

# Contents

|                                                                                           |           |
|-------------------------------------------------------------------------------------------|-----------|
| Introduction.....                                                                         | 9         |
| <b>PART I MICROECONOMIC EQUIVALENCE SCALES AND DATA.....</b>                              | <b>11</b> |
| 1. An overview of the standard model of equivalence scales .....                          | 12        |
| 1.1. Some preliminaries .....                                                             | 12        |
| 1.2. Econometric equivalence scales .....                                                 | 13        |
| 1.3. Non-identification of the standard equivalence scales .....                          | 14        |
| 1.4. Subjective equivalence scales.....                                                   | 15        |
| 1.5. The parametric equivalence scales.....                                               | 16        |
| 1.6. The collective household models .....                                                | 18        |
| 1.7. The sequential dominance approach.....                                               | 19        |
| 2. Statistical data .....                                                                 | 21        |
| 2.1. The description of the EU-SILC database. ....                                        | 21        |
| 2.2. The measurements of household welfare levels .....                                   | 22        |
| <b>PART II THE ESTIMATION OF THE RANDOM EQUIVALENCE SCALES .....</b>                      | <b>27</b> |
| 3. The random equivalence scales: a theoretical background.....                           | 28        |
| 3.1. From a microeconomic perspective to a population perspective.....                    | 28        |
| 3.2. The random equivalence scales for continuous income distributions .....              | 29        |
| 3.3. The random equivalence scales in the lognormal distribution of income.....           | 30        |
| 3.4. Ethical recommendations for the choice of a single equivalence scale .....           | 33        |
| 3.5. Some practical issues concerning the random equivalence scales.....                  | 36        |
| 3.5.1. The test of goodness-of-fit of the lognormal distribution .....                    | 36        |
| 3.5.2. Possible dependence of RES on income .....                                         | 37        |
| 3.5.3. Beyond lognormality.....                                                           | 37        |
| 3.6. Summary .....                                                                        | 38        |
| 4. Random equivalence scales for EU countries when household size accounts for needs..... | 39        |
| 4.1. Preliminary remarks.....                                                             | 39        |
| 4.2. Testing lognormality of disposable household incomes .....                           | 39        |
| 4.3. Testing the dependence of the random equivalence scales on selected factors .....    | 40        |
| 4.4. The ‘Rawlsian’ paradox .....                                                         | 45        |
| 4.5. The mean equivalent income and inequality in European countries .....                | 60        |
| 4.5.1. Preliminary remarks.....                                                           | 60        |
| 4.5.2. Mean income and inequality in the Central European Region .....                    | 62        |
| 4.5.3. Mean income and inequality in the Social Democratic Region.....                    | 67        |
| 4.5.4. Mean income and inequality in the Baltic Region .....                              | 73        |
| 4.5.5. Mean income and inequality in the Mediterranean Region .....                       | 78        |
| 4.5.6. Mean income and inequality in the East European Region .....                       | 83        |
| 4.5.7. Mean income and inequality in the Liberal Market Region .....                      | 89        |
| 4.6. Summary .....                                                                        | 94        |

|                                                                                             |            |
|---------------------------------------------------------------------------------------------|------------|
| 5. Random equivalence scales respecting demographic composition .....                       | 95         |
| 5.1. Selecting groups of households .....                                                   | 95         |
| 5.2. Estimating random equivalence scales .....                                             | 95         |
| 5.3. The Rawlsian paradox.....                                                              | 99         |
| 5.4. Summary .....                                                                          | 107        |
| <b>PART III THE ESTIMATION OF PARAMETRIC EQUIVALENCE SCALES.....</b>                        | <b>109</b> |
| 6. The estimation of the one-parameter equivalence scale .....                              | 110        |
| 6.1. Preliminary remarks.....                                                               | 110        |
| 6.2. The method of estimating BRSS equivalence scales.....                                  | 113        |
| 6.3. Empirical results .....                                                                | 117        |
| 6.3.1. The results of estimating BRSS .....                                                 | 117        |
| 6.3.2. Regional differences between BRSS.....                                               | 121        |
| 6.4. Checking changes of country BRSS over time.....                                        | 128        |
| 6.5. Some curiosities in the behaviour of the $(G_u, \theta_u)$ relationship over time..... | 135        |
| 6.6. Summary .....                                                                          | 139        |
| 7. The estimation of the two-parameter equivalence scales.....                              | 141        |
| 7.1. Preliminary remarks.....                                                               | 141        |
| 7.2. The numeric method of estimating the OECD and the C-K equivalence scales .....         | 141        |
| 7.3. The analytical method of estimating the OECD and the C-K equivalence scales.....       | 145        |
| 7.4. The empirical results of estimating the OECD scales .....                              | 146        |
| 7.5. Empirical results of estimating C-K equivalence scales.....                            | 155        |
| 7.6. Summary .....                                                                          | 168        |
| 8. The global income distribution for the European Union .....                              | 170        |
| 8.1. Preliminary remarks.....                                                               | 170        |
| 8.2. The EU income distributions when household size accounts for needs .....               | 171        |
| 8.3. The EU income distribution when household demographics account for needs .....         | 185        |
| 8.4. Summary .....                                                                          | 197        |
| Final summary .....                                                                         | 199        |
| Bibliography .....                                                                          | 201        |
| Appendix 2.....                                                                             | 206        |
| Appendix 4.....                                                                             | 219        |
| Appendix 5.....                                                                             | 301        |
| Appendix 6.....                                                                             | 359        |
| Appendix 7.....                                                                             | 369        |