

CRITICAL  
ISSUES IN  
ENVIRONMENTAL  
TAXATION

International and Comparative Perspectives:  
Volume VI

*Edited by*

JACQUELINE COTTRELL

JANET E MILNE

HOPE ASHIABOR

LARRY KREISER

KURT DEKETELAERE

OXFORD  
UNIVERSITY PRESS

# CONTENTS

<i>Table of Cases</i>	xxxiii
<i>Table of Legislation</i>	xxxvii
<i>Table of Treaties and Conventions</i>	xlvii

## I INNOVATION, TECHNOLOGY, AND COMPETITIVENESS

### Innovation, Technological Change, and Environmental Fiscal Reform

<b>1. Innovation, Technology, and the Energy Revolution</b>	<b>5</b>
<i>Michael Rödi</i>	
A. The Energy Revolution: Why we Need It, and How to Get There	1.01
B. Promoting Innovation—A Task for Governments	1.04
C. Challenges for Innovation Policy	1.06
The concept of innovation and the complexity of the innovation process	1.06
Coping with ignorance	1.11
Responsibility for innovation and its consequences	1.17
'Lock-in' effects and the path dependence of technology promotion	1.20
The specific challenge of interdisciplinary innovation research	1.23
D. Instruments of Environmental Policy and their Potential as Motors of Innovation	1.25
Command-and-control versus economic instruments	1.28
Economic instruments versus informal instruments	1.33
Comparing economic instruments	1.36
E. The Importance of an Instrument Mix	1.46
F. A Framework to Stimulate Innovation	1.48
G. Conclusion	1.52

<b>2. Impacts of Environmental Policy Instruments on Technological Change</b>	<b>25</b>
<i>Nils Axel Braathen</i>	
A. Introduction	2.01
B. Dynamic Incentives from Environmental Policy—Economic Theory	2.02
C. Empirical Studies: General Impacts of Environmental Policy	2.06
D. Empirical Studies: Impacts of Specific Environmental Policy Instruments	2.18
E. Empirical Studies: Real-time Impacts of Different Environmental Policy Instruments	2.28
F. Conclusion	2.42
G. Some Ideas for Further Research	2.46
References	43
 <b>3. Learning-by-Doing in Wind Electricity Production—Who Learns and Why does it Matter to Differentiate? A Case Study of Germany</b>	 <b>47</b>
<i>Katja Schumacher and Michael Kohlhaas</i>	
A. Introduction	3.01
Renewable energy in Germany	3.08
B. Learning-by-Doing and Renewable Energy	3.14
Learning-by-doing in renewable energy machinery and equipment	3.19
Learning-by-doing in renewable electricity production	3.20
C. LEAN_2000	3.23
The model	3.23
Implementation of learning-by-doing in LEAN_2000	3.30
Renewable energy equipment in LEAN_2000	3.32
D. Analysis and Results	3.34
Output, investment, and price effects	3.38
Macro-economic and international trade effects	3.46
E. Summary and Conclusions	3.48
References	67

Macroeconomic Impacts of Environmental Fiscal Reform

<b>4. The Macroeconomic Effects of Unilateral Environmental Tax Reforms in Europe, 1995 to 2012</b>	<b>73</b>
<i>Terry Barker, Sudhir Junankar, Hector Pollitt, and Philip Summerton</i>	
A. Introduction	4.01
B. Literature on the Macroeconomic Effects of Environmental Tax Reform	4.04
C. Modelling Environmental Tax Reform	4.05
Description of the E3ME model	4.05
The effects of carbon and energy taxation	4.07
D. Tax and Revenue Recycling in the ETRs (1995–2004)	4.28
Tax rates and revenues	4.28
Revenue recycling	4.39
Scenarios used to model ETR	4.41
E. The Effects of Selected EU ETRs using E3ME (1995–2012)	4.42
The baseline	4.42
Model results: overall effects of ETR	4.44
The effects of ETR in the non-ETR countries	4.52
The effects of the exemptions	4.53
Isolating the effects of the taxes	4.55
Sensitivity of the results to key inputs	4.57
F. Conclusion	4.62
<b>5. The Environmental Tax Reforms in Europe: Mitigation, Compensation, and CO<sub>2</sub> Stabilization</b>	<b>101</b>
<i>Mikael Skou Andersen and Stefan Speck</i>	
A. Introduction	5.03
B. Assessment of Member State Approaches	5.07
C. The Framework for Mitigation: State Aid Issues and the Energy Taxation Directive	5.13
The requirements for reduced tax rates for energy-intensive industries	5.15
The role of agreements for energy savings	5.23
D. Winners and Losers in ETR	5.29
E. Mitigation in a Regulatory Environment with Interaction	
Effects between Emissions Trading and Carbon-energy Taxes	5.54
F. Conclusion	5.61

