson's study, F. A. Lutz' analysis convinces him that:

(1) Changes in the interest rate, either long-term or short-term, will not affect the calculations of entrepreneurs as to inventory holding or industrial investments; but

(2) Changes may have some effect in the public utility and railroad fields; and

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<sup>1</sup>Harold G. Moulton, "Interest Rates and Capital Formation," Commercial and Financial Chronicle, v. 163 (June 13, 1946), p. 321B

<sup>2</sup>H. D. Henderson, "The Significance of the Rate of Interest," Oxford Economic Papers No. 1 (October, 1939), p. 9; cited by Moulton, "Interest Rates and Capital Formation," Commercial and Financial Chronicle, v. 163 (June 13, 1946), p. 321B; and by F. A. Lutz, "Interest Rate and Investment in a Dynamic Economy," American Economic Review, v. 38 (December, 1948), p. 811.

<sup>3</sup>Moulton, "Interest Rates and Capital Formation," op. cit.

(3) Changes may influence the attitude of financial institutions, thus indirectly affecting the volume of investment without changing the opinions of entrepreneurs.<sup>1</sup>

Another view of the evidence is that the rate would be an important factor if it changed radically enough to attract the entrepreneurs' conscious attention.<sup>2</sup> This is an important qualification. However, the recent historical stability of interest rates justifies a general assumption that rates under 8% are "normal."

Businessmen are interested in costs as dollars, not as names. Interest is a cost to the entrepreneur. Except in public utilities and railroads, it is a minor one. With inventories: the costs of storage, insurance and deterioration are much more important than interest. With capital investment: depreciation, obsolescence, labor problems and wage rates, and the demand for the product and the nature of the product are determining factors likely to outweigh a hundred times the cost of interest. With accounts receivable: investment, trade practices and sales policies set the pace, not interest rates. With liquid assets: "liquidity preference" and the demands of stockholders for dividends are controlling.

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<sup>1</sup>Lutz, "Interest Rate and Investment in a Dynamic Economy," op. cit.

<sup>2</sup>G. L. S. Stachle, "Interest Rates and the Pace of Investment," Economic Journal, v. 56 (March, 1946), p. 1.

The interest rate is a marginal determinant only when other factors are unusually well balanced pro and con. Furthermore businessmen don't like to be in the "clutches of the bankers" or otherwise involved in debt. In many cases they don't like to admit outside capital because it means outsiders in the sanctum sanctorum, also in the earnings. And their own capital, once committed to a business, cannot lightly be withdrawn for investment elsewhere. All these factors minimize interest-rate considerations in the acceptance of investment. In fact businessmen frequently finance their enterprises at higher than the lowest rate they can get.<sup>1</sup>

Furthermore, businessmen do not knowingly, and intentionally operate at the margin. As John Rae said a long time ago, what businessmen are after is the "usual" profits of the enterprise--will it pay?<sup>2</sup> And they don't mean pay 2%, 3%, 4%, 5% or whatever the marginal efficiency of capital may be. The businessman who will start the marginal enterprise to earn the marginal rate of return doesn't exist. It is no answer to say that marginal operations exist.

<sup>1</sup>For instance, chain stores commonly finance their retail store buildings on long-term net leases which repay 5% or 6% on the lessor's investment, when the same companies' debentures yield 2½% or 3%.

<sup>2</sup>John Rae, Sociological Theory of Capital, op. cit., pp. 226-227.

Investment and its acceptance are prospective, as Keynes pointed out (supra, p. 138), and the interest contract is made in advance, but investment is never based on estimates of yield so narrow as to be at the marginal efficiency of capital. Such estimates are based on total incomes and total costs anticipated, in which the cost of interest is a small part and in which a profit is expected.

Take for example some rule-of-thumb figures. The following is a representative model: It shows the relative unimportance of the interest cost in a typical business case.

(a) For an investment of	\$ 1
(b) Annual gross sales might be	8
(c) Net profit on sales might be	.25*
(d) Labor will amount to	3
(e) Raw materials will be	3
(f) Depreciation will be	.03
(g) Taxes will be	.23
(h) Interest on <u>borrowed</u> funds will be	.0025
(i) Miscellaneous costs will be, say	.0475
(j) Interest on total investment at 5% would be	.05
(k) If the investment were expanded 10% per year, additional interest on all <u>new</u> investment would be	.005

\* The profit return, of course, includes elements of wages, interest, entrepreneurial profit and perhaps

According to the Statistical Abstract of the United States, 1946 (U.S. Dept. of Commerce, 1947) the total receipts of all corporations filing income tax returns for 1942 (the last year reported) were \$217.7 billion and total interest deductions were \$2.5 billion, or about 1.1%, and equal to one-fifth of the Federal income tax paid.

It was Houlton's conclusion in the 1935 studies above mentioned (p. 140) that the bulk of capital is created in periods of general economic expansion, its growth being adjusted to expansion of consumptive demand rather than to the balance of savings available for investment.<sup>1</sup>

The evidence shows conclusively that the construction of capital does not vary directly with the amount of investment money available. It is apparent that the decisions of business enterprises with reference to the construction of additional plant and equipment are determined by reference to the state of the markets for the products which such new capital equipment will turn out.

A concurrent increase in the flow of funds through consumption and investment channels is made possible by the expansive quality of our commercial banking system.<sup>2</sup>

It seems a logical extension of this reasoning to quote Hayes' statement that

Even a negative rate of interest - a provision that, say, only \$90 must be repaid for every \$100 borrowed - would not encourage investment if people are saving so much that they have but little left with which to buy consumer goods and services.<sup>3</sup>

Prof. Hansen states that equipment represented 69% of investment in business capital in 1921-1940 and believes these to be the important determinants of equipment

<sup>1</sup>Houlton, The Formation of Capital, op. cit., pp. 157-169.

<sup>2</sup>Houlton, Income and Economic Progress, op. cit., p. 44.

<sup>3</sup>Ibid., p. 43.

<sup>4</sup>Hayes, Spending, Saving and Employment, op. cit., p. 45.

investment: (1) sales prospects; (2) inventions; and (3) Expectations of profit.<sup>1</sup> Hansen acknowledges some influence of the interest rate on new investment and believes government control of the rate may be readily accomplished by adjusting the quantity of money.<sup>2</sup> However, though "the rate of interest is a determinant of the volume of investment and the flow of saving, . . . it is easy to exaggerate its importance." He sees the rates of population growth and of technical progress as major factors.<sup>3</sup> He would not artificially raise the level of investment merely to provide employment, if the rates of population growth and technical progress were not such as to require that flow of investment, for to do so would be to waste resources. (He now also thinks that historically the amount of investment needed to maintain full employment has far exceeded the amount needed for growth and progress.)<sup>4</sup> Hansen sees a low rate of interest as more effective in housing than in other investments,<sup>5</sup> but too low to attract private capital there; and he proposes a vast program of governmental

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<sup>1</sup>Hansen, Economic Policy and Full Employment, op. cit., pp. 176-179.

<sup>2</sup>Ibid., pp. 148-149, 229.

<sup>3</sup>Hansen in Capital Formation and Its Elements, op. cit., pp. 8, 9, 10.

<sup>4</sup>Hansen, Economic Policy and Full Employment, op. cit., pp. 177-178.

<sup>5</sup>Ibid., p. 151.

housing to which private savings would be productively applied by government deficit financing.<sup>1</sup> The strange hiatus in this reasoning is that raising of the standard of living, so conspicuous in economic history, has so little place in the theory.

C. C. Abbott in his 1944 study, Forces Influencing Investment in Business Enterprise After the Transition Period,<sup>2</sup> anticipates a great need for new business financing after the war and discusses these forces bearing thereon:

As "legacies of the 1920's and 1930's" he lists:

- (1) The rise of institutional savings,
- (2) The declining growth of individual stock ownership,
- (3) Reduction in private debt,
- (4) A new accent on liquidity, and
- (5) The rise of "that group of ideas commonly designated by the term 'fiscal policy.'"<sup>3</sup>

<sup>1</sup>Hansen, "Stability and Expansion," in Financing American Prosperity, op. cit., pp. 224-225, 227-230.

<sup>2</sup>(Boston: Harvard University Graduate School of Business Administration, 1944).

<sup>3</sup>Ibid., pp. 10-20.



As "legacies of war" he lists:

- (1) The great increase in taxation and its influence on business policy,
- (2) The large amounts of liquid savings available (much of it accumulated in the lower income brackets),
- (3) Dislocation of the economy, and
- (4) New types of financial institutions and practices, especially as to government institutions and the size of the national debt.<sup>1</sup>

He further finds a "large and continuing distaste by individuals for the risks and responsibilities of ownership" and a "tremendous desire on the part of business managers to be free of debt and to be financially self-sufficient."<sup>2</sup> The combined effect of these two attitudes against owning and owing "clearly serves as a bar to investment and business expansion."<sup>3</sup> He sees other factors as more costly in the matter of new financing than the interest rate (i.e. restrictions demanded by lenders to add to their security, and flotation costs).

As on the savings side, the mere reminder of the numerous and powerful determinants other than the interest rate creates a strong presumption that the rate is by no means an exclusive regulator of the flow of investment, and may be but a secondary one.

<sup>1</sup>Ibid., pp. 20-23.

<sup>2</sup>Ibid., pp. 45-46.

<sup>3</sup>Ibid., p. 47.

D. TAXATION, REGULATION AND THE "CLIMATE OF HOSTILITY"  
AS RESTRICTIONS ON INVESTMENT

Mention has already been made of the burden of taxation as a deterrent to capital formation: (1) by direct reduction of the income available for savings, (2) by transfer of saving to institutional and governmental funds where it tends more to be used for consumers' capital, than does direct business investment, (3) by the reduction of incentives to invest, (4) by income redistribution through progressive taxation to less-investing and probably less-saving groups, (5) by fiscal policy directed at increasing "consumption," and (6) by increasing the penalty on risk-taking as opposed to low-risk and tax-exempt investment.

That a number of these effects, mentioned as deterrents to saving, operate from the investment standpoint is, of course, apparent. Both the taxing away of funds otherwise used for risk investment and the heavy taxation of corporate enterprise are governmental policies which, whatever their other effects, tend to block productive private investment<sup>1</sup> and to penalize the corporate form of business organization (which form has so much stimulated saving, investment and the growth of capital<sup>2</sup>). It is no secret today that tax

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<sup>1</sup>cf. Scoville and Sargent, Fact and Fancy in the T.N.E.C. Monographs, op. cit., p. 654.

<sup>2</sup>cf. Abbott, op. cit., pp. 20-22.

considerations have become important determinants of business policy. (Shall we spend for this or that? Well, how much does the government pay of it? Shall we give this new idea a tryout? How much of the proceeds will taxes take? And so on.)

A new enterprise was this year proposed in a Western city that needed it. Working capital of \$100,000 was offered for \$10,000 down and the balance over 20 years @ 3½%. A new plant could be built for \$250,000, of which 50% could be mortgaged at 4½% on a 25 year loan. The balance required was available in risk capital of those who would manage the enterprise. Earnings before taxes of \$100,000 annually on gross revenues of \$2,000,000 seemed available. But of the \$100,000 the corporate income tax would take \$33,000. From the balance of \$67,000 would come dividends from which to service the debt; these dividends would fall in 50% or higher personal tax brackets. For the risk-taking, the worry, the responsibility of management, would be left the moderate salaries the government would allow before taxes (also reduced by 50% personal tax), and an increasing equity over a long period of years in a depreciating plant. So the proposition was turned down by men who could take risks and know how to handle them, but who had families to support, futures to think about, and modest fortunes to preserve; and who could see no purpose in staking those all in a game

in which taxes take the greater part of gains and the entrepreneur takes the losses. High and progressive taxation of risk ventures is restricting enterprise, especially new enterprise, in this country today. It takes more than pi-ous declarations and developmental theories, it takes more than low interest rates, it takes more than passing laws, inflating the currency and appropriating money, it even takes more than effective demand and technological improvements to convert savings into investment and investment into capital formation. What it takes is men, adventurous men - men of ambition and imagination, men who carry responsibility and assume authority, men to work and worry and think and be entrepreneurs. Such men are being out of this heads-you-win, tails-I-lose game.

Similar effects, less widespread, grow out of the well-intentioned and basically sound Securities and Exchange Act and the overlaying regulations of the S.E.C. There is no real argument against reasonable regulation of the securities markets, the prevention, detection and punishment of fraud, the requirement of full disclosure of information.

