

## Contents

|   |           |
|---|-----------|
| <b>1. Introduction</b>                                      | <b>1</b>  |
| <b>2. Methodology and data</b>                              | <b>2</b>  |
| 2.1 The General Cost Function Approach                      | 3         |
| 2.2 Concavity constraints                                   | 6         |
| 2.3 The stochastic features of the models                   | 9         |
| 2.4 Selection of the estimated models and the data base     | 9         |
| <b>3. The Production Characteristics to be investigated</b> | <b>11</b> |
| 3.1 Measuring Economies of Scale                            | 11        |
| 3.2 The economies of scope issue                            | 13        |
| 3.3 Separability, Homotheticity, Homogeneity                | 14        |
| 3.4 Price Elasticities of Input Demand, Factor Substitution | 18        |
| 3.5 The Effects of Technical Change                         | 21        |
| <b>4. Empirical Results</b>                                 | <b>24</b> |
| 4.1 The Economies of Scale Issue                            | 25        |
| 4.2 The Economies of Scope Issue                            | 31        |
| 4.3 The Separability, Homotheticity, and Homogeneity Issue  | 34        |
| 4.4 Price Elasticities of Input Demand, Factor Substitution | 37        |
| 4.5 The Effects of Technical Progress                       | 39        |
| <b>5. Summary and Conclusions</b>                           | <b>44</b> |
| <b>Appendix</b>   | <b>46</b> |
| <b>References</b>   | <b>49</b> |