<b>6. Unilateral versus Multilateral Climate Change Policy: A Quantitative Economic Analysis of Competitiveness Implications</b>	<b>123</b>
<i>Victoria Alexeeva-Talebi</i>	
A. Introduction	6.01
B. Policy Application: Unilateral versus Multilateral Climate Change Policy Analytical Framework	6.04
Scenarios	6.08
Results	6.10
C. Conclusion	6.16

## II IMPLEMENTATION ISSUES

### Structural Questions

<b>7. Green, White, and Brown Certificates Working Together: The Italian Experience</b>	<b>139</b>
<i>Giorgio Panella, Andrea Zatti, and Fiorenza Carraro</i>	
A. Introduction	7.01
B. Systems of Certificates: Functioning	7.07
Tradeable green certificates (TGCs)	7.19
Results, critical issues, and future challenges	7.23
White certificates system	7.24
Emission permits (brown certificates)	7.81
x The problem of integration	7.106
C. Conclusion	7.119
 <b>8. An Analysis of Spain's Legal Framework for the Promotion of Electricity from RES and Energy Efficiency: Positive Effects Achieved So Far and Remaining Legal, Administrative, and Structural Barriers</b>	 <b>171</b>
<i>FJ de Cendra de Larragán</i>	
A. Introduction	8.01
B. The Legal Framework for the Promotion of Renewables in Spain	8.04
C. Targets and Degree of Compliance So Far	8.05
The plans for the promotion of renewable energy: overview of objectives and main existing barriers	8.05
Plan for the promotion of energy efficiency: overview of objectives and main existing barriers	8.06

D. Legal Barriers	8.07
Barriers in the generation side	8.07
Barriers in the consumption side	8.31
Buildings	8.45
Transport	8.48
E. Administrative Barriers	8.49
Licensing procedure	8.49
Planning law and conflicts of competences	8.51
The specific regime for marine wind parks	8.52
F. Structural Barriers and Consequences for RES	8.58
Barriers to the specific types of RES on the generation side	8.58
Barriers on the transport side	8.64
Barriers in the retail market	8.74
G. Political Barriers	8.75
H. The New Climate Change Strategy	8.77
I. Conclusion	8.78
<b>9. Towards an Environmental Tax on Motor Vehicles (a Proposal for a Community Directive and its Incidence on Spanish Autonomous Communities)</b>	<b>203</b>
<i>Pedro M Herrera Molina, María Amparo Grau Ruiz, and Pablo Chico de la Cámara</i>	
A. Introduction	9.01
B. The Basic Tax Framework	9.04
C. Provisional Amendment and Elimination of the Special Tax on Certain Means of Transport (Registration Tax)	9.11
European legal framework	9.11
Prohibition of new taxes of this kind and definitive elimination	9.14
Transitional regime	9.18
Measures to eliminate double taxation	9.22
Implementation in Spain	9.28
D. Reform of the Tax on Mechanical Traction Vehicles: Acceptance by the Autonomous Communities and Environmental Restructuring	9.45
Starting point	9.45
Environmental restructuring and elimination of double taxation	9.54
Acceptance by the autonomous communities and other alternatives	9.58

