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Optimisation of Production Under Uncertainty

The State-Contingent Approach

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Preface

This book presents a new approach to the optimisation of production under uncertainty. It has its roots in a leave which I spent at the School of Economics, University of New England, Armidale, Australia, in 2002. At that time, Robert G. Chambers and John Quiggin had just presented their book *Uncertainty, Production, Choice, and Agency—The State-Contingent Approach*, which included a new theoretical approach to the description of production under uncertainty. As a result of discussions about the book with my colleagues, I realised that the concepts developed and presented by Chambers and Quiggin could be used as the basis for deriving criteria for optimal production under uncertainty.

The state-contingent approach differs from the traditional approach to planning under uncertainty, which has its foundation in the von Neumann-Morgenstern utility function and the theory of expected utility, including the EV-model. To throw light on the differences and similarities between the two approaches, the introductory chapters give a very general introduction to decision making under uncertainty, including the theory of expected utility and the classic EV model. The last part of the book uses the concepts of the state-contingent approach to derive criteria for optimal application and allocation of inputs when producing under uncertainty.

This work is a natural extension of the author's book *Production Economics. The Basic Theory of Production Optimisation*, which deals with the optimisation of production under certainty. Its primary audience is university students at the graduate level, but the book is also suitable as a hand-book for scientists seeking insight into the problem formulation and solution methods of production decisions under uncertainty.

Copenhagen, June 2011

Dr. Svend Rasmussen

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