But

With a crusading zeal government administrators sought not only to prevent fraudulent practices, but to eliminate the risk element in security operations -

to prevent losses to the investing public.<sup>1</sup>

This is something entirely different - the removal of risk is tantamount to the removal of investment, for there are no risk-taking investments. What is needed is

the removal of certain defects in legislation and the improvement of administrative procedures with a view to safeguarding the interest of the public without unnecessarily handicapping the operations of the investment banking and security exchange system<sup>2</sup>

There have recently been seen two prospectuses for stock sales. One was a \$51,500,000 new offering of The American Tobacco Company, which sells Lucky Strikes all over the world. The other was a resale by a holding company of \$3,300,000 of stock of the Maine Public Service Company, which sells hydro-electric power to a few potato farmers in the Northeast section of that state. (The S.E.C. may exempt issues of under one hundred thousand dollars.) Both documents are but summaries of the Registration Statements required to be filed with the S.E.C. The two prospectuses are of equal length -- legal size, fine print, as thick as the Saturday Evening Post but without any pictures, and as full of figures as the Review of Economic Statistics. The average investor doesn't read them. Yet the little company

<sup>1</sup>W. E. Atkins, G. W. Edwards, H. C. Moulton, The Regulation of the Security Markets (Washington, D. C.: The Brookings Institution, 1946), p. 92.

<sup>2</sup>Ibid., pp. 92-93, 116-123.

paid a corps of lawyers, accountants, appraisers and assorted experts just as American Tobacco did. In the case of the smaller company, the cost of the registration would probably have paid an extra  $\frac{1}{2}$  of 1% on the stock for several years. What is needed is some sense of proportion in these matters.

As a further deterrent to business investment there must be mentioned also the opposition to business as such that sometimes has appeared in governmental and academic circles. This "climate of hostility and faultfinding,"<sup>1</sup> especially when supported by the prestige of government, is an intangible discouragement to business enterprise. Instead of pride in the construction of a new plant, the successful operation of a productive business, entrepreneurs somehow should be ashamed of such things. It is an anomaly that in accomplishing the organization of production, the conversion of savings to capital formation through investment and plant construction, entrepreneurs should face not only the inherent risks of economic enterprise, but also the subtle opposition to the very activities which translate theories into action.<sup>2</sup>

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<sup>1</sup>J. H. Clark, "Financing High-Level Employment" in Financing American Prosperity, op. cit., pp. 94-95.

<sup>2</sup>That research can solve our problems is an illusion. Someone has to get out on the firing line and do something. Cf. Arthur F. Burns, Preface to Economic Research and the Development of Economic Science and Public Policy, op. cit., pp. viii.

## CHAPTER VII

### NOTE ON GOVERNMENT CAPITAL FORMATION AND THE RATE OF INTEREST

Investment by governments in capital formation either immediately out of tax revenues or out of deficit financing is not a new idea in the world. As with individuals, governments engage in automatic saving and investment by acquiring durable goods: roads, fire engines, and public buildings, for instance. The nature of such governments' goods tends to be for consumer's capital rather than for productive purposes.

However, in ancient times and in very recent times governmental investment in productive public works has not been uncommon. Ancient rulers often owned most if not all the community's capital of all kinds. Lately state development of hydro-electric works in this country, and state ownership of all productive capital in Russia, and all varying degrees between, are taking place.

The present theoretical justification for expanding public works in Great Britain and this country, though perhaps influenced by Marxian and the (now middle-aged) Russian experiment, is predominantly Keynes-Hansenian. It holds that the economy has matured by reason of diminishing population growth, the reaching of the geographical frontiers,

and a levelling-out of the rate of technological invention. This "mature economy" is no longer able to afford private investment opportunities at a sufficiently attractive rate of interest to absorb an excess of income and employment over the propensity to consume. So to provide an outlet for the public's savings and assure "full" employment the state must step in by borrowing the savings (deficit financing) and forming capital with them (public works).<sup>1</sup> Thus "saving plus taxes must equal private investment plus government outlays" and "'gross saving' must equal private investment plus government-loan expenditures."<sup>2</sup>

The theory is contested by those who hold that "economic maturity" is of special temporary depression application only.<sup>3</sup> The facts of population and geography are clear but there is no way to foresee the future of technological progress. Nor is economic maturity a necessary conclusion from the facts. (For instance, if a secular trend accounted

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<sup>1</sup>Hansen, "Stability and Expansion," in Financing American Prosperity, op. cit., pp. 218-237. Of course this doesn't work if the deficit is floated through the banks. See Scoville and Sargent, Fact and Fancy in the F.W.E.C. Monographs, op. cit., p. 653.

<sup>2</sup>Hansen, Economic Policy and Full Employment, op. cit., p. 36.

<sup>3</sup>Storborgh, op. cit., pp. 190, 226. Also Saving and Investment in the American Enterprise System, op. cit., pp. 18-24.



for the depression of the 1930's how account for the expansion of the 1920's?) A footnote deals with the argument at greater length.<sup>1</sup>

<sup>1</sup>Note on "Economic maturity": As to population growth and investment Leon Goldenberg in "Savings in a State with a Stationary Population," Quarterly Journal of Economics, v. 61 (November 1946), p. 60, found that in the period 1871-1911 the French population was steady while the English and German rose steadily. The French saved 10% of their national income while the English saved 12-15% and the German 15-20%. The French invested half their savings abroad, the Germans 10% and the English 25%.

As to America it should be noted that population growth is not necessarily consumer-unit growth, as the number of families in this country is not showing the declining rate of growth the population exhibits (Saving and Investment in the American Enterprise System, op. cit., pp. 17-19, 77). And of course the rising standard of living is an offsetting factor also.

Demarest et al in the Twentieth Century Fund's America's Needs and Resources, op. cit., give the matter of our real needs and likely future demands the study they merit; only a sampling of their results will be attempted here. Table 17 of the Appendix shows their summary of "Estimated Needs and Demands for Capital Goods, 1950 and 1960," compared to actual expenditures for that purpose, 1920-1941. The totals are:

1950 - Needs	\$54.8	billion at 1944 prices	
1960 - Needs	57.9	"	"
1950 est. demand	27.7	"	"
1960 est. demand	35.0	"	"
1920-1939 actual	18.1	"	"
1939	18.8	"	"
1940	15.8	"	"
1941	20.3	"	"

Table 18 in the Appendix shows the "backlog" of capital goods demand existing at the end of the war, based on the excess of such expenditures in two earlier periods of comparable length, over war-time expenditures for capital goods usable in peacetime. Compared with 1928-1939 the deficiency is \$32 billion and even compared with 1935-1939 it is \$7.9 billion.

It is not proposed to settle the issue here. Suffice it to say that all-out adoption of state capitalism would probably make the theory of interest purely an historical exercise. For to government the decision to invest or to spend on current consumption would be merely a decision as to the current application of current revenues, on any other ground than the rate of interest. It would make little difference to the government's interest cost, if any, whether its borrowing were spent one way or another. The government would set the rate by fiat. It would be almost exclusively a debtor. It enjoys sovereign power. If citizens were found reluctant to buy government bonds at the set rate they would have their choice of (1) paying higher taxes instead, (2) witnessing a decline in government spending, (3) paying for the spending indirectly through inflation, or (4) forced "investing" in the government's bonds at the set rate.

(The alternative of going back to a system of private capitalism is not so easy - the decision to socialize must win but one election or one revolution; the decision to preserve individual enterprise must be defended again and again. It took a long time for individual liberty to develop; it may be cast away overnight - and be lost a long time again, for the power of the state is then arrayed against the individual.)

The alternative of hoarding, which is what citizens would sooner or later be apt to try as they struggled to gain a measure of personal independence, would be met by direct controls and more of alternatives (1) to (4) inclusive. The imagination may readily picture (and recoil from) the waves of propaganda that would ebb and flow across the nation while each citizen treasured his little anti-social hoard of currency (if optimistic or ignorant or very trusting), of gold (if he could get it), or of goods (to the extent that private property therein still survived).

But these extremes are not presently intended, it is true, or if intended they are not advertised and much broader theories are at stake than those of the interest rate. And in the initial, or entering wedge, stage of state ownership, it is perfectly apparent that the productivity of deficit-financed government expenditures seems to bear little if at all on the interest rate; being swamped in the larger determinants of ability and willingness to tax to pay, "fiscal policy" as to direct interest controls and the quantity of money, and the size of the national income, the national debt, and the national budget. However intriguing, the determinants of the rate of interest under government ownership of the means of

production are not the subject-matter of this thesis.

(As a matter of interest in this connection, some statistics on the American national debt and general government expenditures in relation to national income appear in Tables 19 and 20 of the Appendix.)

## CHAPTER VIII

### CONCLUSIONS

Capital as a store of productive and durable goods is the chief economic attribute of civilization. Capital cannot be created without saving, which is abstinence from current consumption. But saving does not of itself create capital except in limited instances. Savings now commonly exist in the first instance in the form of liquid assets. These are pools of control and of postponed decisions over the use of labor and material and their products. The factor of investment - the employment of savings, intervenes in modern society between savings and capital formation.

Interest is a payment to owners of savings, whether liquid or converted to capital goods, for the use thereof. Dominant theories of the nature of interest and the determinants of its rate are classified as follows:

**Non-Monetary theories:**  
Time-Preference  
Abstinence  
Exploitation  
Marginal-Productivity,

**Monetary theories:**  
Liquidity-Preference  
Loanable-Funds.

The time-preference theory is that interest represents the price of waiting, reflecting a difference in the value of present over future goods. The abstinence theory is similar. It holds interest to be the reward for the pain suffered by savers in abstaining from consumption. The exploitation theory is a part of the Marxian derivation from the labor theory of value, that a part of the products of labor are appropriated by others including capitalists. This theory denies that capital is composed both of labor and waiting. The marginal-productivity theory is that the interest rate is determined by the productiveness of the marginal unit of real capital goods demanded to "clear the market" of the savings supplied.

These non-monetary theories, except for exploitation, were reconciled by the eclectic, Alfred Marshall, as a demand-supply phenomenon in which the waiting theories explain the supply side and the productivity theories the demand side, both in terms of real capital goods as distinguished from money.

The monetary theories of liquidity-preference and loanable-funds see interest as a price of money rather than of real capital goods. The former holds the interest rate to be the psychological-conventional price of sacrificing the liquidity of cash for less-liquid assets as represented in

investment. The loanable-funds theory substitutes for cash a concept of money and credit as a whole pool of loanable funds available to the demand of borrowers.

Knut Wicksell reconciles monetary and non-monetary theories by showing that the marginal productivity of capital is a limiting factor on interest which the market rate thereof will tend toward, but the market rate is determined by money borrowed and lent. Real capital goods are bought and sold, not borrowed and lent.

The two contrasting theoretical groups, monetary and non-monetary, were tested by a comparison of the interest rate over long terms with the general price level, which is a monetary phenomenon. A close positive correlation exists between the interest rate and the price level. Thus a presumption arises that interest is a monetary phenomenon. However both liquidity-preference and loanable-funds theorists require the correlation to be negative. Therefore they do not explain the determination of the interest rate. This conclusion is supported by the lack of any long-term tendency for short-term rates to be lower than long-term rates, as liquidity-preference seems to require.

As to the relation of the productivity of real capital to rates of interest: The rates have been remarkably stable over considerable periods, and especially in recent times;

during the same periods the productivity of capital has shown very great increases as indicated by increasing productivity of labor accompanied by increasing use of mechanical power. This may indicate that productivity, even as a limiting factor, has been ineffective in the determination of the rate in recent historical periods. Furthermore, business men do not carry investments to the point of equating the marginal efficiency of capital with the interest rate, but instead regard that rate as a minor factor in cost. Nor do governments borrow at a rate computed on productivity. The interest rate today is strongly influenced by direct governmental controls aimed at lowering that rate. Other institutional factors, such as habit and convention, are also influential.

This testing of the two schools does not confirm either of them as finally identifying the determinants of the rate of interest. Nor do the theories seem to adequately explain interest as a price which can equate savings and investment in the usual sense in which a price is said to equate supply and demand. Inquiry into the apparent determinants of saving reveals that to a considerable extent they seem not to be related to the interest rate. Examples are the subjective determinants discussed under the following heads:



Provident forethought  
Family affection  
Power and prestige  
Hoarders and misers  
Habits of saving  
Acquiring a masse de manoeuvre  
The purchase of durable goods.

The last-named, the purchase of durable goods as reflected, for example, in residential construction, probably a synthesis of other motives, accounts for a major part of capital formation.

These subjective motives are limited by what appears to be an inclination to measure the adequacy of savings accumulated to the end in view. At the present time war-time liquid savings tend to slow down further saving and increase consumption of current income.

Other determinants of saving include "forced saving", the war-time accumulation resulting from inflated money incomes which could not be reflected in consumption and could not react on the price level, because of rationing and price control. Inequality of incomes has also been suggested as a determinant of the volume of saving, but the statistical evidence thereof is unsatisfactory. Taxation is another determinant, largely negative. The internal savings of business reflect other determinants, also not at all closely related to the interest rate within the historical range of rates. The Keynesian theory that savings are determined

by the size of income and the propensity to consume offers still other determinants, although not entirely borne out by the available evidence.