E. Compensation measures	9.61
From the central state to the autonomous communities	9.61
From the autonomous communities to the municipalities	9.64
The municipalities' normative and management competences	9.65
F. Conclusion	9.66
<b>10. Environmental Fiscal Reform in Italy: Something in the Way . . .</b>	<b>221</b>
<i>Aldo Ravazzi Dowan and Claudia Cordié</i>	
A. An Apparently 'Favourable Climate'	10.01
International level	10.02
Europe at work (with its member countries)	10.05
Italian level	10.06
Best practices level	10.07
B. Towards an Environmental Tax Reform in Italy	10.08
Precedent attempts in brief	10.08
Environmentally related taxes and market-based instruments	10.18
Environmental taxes—statistics	10.20
Financial Law 2007	10.24
Local and regional measures—towards federalism?	10.28
C. Conclusion	10.34
<b>11. Administrative Costs of the Czech System of Environmental Charges</b>	<b>247</b>
<i>Jan Pavel and Leoš Vitek</i>	
A. Introduction	11.01
B. Methodology of the Assessment and Effectiveness of the Czech Tax System	11.09
C. Charges for Environmental Protection in the Czech Republic	11.17
D. Case Study: Charges on Air Pollution (APC) and Water Charges (WC)	11.18
System of the APC	11.18
Efficiency of the APC	11.21
System of the WC	11.26
Efficiency of the WC	11.30
E. Comparison with Other Czech and International Taxes	11.34
F. Conclusion	11.39

Psychological Issues: Political Economy, Public Choice  
Theory, and Environmental Fiscal Reform

<b>12. The Sky is the Limit or Limits to the Sky? A Political Economy Perspective on Market-based Environmental Policy Instruments in EU Aviation</b>	<b>265</b>
<i>Sven Rudolph</i>	
A. Introduction	12.01
B. Climate Protection and Aviation	12.03
C. The Political Economy of Environmental Policy Instruments	12.08
Voters	12.12
Interest groups	12.15
Environmental bureaucracy	12.22
Politicians	12.25
D. Conclusion	12.27
 <b>13. Explaining Policy Change: The Role of Scientific Actors and Policy Entrepreneurs in Theory and Environmental Policy Practice in Germany</b>	 <b>283</b>
<i>Michael Böcher</i>	
A. Introduction	13.01
B. Ecological Tax Reform in Germany and the Role of Environmental Economists	13.06
Economists as evaluators of environmental policy	13.06
Ecological tax reform in Germany	13.07
Economists as critics of the ecological tax reform	13.09
Economic explanations for the lack of influence of environmental economists	13.12
C. The Role of Scientists in Policy-making	13.14
Technocratic solutions delivered by scientists?	13.15
The importance of policy entrepreneurs for policy change	13.18
Policy-learning	13.20
Policy entrepreneurs as key actors and drivers of policy change	13.24
Lessons to be learned from this approach	13.26
D. Some Examples of the Role of Policy Entrepreneurs within the Eco-tax Debate in Germany	13.27
The birth of a new policy idea, the struggle of ideas, and policy entrepreneurs	13.28
Scientific uncertainties and distributional conflicts	13.34



The implementation of the German ecological tax reform as a result of policy-learning, scientific uncertainties, and distributional conflicts	13.36
E. Conclusion	13.37
<b>14. Public Choice over Efficiency: The Case of Road Traffic Management</b>	<b>307</b>
<i>Jonathan Remy Nash</i>	
A. Overview of the Economics of Roadway Usage	14.09
B. The Dominant Response to Traffic Congestion: The Generation of Additional Roadway Capacity	14.22
C. The Efficient Response to Traffic Congestion: Congestion Pricing	14.39
D. Economic and Public Choice Evaluation of New Roadway Capacity and Congestion Charges	14.54
E. Conclusion	14.66
<b>15. Psychological Barriers to Gasoline Taxation</b>	<b>333</b>
<i>Shi-Ling Hsu</i>	
A. Introduction	15.01
B. The Gasoline Tax	15.05
C. Tax Psychology	15.10
Endowment effect	15.11
The do-no-harm effect	15.15
The identifiability bias	15.19
Metric effect	15.22
Isolation effect	15.24
D. Conclusion	15.28

