Index

abatement  compensation for costs of 87–8
targets in transboundary pollution agreements 86–7
Abreu, D. 125, 137
Adamowicz, W.L. 280, 291, 292, 293, 305, 315, 325
adverse selection, insurability of risk and 171–2
Afsah, S. 342, 353
Agee, M.D. 71, 73
Agenda 21 (1992) 11
aid programmes, disaster funds and 163
AIDS/HIV 71
air pollution 353
motor vehicles and 194, 212–28
fuel economy standards and 233–4
market-based policies 222–8
policies towards 215–28
responsibility for emissions 194–5
special characteristics of motor vehicles 194–6
types of pollutants 213–15
variation in emission rates 195–6
Alaska pollock 6–7
Alberini, Anna 228
Allais, M. 42, 43
anadromous fish species 2–3
Andersen, P. 115, 116
Antoci, A. 73
Applebaum, R. 7
arbitrage 39
Archer, D.W. 49, 64
Ardila, Sergio 350
Arnason, R. 17
Arnold, C. 180
Arnott, R. 40, 51
Arrow, K.J. 40, 161
Atkinson, A.C. 322, 323
Aumann, R. 123
Australia, fisheries management in 21
automobiles see motor vehicles
Avenhaus, R. 137
Azevedo, C. 290, 293
Babcock, B. 70
Bainbridge, John 164, 166
Balton, David A. 10, 23
Barbados, insurance in 180
Bateman, I. 270
Bauer, A. 112, 114, 121
Baumol, William 194, 339, 342
Beaton, S.P. 218
Becker, G. 37, 40, 48, 54, 69
Beever, Sean D. 220
Beggs, S. 312
Beissinger, S.R. 38
Belke, J. 180
Bell, Ruth Greenspan 337, 350, 352, 361
Ben-Akiva, M.E. 209, 210
Bennett, L. 89, 133
Benson, C. 179
Bento, Antonio M. 211, 212, 239, 241
Berger, M. 58, 62
Bergland, O. 305
Berkovec, James 212
Berman, M. 290
Bernheim, D. 123
Bernstein, J.D. 349
Bettman, Otto L. 190
Biller, Dan 351
Bishop, Gary A. 196
Bishop, Richard 40, 290, 291, 327
Bjørndal, T. 12, 13, 17
Bjørner, Thomas Bue 342
Blackman, Allen 339, 340, 344
Blackorby, C. 59
Bloch, F. 124, 125
bluefin tuna fishery 28–30, 31
Index

Boarnet, Marlon G. 241
Bockstael, N.E. 270, 273, 277, 280, 282, 289, 293
Bohm, Peter 342
Borghesi, S. 73
Botteon, M. 113, 115, 118
bottomry 164
Bovenberg, A.L. 340
Bowes, M.D. 272
Bowman, J. 210
Boxall, P.C. 318
Boyd, James 162
Boyer, M. 40
Bradley, M. 327
Brasão, A. 29
Breffle, W. 285
Brewer, D. 274, 281
Brown, W.G. 272
Brown Weiss, E. 85
Brownstone, D. 211, 285
Brueckner, Jan K. 203, 237
Brundtland Report 331
Bunch, D.S. 211
Burke, W. 3, 6, 9
Burt, O.R. 274, 281
Buscaglia, Edgardo 350
Bush, George W. 83