The recognition of these varying determinants of saving raises a presumption that saving is largely an independent variable from the rate of interest--the supply of savings seems to be governed by numerous other considerations and may proceed without reference to the interest return available.

On the demand side, the flow of investment involves decisions on the part of savers to commit their funds, and on the part of entrepreneurs (and government) to accept and employ them. Here the concept of savings-investment-capital formation as a sequence, not simultaneous and not equal by definition, becomes quite apparent. While some theorists hold that the interest rate is the determinant of the volume of investment, the balance of argument indicates that it is only a minor determinant in most cases. Other considerations are much more important. These include projected demand for products of the capital to be formed; expected profit over and above all costs including interest, the desire to mechanize in periods of labor difficulty, and, on the negative side, such factors as taxation and regulation. Like savings, investment appears to be an independent variable as far as the interest rate is concerned.

The marginal concept of price determination by small units is not denied by these reflections on the seeming independence of the determinants of savings, investment and interest for the greater part of the units involved. But the evidence of monetary and institutional influences clearly indicates a more complex picture than that of the marginal-productivity theory of interest. The same conclusion must be applied to the "waiting" theories of savings and interest, on the supply side. They, too, oversimplify a complex problem. This is the general weakness of the non-monetary group.

The monetary theories, as has been mentioned, fail to explain the positive correlation of interest rates and prices, although that correlation indicates the presence of monetary influences.

Thus we can neither accept nor discard in toto either of the two schools, non-monetary or monetary, and the same applies to the theories within these groups. Each contributes to an understanding of a complex phenomenon but no one theory is adequate alone. All influences are at work: non-monetary, monetary, and institutional, and many of the influences are subjective. The most reasonable answer is that different determinants operate at different times and on different individuals and under different circumstances.

(It is even possible that there is no "pure" interest rate. In that event the factor of risk (dealt with at some length in a footnote in Chapter VI) might be the real determinant. People would be investing or not depending on their judgment of the security of liquid as opposed to non-liquid assets. Interest, then, would be a measure of "insurance" differentiating various types of commitments.)

We do not "settle" the issue here. The purpose has been to describe, consider and test the various dominant theories. Such conclusions as have been voiced are tentative only. As with human affairs and economic theory generally, we do not find here one simple and all-inclusive explanation to which all men must subscribe. We find instead independent variables and many influences at work.

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APPENDIX I

STATISTICAL TABLES

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Table 1

United States: Productivity in  
Selected Industries, 1900-1940  
(Index Numbers: 1930 = 100)

<u>Output Per Man-Hour or Per Worker</u>								
<u>Year</u>	<u>Manu- factures</u>	<u>Bit. Coal</u>	<u>Anthr. Coal</u>	<u>Oil Ref.</u>	<u>Steam R.R.</u>	<u>Agri- culture</u>	<u>Mech. Ind.</u>	<u>White Collar</u>
1900	48.8	62.1	87.2	66.9	-	75.9	-	-
1914	66.8	69.0	92.3	59.1	66.3	88.4	-	-
1919	56.2	76.1	102.6	54.5	75.0	90.4	-	-
1925	83.3	89.5	100.9	97.7	91.9	98.7	85.5	100.1
1930	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1938	116.7	102.3	129.0	164.5	115.1	97.4	116.1	103.3
1940	135.5	126.2	-	-	138.2	115.1	134.7	116.4

Condensed from: Dewhurst et al, America's Needs and Resources (New York: The Twentieth Century Fund, 1947), pp. 562-563.

Table 2

United States: Estimated Employment, Weekly Hours, Annual Man-Hours,  
Output per Man-Hour, Price Level Index, and  
National Income, 1850-1944  
With Estimates for 1950-1960

<u>Year</u>	<u>Employed Workers</u>  (In Millions)	<u>Average Weekly Hours</u>	<u>Annual Man- Hours</u>  (In Billions)	<u>Price Level Index</u>	<u>National Income</u>  (In Billions)		<u>Net Output Per Man-Hour 1940 Prices</u>
					<u>Current Prices</u>	<u>1940 Prices</u>	
1850	7.4	70.6	27.2	67	\$ 2.2	\$ 4.7	\$ .173
1860	10.1	68.7	36.1	50	3.6	7.2	.20
1870	12.4	66.3	42.8	72	6.6	9.2	.215
1880	16.7	65.4	56.8	58	7.3	13.6	.222
1890	22.4	63.2	73.6	55	12.0	21.8	.296
1900	27.5	60.9	87.1	56	17.4	31.1	.357
1910	36.8	57.5	110.0	69	30.4	44.1	.401
1920	41.8	51.9	112.8	142.9	69.6	49.6	.431
1930	45.0	47.2	110.4	119.2	63.9	57.8	.523
1940	46.9	43.0	104.9	100.0	77.6	77.6	.740
1944	63.2	46.7	163.5	152.0	160.7	121.7	.793
1950	57.0	40.8	120.9	-	-	106	.875
1960	60.2	37.7	118.0	-	-	122	1.034

Source: Ibid., p. 23.

Table 3

United States: Sources of Energy Output, 1850-1944  
With Estimates for 1950-1960

<u>Year</u>	<u>Horsepower-Hours of Energy</u>				<u>Percentage Distribution</u>		
	<u>Mineral Fuels and Water Power</u>	<u>Work Animals</u>	<u>Human Workers</u>	<u>Total</u>	<u>Mineral Fuels and Water Power</u>	<u>Work Animals</u>	<u>Human Workers</u>
	- - - - - (In Billions) - - - - -						
1850	1.0	13.9	2.7	17.6	5.8	78.8	15.4
1860	1.6	20.0	3.6	25.2	6.5	79.2	14.3
1870	3.2	20.3	4.3	27.8	11.5	73.1	15.4
1880	6.8	27.4	5.7	39.9	17.2	68.6	14.2
1890	16.8	36.9	7.4	61.1	27.5	60.5	12.0
1900	31.3	42.9	8.7	82.9	37.8	51.7	10.5
1910	74.8	45.6	11.0	131.4	56.9	34.7	8.4
1920	145.0	41.1	11.3	197.4	73.5	20.8	6.7
1930	199.5	27.8	11.0	238.3	83.7	11.7	4.6
1940	260.4	19.5	10.5	289.4	90.0	6.4	3.6
1941	261.7	18.0	11.6	311.3	90.5	5.8	3.7
1942	302.5	16.4	13.2	334.1	90.5	5.5	4.0
1943	317.6	16.7	13.2	351.5	90.4	5.3	4.3
1944	342.7	17.0	13.3	375.0	91.4	4.5	4.1
1960	386.2	12.1	12.1	410.4	94.0	3.0	3.0
1960	471.6	6.4	11.8	489.8	96.5	1.3	2.4

Sources: Dewhurst et al, America's Needs and Resources (New York: The Twentieth Century Fund, 1947), p. 787.

Table 4

United States: National Product, National Income,  
Personal Taxes, and Individuals' Savings,  
1909-1944, at Current Prices

Year	Gross Nation- al Pro- duct	Nation- al In- come	Income Pay- ments to In- divi- duals	In (Billions)				Ratio of (Per Cent)	
				Personal Taxes	Dis- pos- able Income	Sav- ings of In- divi- duals	Con- sumer Ex- pendi- tures	Ratio of Personal Taxes Plus Savings to Income Payments	Ratio of Indi- viduals' Savings to Disposable Income
1909	\$ 34.0	\$ 29.7	\$ 27.9	\$ .6	\$ 27.3	\$ 1.8	\$ 25.5	8.6	6.6
1910	36.7	30.4	29.6	.6	29.0	2.0	27.0	8.8	6.9
1911	36.8	30.5	30.1	.6	29.5	2.5	27.0	10.3	8.5
1912	38.5	32.9	32.2	.6	31.6	1.6	30.0	6.8	5.1
1913	40.0	34.8	33.9	.6	33.3	2.3	31.0	8.6	6.9
1914	38.5	33.9	33.8	.6	33.2	3.4	29.8	11.8	10.2
1915	42.1	37.0	36.0	.6	35.4	6.9	28.5	20.8	19.5
1916	47.8	44.8	42.4	.8	41.6	6.8	34.8	17.9	16.3
1917	59.5	53.7	50.9	.9	50.0	9.6	40.4	20.6	19.2
1918	65.5	59.3	57.5	1.6	55.9	11.5	44.4	22.8	20.6
1919	76.5	68.2	65.5	2.0	63.5	10.8	52.7	19.5	17.0
1920	85.0	69.5	68.0	2.1	66.8	9.0	57.8	16.1	15.5
1921	68.5	51.7	54.9	2.1	52.8	2.3	50.5	8.0	4.4
1922	69.9	59.5	58.9	1.9	57.0	5.0	52.0	11.7	8.8
1923	81.8	69.5	68.3	2.4	65.9	8.1	57.8	15.4	12.3
1924	82.0	69.1	68.8	2.1	66.7	5.8	60.9	11.5	8.7

Table 4 (Continued)

Year	Gross National Product	National Income	Income Payments to Individuals	Personal Income				Ratio of Personal Taxes Plus Savings to Income Payments	Ratio of Individuals' Savings to Disposable Income
				Personal Taxes	Disposable Income	Savings of Individuals	Consumption Expenditures		
				(Billions)				(Per Cent)	
1925	\$ 86.4	\$ 73.7	\$ 72.8	\$ 2.2	\$ 70.6	\$ 7.6	\$63.0	13.6	10.8
1926	92.3	76.6	75.6	2.4	73.2	6.9	66.3	12.3	9.4
1927	90.9	75.9	76.0	2.5	73.5	7.5	66.0	13.2	10.2
1928	93.7	78.7	78.1	2.7	75.4	6.6	68.8	11.9	8.8
1929	99.4	83.3	82.6	3.0	79.6	8.8	70.8	14.3	11.1
1930	88.2	69.9	73.3	2.6	70.7	5.8	64.9	11.5	8.2
1931	72.1	54.5	62.0	2.4	59.6	5.4	54.2	12.6	9.1
1932	55.4	40.0	47.4	1.8	45.6	2.6	43.0	9.3	5.7
1933	54.8	42.3	46.3	1.8	44.5	1.7	42.8	7.6	3.8
1934	63.8	49.3	52.9	1.9	51.0	3.3	47.7	9.8	6.5
1935	70.8	55.7	58.6	2.3	56.3	4.1	52.2	10.9	7.3
1936	81.7	64.9	68.1	2.9	65.2	6.1	59.1	13.2	9.4
1937	87.7	71.5	72.4	3.2	69.2	6.7	62.6	13.7	9.7
1938	80.6	64.2	66.2	3.3	62.9	4.4	58.5	11.6	7.0
1939	88.6	70.8	70.8	3.1	67.7	6.0	61.7	12.9	8.9
1940	97.1	77.6	78.2	3.3	72.9	7.3	65.7	13.9	10.0
1941	120.3	96.9	92.7	4.0	88.7	14.2	74.6	19.6	16.0
1942	151.5	122.2	117.3	6.7	110.6	22.6	82.0	30.1	25.9
1943	187.8	149.4	143.1	16.5	124.6	38.9	91.3	38.8	26.7
1944	198.7	160.7	158.8	19.3	137.4	38.9	98.5	37.1	28.3

Sources: Unpublished data of Bureau of Foreign and Domestic Commerce; unpublished Kuznets data; Survey of Current Business, various issues; in Dewhurst et al, America's Needs and Resources (New York: The Twentieth Century Fund, 1947), p. 696.

