# Contents

List of figures  
List of tables  
List of contributors  
Preface  

1 Introduction  
Juha M. Alho, Svend E. Hougaard Jensen and Jukka Lassila  

<table>
<thead>
<tr>
<th>Part I</th>
<th>Uncertain demographics</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Changing views of future demographic trends</td>
</tr>
<tr>
<td></td>
<td>Nico Keilman, Harri Cruijsen and Juha M. Alho</td>
</tr>
<tr>
<td>3</td>
<td>Empirically based specification of forecast uncertainty</td>
</tr>
<tr>
<td></td>
<td>Juha M. Alho, Harri Cruijsen and Nico Keilman</td>
</tr>
<tr>
<td></td>
<td>Comment: The UPE forecasts: strengths, innovations, developments</td>
</tr>
<tr>
<td></td>
<td>Shripad Tuljapurkar</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part II</th>
<th>Measuring sustainability in a stochastic environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Fiscal implications of demographic uncertainty: comparisons across the European Union</td>
</tr>
<tr>
<td></td>
<td>Martin Weale</td>
</tr>
<tr>
<td>5</td>
<td>Demographic uncertainty and pension projections</td>
</tr>
<tr>
<td></td>
<td>Jukka Lassila and Tarmo Valkonen</td>
</tr>
</tbody>
</table>
vi Contents

6 Demographic uncertainty and health care expenditure 94

Namkee Ahn

Comment: Assessing the uncertainty in long-term fiscal projections 109

Pablo Antolin

Part III Enhancing sustainability

7 Evaluating pension reforms in the German context 117

Hans Fehr and Christian Habermann

8 Longevity adjustment of pension benefits 137

Jukka Lassila and Tarmo Valkonen

9 Ageing, demographic uncertainty and optimal fiscal policy 161

Alex Armstrong, Nick Draper, André Nibbelink and Ed Westerhout

Comment: Computable equilibrium models in policy analysis: future directions 184

D. Peter Broer

Part IV Extensions

10 Macro-economic consequences of demographic uncertainty in world regions 195

Vladimir Borgy and Juha M. Alho

11 Informational assumptions, aggregate mortality risk and life-cycle saving 219

Juha M. Alho and Niku Määttänen

12 Uncertain demographics, longevity adjustment of the retirement age and intergenerational risk-sharing 239

Svend E. Hougaard Jensen and Ole Hagen Jørgensen

13 A general equilibrium analysis of annuity rates in the presence of aggregate mortality risk 258

Justin Van de Ven and Martin Weale

Comment: The economics of demographic uncertainty 270

Martin Flodén

Index 275