SECTION 2.1
EDITORS' OVERVIEW OF PART 2

WILLIAM A. BARNETT and JANE BINNER

The following table contains a brief summary of the contents of each chapter in Part 2 of this book. This section of the book contains approaches to modeling systems of factor demand and output supply functions for firms.

Part 2 Section contents
Structural function system specification: production

Chapter number	Chapter title	Contents
14	Seminonparametric Bayesian estimation of the asymptotically ideal production model	Bayesian seminonparametric estimation of the AIM factor demand system
15	Financial firm production of monetary services: a generalized symmetric Barnett variable profit function approach	Modeling and estimation of bank technology and financial services output aggregation with the Diewert and Wales (1987) generalized symmetric Barnett variable profit function specification
16	Financial firm's production and supply-side monetary aggregation under dynamic uncertainty	Modeling and estimation of bank technology and financial services output aggregation with the Diewert and Wales (1987) generalized symmetric McFadden variable profit function specification
17	Tastes and technology: curvature is not sufficient for regularity	Exploration of the regularity (curvature and monotonicity) properties of the generalized McFadden model, when elasticities are set at plausible estimated values
18	Pollak and Wachter on the household production function approach	Theoretical exploration of the Pollak and Wachter critique of Becker's household production function approach, and determination of a structural approach that solves the problem

Chapter 14: Chapter 14 has the same objectives, and uses the same approach, as Chapter 10, but with production data rather than consumption data. The AIM

factor demand system is less nonlinear and has fewer parameters than the AIM consumer demand function system of the same order. As a result, extension to more recent approaches to imposing regularity have most often been applied to production rather than consumption. As in the consumption case, attaining regularity by imposing nonnegativity of parameters, while easily accomplished, reduces the span to a strict subset of the neoclassical function space and thereby does not fully exploit the capabilities of the AIM modeling approach. Because of the increased computational demands of the newer methods of imposing regularity, the AIM production model in future applications is likely to prove more widely useful than the more complex AIM consumer demand model.

Chapter 15: Chapter 15 models and estimates bank technology with the Diewert and Wales (1987) generalized-symmetric-Barnett variable profit function specification. The model is used to test for blockwise weak separability of monetary service outputs of banks. Since monetary service outputs of banks contribute to the economy's supply of inside money, the ability to test for blockwise weak separability of bank outputs and to track the resulting output aggregator function is potentially important in monetary policy. The generalized symmetric Barnett model is a variation on Barnett's minflex Laurent specification. Neither is a nested special case of the other, and hence each has its own relative advantages and disadvantages.

Chapter 16: Chapter 16 has the same objectives as Chapter 15, but extends the bank model to include stochastic dynamic growth. Since that extension complicates estimation, this chapter uses Diewert and Wales (1987) generalized symmetric McFadden specification, which now more commonly is called the generalized quadratic. That model is less nonlinear and hence easier to estimate than the generalized symmetric Barnett model. But the generalized symmetric Barnett model appears to have regularity advantages, which were not exploited in this chapter and have never been fully characterized.

Chapter 17: Chapter 17 explores the regularity properties of the generalized quadratic (i.e., generalized McFadden) model with elasticities set at reasonable values. The model can be estimated with curvature imposed globally, but because of the parsimonious nature of the model's parameterization, monotonicity cannot also be imposed globally without severe loss of flexibility. This chapter finds that when monotonicity is imposed only at a point, while curvature is imposed globally, plausible settings of elasticities can result in frequent violations of monotonicity within the range of the data. Further forthcoming research is exploring the regularity properties of this model under a wide range of plausible settings of elasticities to determine conditions under which this problem is most and least troublesome. It has sometimes been stated in this literature that positive values of all variables assures monotonicity within the range of the data.

This statement is false. If it were true, it would imply that the model is inherently globally regular, since those measured variables are globally positive. But if monotonicity were implied globally, then the model's flexibility would be lost. The source of this fallacy is failure to recognize that fitted and actual values of variable are not the same, and hence signs of measured values do not impose restrictions on functional structure.

Chapter 18: Chapter 18 explores Pollak and Wachter's critique of Becker's household production function approach. That critique correctly identifies a simplified special case that has been used frequently and is defective. Chapter 18 proposes a structural approach that fully captures the potential of Becker's approach and is preferable to the reduced form approach advocated by Pollak and Wachter. Their reduced form approach, although easier to implement than the structural approach we advocate, fails to permit full use of the microeconomic theory that is at the heart of Becker's approach.