Table 5

United States: National Product, National Income  
Disposable Income, and Consumer Expenditures  
1909-1944 at 1940 Prices and 1944 Prices  
(In Billions)

Year	Gross National Product		National Income		Income Payments to Individuals		Disposable Income		Consumer Expenditures		Price Level Index	
	1940	1944	1940	1944	1940	1944	1940	1944	1940	1944	1940	1944
	Prices	Prices	Prices	Prices	Prices	Prices	Prices	Prices	Prices	Prices	100	100
1909	\$ 51.0	\$ 67.3	\$ 43.0	\$ 56.8	\$ 41.8	\$ 55.2	\$ 40.9	\$ 54.1	\$ 38.2	\$ 50.5	66.7	50.5
1910	55.3	70.4	44.1	58.3	43.0	56.8	42.2	55.7	39.2	51.8	68.8	52.1
1911	54.0	71.3	44.8	59.1	44.2	58.3	43.3	57.2	39.6	52.3	68.1	51.6
1912	54.3	71.7	46.4	61.3	46.4	60.0	44.6	56.8	42.3	55.9	70.9	53.7
1913	56.7	74.8	49.3	65.0	48.0	63.4	47.2	62.2	43.9	57.9	70.6	53.5
1914	53.7	70.9	47.3	62.4	47.1	62.2	46.3	61.1	41.6	54.9	71.7	54.3
1915	59.1	76.8	51.1	67.5	49.7	65.7	48.9	64.6	39.4	52.0	72.4	54.8
1916	61.5	81.2	57.7	76.1	54.6	72.0	53.6	70.6	44.8	59.1	77.7	59.9
1917	65.1	86.0	58.8	77.6	55.7	73.6	54.7	72.3	44.2	58.4	91.4	69.2
1918	61.0	80.6	54.3	71.7	53.6	70.7	52.1	66.8	41.4	54.8	107.3	81.3
1919	61.5	81.2	54.9	72.4	52.7	69.5	51.1	67.4	42.4	55.9	124.3	84.2
1920	59.6	78.5	48.6	64.2	48.2	63.6	46.7	61.7	40.4	53.4	142.9	103.3
1921	53.8	71.0	40.6	53.6	43.1	56.9	41.4	54.7	39.6	52.3	127.4	96.5
1922	58.6	77.2	49.8	65.7	49.3	65.1	47.7	63.0	43.5	57.5	119.5	90.5
1923	67.1	88.5	57.1	75.4	56.1	74.1	54.1	71.5	47.6	62.7	121.7	92.2
1924	67.2	88.7	56.6	74.8	56.4	74.5	54.7	72.2	49.9	65.9	122.0	92.4



Table 5 (Continued)

Year	Gross National Product		National Income		Income Payments to Individuals		Disposable Income		Consumer Expenditures		Price Level Index	
	1940	1944	1940	1944	1940	1944	1940	1944	1940	1944	1940	1944
	Prices	Prices	Prices	Prices	Prices	Prices	Prices	Prices	Prices	Prices	= 100	= 100
1925	\$ 69.1	\$ 91.1	\$ 56.9	\$ 77.7	\$ 58.2	\$ 76.8	\$ 56.4	\$ 74.5	\$ 50.4	\$ 66.5	125.1	94.8
1926	73.2	96.6	60.7	80.2	60.0	79.2	58.0	76.6	52.6	69.4	126.1	95.5
1927	73.4	98.9	61.3	80.9	61.4	81.0	59.4	78.4	53.3	70.6	123.8	93.9
1928	76.6	101.1	64.3	84.9	63.8	84.3	61.6	81.3	56.2	74.2	122.4	92.7
1929	81.3	107.2	68.1	89.9	67.5	89.1	65.1	85.9	57.9	76.4	122.3	92.7
1930	74.0	97.7	57.8	76.3	61.5	81.2	59.3	78.3	54.4	71.9	119.2	90.3
1931	66.5	87.7	50.2	66.3	57.1	75.4	54.9	72.5	50.0	65.9	103.5	82.2
1932	56.9	75.1	41.1	54.2	48.7	64.2	48.8	61.8	44.1	56.3	97.4	75.0
1933	59.4	78.5	45.9	60.6	50.2	66.3	48.3	63.8	46.4	61.3	92.2	69.8
1934	66.8	88.2	51.8	68.5	55.4	73.2	53.4	70.5	49.9	66.0	95.5	72.3
1935	72.3	95.4	56.9	75.1	59.9	79.0	57.6	76.9	53.3	70.4	97.9	74.2
1936	82.8	109.1	65.6	86.6	68.9	90.9	65.9	87.0	59.8	78.9	98.9	74.9
1937	86.6	112.9	69.8	92.0	70.6	93.2	67.5	89.1	61.0	80.4	102.6	77.7
1938	80.1	105.8	63.8	84.3	65.8	86.9	62.5	82.5	58.2	76.8	100.6	76.2
1939	89.3	117.8	71.4	94.1	71.4	94.1	68.2	90.0	62.2	82.0	99.2	75.2
1940	97.1	128.1	77.6	102.4	76.2	100.6	72.9	96.2	65.7	86.7	100.0	75.8
1941	113.7	150.1	91.4	120.7	87.5	115.4	83.7	110.5	70.4	92.9	106.0	80.3
1942	127.3	168.0	102.7	135.5	98.6	136.0	92.9	122.6	68.9	90.9	119.9	90.2
1943	146.6	192.2	115.8	152.8	110.9	146.5	96.6	127.5	70.8	93.4	129.0	97.7
1944	150.5	198.7	121.7	160.7	118.6	156.8	104.1	137.4	74.6	98.6	132.0	100.0

Source: Table 4 deflated by price level index based on: 1909-1912, Carl Snyder's index of general price level, Review of Economic Statistics (Feb. 15, 1934), p. 26; 1913-1940, Bureau of Labor Statistics Cost of Living Index: 1941-1944, E. E. Hagen in Review of Economic Statistics (May 1946). See America's Needs and Resources, op. cit., p. 697.

Table 6

United States: Percentage Distribution of  
National Income between Flow of Goods to  
Consumers and Net Capital Formation,  
by Decades and Larger Periods, 1869-1938

Decade	Current Prices		1929 Prices	
	Flow of Goods to Consumers (1)	Net Capital Formation (2)	Flow Goods to Consumers (3)	Net Capital Formation (4)
1 1869-78	87.9	12.1	86.3	13.7
2 1874-83	87.0	13.0	85.6	14.4
3 1879-88	86.9	13.2	85.4	14.6
4 1884-93	85.9	14.1	83.9	16.1
5 1889-98	85.9	14.1	83.8	16.2
6 1894-03	86.4	13.6	83.2	16.8
7 1899-08	87.4	12.6	86.4	13.6
8 1904-13	87.9	12.1	86.9	13.1
9 1909-18	87.5	12.5	87.0	13.0
10 1914-23	87.6	12.4	86.6	13.4
11 1919-28	89.1	10.9	89.8	10.2
12 1924-33	93.3	6.7	94.7	5.3
13 1929-38	95.0	5.0	98.6	1.4
Averages				
14 Lines 1-5	86.7	13.3	85.0	15.0
15       6-9	87.0	13.0	85.9	14.1
16       9-13	91.1	8.9	91.6	8.4
17       1-8	86.7	13.3	85.0	15.0
18       4-8	86.7	13.3	85.3	14.7
19       7-11	87.9	12.1	87.8	12.2

Source: S. Kusnets, National Income: A Summary of Findings (New York: National Bureau of Economic Research, Inc., 1946), p. 53.

Table 7

United States: Gross National Product and  
Capital Formation, 1919-1940  
(In Billions)

<u>Year</u>	<u>Gross National Product</u>	<u>Gross Capital Formation</u>	
		<u>Amount<sup>a</sup></u>	<u>%</u>
1919	68.8	19.3	28.1%
1920	82.8	22.1	26.7
1921	66.1	11.5	17.4
1922	67.2	15.3	19.8
1923	78.2	18.2	23.3
1924	78.8	18.2	19.3
1925	83.4	19.2	23.0
1926	88.8	19.0	21.4
1927	86.8	18.2	21.0
1928	90.1	17.8	19.8
1929	93.6	20.3	21.7
1930	82.7	13.7	16.6
1931	64.8	8.8	13.1
1932	47.2	3.1	6.6
1933	46.5	4.3	9.3
1934	55.8	6.1	10.9
1935	61.2	9.0	14.7
1936	72.7	13.8	19.0
1937	80.0	17.5	21.9
1938	70.3	12.7	18.1
1939	77.0	16.6	20.3
1940	82.0	18.5	22.6

<sup>a</sup> Exclusive of Consumers' durable commodities. For data thereon, see Table 8.

Source: 1919-1935, S. Kuznets, National Income and Capital Formation, 1919-1935 (New York: National Bureau of Economic Research, 1937), pp. 8, 40; 1936-1940, estimates of O. L. Altman, Savings Investment and National Income (U. S.: T.E.E.C. Monograph No. 37), p. 13.

Table 8

United States: Gross Capital Formation and  
Consumers' Durable Goods, 1919-1935

(In Millions of Dollars)

<u>Year</u>	<u>Goods Destined for Business Use</u>	<u>Goods Destined for Public Use</u>	<u>Residen- tial Con- struction</u>	<u>Consumers' Durable Goods</u>	<u>Total</u>	<u>Consumers' Durable Goods as Percentage of Business Total</u>	<u>Business Goods</u>
1919	13,128	1,166	1,732	5,987	22,013	27.2	45.6
1921	6,166	2,453	2,241	5,570	16,430	33.9	90.3
1923	11,583	2,272	4,422	7,943	26,230	30.3	68.6
1925	11,137	2,444	5,202	9,056	27,839	32.5	81.3
1927	10,402	2,676	4,524	8,890	26,492	33.6	85.6
1929	13,903	3,073	3,010	9,913	29,899	33.2	71.3
1931	4,393	2,483	1,262	6,748	13,832	41.4	130.8
1933	1,658	1,720	392	3,882	7,852	49.4	208.2
1935	5,095	4,868	923	5,918	16,794	36.2	116.2

Source: Kuznets, National Income and Capital Formation (New York: National Bureau of Economic Research, 1937), p. 40, condensed by Bugent, "Consumer Credit and Consumers' Capital Formation" in Capital Formation and Its Elements (New York: National Industrial Conference Board, Inc., 1939), p. 108.

Table 9

United States Residential Construction and Gross National Product, 1921-1940 (At Current Prices)

Year	Gross National Product	Private Residential Construction				Ratio of Residential Construction to Gross National Product	
		Total Expenditure	Major Additions, Alterations, Repairs, Including New Farm Housing	New Units Expenditure	New Units Number In	Total Private	New Private
		(In Millions)		(Thousands)		(Per Cent)	
1921	\$68,500	\$2,315	\$474	\$1,841	449	3.4	2.7
1922	69,900	3,643	529	3,114	716	5.2	4.5
1923	81,600	4,648	687	3,961	871	5.7	4.9
1924	82,000	4,804	660	4,244	893	6.0	5.2
1925	86,400	5,400	646	4,754	937	6.3	5.5
1926	92,300	4,954	640	4,314	849	5.4	4.7
1927	90,900	4,737	693	4,064	810	5.2	4.5
1928	93,700	4,464	651	3,813	753	4.8	4.1
1929	99,400	3,406	653	2,753	506	3.4	2.8
1930	83,200	2,158	525	1,633	330	2.4	1.9
1931	72,100	1,497	361	1,136	254	2.1	1.6
1932	55,400	687	273	414	134	1.2	0.7
1933	54,800	570	262	288	93	1.0	0.5
1934	63,600	771	394	377	126	1.2	0.6
1935	70,800	1,234	491	743	216	1.7	1.0

Table 9 (Continued)

<u>Year</u>	<u>Private Residential Construction</u>					<u>Ratio of Residential Construction to Gross National Product</u>		
	<u>Gross National Product</u>	<u>Total Expenditure</u>	<u>Major Additions, Alterations, Repairs, Including New Farm Housing</u>	<u>Expenditure</u>	<u>New Units</u>	<u>Average Cost Per Unit</u>	<u>Total Private</u>	<u>New Private</u>
	<u>(In Millions)</u>			<u>(Thousands)</u>		<u>(Per Cent)</u>		
1936	\$81,700	\$1,681	\$470	\$1,211	304	\$3,984	2.1	1.5
1937	87,700	1,943	555	1,388	332	4,181	2.2	1.6
1938	80,600	2,035	507	1,578	399	3,955	2.6	2.0
1939	88,600	2,356	546	1,790	459	3,900	2.6	2.0
1940	97,100	2,677	595	2,082	530	3,928	2.8	2.1

Source: Housing Data - American Housing: Problems and Prospects (New York: Twentieth Century Fund, 1964), App. C; in America's Needs and Resources, op. cit., p. 749.

Table 10

United States: Residential Construction and  
Gross National Product, Ten-Year Periods,  
1899-1938 (At Current Prices)

<u>10-Year Period</u>	<u>Gross National Product</u>	<u>Residential Construction</u>	<u>Ratio of Residen- tial Construction to Gross National Product</u>
	(In Millions)		(Per Cent)
1899-1908	223,900	8,794	3.9
1904-1913	30,900	1,109	3.6
1909-1918	43,900	1,141	2.6
1914-1923	63,500	1,601	2.5
1919-1928	82,700	3,862	4.6
1924-1933	81,600	3,280	4.0
1929-1938	75,600	1,616	2.1

Source: Ibid., p. 730.

Table 11

United States: Population, Families and Dwelling Units, 1900-1940

<u>Year</u>	<u>Population</u>	<u>Families or Occupied Dwelling Units</u>	<u>Dwelling Units</u>			<u>Average Num- ber of Persons Per Occupied Unit</u>
			<u>Total</u>	<u>Ur</u>	<u>Rural Nonfarm Farm</u>	
1900	75,995	15,964	17,850 (In Thousands)	8,420	3,377 6,053	4.7
1910	91,872	20,256	22,047	10,736	4,797 6,514	4.5
1920	105,711	24,352	26,294	13,456	5,656 7,182	4.3
1930	122,775	29,903	32,786	18,720	6,972 7,034	4.1
1940	151,669	34,855	37,348	21,622	8,084 7,642	3.8

Source: Ibid., p. 142.