### III ENERGY AND INNOVATION

#### Energy Policy in the European Union

<b>16. Discussing Climate Change Policy Instruments for Energy-intensive Sectors in the European Union</b>	<b>353</b>
<i>Claudia Dias Soares</i>	
A. Climate Change Policy and the Lisbon Strategy	16.01

B. Criticism of the Current Regulatory Framework on EU Energy-intensive Sectors	16.11
Economic arguments against overlapping regulation and national tax exemptions	16.11
Legal arguments against national energy tax exemptions	16.23
C. Discussing Legal Scenarios for the Future	16.36
The radical approach	16.49
The conservative approach	16.60
Changes at the energy tax level	16.83
Long-term preferences	16.88
D. Conclusion	16.93
17. <b>Direct Fiscal Aid for Renewable Energy Development: A Positive Cue from the Commission?</b>	377
<i>Carol Ní Ghiollarnáth</i>	
A. Introduction	17.01
B. Tax Policy for Renewable Energy—An EU Perspective	17.05
C. Case Studies	17.12
Investments in own energy-efficient assets	17.13
Investments in projects of third parties	17.18
D. State Aid Dimension of Direct Tax Incentives	17.23
Investments in own energy-efficient assets	17.23
Percentage deduction in year 1	17.26
Investments in projects of third parties	17.29
E. The Future for Tax Incentives in the EU State Aid Regime	17.31
F. Conclusion	17.42
18. <b>Energy Taxes in Europe—Lessons Learned with Relevance for Switzerland</b>	393
<i>Rolf Iten, Helen Lückge, and Martin Peter</i>	
A. Introduction and Objectives	18.01
B. Energy Taxes in Europe	18.06
EU policy	18.06
Overview of current status by country	18.08
Impacts of current energy taxes	18.10
Findings for Swiss climate policy post-2012	18.14
C. Conclusions that can be Drawn for Switzerland	18.23

Energy Efficiency and Environmental Fiscal Reform  
to Reduce Fossil Fuel Use

<b>19. From Simple Concept to Complex Reality: US Tax Incentives to Reduce Household Use of Fossil Fuels</b>	<b>409</b>
<i>Janet E Milne</i>	
A. Introducing the Tax Incentives	19.04
Section 45L's new energy efficiency home credit—a tax credit for new or substantially reconstructed homes	19.04
Section 25C's non-business energy property credit—a tax credit for energy-efficiency improvements to existing homes	19.06
Section 45M's energy efficient appliance credit—a tax credit for appliance manufacturers	19.08
Section 136's energy conservation subsidies provided by public utilities—an income exclusion for conservation measures offered by utilities to homeowners	19.11
Section 25D's residential energy-efficiency property—a tax credit for residential alternative energy sources	19.12
Section 179D's energy-efficient commercial buildings deduction—a tax deduction for energy-efficiency investments	19.13
Section 48's energy credit—a tax credit for solar, geothermal, and fuel cell investments by businesses	19.15
The overall matrix	19.17
B. The Challenge of Confronting the Devils in the Details: The Need for Niche Rules	19.20
x Multiple owners	19.21
Government owner	19.22
Location and type of home	19.23
Swimming pools	19.24
Other subsidies	19.25
C. The Challenge of Defining the Standard for Qualification: The Need to Deal with Technology	19.27
The basic approaches to choosing the standard	19.27
The implications	19.35
D. The Challenge of Implementation: Certification Requirements	19.43
Certification for alternative energy sources	19.44
Certification of comparative energy savings	19.45
Certification for satisfying static standards	19.55
The implications	19.57
E. Conclusion	19.62
Appendix	434

