

THE RATE OF INTEREST

ITS NATURE, DETERMINATION AND
RELATION TO ECONOMIC
PHENOMENA

BY

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TO
The Memory
OF
JOHN RAE
WHO LAID THE FOUNDATIONS
UPON WHICH
I HAVE ENDEAVORED
TO BUILD

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PREFACE

THE problem of interest has engaged the attention of writers for two thousand years, and of economists since economics began. And yet, with the exception of what has been accomplished by Rae, Böhm-Bawerk, Landry, and some others, very little progress has been made toward a satisfactory solution. Even these writers can scarcely claim to have established a definitive theory of interest. While the value of their work is great, it is chiefly negative. They have cleared the way to a true theory by removing the confusions and fallacies which have beset the subject, and have pointed out that the rate of interest is not a phenomenon restricted to money markets, but is omnipresent in economic relations.

The theory of interest here presented is largely based upon the theories of the three writers above mentioned, and may therefore be called, in deference to Böhm-Bawerk, an "agio theory." But it differs from former versions of that theory by the introduction explicitly of an *income concept*. This concept, which I have developed at length in *The Nature of Capital and Income*, is found to play a central rôle in the theory of interest. The difficult problem is not whether the rate of interest *is* an agio, or premium, for of this there can be no question, but upon what does that agio depend and in what manner? Does it depend, for instance, on the volume of money, the amount of capital, the productivity of capital, the "superior productivity of roundabout processes," the labor of the capitalist, the helplessness of the laborer, or upon some other condition?

The solution here offered is that the rate of interest depends on the character of the income-stream,—its size, composition, probability, and above all, its distribution in time. It might be called a theory of *prospective provision of income*.

As in *The Nature of Capital and Income*, mathematics have here been relegated to appendices. These appendices are not, however, mere translations into mathematical language of the theory verbally expressed in the text. Mathematics can properly claim no place in economic discussions except as they add something not expressible, or at any rate only imperfectly expressible, in ordinary language.

Parts of Chapters V and XIV with their appendices have appeared in somewhat different forms in *Appreciation and Interest*. My thanks are due to the American Economic Association for permission to use portions of this monograph unaltered. Since it appeared a decade ago, the view expressed in it, to the effect that appreciation of money should, and to some extent does, lower the rate of interest expressed in money, has gained considerable currency, though it is still unfamiliar to most persons. It has been thought wise to present again the statistical evidence in its favor, and to bring the statistics down to date.

In the preparation of this book I have received important aid from many persons. For general criticism I am indebted to my wife, to my colleagues, Professors H. C. Emery and J. P. Norton, and to my friend Richard M. Hurd, President of the Mortgage-Bond Company of New York City. My thanks are also due to Finance Minister Böhm-Bawerk for his kindness in reading and criticising the chapter devoted to his theory of interest; to Professor Clive Day for facts and references on the history of interest rates; to Dr. Lester W. Zartman for a large part of

the statistical computation and for many helpful criticisms; to two of my students, Mr. Harry G. Brown and Mr. J. H. Parmelee, for valuable aid in proof-reading, including many keen and fruitful suggestions; and to my brother, Herbert W. Fisher, for a most searching and valuable criticism of the mode of expression and exposition.

IRVING FISHER.

NEW HAVEN, July, 1907.

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PART I. CRITICISM

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CHAPTER II.	PRODUCTIVITY THEORIES
CHAPTER III.	COST THEORIES
CHAPTER IV.	BÖHM-BAWERK'S THEORY

THE RATE OF INTEREST

CHAPTER I

CRUDE THEORIES

§ 1

IF the theory to be presented in this book is correct, the rate of interest in any community is an index of the preference, in that community, for a dollar of present over a dollar of future income. The task of justifying this theory will be facilitated by a brief preliminary review of rival theories. A complete history of theories of interest has been made unnecessary by Böhm-Bawerk's admirable *Capital and Interest*.¹ For the same reason, it is not necessary to combat many of the special theories advanced by individual writers. The theories which are here selected for criticism are for the most part those which have the greatest currency, either in economic literature or in the unexpressed but none the less firmly rooted ideas of business or professional men. Experience shows that nearly every student of economic science has almost unconsciously acquired a number of crude and usually false ideas on this important subject. Such, for instance, is the idea that interest is the price paid for the "use of money"; or that it represents the "productivity" of capital or the "fecundity" of plants and animals; or that it represents some

¹ English translation by Smart, (Macmillan) 1890. See also *Recent Literature on Interest*, English translation by Scott & Feilbogen, (Macmillan) 1903.

“cost” to the producer, such as the cost of the capitalist’s personal exertion in controlling capital, or the “cost of waiting”; or that it constitutes a species of legalized plunder perpetrated by the employer on the employed. Before the correct theory of interest can be securely implanted in any mind, these ideas must first be eradicated. To accomplish this is the object of the present and of the next three chapters.¹

§ 2

An objection, formerly common, to the practice of taking interest was that interest is “unnatural.” The word employed among the Greeks to signify interest or usury was *τόκος*, “offspring”; and Aristotle declaimed against the taking of interest, on the ground that money could not have “offspring,”—a curious instance of the influence of terminology on thought.