Table 12

United States: Nature and Condition of Housing, 1940

<u>Status</u>	<u>United States</u>				<u>The North</u>			
	<u>Total</u>	<u>Urban</u>	<u>Rural Nonfarm</u>	<u>Rural Farm</u>	<u>Total</u>	<u>Urban</u>	<u>Rural Nonfarm</u>	<u>Rural Farm</u>
<b>Total (In Millions)</b>								
Dwelling Units	37.3	21.6	8.1	7.6	21.0	14.6	4.3	3.1
Occupied dwelling units	34.9	20.6	7.2	7.1	20.6	15.9	3.7	2.9
<b>Median</b>								
Number of rooms per unit	4.7	4.8	4.6	4.7	5.2	5.0	5.3	6.2
Rent or rental value per unit	\$20.09	\$27.51	\$13.20	\$5.97	\$24.64	\$29.24	\$16.87	\$11.25
<b>Condition (Per Cent)</b>								
Over 30 years old	40.8	42.2	33.7	45.6	49.8	48.1	44.9	64.4
Needing major repairs	18.3	11.5	21.4	33.9	14.8	10.4	19.2	29.4
Needing major repairs or lacking private bath	49.2	28.6	63.9	90.4	41.1	25.3	60.2	87.2
With private bath	56.2	77.5	40.8	11.8	64.7	81.0	44.3	15.2
With private flush toilet	59.7	83.0	43.2	11.2	69.6	87.2	49.4	15.2
With running water inside	69.9	93.5	55.9	17.8	79.1	96.4	60.3	23.0
With hand pump inside	4.3	0.6	7.7	11.2	5.1	0.7	10.6	13.5
With no water supply within 50 feet	5.1	0.6	8.1	14.8	2.5	0.4	5.2	9.1
With electric lighting	78.7	95.8	77.8	31.3	88.6	98.5	80.7	44.3
With mechanical refrigeration	44.1	66.0	38.7	14.9	49.8	68.3	41.8	18.4

Table 12 (Continued)

<u>Status</u>	<u>United States</u>				<u>The North</u>			
	<u>Total</u>	<u>Urban</u>	<u>Rural Nonfarm</u>	<u>Rural Farm</u>	<u>Total</u>	<u>Urban</u>	<u>Rural Nonfarm</u>	<u>Rural Farm</u>
With ice refrigeration	27.1	31.6	23.0	17.9	28.9	32.3	23.9	17.4
With central heating	42.0	58.2	27.9	10.1	60.2	72.5	43.3	21.9
Heated by stove	46.6	35.1	61.2	65.6	38.6	26.3	55.3	77.1
With gas or electric cooking	54.2	78.1	32.7	6.5	64.3	83.1	37.1	8.5
With radio	82.8	91.9	79.0	60.2	91.9	95.5	88.0	79.3

Table 12 (Continued)

<u>Status</u>	<u>The South</u>				<u>The West</u>			
	<u>Total</u>	<u>Urban</u>	<u>Rural Nonfarm</u>	<u>Rural Farm</u>	<u>Total</u>	<u>Urban</u>	<u>Rural Nonfarm</u>	<u>Rural Farm</u>
<b>Total (In Millions)</b>								
Dwelling Units	10.9	4.3	2.7	3.9	4.5	2.7	1.1	0.7
Occupied dwelling units	10.3	4.1	2.5	3.5	4.1	2.6	1.0	0.6
<b>Median</b>								
Number of rooms per unit	4.1	4.2	4.0	4.0	4.2	4.3	3.8	4.2
Rent or rental value per unit	\$ 8.84	\$18.78	\$ 7.53	\$ 3.92	\$22.07	\$27.62	\$15.10	\$9.07
<b>Condition (Per Cent)</b>								
Over 30 years old	31.0	32.1	23.6	34.9	23.2	26.1	16.3	23.4
Needing major repairs	27.1	16.7	26.6	39.8	13.6	9.0	17.1	26.8
Needing major repairs or lacking private bath	70.6	44.7	75.1	95.8	36.5	20.5	51.4	74.4
With private bath	33.3	60.8	23.7	5.4	69.8	85.1	55.4	32.6
With private flush toilet	35.3	66.3	29.5	4.7	70.7	87.1	56.0	29.8
With running water inside	48.0	82.4	41.4	8.5	82.7	95.6	73.5	44.6
With hand pump inside	4.0	0.8	8.4	6.6	1.5	0.2	2.0	6.0
With no water supply within 50 feet	10.8	1.7	13.2	19.3	4.3	0.4	7.0	15.3
With electric lighting	54.5	84.7	61.1	16.4	88.6	98.5	83.6	67.4
With mechanical refrigeration	30.7	47.7	33.1	9.6	49.2	56.8	41.5	30.0

Table 12 (Continued)

<u>Status</u>	<u>The South</u>				<u>The West</u>			
	<u>Total</u>	<u>Urban</u>	<u>Rural Nonfarm</u>	<u>Rural Farm</u>	<u>Total</u>	<u>Urban</u>	<u>Rural Nonfarm</u>	<u>Rural Farm</u>
With ice refrigeration	27.8	36.4	25.4	19.8	16.0	18.3	13.2	11.0
With central heating	11.4	22.3	8.0	1.3	27.1	37.1	13.6	6.4
Heated by stove	68.6	58.9	65.8	63.2	57.2	45.3	71.9	63.8
With gas or electric cooking	31.0	59.7	23.6	3.3	61.8	81.2	39.7	15.5
With radio	62.1	78.8	63.8	42.1	88.9	93.6	84.0	77.6

Source: Bureau of the Census, Housing, 1940, in America's Needs and Resources, op. cit., p. 143.

Table 13

United States: Amounts Saved by Individuals, 1940-1946  
(In Billions)

	<u>1940</u>	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>	<u>1945</u>	<u>1946</u>
<b>Type of savings (SEC)</b>							
Currency and bank deposits	\$ 3.0	\$ 5.0	\$11.0	\$16.0	\$16.7	\$19.5	\$13.0
Savings and loan associations	0.2	0.4	0.3	0.6	0.8	1.1	1.0
Insurance and pension reserves	2.9	3.2	4.9	6.9	8.2	8.8	9.4
Securitized	-0.2	2.9	10.0	13.8	14.9	9.3	0.6
Nonfarm dwellings	1.7	2.1	1.5	1.3	0.8	0.7	0.6
Autos and other durable consumers' goods	3.8	10.2	7.6	6.6	7.2	8.0	10.2
Liquidation of debt	-1.1	-0.6	2.9	1.0	-0.4	-0.8	-1.6
<b>Total gross savings by individuals (SEC)</b>	<b>15.3</b>	<b>24.4</b>	<b>38.2</b>	<b>46.1</b>	<b>48.2</b>	<b>46.5</b>	<b>30.4</b>
<b>Gross savings minus autos and other durable goods (SEC)</b>	<b>6.5</b>	<b>13.6</b>	<b>30.6</b>	<b>39.5</b>	<b>41.0</b>	<b>38.5</b>	<b>20.2</b>
<b>Net savings of individuals (Department of Commerce)</b>	<b>7.3</b>	<b>14.2</b>	<b>28.6</b>	<b>33.8</b>	<b>36.9</b>	<b>35.3</b>	<b>19.0</b>

Source: Estimates of Securities and Exchange Commission and Department of Commerce reported in America's Needs and Resources, op. cit., p. 70.

Table 14

United States: Legal Reserve Life Insurance  
Companies' Business Written, Admitted  
Assets, and Total Insurance in Force  
1900-1947

(In Millions of Dollars)

<u>Year</u>	<u>Business Written</u>	<u>Admitted Assets</u>	<u>Insurance in Force</u>
1900	\$1,974	\$1,742	\$9,562
1910	2,557	5,875	16,404
1920	9,419	7,520	42,321
1929	17,807	17,462	103,146
1930	17,342	18,690	107,946
1931	15,641	20,160	108,833
1932	12,650	20,754	103,154
1933	12,026	20,898	97,928
1934	12,539	21,244	98,542
1935	12,386	23,216	100,730
1936	12,486	24,674	104,667
1937	12,818	26,249	109,572
1938	11,453	27,766	111,056
1939	11,124	29,243	113,977
1940	11,429	30,802	117,794
1941	12,979	32,731	124,673
1942	12,097	34,931	130,338
1943	13,439	37,766	140,309
1944	14,462	41,054	149,071
1945	15,788	44,797	158,723
1946 <sup>a</sup>	23,350	48,100	174,000
1947 <sup>a</sup>			
(June 30)	10,800		180,000

<sup>a</sup>Estimated in part.

NOTE—"Business written" includes only paid business. There are in 1947, 73 million U. S. policyholders and 465 legal reserve life companies.

Source: Institute of Life Insurance in Oregon Voter (June 28, 1947) p. 12 (738). 1947 data, same in Business Week (July 19, 1947), p. 41.

Table 18

**United States: Life Insurance Company  
Assets and Investments, 1928-1946**

(Figures, except final "dollar" column, are for 49 major Legal Reserve Life companies, owning, in years reported, from 90% to 92.9% of grand total of assets of all US companies. Figures for 1946 are estimated in part. Data mostly from Spectator Year Books. All sums recorded in millions of dollars.)

Dec 31	Farm Mortgages		Other Mortgages		Total Mortgages	
	\$	%	\$	%	\$	%
1928	\$1,893	17.7	\$2,607	23.4	\$4,400	41.1
1930	1,886	10.9	5,128	29.6	7,014	40.8
1935	986	4.6	3,963	18.6	4,949	23.2
1940	769	2.8	4,580	16.1	5,359	18.9
1941	803	2.7	3,908	16.4	6,708	19.1
1942	788	2.5	5,146	16.1	5,933	18.6
1943	741	2.1	5,153	15.0	5,894	17.1
1944	699	1.9	5,138	13.8	5,837	14.5
1945	664	1.6	5,036	12.5	5,701	14.1
1946	670	1.8	6,255	12.2	6,925	13.7

	US Gov Bonds		State-Munic Bonds		Canadian Gov Bonds	
	\$	%	\$	%	\$	%
1928	\$ 638	5.9	\$ 558	3.3	\$ 247	2.3
1930	303	1.8	687	3.4	604	2.3
1935	2,781	12.7	1,170	5.5	669	2.2
1940	3,493	19.4	1,777	6.3	563	2.1
1941	6,414	21.4	1,696	5.7	626	2.1
1942	8,739	27.4	1,472	4.6	709	2.3
1943	11,698	34.0	1,810	3.5	880	2.6
1944	15,277	41.0	897	2.4	990	2.7
1945	18,952	48.9	571	1.4	1,126	2.9
1946	19,875	46.0	440	1.0	1,227	2.9

Table 15 (Continued)

Dec 31	Foreign Gov Bonds		Total Gov Bonds		RR Bonds Stocks	
	\$	%	\$	%	\$	%
1928	\$ 87	0.4	\$ 1,271	11.9	\$2,232	20.8
1930	33	0.2	1,327	7.7	2,947	17.0
1935	13	0.1	4,374	20.5	2,676	13.4
1940	6	.0	7,639	27.7	2,993	10.6
1941	5	.0	8,741	29.2	2,987	10.0
1942	8	.0	10,928	34.3	2,781	8.7
1943	6	.0	13,794	40.1	2,760	8.0
1944	6	.0	17,170	48.1	2,746	7.4
1945	6	.0	20,653	51.1	2,661	7.1
1946	8	.0	21,550	49.9	2,790	6.4
	Util Bonds, Stocks		Other Bonds, Stocks		Total Bonds, Stocks	
	\$	%	\$	%	\$	%
1928	\$ 632	4.9	\$ 164	1.6	\$4,239	40.1
1930	1,678	9.8	347	3.1	6,497	37.5
1935	2,171	10.1	787	3.7	10,207	47.7
1940	4,197	14.9	1,772	6.3	16,800	59.5
1941	4,777	15.9	2,099	6.9	19,671	62.0
1942	5,043	15.8	2,059	6.6	20,809	66.3
1943	5,080	14.7	2,115	6.2	23,713	69.0
1944	5,104	13.7	2,146	5.7	27,166	72.9
1945	4,946	12.2	2,257	5.8	30,738	76.0
1946	3,485	12.7	3,700	8.6	33,525	77.6
	Policy Loans From. Notes		Real Estate		Collateral Loans	
	\$	%	\$	%	\$	%
1928	\$1,296	12.1	\$ 190	1.8	\$ 12	0.1
1930	2,516	14.6	411	2.4	20	0.7
1935	3,197	14.9	1,749	8.2	8	.0
1940	2,748	9.7	1,827	6.5	7	.0
1941	2,552	8.6	1,644	6.6	7	.0
1942	2,364	7.4	1,449	4.5	4	.0
1943	2,056	6.1	1,171	3.4	3	.0
1944	1,872	5.0	923	2.5	2	.0
1945	1,715	4.2	787	1.8	1	.0
1946	1,635	3.8	625	1.5	5	.0



Table 15 (Continued)

Dec	31	Cash		Other Admit Assets		Assets 49	Assets All	Ratio of 49 to All
		\$	%	\$	%	US Cos	US Cos	
1935		\$101	0.9	\$ 418	3.9	\$10,717	\$11,639	92.9
1939		126	0.7	721	4.3	17,304	18,660	91.7
1938		762	3.6	513	2.4	21,375	25,216	92.1
1940		944	3.3	584	2.1	28,249	30,802	91.7
1941		791	2.6	648	2.2	29,037	32,731	91.5
1942		834	2.0	691	2.2	31,684	34,851	91.3
1943		743	2.2	767	2.3	34,383	37,766	91.0
1944		601	1.6	884	2.3	37,265	41,054	90.8
1945		623	1.6	949	2.4	40,453	44,797	90.6
1946		575	1.3	910	2.1	43,200	48,100	90.0

Source: Oregon Voter (June 26, 1947), p. 19.