<b>20. Demanding More: The Role of Demand Management and Improved End-use Efficiency in Australian Electricity Markets</b>	<b>439</b>
<i>Rowena Cantley-Smith</i>	
A. Introduction	20.01
B. The Stationary Energy Sector's Impact on the Environment	20.03
C. Energy Market Reforms to Date	20.11
Overview of policy developments and establishment of the NEM	20.11
A new legislative framework for the NEM	20.16
D. Demanding Different Environmental Outcomes in the NEM	20.19
Governmental responses to environmental problems	20.19
Demand management of the NEM	20.23
E. Impediments to Better Environmental Outcomes	20.32
F. Conclusion	20.42
 <b>21. CO<sub>2</sub> Emissions in Italy: A Micro-simulation Analysis of Environmental Taxes on Firms' Energy Demand</b>	 <b>465</b>
<i>Rossella Bardazzi, Filippo Oropallo, and Maria Grazia Paziienza</i>	
A. Introduction	21.01
B. Growth and Environment: Is Decoupling an Option?	21.04
Emission trends in Europe and Italy	21.07
C. Are Environmental Taxes a Useful Tool?	21.18
Current use of energy and CO <sub>2</sub> taxes in Europe and Italy	21.24
D. The Micro-simulation Model and the Data	21.29
E. Estimation Results	21.36
Regression of CO <sub>2</sub> emissions	21.37
The demand of some energy products: a fixed-effect model	21.43
F. Final Remarks	21.53
Environmental Fiscal Reform and Renewable Energy	
 <b>22. Energy Efficiency and Renewable Energy Supply for the G-7 Countries, with Emphasis on Germany</b>	 <b>495</b>
<i>Jon Strand</i>	
A. Introduction	22.01
B. Renewables in Advanced Economies: General Issues	22.12

Introduction	22.12
Support for and supply of renewables in major developed countries	22.21
Public renewables support and carbon emissions reductions	22.32
Biofuels and their support in advanced economies	22.37
C. Further Aspects of Renewables Policies in Germany	22.49
Introduction	22.49
Renewables for electricity generation in Germany	22.52
Policies affecting value-adding inputs	22.58
D. Overall Assessment of Renewables Policies in Advanced Countries	22.66
<b>23. Stimulating the Use of Renewable Energy in the Canadian Residential Sector with Economic Instruments</b>	<b>523</b>
<i>Nathalie Chalifour and Amy Taylor</i>	
A. Introduction	23.01
B. Background	23.08
Renewable energy potential and cost in Canada	23.11
Solar photovoltaic	23.16
Small wind	23.19
C. Residential Renewable Energy Barriers	23.22
Barriers	23.22
Economic instruments	23.24
D. Economic Instrument Choice	23.30
Instrument evaluation	23.31
Economic instruments at the federal level	23.34
Economic instruments at the provincial level	23.37
Economic instruments at the municipal level	23.40
E. Jurisdiction	23.42
A pro-rated upfront grant for small systems and a production incentive for medium systems offered by the federal government	23.46
Feed-in tariff laws applied provincially	23.50
A reduction in development fees or a local improvement charge (municipal)	23.56
Conclusion	23.65
F. Distributional Impacts and Fairness	23.66
Introduction	23.66
Distributional impacts and fairness of the proposed measures	23.71
Conclusion	23.77
G. Conclusion	23.78