Calthrop, Edward 201
Camerer, C. 44
Cameron, T. 293
Canada
fisheries management and 3, 7–8, 9, 10, 14, 18, 24, 25–6
issue linkage and 89
motor vehicles in 192
cap-and-trade (tradable permit) systems 223, 226–8
Caribbean Disaster Mitigation Project (CDMP) 176
Carlin, P.S. 71
Carraro, C. 107, 113, 114, 115, 118, 119, 120, 121, 124, 137
cars see motor vehicles
Carslaw, David C. 220
Carson, R. 270
Caulkkins, P. 277
Cervero, Robert 239
Cesar, H. 134
Cesario, F. 272, 289
Chambers, R. 40
Chander, P. 99, 100, 101, 102, 104, 136, 137
Chapman, K. 59
Charnley, G. 37
Chayes, A. 90
Chayes, A.H. 90
chemical industry, insurance and accidents in 168, 169
Chen, H.Z. 285
Chen, S.-N. 73
Cherry, T. 67, 69, 70
Chichilnisky, G. 137
China, motor vehicles in 192
choice experiments 314–20
comparison with contingent valuation (CE) methods 325–7
experiment 314–16
measuring willingness to pay (WTP) 318–20
modelling and estimation 316–18
Chwe, M.S.-Y 124
Cichetti, C. 281
cities see urban environment
Clark, C.W. 8, 12, 13
Clarke, C. 163
Clawson, M. 272
climate change
motor vehicles and 202, 203, 228–36, 246
policy on 38–9
Cohen, M.A. 342
Cole, D.H. 361
Columbia River Treaty 89, 155
command and control, pollution control and 335
communications technology 247–8
compensation in transboundary pollution agreements 87–8
issue linkage and 88–9
compliance models of transboundary pollution agreements 96, 125–36
evaluation, extensions and practical issues 135–6
grand coalition 129–32
issue linkage 133–5
subcoalitions 132–3
transfers 128–9
Congleton, R.D. 138
<table>
<thead>
<tr>
<th>Term</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>consensus</td>
<td>38</td>
</tr>
<tr>
<td>consensus agreements</td>
<td>84–5</td>
</tr>
<tr>
<td>coalitions theory and</td>
<td>122–3</td>
</tr>
<tr>
<td>conservation of endangered species</td>
<td>38</td>
</tr>
<tr>
<td>contingent valuation (CV) methods</td>
<td>305</td>
</tr>
<tr>
<td>comparison with choice experiments (CE)</td>
<td>325–7</td>
</tr>
<tr>
<td>Convention on Biological Diversity</td>
<td>88, 155</td>
</tr>
<tr>
<td>Convention on International Trade in</td>
<td>155</td>
</tr>
<tr>
<td>Endangered Species (CITES)</td>
<td></td>
</tr>
<tr>
<td>Convention on the Law of the Sea</td>
<td>(1982) 2, 3, 4, 5, 9, 10, 18–19, 30</td>
</tr>
<tr>
<td>cooperation, problems of</td>
<td>83–6</td>
</tr>
<tr>
<td>cooperative game theory and</td>
<td></td>
</tr>
<tr>
<td>membership models of transboundary</td>
<td></td>
</tr>
<tr>
<td>pollution agreements 97, 98–104</td>
<td></td>
</tr>
<tr>
<td>concept of the core 98–101</td>
<td></td>
</tr>
<tr>
<td>evaluation 104</td>
<td></td>
</tr>
<tr>
<td>results 101–3</td>
<td></td>
</tr>
<tr>
<td>count demand systems approach to</td>
<td></td>
</tr>
<tr>
<td>recreation demand models</td>
<td>283–4</td>
</tr>
<tr>
<td>Crepo, Richard</td>
<td>240</td>
</tr>
<tr>
<td>Crocker, T.D.</td>
<td>40, 45, 51, 52, 54, 57, 58, 62, 65, 66, 67, 69, 70, 71, 72, 73</td>
</tr>
<tr>
<td>Dahl, Carol</td>
<td>206, 207</td>
</tr>
<tr>
<td>Daly, A.</td>
<td>327</td>
</tr>
<tr>
<td>Dargay, Joyce</td>
<td>207, 245</td>
</tr>
<tr>
<td>D’Aspremont, L.A.</td>
<td>104</td>
</tr>
<tr>
<td>de Finetti, B.</td>
<td>42, 54</td>
</tr>
<tr>
<td>de Zeeuw, A.</td>
<td>16, 135, 137</td>
</tr>
<tr>
<td>Delucchi, Mark</td>
<td>198, 234</td>