Table 16

**United States: Sources of Business Funds Available for  
Investment and Tangible Investments Made by  
Business Enterprise, 1920-1939**  
( ) Signify Minus Figures

(In billions of Dollars)

Year	Sources of Funds Available for Investment				Net Income Applied to Items Indicated Below	
	Gross Income Received from Customers to Cover Charges Noted Below				Income	
	Repairs and Maintenance Railroads and Public Utilities Only	Capital Items Charged to Operations All Business, Corporate and Noncorporate	Depreciation Corporate and Noncorporate Business through 1935; Corporate Thereafter	Depletion Corporate and Noncorporate Business through 1935; Corporate Thereafter	Credited to Other Business Reserves Corporate and Noncorporate Business	Retained Earnings Nonfinancial Corporations Only
1920	2,983	...	3,585	...	...	...
1921	2,338	...	3,532	...	...	...
1922	2,297	...	3,249	...	...	...
1923	2,592	...	4,044	...	...	2,262
1924	2,372	...	4,154	...	...	1,208
1925	2,392	...	4,386	522	...	2,244
1926	2,485	...	4,861	614	...	1,855
1927	2,423	...	4,877	539	...	496
1928	2,341	...	5,175	553	...	1,548
1929	2,413	600	5,498	595	1,000	1,759

Table 16 (Continued)

Sources of Funds Available for Investment						
Year	Gross Income Received from Customers to Cover Charges Noted Below				Net Income Applied to Items Indicated Below	
	Repairs and Maintenance Railroads and Public Utilities Only	Capital Items Charged to Operations All Business, Corporate and Noncorporate	Depreciation Corporate and Noncorporate Business through 1935; Corporate Thereafter	Depletion Corporate and Noncorporate Business through 1935; Corporate Thereafter	Income Credited to Other Business Reserves Corporate and Noncorporate Business	Retained Earnings Nonfinancial Corporations Only
1930	2,082	800	5,549	493	1,100	(3,456)
1931	1,656	600	5,461	289	1,500	(5,546)
1932	1,210	400	5,119	262	1,500	(6,096)
1933	1,156	400	4,879	264	1,400	(2,799)
1934	1,281	500	4,745	330	1,300	(1,655)
1936	1,364	600	4,721	370	1,100	(1,403)
1936	...	800	3,285	437	1,500	( 710)
1937	...	800	3,342	522	1,000	( 636)
1938	...	500	3,552	437	500	(1,365)
1939	...	800	3,443	438	600	( 39)

Table 16 (Continued)

Year	Sources of Funds Available for Investment			Tangible Investments Made by Business	
	Balance Sheet Changes Providing Cash for Investment Expenditures			Plant and Equipment Corporate and Unincorporated Business	Changes in Inventories Corporate and Unincorporated Business
	Changes in Cash and Government Securities Nonfinancial Corporations Only	Changes in Bank Borrowings Corporate and Noncorporate Business Borrowing from National Banks Only	New Capital Issues Public Offerings of Corporate Business Only		
1920	...	...	...	8,327	...
1921	...	(1,239)	884	5,233	47
1922	...	(1,056)	1,335	5,784	514
1923	...	403	1,624	7,902	2,964
1924	...	( 34)	1,941	7,650	(1,056)
1925	...	38	1,824	8,109	1,523
1926	...	279	1,601	9,126	1,246
1927	364	(201)	1,781	8,777	308
1928	840	291	1,485	8,846	102
1929	(242)	(636)	1,787	10,157	2,146

Table 16 (Continued)

Year	Sources of Funds Available for Investment Balance Sheet Changes Providing Cash for Investment Expenditures			Tangible Investments Made by Business	
	Changes in Cash and Government Securities Nonfinancial Corporations Only	Changes in Bank Borrowings Corporate and Noncorporate Business Borrowing from National Banks Only	New Capital Issues Public Offerings of Corporate Business Only	Plant and Equipment Corporate and Unincorporated Business	Changes in Inventories Corporate and Unincorporated Business
1930	(438)	(319)	1,939	8,340	(631)
1931	(1,318)	(803)	796	5,125	(1,190)
1932	(33)	(1,637)	203	2,799	(2,327)
1933	(245)	(1,334)	106	2,371	(1,114)
1934	(22)	(161)	63	3,436	(1,748)
1935	1	69	94	4,349	1,145
1936	467	339	379	5,785	2,300
1937	(756)	655	635	7,670	4,106
1938	690	(152)	426	5,471	1,250
1939	670	(680)	191	...	...

Source: Abbott: Forces Influencing Investment in Business Enterprise after  
the Transition Period (Boston, Harvard University, 1944), pp. 34-35.

Table 17

United States: Estimated Needs and Demand for Capital Goods,  
1950 and 1960 and Actual Expenditures, 1920-1941

	Annual Expenditures						
	1920-1929	1925-1929	1930-1934	1939	1933	1940	1941
	(In Billions at Current Prices)						
Total	\$12.1	\$17.2	\$ 8.2	\$18.2	\$ 4.6	\$13.8	\$20.3
Construction	7.0	11.0	4.6	10.7	2.3	6.4	8.8
Equipment	5.1	6.2	3.6	7.6	2.3	7.4	11.6
Productive facilities	7.5	10.1	5.3	11.9	3.1	9.3	15.2
Manufacturing and commercial	2.9	6.3	1.9	4.9	1.1	3.5	6.4
Transportation, communication and utilities	2.7	3.6	2.0	4.4	1.0	3.1	4.7
Other	1.9	2.2	1.4	2.6	0.9	2.9	4.1
Consumer construction	3.3	5.6	1.5	4.8	0.6	3.1	3.8
Residential	2.6	4.4	1.0	3.7	0.6	2.7	3.4
Other	0.7	1.2	0.5	1.1	0.1	0.4	0.4
Developmental works	1.5	1.5	1.4	1.6	0.9	1.4	1.4
Highways	1.0	1.2	1.0	1.2	0.7	0.9	0.8
Other	0.3	0.4	0.4	0.4	0.2	0.5	0.5
Private	-	-	-	15.6	-	11.2	14.1
Government	-	-	-	2.6	-	2.6	6.2

Table 17 (Continued)

	<u>Annual Expenditures</u>						
	<u>1920-1929</u>	<u>1925-1929</u>	<u>1930-1934</u>	<u>1929</u>	<u>1933</u>	<u>1940</u>	<u>1941</u>
	(Per Cent of Total)						
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Construction	57.9	64.0	56.1	58.5	50.3	46.3	43.2
Equipment	42.1	36.0	43.9	41.5	49.7	53.7	56.8
Productive facilities	62.0	68.7	64.0	65.2	66.4	67.4	74.6
Consumer construction	27.3	32.6	16.3	26.1	13.6	22.3	18.7
Developmental works	10.7	6.7	17.1	8.7	20.1	10.3	6.7
Private	-	-	-	85.7	-	81.2	69.5
Government	-	-	-	14.3	-	18.8	30.5

Table 17 (Continued)

	<u>Estimated Expenditures (Demand)</u>		<u>Estimated Needs</u>	
	<u>1950</u>	<u>1960</u>	<u>1950</u>	<u>1960</u>
	(In Billions at 1944 Prices)			
<b>Total</b>	<b>\$27.7</b>	<b>\$33.0</b>	<b>\$34.6</b>	<b>\$37.9</b>
<b>Construction</b>	<b>16.0</b>	<b>19.1</b>	<b>21.2</b>	<b>22.9</b>
<b>Equipment</b>	<b>11.7</b>	<b>13.9</b>	<b>13.3</b>	<b>15.0</b>
<b>Productive facilities</b>	<b>18.0</b>	<b>21.5</b>	<b>20.4</b>	<b>23.0</b>
Manufacturing and commercial	6.2	7.3	6.8	7.8
Transportation, communication and utilities	6.4	7.4	7.4	8.2
Other	5.5	6.6	6.8	7.1
<b>Consumer construction</b>	<b>7.2</b>	<b>8.3</b>	<b>8.2</b>	<b>9.0</b>
Residential	5.9	6.7	6.4	7.2
Other	1.4	1.6	1.8	1.9
<b>Developmental works</b>	<b>2.5</b>	<b>3.4</b>	<b>5.9</b>	<b>5.9</b>
Highways	1.3	1.7	2.7	2.7
Other	1.3	1.7	3.2	3.2
<b>Private</b>	<b>22.1</b>	<b>25.9</b>	<b>24.9</b>	<b>26.4</b>
<b>Government</b>	<b>5.6</b>	<b>7.1</b>	<b>9.5</b>	<b>9.6</b>



Table 17 (Continued)

	<u>Estimated Expenditures (Demand)</u>		<u>Estimated Needs</u>	
	<u>1950</u>	<u>1960</u>	<u>1950</u>	<u>1960</u>
		(For Cent of Total)		
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Construction</b>	<b>57.8</b>	<b>57.9</b>	<b>61.4</b>	<b>60.4</b>
<b>Equipment</b>	<b>42.2</b>	<b>42.1</b>	<b>38.6</b>	<b>39.6</b>
<b>Productive facilities</b>	<b>65.0</b>	<b>64.5</b>	<b>59.2</b>	<b>60.7</b>
<b>Consumer construction</b>	<b>26.0</b>	<b>25.2</b>	<b>23.7</b>	<b>23.8</b>
<b>Developmental works</b>	<b>9.0</b>	<b>10.3</b>	<b>17.1</b>	<b>15.5</b>
<b>Private</b>	<b>79.8</b>	<b>78.5</b>	<b>72.4</b>	<b>74.8</b>
<b>Government</b>	<b>20.2</b>	<b>21.5</b>	<b>27.6</b>	<b>25.2</b>

Source: America's Needs and Resources, op. cit., p. 681, based on estimated gross national product in 1950 and 1960 of \$176.9 and \$202.0 billions respectively on basis of demand, and \$200.1 and \$218.9 billions respectively on basis of needs, all at 1944 prices. See Ibid., pp. 76-77 for various estimates for 1950, ranging from \$156 to \$207 billions. See Tables 4 and 5 for comparable data on past years, 1909-1944.

Table 18

United States: Defense and Wartime Expenditures for Capital Goods  
Usable in Peacetime, Compared with 1925-1929 and 1935-1939

(In Millions)

<u>Class</u>	<u>Total Expenditures</u>			<u>Defense and</u> <u>Wartime Deficiency</u> <u>Compared With:</u>	
	<u>1925-1929</u>	<u>1935-1939</u>		<u>1925-1929</u>	<u>1935-1939</u>
		<u>(wartime</u> <u>Prices)</u>	<u>and</u> <u>Wartime</u>		
<b>Total Capital Goods Expenditures</b>	\$85,930	\$65,300	\$40,362	\$52,029	\$ 7,658
Construction	54,750	30,950			
Productive equipment	31,180	34,350			
<b>Productive facilities</b>	50,560	45,070	32,358	12,550	2,632
Manufacturing	11,810	10,060	14,295	2,525	1,145
Metal, lumber, chemical, petroleum and coal products	6,330	6,020	11,400	-	-
All other	5,420	4,040	2,895	2,525	1,145
Commercial	9,700	4,495	3,330	6,370	1,165
Transportation	11,515	11,390			
Railroad, transit and pipeline	4,710	2,625	3,428	1,282	-
Other	6,805	8,765			
Communication	1,590	1,380	1,494	66	-
Gas and electricity	4,995	2,640	3,120	1,875	-
Agricultural	3,395	4,065	4,373	-	-
Construction and mining machinery	1,150	1,150	2,000	-	-
Public service enterprise construction	730	640	516	412	322
Other	5,695	7,250			

Table 13 (Continued)

<u>Class</u>	<u>Total Expenditures</u>			<u>Defense and Wartime Deficiency Compared With:</u>	
	<u>1925-1929</u>	<u>1935-1939 (Wartime Prices)</u>	<u>Defense and Wartime</u>	<u>1925-1929</u>	<u>1935-1939</u>
Consumer construction	\$27,785	\$14,100	\$11,661	\$10,134	\$2,440
Residential	22,215	10,790	10,335	11,860	455
Religious	830	245	162	668	63
Educational	2,525	1,885	566	1,959	1,259
Recreational	1,325	665	237	1,088	420
Hospital	830	575	351	539	224
Developmental works	7,535	6,130	6,353	3,345	2,777
Highways	5,605	5,070	3,203	2,602	1,667
Conservation and development	855	1,980	1,466	-	512
Sewage disposal	750	665	212	648	353
Water supply	655	515	470	195	45

Source: America's Needs and Resources, op. cit., p. 379. For detailed expenditures, years 1920-1942, see Ibid., pp. 375, 766-9.