Interest-taking between Jews was forbidden by the Mosaic laws, and similarly, in Rome, interest-taking between Romans was prohibited. Many biblical texts show the hostile attitude of the writers, both in the Old and New Testaments, toward the practice, and the Church Fathers through the Middle Ages for over a thousand years waged a ceaseless but fruitless war against interest-taking. St. Thomas Aquinas stated that interest was an attempt to extort a price for the use of things which had already been used up, as for instance, grain and wine.² He also declared that interest constituted a payment for *time*, and that time was a free gift of the Creator to which all have a natural right.³

¹ These chapters for the most part may be said to be a brief epitome, under a changed classification, of Böhm-Bawerk’s exhaustive *Capital and Interest*.

² This criticism against the legitimacy of interest is very nearly revived by Böhm-Bawerk in his criticism of the modern “use” theory of interest. *Op. cit.*, Chap. VIII.

³ This theory is not unlike one of the objections made to land-rent by the single-tax advocates; namely, that *space* is a free gift of nature.

The unpopularity of interest-taking increased until the thirteenth century; but the practice persisted, and as business operations increased in importance, certain exemptions and exceptions from its general prohibition were secured. Pawnshops, banks, and money-lenders were specially licensed, and permission was granted for buying annuities, and taking land on mortgage for money loaned. One of the subterfuges by which the allowance of interest was excused suggests the true idea of interest as an index of the relative preference for present over future goods. It was conceded that, whereas a loan should be nominally without interest, yet when the debtor delayed payment, he should be fined for his delay (*mora*), and the creditor should receive compensation in the form of “*interesse*.” Through this loophole it became common to make an understanding in advance, by which the payment of a loan should be “delayed” year after year, and with every such postponement a “fine” should become payable.

Some of the Protestant reformers, while not denying that interest-taking was wrong, admitted that it was impossible to suppress it, and that it should therefore be tolerated. This toleration was in the same spirit as that in which many reformers to-day defend the licensing of vicious institutions, such as saloons, racetracks, lotteries, and houses of prostitution.

In the sixteenth century interest-taking began to find some definite champions. Calvin attempted to discriminate between interest-taking which was right and interest-taking which was wrong. Among the wrong kinds he classed the taking of interest from the poor and from those in urgent need, and the taking of interest in excess of a legal maximum.

In order to defend interest, its champions began to construct theories to account for the phenomenon. Most of these early theories were little more than a shifting of the problem. It was seen that capital earned income whether it was lent or not. The income which a lender obtains

through a loan contract may be called *explicit interest*; but it was clear that the borrower was enabled to pay this interest because the capital which he borrowed earned it for him. The income which capital thus earns may be called *implicit interest*. The earliest attempt to construct a theory of interest merely explained explicit interest in terms of implicit interest. Salmasius and Locke, both in the seventeenth century, attempted thus to explain interest. They tried to justify the taking of interest in a loan on the ground that an equivalent to that interest was obtained by the borrower from the capital he borrowed, and might have been obtained by the lender of the capital had he retained it. If, they said, a man lends \$1000, he is entitled to interest upon it because, had he used it in business himself, he could have made profits by means of it. But beyond the bare statement that unlent capital yields income, these theories did not go. The real problem—"why capital yields income to the user"—was left untouched.

§ 3

The theories just described are for the most part obsolete to-day; yet we have a number of other theories almost equally crude. If a modern business man is asked what determines the rate of interest, he may usually be expected to answer, "the supply and demand of loanable money." But "supply and demand" is a phrase which has been too often forced into service to cover up difficult problems. Even economists have been prone to employ it to describe economic causation which they could not unravel. It was once wittily remarked of the early writers on economic problems, "Catch a parrot and teach him to say 'supply and demand,' and you have an excellent economist." Prices, wages, rent, interest, and profits were thought to be fully "explained" by this glib phrase. It is true that every ratio of exchange is due to the resultant of causes

operating on the buyer and seller, and we may classify these as "demand" and "supply." But this fact does not relieve us of the necessity of examining specifically the two sets of causes, including utility in its effect on demand, and cost in its effect on supply. Consequently, when we say that the rate of interest is due to the supply and demand of "capital" or of "money" or of "loans," we are very far from having an adequate explanation. It is true that when merchants seek to discount bills at a bank in large numbers and for large amounts, the rate of interest will tend to be high, and that when merchants do not apply in large numbers and for large amounts, the rate of interest will tend to be low. But we must inquire for what purposes and from what causes merchants thus apply to a bank for the discount of loans, and why it is that some apply to the bank for loans and others supply the bank with the funds to be loaned. The real problem is: What causes make the demand for loans, and what causes make the supply? This question is not answered by the summary "supply and demand" theory. The explanation is not simply that those who have much capital supply the loans and those who have little capital demand them. In fact, the contrary is quite often the case. The depositors in savings banks are the lenders, and they are usually poor, whereas those to whom the savings bank in turn lends the funds are relatively rich.

§ 4

There is another phrase often employed by business men to explain the rate of interest or, at all events, its existence. It is often said that interest is the price paid for the "use of money." As an explanation this is almost as superficial as "supply and demand"; for it is clear that the "use" of money is to facilitate exchange, and that, except in rare instances (as when a bank borrows a chest of gold to reinforce its cash reserve), the money borrowed