</tr>
<tr>
<td>Denis, Cecile</td>
<td>225</td>
</tr>
<tr>
<td>Desvouges, W.</td>
<td>62, 272</td>
</tr>
<tr>
<td>Devarajan, Shantayanan</td>
<td>224, 362</td>
</tr>
<tr>
<td>Di Mauro, C.</td>
<td>69</td>
</tr>
<tr>
<td>Dill, Jennifer</td>
<td>228</td>
</tr>
<tr>
<td>Dionne, G.</td>
<td>40</td>
</tr>
<tr>
<td>dioxin exposure</td>
<td>71</td>
</tr>
<tr>
<td>Dixit, A.</td>
<td>52</td>
</tr>
<tr>
<td>Domencich, Tom</td>
<td>209</td>
</tr>
<tr>
<td>Donev, A.N.</td>
<td>322</td>
</tr>
<tr>
<td>Douman, D.J.</td>
<td>11, 24</td>
</tr>
<tr>
<td>Dourojeanni, Marc J.</td>
<td>351</td>
</tr>
<tr>
<td>Dreze, J.</td>
<td>42</td>
</tr>
<tr>
<td>Duarte, C. Costa</td>
<td>29</td>
</tr>
<tr>
<td>Dublin, Jeffrey</td>
<td>210</td>
</tr>
<tr>
<td>Dunphy, Robert T.</td>
<td>238</td>
</tr>
<tr>
<td>dynamic aspects of recreation choices</td>
<td>290–91</td>
</tr>
<tr>
<td>earthquakes</td>
<td>161</td>
</tr>
<tr>
<td>insurance and</td>
<td>170, 174</td>
</tr>
<tr>
<td>Eash, W. Ronald</td>
<td>247</td>
</tr>
<tr>
<td>Ecchia, G.</td>
<td>124, 137</td>
</tr>
<tr>
<td>economic development, environmental costs</td>
<td>331</td>
</tr>
<tr>
<td>Edwards, W.</td>
<td>43</td>
</tr>
<tr>
<td>effective agreements</td>
<td>85–6</td>
</tr>
<tr>
<td>efficiency, pollution control policies</td>
<td></td>
</tr>
<tr>
<td>and 333–4, 338–9, 342–3</td>
<td></td>
</tr>
<tr>
<td>Ehrlich, I.</td>
<td>37, 40</td>
</tr>
<tr>
<td>Ellsberg, D.</td>
<td>42, 43</td>
</tr>
<tr>
<td>Elster, J.</td>
<td>44</td>
</tr>
<tr>
<td>emissions see air pollution</td>
<td></td>
</tr>
<tr>
<td>endangered species</td>
<td>38</td>
</tr>
<tr>
<td>endogenous risk</td>
<td>36–41, 45–6, 72–3</td>
</tr>
<tr>
<td>implications for valuing risk</td>
<td></td>
</tr>
<tr>
<td>reductions 56–71</td>
<td></td>
</tr>
<tr>
<td>experimental evidence 68–70</td>
<td></td>
</tr>
<tr>
<td>field evidence 70–71</td>
<td></td>
</tr>
<tr>
<td>selected propositions 57–68</td>
<td></td>
</tr>
<tr>
<td>marginal valuations and 62–3</td>
<td></td>
</tr>
<tr>
<td>protection premia 46–8</td>
<td></td>
</tr>
<tr>
<td>rationality and 67–8</td>
<td></td>
</tr>
<tr>
<td>self-protection 40, 45–6, 47, 57–8, 63–4</td>
<td></td>
</tr>
<tr>
<td>sources of risk and 64–5</td>
<td></td>
</tr>
<tr>
<td>value of life and 59, 60–62</td>
<td></td>
</tr>
<tr>
<td>willingness to pay and 57–60, 63–4</td>
<td></td>
</tr>
<tr>
<td>Endres, A.</td>
<td>87, 137</td>
</tr>
<tr>
<td>Englin, J.</td>
<td>273, 283</td>
</tr>
<tr>
<td>environmental risks</td>
<td>36–73</td>
</tr>
<tr>
<td>choices 41–56</td>
<td></td>
</tr>
<tr>
<td>endogenous risk</td>
<td>36–41, 45–6, 72–3</td>
</tr>
<tr>
<td>implications for valuing risk</td>
<td></td>
</tr>
<tr>
<td>reductions 56–71</td>
<td></td>
</tr>
<tr>
<td>protection premia 46–8</td>
<td></td>
</tr>
</tbody>
</table>
environmental risks (continued)
exogenous risk 37, 40, 41–5
irrationality risks 53–6
management of 159–86
insurance and 163–86
public sector's role 161–3
nonconvex preferences 51–3
protection premia 46–8
risk reduction technologies 47, 48–51
willingness to pay and 57–60, 63–4
self-protection 40, 45–6, 47, 57–8, 63–4
valuing risk reductions 56–71
experimental evidence 68–70
field evidence 70–71
selected propositions 57–68
environmental valuation see stated preference methods of environmental valuation