Table 19

United States: Gross Government Debt in Relation to  
National Income in Selected Years, 1913-1945

<u>Year</u>	<u>Amount of Debt</u>			<u>% of Debt to National Income</u>		
	<u>Total</u>	<u>Federal</u> (In Billions)	<u>State &amp; Local</u>	<u>Total</u>	<u>Federal</u>	<u>State &amp; Local</u>
1913	\$ 5.7	\$ 1.2	\$ 4.5	16.4	3.6	12.8
1922	33.2	23.0	10.2	65.8	38.6	17.2
1932	39.0	19.5	19.6	97.8	48.8	49.0
1940	63.2	43.0	20.2	61.3	55.3	26.0
1942	92.0	72.4	19.6	75.4	59.3	16.1
1944	218.4	201.0	17.4	135.9	125.1	10.8
1945	275.2	258.7	16.5	172.0	161.6	10.4

Source: Bureau of the Census, Governmental Debt in the United States: 1945 (February 1946), p. 3, in Deharst et al., America's Needs and Resources, op. cit., p. 494.

Table 80

**United States: Relation of General Government  
Expenditures to Gross National Product  
and National Income in Selected  
Non-War Years, 1913-1941  
With Estimates for  
1950-1960 (Non-War)**

<u>Year</u>	<u>National Income</u>	<u>Gross National Product</u>	<u>General Government Expenditures</u>		
			<u>Amount</u>	<u>% of National Income</u>	<u>% of Gross National Product</u>
(In Billions)					
1913	\$ 35.9	\$ 50.5	\$ 2.5	7.4	6.4
1932	47.3	63.6	12.6	26.2	19.4
1941	64.5	106.0	23.1	27.3	21.8
1950	106.0	154.0	33.4	31.6	24.9
1960	122.0	153.0	37.1	30.4	24.2

Note: National Income plus Depreciation and Business Taxes equals Gross National Product.

Source: Downst, et al, America's Needs and Resources, op. cit., pp. 602, 4.

(1950 and 1960 Dollar estimates at 1940 prices.)

Table 21United States: Federal Income Tax  
Rates, 1946 and 1947Individuals - Total Normal Tax and Surtax on  
Certain Surtax Net Incomes

<u>Surtax Net</u> <u>Income-Amount</u>	<u>Total</u> <u>Tax</u>	<u>Average</u> <u>Rate</u>	<u>Effective</u> <u>Rate</u> <sup>a</sup>
\$ 2,000	\$ 399	19%	20.9%
8,000	1,893	21.8	28.5
10,000	2,609	26.1	36.1
20,000	6,897	35.0	53.2
50,000	28,479	51.0	71.25
100,000	63,954	64.0	84.55
150,000	106,229	70.8	85.5

<sup>a</sup>Rate on next additional increment of income.

Corporations - Incomes under \$50,000: 21% to 38%.  
Incomes over \$50,000: 39%.

Source: Prentice-Hall, Inc., 1946 Federal Tax Service  
and 1947 Federal Tax Handbook.

## APPENDIX II

### NOTE ON DEFINITION OF NATIONAL INCOME

<u>No.</u>	<u>Name of Concept</u>	<u>Brief Description</u>	<u>Illustrative Figures (Billions)</u>
1.	<u>Gross National Product</u>	is the market value of all goods and services produced by business and government, excluding materials consumed in the productive process but not excluding capital equipment used up in that process.	\$ 199
2.	<u>Deduct: Depreciation</u>	← capital equipment used up in productive processes.	<u>9<sup>0</sup></u>
3.	<u>Net National Product</u> , 1 minus 2.		190
4.	<u>Deduct: Business Taxes</u> , including both direct and indirect tax liabilities of business		<u>29</u>
5.	<u>Net National Income</u> , 1 minus 2 and 4, or 3 minus 4.		161
6.	<u>Deduct: Corporate Savings</u> (the balance of corporate income above corporate savings is paid out to individuals).		<u>4<sup>0</sup></u>
7.	<u>Income Payments to Individuals</u> equals net national income minus corporate savings, or 5 minus 6.		157
8.	<u>Deduct: Personal Taxes</u> , which the government receives out of individual incomes, and which are thus not disposable by individuals.		<u>19</u>
9.	<u>Disposable Income of Individuals</u> , 7 minus 8.		138

No.	Name of Concept	Brief Description	Illustrative Figures (Billions)
		(Brought Fwd.)	\$ 138
10.	<u>Deduct: Net Savings of Individuals</u> (the disposable income of individuals is either saved or consumed).		<u>39*</u>
11.	<u>Consumer Expenditures</u> , 9 minus 10, being the balance of income flow to individuals which remains to be spent on consumption.		\$ <u>99</u>
	* <u>Total Private Savings</u> , including depreciation and corporate and individuals' savings of:		\$ <u>52</u>
	Consists of <u>Private Capital Formation</u> plus <u>Government Deficit</u> (which necessarily equals the excess of private savings over private capital formation).		2 50

References: Alvin E. Hansen, Economic Policy and Full Employment (New York: McGraw-Hill Book Company, Inc., 1947), pp. 32-39; Frederic Dewhurst and associates, America's Needs and Resources (New York: The Twentieth Century Fund, 1947), pp. 4, 9, 54-55, 696.



### APPENDIX III

#### NOTE ON STATISTICAL INVESTIGATION OF INCOME INEQUALITIES AND THE VOLUME OF SAVING

It would seem to be a simple matter to establish whether and to what extent income inequalities may be correlated with the volume of saving. However, that has not proved to be the case. It is not easy, apparently, to determine individual and family incomes or savings with any degree of certainty. People consider their own wealth and income secret. They fear that information divulged to investigators (especially for the government) will be used against them, as for taxation.

In fact it has become almost an axiom that the adequacy of the response to a questionnaire or field survey varies inversely with the number of questions on such personal matters as income and wealth.<sup>1</sup>

Only in the last few years have income tax returns covered any substantial portion of the population. The most recent years have not yet been the subject of research; the

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<sup>1</sup>C. L. Merwin, Jr., "American Studies of the Distribution of Wealth and Income by Size," in Studies in Income and Wealth (New York: National Bureau of Economic Research, 1939), v. III, p. 75.

Treasury is still swamped with their routine auditing for revenue purposes. The Statistical Abstract of the U. S. for 1946 (the most recent) shows Statistics of Income through 1942 only. Thus, the years which have been studied include larger incomes only. As will appear below the results of study of such returns have not satisfied the preconceptions of some statisticians. Arbitrary increases for assumed under-reporting and non-reporting in substantial amount have resulted.<sup>1</sup>

Other approaches which have been used to get at individual incomes include examinations of probated estates, approximations from gross income and population characteristics data, and a good deal of estimate, "common observation," and statistical legerdemain much influenced by opinion.<sup>2</sup>

Of the eight studies of income distribution carried out in this country from time to time over the years 1896 to 1938, that of Dr. Hildegard Kneeland and her staff, published by the National Resources Committee, is not only the most recent but the largest in scale and the most reliable.<sup>3</sup> The report of this study is the ruling authority on the subject today and to it we shall give our primary attention.

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<sup>1</sup>Ibid., p. 72.

<sup>2</sup>Ibid., pp. 50-77 -- a detailed and objective study of the bases of income studies and estimates to 1939.

<sup>3</sup>Ibid., pp. 67-70.

This study used data gathered under a W.P.A. project to study "Consumer Purchases in the United States" jointly conducted by "the Bureau of Home Economics and the Bureau of Labor Statistics with the cooperation of the National Resources Committee and the Central Statistical Board." The data were gathered by field survey supplemented by "adjusted" income-tax data. They covered a 12-month period in 1935-1936. The sample included 42,876 families in 30 states. A complicated six-page, 24 part questionnaire was used and the results were weighted "from a random sample of nearly 300,000 families in the Study of Consumer Purchases."

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<sup>1</sup>Knocland, et al, Consumer Expenditures in the United States, op. cit., pp. 5, 103, 109-120, 122. In Oregon, Astoria, Eugene, Klamath Falls and Portland were included; in Washington, Bellingham, Everett, Grays Harbor and Olympia. No California cities were included. Portland is the sole larger Western city sampled.

The Aggregate Income and Savings of American Consumers (families and single individuals, excluding institutional residents) by 15 Income Levels, 1935-1936, were determined to be as follows:<sup>1</sup>

Income Level	Number in Group	Aggregate Income (Millions)	Percent of Income		Savings of Group (Millions)	Percent of Income Saved	Percent of Total Savings
Under \$500	6,710,911	\$2,061	17.0%	3.5%	-\$300	-38.8%	-13.4%
\$500-750	5,771,960	3,616	14.6	6.1	- 382	-10.5	- 6.4
750-1,000	5,876,078	5,130	14.9	8.6	- 254	- 4.9	- 4.3
1,000-1,250	4,990,995	5,589	12.7	9.4	- 97	- 1.7	- 1.6
1,250-1,500	3,743,428	5,109	9.5	8.6	95	1.9	1.6
1,500-1,750	2,889,904	4,661	7.3	7.9	196	4.2	3.3
1,750-2,000	2,296,022	4,214	5.8	7.1	245	5.8	4.1
2,000-2,500	2,958,611	6,572	7.5	11.1	587	8.9	9.8
2,500-3,000	1,475,474	4,005	3.7	6.8	482	12.0	8.1
3,000-4,000	1,354,078	4,599	3.4	7.8	742	16.1	12.4
4,000-5,000	464,191	2,045	1.2	3.4	454	21.2	7.2
5,000-10,000	595,908	4,092	1.5	6.9	1,218	29.8	20.4
10,000-15,000	152,682	1,747	.4	3.0	679	38.9	11.4
15,000-20,000	67,923	1,175	.2	2.0	473	40.2	7.9
20,000 & over	110,135	4,645	.3	7.8	2,360	50.8	39.5
Total	39,458,300	\$59,259	100.0%	100.0%	\$5,978	10.1%	100.0%

<sup>1</sup>Ibid., Table 8, p. 48; also, Altman, T.N.E.C. Monograph No. 37, op. cit., p. 17.

The finding that 59.2% of the consumer units (those under \$1250) spent more than their incomes, a total dis-saving of \$1,533,000,000, is explained as consumer borrowings, charity and withdrawals of prior savings. The high proportion saved by the upper brackets is reconciled with high income tax rates by assuming non-reporting and understatement on tax returns.

This report was extensively relied upon in the following instances, among others:

(1) Oscar L. Altman, Saving, Investment and National Income (1941), T.N.E.C. Monograph No. 37, op. cit., pp. 11-18.

(2) G. Haberler (with qualifications), Consumer Installment Credit and Economic Fluctuation (1942), op. cit., pp. 189 et seq.

(3) J. Bowman, "Graphic Analysis of Personal Income Distribution in the United States," American Economic Review, v. XXXV (September 1945), pp. 607-625, reprinted in Readings in the Theory of Income Distribution, op. cit., pp. 72-99.

(4) Simon Kuznets, National Income, A Summary of Findings (1946), op. cit., pp. 4, 15, 21.

The study has been analyzed in the following publications:

(1) C. L. Merwin, Jr., "American Studies of the Distribution of Income," in Studies in Income and Wealth, (New York: National Bureau of Economic Research, 1939), pp. 51-60, 67-73.

(2) R. S. Tucker, "Estimates of Savings of American Families," Review of Economic Statistics, v. 29 (February, 1942), pp. 9-21; also Tucker, "Report on Distribution of Income," same Review, v. 22 (November, 1940, pp. 165-182.

(3) John Scoville and Noel Sargent, Fact and Fancy in the T.N.E.C. Monographs, op. cit., pp. 652-653, 42-46.

(4) Abbott, Forces Influencing Investment in Business Enterprise After the Transition Period, op. cit., pp. 40-41.