<b>24. Tax Incentives for Ocean Wave Energy Development</b>	<b>553</b>
<i>Hans Sprohge, Larry Kreiser, Julsuchada Sirisom, and Bill Butcher</i>	
A. Introduction	24.01
B. The Source of Ocean Wave Energy	24.03
C. Amount of Ocean Wave Energy Available	24.12
D. Harnessing Ocean Wave Energy	24.14
Tapered channel systems	24.15
Float systems	24.17
Oscillating water column systems	24.18
E. Obstacles to Harnessing Ocean Wave Energy	24.19
F. Environmental Impact of Ocean Wave Energy	24.20
Visual appearance and noise	24.22
Coastal deposition and erosion	24.23
Ecosystems	24.24
Endangered species	24.25
Fishing	24.26
Impacts on shipping	24.27
Marine pollution	24.28
G. Tax Incentives for Ocean Wave Energy	24.30
Tax incentive versus subsidy	24.31
The value of tax-deduction and tax-credit incentives	24.32
Tax-deduction incentives for ocean wave energy	24.35
Production-tax-credit incentives for ocean wave energy	24.37
Tax incentive flow through for ocean wave energy incentives	24.38
H. Summary and Conclusion	24.39
 <b>25. An Evaluation of the Fiscal Mechanisms for Fostering Solar Energy in Australia</b>	 <b>569</b>
<i>Anna Mortimore</i>	
A. Australia's Competitive Advantage in Solar Energy	25.07
Why solar energy?	25.10
Solar energy in Australia	25.13
B. Australia's Solar Technology Moves Overseas	25.20
Buried contract solar cell technology	25.24
Solar cell technology	25.25
The crystalline silicone-on-glass technology	25.26
Solar grid technology	25.27
C. Future of Solar Energy in Australia?	25.33

D. Abundance of Low-cost Fossil Fuel	25.34
E. The Photovoltaic Industry Relies on the Rebate Program	25.44
Change of government policy	25.49
F. Australia's Mandatory Renewable Energy Target	25.51
Administration of the MRET	25.54
Price of renewable energy certificates	25.58
MRET encourages growth in the renewable energy sector	25.59
Independent review of the MRET	25.60
Increase in MRET beyond 2010	25.63
G. Inadequate Funding for Deployment and	
Commercialization of Solar Energy	25.65
Funding for solar cities	25.70
Proposed additional investment in low-emission technology	25.73
H. Impact of Proposed Emission Trading Scheme on the Renewable Energy Sector	25.74
All low-emission technology to compete on equal terms to avoid 'picking winners'	25.76
Phasing out 'less efficient' abatement policies	25.81
Remove renewable energy subsidies that 'mute price signals'	25.83
I. Subsidies to Fossil Fuels should not 'Mute Price Signals'	25.86
J. Additional Fiscal Measures Required for the Deployment and Commercialization of Solar Energy	25.91
K. Conclusion	25.97
Appendix	598
<b>26. Ethanol as Renewable Energy: A Quantitative Analysis of US Energy Policy Using Corn as an Alternative Fuel</b>	<b>601</b>
<i>Rahmat Tavallali, Paul Lee, and Bruce McClain</i>	
A. Introduction	26.01
B. Ethanol Economy	26.07
C. Oil Economy	26.10
D. Ethanol versus Gasoline	26.13
E. Ethanol as Renewable Energy	26.18
F. Corn for Food or Fuel	26.21
G. Ethanol Production Process	26.23

H. Tax Policy	26.25
Federal subsidies	26.27
I. Conclusion	26.33
<b>27. Successes and Failures of Bio-fuels Promotion in the Czech Republic</b>	<b>615</b>
<i>Hana Brůhová-Foltýnová and Vojtěch Máca</i>	
A. Introduction	27.01
B. EU Bio-fuel Support Policy	27.06
C. Bio-fuel Policy in the Czech Republic	27.15
D. Analysis of Bio-fuel Support Regimes: Methodology	27.22
Formulation of alternative policies	27.26
Evaluation and comparison of effects of alternative policies	27.29
Policy selection	27.39
E. Conclusion	27.43
Appendix 1	630
Appendix 2	631
<b>IV LAND USE, PLANNING, AND CONSERVATION</b>	
<b>28. Land Use, Congestion, and Urban Management</b>	<b>635</b>
<i>Alberto Majocchi and Andrea Zatti</i>	
A. Land Use as an Environmental Problem	28.01
Traffic and congestion management in Italian urban areas	28.04
Parking pricing	28.11
Electronic road pricing	28.28
The Milan Ecopass	28.32
C. Urban Planning and the Role of Services	28.47
D. An Environmental Tax to Internalize the External Costs of Tourism	28.54
E. The Problem of Bio-fuels	28.59
F. Environment and Agricultural Policy	28.65
G. Conclusion	28.67



