

FISHER ON INTEREST

The Theory of Interest as Determined by Impatience to Spend Income and Opportunity to Invest it. By Irving Fisher. New York, The Macmillan Company, 1930. xxvii+566 pp.

This book was begun as a revision of the author's *The Rate of Interest* (1907) which has long been out of print. In the *Preface*, Professor Fisher remarks that his theory of interest has scarcely been altered, but its exposition has been so amplified and recast that it may seem more changed to those who misunderstood his first book than it does to him. The result of this thorough revision has been a new book, a complete rewriting of the former book with additions of new material.

Although scarcely what a mathematician would call a book on applied mathematics, this work contains numerous applications of algebraical and graphical methods and has a distinct mathematical tone throughout. A mathematician reading the book will soon become aware of the fact that the author is devoting the first ten chapters to a description of a mathematical model. This model he reproduces in the next four chapters. Such a reader may think that Professor Fisher has chosen a long way around, but he is writing to a larger audience. On p. 312 he remarks "if I were writing primarily for mathematically trained readers, I would have reversed the order, giving the first place to the formulas, following these with the charts for visualization purposes and ending with verbal discussion."

Professor Fisher's theory of interest is, as he states, p. ix, an enlargement and synthesis of already existing partial theories, and is based on *investment opportunity*, *human impatience* (preference for comparatively early income over comparatively remote or deferred income) and *market exchange* (buying and selling). The assumptions underlying his general theory are as follows.

I. *Investment Opportunity*, (a) each individual has a choice within limits of different income curves $y(t)$ where t is time, and to each curve is associated a risk; (b) the individual selects the income curve which produces a maximum present value, where the present value takes into account the risk element.

II. *Human Impatience*, (a) the degree of impatience of any individual depends upon his income stream, $y(t)$, as chosen by him and modified by exchange; (b) each person, after or while first choosing the option of greatest present value, will then modify it by exchange so as to convert it into that form most wanted by him.

III. *Market Exchange*, (a) the rate of interest must equalize supply and demand, and (b) the expected present value of all loans equals the present value of the borrowings, but due to risk there may be a wide discrepancy between the actual realization and the original expectation.

Hypotheses Ib and IIb are best handled by means of the calculus, but because of the unprepared state of most expected readers, the author relegates the derivation of the necessary conditions to an appendix. Incidentally it may be remarked here that in all previous somewhat similar books the author has consigned all mathematics to appendices.