

EVANS ON MATHEMATICAL ECONOMICS

Mathematical Introduction to Economics. By Griffith C. Evans. New York, McGraw-Hill Book Co., 1930. xi+177 pp. \$3.00.

As the author remarks, this book is not a voluminous or complete treatise on mathematical economics, but is a short unified account of a sequence of economic problems by means of a few rather simple mathematical methods. Undoubtedly both the mathematician who knows little or no class-room economics and the economist who has only a knowledge of the integral and differential calculus can read this book with considerable profit.

In Chapters 14 and 15, Professor Evans gives a very short account of his own economic researches and those of other recent writers on dynamical economics. Professor Evans treatment of Divisia's instantaneous price index in Chapter 9, and his application of it to economic crises, is new and is not to be found elsewhere. His treatment of units and dimension theory in Chapter 2 is unusually good. Mathematicians will likely find these chapters most stimulating but all chapters are sufficiently mathematical to hold the interest of nearly any mathematician. The text is well suited for a course to follow the traditional course in differential and integral calculus. Such mathematical concepts as maxima and minima of functions and of integrals, elementary ordinary, partial and Pfaffian differential equations, and integral equations are employed in a way which a beginner can grasp. The teacher will, however, occasionally find himself called upon for more or less detailed explanations which the author omits. For example, without previous mention of tensors the author gives the following footnote on page 20: "Wealth may perhaps be regarded as a tensor or complex number, with one component for each kind of wealth; but the concept has not a great deal of significance, since it lacks application."

Instead of following the classical arrangement of material, that is, value, utility, marginal utility, etc., and losing the reader at the outset, Professor Evans prefers to begin with more or less popular conceptions of cost of production and demand and to postpone an involved study of demand by the use of utility functions to Chapters 11 and 12. The theory of production is considered in Chapter 13. The reader should supplement this treatment of production by the recent papers of Henry Schultz.

It is in Chapter 10 that Professor Evans explains his point of view with reference to the place of economic theory. He says, "Let us admit that the entire economic aspect of human affairs is necessarily too vast to be covered by a single theory. Our endeavor then should be to make systematic study of several groups of economic situations, as theoretical investigations, and bring out the respective hypotheses which separate these groups." The "bases of action" of individuals are various. "Sometimes there is an attempt to unify them by saying that a man tries to act in such a way as to increase his pleasure. But from this point of view we have to consider at the same time not only both capitalists and laborer, but also the profiteer and the soldier, the adventurer and the hermit, the teacher, the beggar and the thief."