In examining this study, the most striking fact brought to light is that while the conclusions are most emphatic as to the extreme upper and extreme lower brackets, the survey was of the middle brackets. The lowest bracket figures were from "extrapolation" and assumption from the lower-middle groups. The upper brackets were generalized by "extrapolation" from the upper-middle groups, and adjusted income tax data. Let us consider the upper-bracket data, since the conclusions drawn bear on our problem of saving.

The conclusion is reached, and stated as fact in many subsequent citations, that 110,135 consumers with incomes over \$20,000 received aggregate income of \$4,645,000,000 and saved \$2,360,000,000 of it, a saving of 50.8% of their incomes, or 39.5% of the total saving of the nation. But the surveyors only talked to 15 consumers in that whole group, and only three of these were over \$25,000.<sup>1</sup>

Because of the microscopic sample used for estimating 40% of the total savings of the country "it was necessary to rely primarily on 'extra-polating' curves of expenditures and savings shown by the more adequate sample data for the

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<sup>1</sup>Kneeland, op. cit., pp. 122, 136. Also "Estimates were prepared for the following eight income classes: \$25,000-\$30,000, \$30,000-\$40,000, \$40,000-\$50,000, \$50,000-\$100,000, \$100,000-\$250,000, \$500,000-\$1,000,000, and \$1,000,000 and over."

lower income levels."<sup>1</sup>

"Extrapolating" presumably means extending a determined curve beyond the limits of the data. Here is the curve used:

<u>Income range</u>	<u>% saved</u>
\$ 5,000-10,000	29.8%
10,000-15,000	38.9
15,000-20,000	40.2

and here is the "extrapolation":

\$20,000 and over 50.8%.

Where did the base curve from \$5,000 to \$20,000 come from?

This group was "adjusted" from income-tax data also and

"Free-hand extrapolations for personal taxes were made for the income levels \$10,000-\$15,000, \$15,000-20,000 and \$20,000 and over."<sup>2</sup>

But the Treasury Department's "Statistics of Income for 1935" were available to show the situation for these groups, and they apparently didn't fit the "free-hand" extrapolations. The Treasury Department, for instance, showed "distinctly larger" taxes and much less aggregate incomes and savings for these groups. However, "the apparent discrepancy became smaller as successive adjustments were made" to the "Statistics of Income." The main "adjustments" were to add back to the Treasury's income figures the deductions allowed for tax purposes, imputed income from owned homes (but not

<sup>1</sup>Ibid., p. 21.

<sup>2</sup>Ibid., p. 138.

reduced for any depreciation or expense thereon), and most important "the additional income not accounted for in the income tax returns, because of assumed understatement and non-reporting of income"<sup>1</sup> as follows:

<u>Group</u>	<u>Additions for</u>		<u>Cumulative Addition</u>
	<u>Non-reporting</u>	<u>Understatement</u>	
\$ 5,000-10,000	25%	15%	43.75%
10,000-15,000	15	15	32.25
15,000-20,000	5	15	20.75
20,000-25,000	-	10	10.
25,000-50,000	-	5	5.

This "adjustment" was made to total income but not to consumer expenditures or taxes, so the entire addition fell into savings.

And since no referable explanation is given, one is forced to conclude that it was largely "drawn out of the air". . . . It would seem that if such corrections are going to be made, some sort of basis for selecting the given percentages, other than a vague reference to "tentative estimates advanced by several authorities" should be indicated. Otherwise, the careful reader is left unconvinced, while the untrained reader is given a sense of accuracy that is belied by the facts.<sup>2</sup>

The additions were cumulative, as shown, on the interesting theory that: "the families added to the distribution

<sup>1</sup> Ibid., p. 138.

<sup>2</sup> Merwin, op. cit., p. 69. (For more information on the income tax adjustments see Enid Baird and Selma Fine in the same volume, pp. 149-203, and Goldenthal, pp. 204-214.)



for nonreporting would have understated their incomes to the same extent as did the families that actually filed income tax returns."<sup>1</sup>

These adjustments were made only for upper brackets, no such additions being made to the incomes of lower groups for understating income to the investigators, though that would be an obvious possibility.

Another baffling "adjustment" was made in combining male and female taxpayers to arrive at family incomes. Women of high incomes were paired with men of high incomes, thus arriving at the highest possible income per family in the high-income groups; i.e. the wealthiest husbands were married to the wealthiest wives in order of rank and so on down the line. This was on the general assumption that "at the high income levels husbands and wives making separate returns would endeavor to divide the family income as evenly as possible in order to avoid the surtax charges."<sup>2</sup> This naive assumption about the habits of the economic royalists is unwarranted by the available information on the point.<sup>3</sup>

There are some finer points, too. It appears that the

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<sup>1</sup>Ibid., pp. 69-72; Eneeland, op. cit., pp. 139, 55a.

<sup>2</sup>Merwin, op. cit., pp. 68-69.

<sup>3</sup>R. S. Tucker, "Report on Distribution of Income," Review of Economic Statistics, v. 22 (November 1940), pp. 174-175.

communities sampled were not fair national cross-sections;<sup>1</sup> the actual average dis-savings of lowest income groups as found by the Bureau of Labor Statistics were only 10% to 25% of those found by Miss Knoelke;<sup>2</sup> the number of consumer units in the "over \$20,000 class" is about 20,000 (193) too great;<sup>3</sup> incomes of minors were duplicated in families above \$10,000 and were "derived from a free-hand extrapolation of sample drawn from lower classes. . . . no better than a guess;"<sup>4</sup> the deductions from income for gifts and taxes were underestimated more than 50%;<sup>5</sup> the definitions of savings were not consistent throughout the study;<sup>6</sup> all payments on insurance were regarded as savings;<sup>7</sup> liabilities and payments on installment purchases were taken into account as expenditure or dis-saving but the value of the asset purchased was entirely ignored<sup>8</sup> (probably one of the greatest causes of the high dis-saving in the lower groups); and capital gains

<sup>1</sup>W. S. Tucker, "Estimates of Savings of American Families," Review of Economic Statistics, v. 29 (February, 1948), pp. 9, 15-16.

<sup>2</sup>Ibid., p. 16.

<sup>3</sup>Tucker (November, 1940), op. cit., p. 160.

<sup>4</sup>Ibid., p. 178.

<sup>5</sup>Tucker (February, 1948), op. cit., pp. 11-12.

<sup>6</sup>Ibid., pp. 14-15. <sup>7</sup>Ibid., p. 15.

<sup>8</sup>Ibid., pp. 16-18.

and all sorts of losses and expenses were not taken into account.<sup>1</sup>

R. S. Tucker recomputes certain of the results of the survey, correcting for various assumptions to which he takes exception, such as herein mentioned, and arrives at the following (condensed for comparison):<sup>2</sup>

Net Savings of Families, by  
Income-Classes (1935-36)  
(In Millions)

<u>Income-Class</u>	<u>Net Savings</u>		<u>% of Total Savings</u>	
	<u>Tucker</u>	<u>NRC</u>	<u>Tucker</u>	<u>NRC</u>
Under \$500	\$ -270	\$ -570	-8.6%	-14.1%
\$500-749	-284	-348	-9.1	-7.8
750-999	-215	-247	-6.8	-6.1
1,000-1,249	- 86	-122	-2.8	-2.5
1,250-1,499	48	39	1.5	.8
1,500-1,749	149	132	4.7	2.7
1,750-1,999	185	174	5.9	3.6
2,000-2,499	430	449	13.7	9.3
2,500-2,999	393	414	12.8	8.6
3,000-3,999	558	626	17.8	15.0
4,000-4,999	350	364	11.2	7.6
5,000-9,999	684	1034	21.8	21.5
10,000 and over	<u>1196</u>	<u>2972</u>	<u>38.2</u>	<u>61.8</u>
	<u>\$3138</u>	<u>\$4809</u>	<u>100.0%</u>	<u>100.0%</u>

The above figures, although directly comparable within the table, are not directly comparable with the previous table, since single individuals were not included in Tucker's recomputations, and since Tucker did not carry his breakdown above \$10,000. However, he clearly levels out the inequality

<sup>1</sup>Ibid., pp. 20-21.

<sup>2</sup>Ibid., Table 6, p. 10.

picture and reduces substantially the total amount of savings of the higher classes.

Tucker summarizes his opinion of the National Resources Committee report as follows: "If the sample contained serious errors, conclusions based on these data must have been erroneous. Unfortunately that seems to have been the case."<sup>1</sup>

Abbott says of the same study: "The evidence afforded . . . is, however, at most very doubtful and many of the uses commonly made of the findings of the inquiry are wholly unwarranted."<sup>2</sup>

Merwin concludes about this study:

. . . the majority of qualified observers would likely . . . hold that the existing distributions give a rough idea of the actual distributions, but that they are too crude and inaccurate to allow measuring temporal and spatial differences in the inequality of distribution.

And certain of the

analysis provides good substance for newspaper editorials and discussion of social questions, but it hardly constitutes a scientific presentation of the significance of the existing distribution of income.<sup>3</sup>

Discrediting this National Resources Committee study for 1935-1936 does not of itself substitute a conclusive answer to the question of whether income inequality is as great a

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<sup>1</sup>Ibid., p. 9.

<sup>2</sup>Abbott, op. cit., p. 41.

<sup>3</sup>Merwin, op. cit., pp. 74, 59.

determinant of saving as had been thought. We are certain that the ratio of savings to income in that year among upper-bracket families was not nearly so great as we have been told, and the disproportionate increase therein with larger incomes not nearly so well established.

Certainly it is dangerous, as Merwin pointed out, to draw temporal and spatial conclusions -- that a general increase in incomes would mean a proportionately larger increase in savings, for instance. Too many other factors intervene. Income increases are not evenly distributed over all brackets. Heavy progressive tax rates cut much more heavily into the higher brackets. This latter factor certainly makes it imprudent to reason from 1935-1936 to 1947. It is even more likely today than then that what the higher-income families mostly do with their higher incomes is pay taxes with them.<sup>1</sup>

Then again, the widened scope of social security powerfully affects the subjective motives to save and diminishes income available for other forms of saving. The accumulation of liquid assets, as we have seen, acts also as a stimulus to spending and a deterrent to saving.<sup>2</sup>

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<sup>1</sup>See Dewhurst et al, America's Needs and Resources, op. cit., p. 59.

<sup>2</sup>Ibid.

Finally it is dangerous to compound economic laws from functions established by the summation of individual units. There is a great instability in individual income sizes; individuals are constantly shifting from one class to another and these internal shifts are important.<sup>1</sup> "Distinctions must be made between (a) the proposition that a rise in an individual's income will increase that individual's rate of saving, and (b) the proposition that a rise in national income will bring about a rise in the rate of saving as a whole. Proposition (b) does not follow from proposition (a) unless certain assumptions about the distribution of income are made,"<sup>2</sup> as we have discussed above. The determinants that cause a particular individual to save at a particular time should not be generalized into compelling forces influencing all individuals at all times. The income class in which an individual finds himself when moved to save a particular amount will not necessarily be moved as one man to save in the same proportion forever.

Therefore it seems best to conclude that while there is some reason and evidence that savings may be larger, and even larger proportionately, in higher individual income

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<sup>1</sup>see H. Staehle, "Short-Period Variations in the Distribution of Incomes," Review of Economic Statistics, v. 19 (August, 1937), pp. 133-143.

<sup>2</sup>Baberler in Capital Formation and Its Elements, op. cit., pp. 130-131.

groups than in lower, it is by no means an empirically established fact that that is so; nor may it be safely concluded from the available data that savings increase out of proportion to increases in income, either individual or national.

As a concluding note, it must always be remembered in studying quantitative economic analysis that the figures of statisticians and accountants are like the words of other writers: they are expressions of human opinion. Generalities based on statistics look like statements of fact but they are not necessarily facts. They are always conclusions of reason. Truth or falsehood, wisdom or folly -- these may be expressed in figures as in words.

The misuse of statistics to support a preconception is like the misuse of logic to the same end. We live in an age of statistics as Mandeville lived in an age of pamphleteering; otherwise "The Fable of the Bees" and "Consumer Expenditures in the United States" may have much in common.

The reader who wishes to be informed, rather than simply to have his prejudices confirmed, will consider the source and basis of statistical generalization as he would that of any generalization, bearing in mind that "all generalities are false, including this one." It is most unwise to generalize from the mass to the individual or from the individual to the mass. One is reminded of David Hume

(1711-1775): It is impossible to "prove" a causal relationship between facts; one can only observe a propinquity and assume a probability. Connections may be "proved" by reason between ideas only.

Statistical evidence has an important place in economic science. But it does not replace reason. And because of its appearance of exactitude to the uninitiated it is a vicious form of propaganda when so used. Statistical statements must never be accepted as an "answer" to any economic question or problem. They are arguments, not decisions. Their validity rests like that of any argument in their appeal to reason.



Typed by

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