

Border, Kim C.: *Fixed Point Theorems with Applications to Economics and Game Theory*. VIII, 129 pp. Cambridge: Cambridge University Press. 1985. £ 17.50.

The unifying notion of Border's book is as the title announces that of a fixed point of a mapping or correspondence. Rather than presenting a complete and thorough treatment of sophisticated mathematical fixed point theory in its most general form, including for example notions like fixed point index or degree of a map or covering infinite dimensional spaces, the author restricts his treatment deliberately. He presents fixed point theorems in finite dimensional spaces and its relations with and applications to economics and game theory.

Although not providing a proper introduction to either game theory or equilibrium theory, Border's book offers the possibility to learn a lot of basics of both fields by the specific way he links mathematics with economic problems. An abundance of interrelations between different results enables the reader to even grasp details of important problems in economic theory. The several versions of fixed point and related results give a rather complete collection of standard different setups of game theory or equilibrium theory.

While the analysis is restricted to finite dimensional spaces, Border at several occasions uses methods which could be used as well in an infinite dimensional context.

Beyond fixed point theory proper the author also treats some related mathematical topics which are fundamental for applications in games and economics. Among these are the maximum theorem, selection theorems for correspondences as well as intersection and minimax theorems.

A final chapter is devoted to Walrasian economic equilibrium and to the different ways to approach it.

Summarizing, I can recommend Border's book to economists interested in mathematical economics and its fundamental technical tools as a useful book of reference. Moreover, this book certainly provides a good basis for a course on "mathematical methods in economic theory".

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