<b>29. The Unsustainable Dependence of Spanish Local Treasuries on Taxes and Charges Related to Construction Activities</b>	661
<i>Ignasi Puig-Ventosa</i>	
A. Introduction	29.01
B. Main Taxes, Charges, and Other Sources of Revenue Related to Construction Activities in Spain	29.06
One-off income sources related to new construction activities and capable of financing other policies	29.08
Other revenue sources related to urbanism	29.20
C. The Dependence of Spanish Local Treasuries on Revenue Sources related to New Urban Development	29.26
The incidence of low-density urbanism	29.40
D. Proposals	29.43
E. Conclusion	29.49
<b>30. Transferable Conservation Easement Tax Credits . . . The Virginia Experience</b>	681
<i>Eleanor Weston Brown</i>	
A. Introduction	30.01
B. The Case for Conservation	30.05
C. Conservation Easement Defined	30.10
D. Conservation Easement as Federal Charitable Deduction	30.13
E. Land Preservation and Conservation Tax Credits: State Tax Incentives Generally	30.20
F. Virginia Land Conservation Incentives Act 1999	30.23
G. Conservation Easement: The Future	30.30
H. Conclusion	30.31
Appendix	696
<b>31. EcoTerra Model—Application of Environmental Fiscal Reform in Local Government Financing in Portugal</b>	699
<i>Joana Prates and João Joanaz de Melo</i>	
A. Introduction	31.01
B. Land-use Management in Portugal	31.06

C. Local Government Financing in Portugal	31.14
D. The EcoTerra Model	31.19
E. Data Sets and Criteria	31.20
F. Results and Discussion	31.21
G. Conclusion	31.38
<b>32. An International Comparison of Factors Influencing Modal Split: Implications for Environmental Taxation</b>	<b>717</b>
<i>Hana Bráhová-Foltýnová and Jan Bráha</i>	
A. Introduction	32.01
B. Data	32.12
C. Econometric Model	32.23
D. Findings	32.31
E. Conclusion	32.37
Appendix 1	728
Appendix 2	729
Appendix 3	731

## V GLOBAL ISSUES

### International Policy Approaches

<b>33. Border Tax Adjustments, WTO Law, and Climate Protection</b>	<b>737</b>
<i>Felix Ekardt and Andrea Schmeichel</i>	
A. Environmental Costs, Competitiveness, and WTO Law	33.01
B. The National Treatment Principle as WTO Measure for Border Tax Adjustments (Articles II, III, VI GATT)	33.09
C. Justification of Border Tax Adjustments According to Article XX GATT as an Exception to Article III GATT in relation to the Protection of the Environment	33.23
D. Justification of Border Adjustments relating to the Environment by the Notion of ‘Avoiding Subsidies by Externalization of Costs’?	33.28
E. Details of Border Adjustments	33.33

F. Environmental Protection by WTO Law? North–South Conflicts, Frictions of a Free World Trade, Limits of the International Treaties, and Multilateralism	33.35
<b>34. Carbon Emission Rights: The Key to an Optimal Regional Approach to Climate Change?</b>	761
<i>Ken Piddington and Frank Scrimgeour</i>	
A. Introduction and Overview	34.01
B. The New Zealand Objective	34.05
C. Shifting Currents in Officialdom	34.11
D. Allocation of Emission Rights—The Key Decision	34.18
E. Think Globally, Act Regionally!	34.23
F. Concluding Observations	34.30
<b>35. Fiscal and Regulatory Challenges of Managing Sinks, with a Focus on Australia</b>	773
<i>Patricia Blazey</i>	
A. Introduction	35.01
B. The Benefit of Sinks	35.09
C. Australia’s Approach to Carbon Sinks	35.24
D. Taxation Benefits for Forest Sink Projects in Australia	35.33
E. Conclusion	35.37
Environmental Fiscal Reform in Developing, Emerging, and Transition Economies	
<b>36. Environmental Fiscal Reform in Developing, Emerging, and Transition Economies</b>	793
<i>Jacqueline Cottrell, Axel Olearius, and Stephanie Lorek</i>	
A. Introduction	36.01
B. Good Governance and Capacity Development	36.03
Good governance and good financial governance	36.05
Capacity development	36.08
C. Policy Analysis for Improved Implementation	36.10
D. Political Barriers to Implementation	36.16

