

883 032 83X

Fertility and Prosperity: Links Between Demography and Economic Growth

by

Martin Werding
Sonja Munz
Vera Gács

Munich, October 2006



Institute for
Economic Research
at the University of Munich

Department of Social Policy and Labour Markets

Contents

| | |
|--------------------------------|-----------|
| List of Figures..... | <i>vi</i> |
| List of Tables..... | <i>ix</i> |
| Deutsche Zusammenfassung | <i>xi</i> |

| | |
|--------------------|---|
| Introduction | 1 |
|--------------------|---|

Part I: Fertility and Economic Growth – Empirical Evidence

| | |
|--|----|
| 1. Fertility and Economic Growth: Stylised Facts | 9 |
| 1.1 Fertility change over the last century..... | 9 |
| 1.2 Life expectancy..... | 14 |
| 1.3 Effects for the economically active population | 15 |
| 1.4 Fertility and output per capita..... | 16 |
| Appendix A.1: Fertility indicators | 20 |
| 2. Fertility, Population Growth, and Economic Development: Theory and Evidence..... | 22 |
| 2.1 A basic neoclassical growth model..... | 22 |
| 2.1.1 Aggregate output, output per capita, and productivity | 23 |
| 2.1.2 Dependency, participation, and “capital dilution” | 24 |
| 2.2 Growth models with endogenous savings – an in-depth analysis | 27 |
| 2.3 The role of human capital | 32 |
| 2.3.1 Mincer equations and the age structure of the active population | 33 |
| 2.3.2 Endogenous growth in the Uzawa–Lucas Model | 34 |
| 2.4 The empirical evidence collected so far | 38 |
| 3. The Role of Total Factor Productivity | 43 |
| 3.1 Growth Accounting: the basic approach..... | 43 |
| 3.2 Measurement issues and refinements | 46 |
| 3.2.1 Heterogeneous labour | 46 |
| 3.2.2 Differentiated capital services and measurement of physical capital stocks..... | 47 |

| | | |
|-------|---|-----|
| 3.2.3 | Integration of human capital in growth accounting..... | 48 |
| 3.2.4 | Measurement of human capital stocks..... | 49 |
| 3.3 | Growth accounting vs level accounting..... | 52 |
| 3.3.1 | Accounting for TFP growth..... | 52 |
| 3.3.2 | Level accounting..... | 53 |
| 3.4 | The role of demographics for TFP: empirical evidence..... | 56 |
| 4. | Economic Development and Fertility: Theory and Evidence..... | 59 |
| 4.1 | The theory of endogenous fertility: an overview..... | 59 |
| 4.2 | The quantity–quality model..... | 60 |
| 4.3 | Time allocation and opportunity costs..... | 63 |
| 4.4 | Fiscal externalities..... | 67 |
| 4.5 | Empirical evidence..... | 68 |
| 5. | Fertility, Productivity Growth, and Economic Development: Empirical results..... | 72 |
| 5.1 | The empirical approach..... | 72 |
| 5.2 | Data and variables..... | 75 |
| 5.3 | Results..... | 78 |
| 5.4 | Simulations..... | 91 |
| 6. | Economic Development and Endogenous Fertility: Empirical results..... | 100 |
| 6.1 | The empirical approach..... | 100 |
| 6.2 | Results..... | 103 |
| 6.3 | Simulations..... | 110 |
| | Appendix A.6: The “Fertility and Prosperity” database | |
| a) | List of variables included in the database..... | 119 |
| b) | List of countries covered in the database..... | 127 |

Part II: The Effectiveness of Family Policies – Case Studies

| | | |
|-----|--|-----|
| 7. | Fertility Outcomes in Selected European Countries..... | 131 |
| 7.1 | Fertility rates and prospective demographic change..... | 132 |
| 7.2 | The timing of births and the structure of family households..... | 139 |
| 7.3 | Fertility and female labour-force participation..... | 144 |
| 7.4 | Fertility, female education and household income..... | 149 |

| | |
|---|-----|
| 8. Family Policies in Selected European Countries | 154 |
| 8.1 Cash benefits and tax allowances for families with dependent children | 155 |
| 8.1.1 An overview of benefit schemes operated in OECD countries | 155 |
| 8.1.2 The rules applied in Germany, France, the UK, and Sweden..... | 159 |
| a) Germany..... | 161 |
| b) France..... | 161 |
| c) United Kingdom..... | 162 |
| d) Sweden..... | 163 |
| 8.1.3 Benefits differentiated by the number of children..... | 164 |
| 8.1.4 Benefits differentiated by parental income..... | 166 |
| 8.2 Housing benefits | 169 |
| 8.2.1 Housing benefits differentiated by parental income..... | 169 |
| 8.2.2 Child-related monetary benefits after housing | 172 |
| 8.3 Extra-benefits for families with small children | 174 |
| 8.4 Child care..... | 176 |
| 8.5 Schooling | 182 |
| 8.6 Health care..... | 189 |
| 8.7 Public pension schemes | 191 |
| 8.7.1 The tax implied in public pension schemes..... | 192 |
| 8.7.2 Child-related benefits involved in public pension schemes | 197 |
| a) Germany..... | 198 |
| b) France..... | 198 |
| c) United Kingdom..... | 199 |
| d) Sweden..... | 199 |
| e) Cross-country comparison of the effects..... | 200 |
| 8.8 The impact of child-related benefits on fertility..... | 206 |
| References | 213 |