E. Revenue Raising	36.20
F. EFR and Poverty Reduction	36.23
G. Conclusion	36.29
<b>37. Environmental Fiscal Reform—Differences and Similarities between Developed and Developing Countries, Based on a Case Study of the Current Situation in Sri Lanka</b>	<b>805</b>
<i>Stefan Speck and Anjan Datta</i>	
A. Introduction	37.01
B. The Concept of Environmental Fiscal Reform—A Broader Concept than Environmental Tax Reform	37.05
EFR in developed countries—the European context	37.08
EFR in developing countries	37.10
The potential of EFR in developing countries—the situation in Sri Lanka	37.13
The economic situation in Sri Lanka	37.15
C. Current Status of the Use of Economic Instruments for Environmental Protection	37.19
Energy products	37.20
Electricity pricing	37.25
Water	37.30
Agriculture—the fertiliser subsidy program	37.40
D. The Revenue Aspect of MBIs Implemented in Sri Lanka	37.44
E. Discussion and Summary	37.56
<b>38. On the Road to a Sustainable Transport Sector in South Africa: The Role of Market-based Instruments</b>	<b>831</b>
<i>Alexander Ross Paterson</i>	
A. Introduction	38.01
B. Environmental and Regulatory Realities	38.05
Environmental realities	38.06
Regulatory realities	38.15
C. Towards a Market-based Approach	38.25
Environmental policies	38.27
Fiscal policies	38.37

D. Market-based Options for the Road Transport Sector	38.40
Fuel levies	38.40
Windfall taxes	38.46
Vehicle levies	38.47
Licensing tariffs	38.51
Congestion charges	38.52
Product taxes	38.53
Deposit-refund systems	38.56
Disposal taxes	38.58
Income tax allowances	38.60
Donations tax	38.64
E. Key Challenges and Prerequisites for Extending the Use of Market-based Instruments	38.65
Environmental effectiveness	38.67
Technical and administrative issues	38.72
Revenue issues	38.74
\ Distributional impacts	38.77
\ Competitiveness impacts	38.79
Policy alignment	38.80
Legislative aspects	38.81
Public support	38.85
F. Conclusion	38.90
<b>39. Energy Tax: How Far is it from Idea to Practice?</b>	
<b>Lessons Learned from the Experience in China</b>	<b>863</b>
<i>Tianbao Qin</i>	
A. Introduction	39.01
B. The Lengthy Process of Introducing an Energy Tax in China	39.06
The genesis of energy taxation	39.06
Introduction of an energy tax in China	39.11
C. Game between Central and Local Governments	39.18
Roles and interrelations between central and local governments as regards fuel taxation	39.18
The reallocation of interests between central and local governments by the proposed fuel tax	39.22
Attitudes of central and local governments towards fuel tax	39.25
Suggestions for coordinating interests between central and local governments	39.28

*Contents*

---

D. Game between Transport and Taxation Departments	39.30
Roles and interrelations between transportation and taxation departments in fuel taxation	39.30
The reallocation of interests between transportation and taxation departments by the proposed fuel tax and their respective attitudes	39.32
Suggestions for coordinating interests between transportation and taxation departments	39.35
E. Game Among Different and Various Taxpayers	39.39
Roles and interrelations between manufacturers, vendors, and consumers in fuel taxation	39.39
Attitudes towards fuel tax from different consumers	39.43
Suggestions for coordinating interests among various taxpayers	39.48
F. Perspectives	39.51
 <i>Index</i>	 879