equilibrium
compliance models 127, 129, 132
cooperative game theory 101–2
new coalition theory and 123–4
non-cooperative game theory 106, 110–11, 113–14, 123–4

er, J.P. 182
eröcal, D. 332
eeskeland, Gunnar S. 224, 226, 362
European Union (EU)
fisheries management and 7–8, 24, 25–6, 28
motor vehicle emissions policy in 219–20
Evans, Leonard 234–5
exogenous risk 37, 40, 41–5
expected utility (EU) theory 41–5
Eyckmans, J. 87, 103, 124

Farrell, Alex 228
Feather, P. 280, 289, 290, 292
Ferranti, D. 162
Fiji, environmental risk management in 179–80
Finus, M. 87, 90, 107, 118–23, 125, 128–33, 135
Fischer, Kimberley 238
Fish Stocks Agreement (1995) 1, 30, 31
history and origins 1–11
implementation problems 18–24

Fisher, A. 281
fisheries management 1–31
basic economics of 11–18
case studies 24–30
Atlantic bluefin tuna fishery 28–30
Northwest Atlantic Fisheries Organization (NAFO) 24–6
Norwegian spring-spawning herring fishery 26–8
overcapitalization problem 8–9
types of fish species 2–3
history and origins 1–11
implementation problems 18–24

flooding 161
Fluharty, D.L. 7
Folmer, H. 16, 133, 135, 137
Food and Agriculture Organization (FAO) 3, 7, 24
Fourchet, Laurence 248, 249
Framework Convention on Climate Change (UNFCCC) 38, 84, 153
Framework Convention on Long-Range Transboundary Air Pollution (LRTAP) 84, 86, 154
France, management of environmental risk in 161
free-riding problem 82–3, 85
Freeman, A.M. 73
Freeman, M. 270, 271
Freeman, Paul K. 163, 180
Freudenberg, W.R. 37
Fudenberg, D. 137
Fullerton, Don 224

game theory
compliance models of transboundary pollution agreements 96, 125–36
evaluation, extensions and practical issues 135–6
grand coalition 129–32
issue linkage 133–5
subcoalitions 132–3
transfers 128–9

cooperative game theory and membership models of transboundary pollution agreements 97, 98–104
<table>
<thead>
<tr>
<th>Index</th>
<th>377</th>
</tr>
</thead>
<tbody>
<tr>
<td>concept of the core</td>
<td>98–101</td>
</tr>
<tr>
<td>evaluation</td>
<td>104</td>
</tr>
<tr>
<td>results</td>
<td>101–3</td>
</tr>
<tr>
<td>fisheries management and</td>
<td>12, 13–18</td>
</tr>
<tr>
<td>non-cooperative game theory and membership models of transboundary pollution agreements</td>
<td>97, 98, 104–25</td>
</tr>
<tr>
<td>commitment</td>
<td>115</td>
</tr>
<tr>
<td>concept of internal and external stability</td>
<td>104–7</td>
</tr>
<tr>
<td>heterogeneous countries and no transfers</td>
<td>112</td>
</tr>
<tr>
<td>issue linkage</td>
<td>118–20</td>
</tr>
<tr>
<td>new coalition theory</td>
<td>120–25</td>
</tr>
<tr>
<td>non-material payoffs</td>
<td>116–18</td>
</tr>
<tr>
<td>symmetric countries</td>
<td>107–12</td>
</tr>
<tr>
<td>transfers</td>
<td>113–18</td>
</tr>
<tr>
<td>Garrod, G.</td>
<td>318</td>
</tr>
<tr>
<td>Gately, Dermot</td>
<td>206, 207, 245</td>
</tr>
<tr>
<td>Gautam, Surhid P.</td>
<td>214, 221</td>
</tr>
<tr>
<td>generalized error structures in recreation demand models</td>
<td>285–6</td>
</tr>
<tr>
<td>Germain, M.</td>
<td>103, 137</td>
</tr>
<tr>
<td>Germany, emissions control policies in</td>
<td>220</td>
</tr>
<tr>
<td>Gibbons, R.</td>
<td>125</td>
</tr>
<tr>
<td>Gilbert, R.</td>
<td>161</td>
</tr>
<tr>
<td>Giuliano, Genevieve</td>
<td>240, 244</td>
</tr>
<tr>
<td>Global Environmental Facility</td>
<td>88</td>
</tr>
<tr>
<td>global warming</td>
<td>see climate change</td>
</tr>
<tr>
<td>Goddard, Haynes C.</td>
<td>227</td>
</tr>
<tr>
<td>Gode, D.</td>
<td>54</td>
</tr>
<tr>
<td>Godek, Paul E.</td>
<td>233</td>
</tr>
<tr>
<td>Goldberg, Pinelopi</td>
<td>211</td>
</tr>
<tr>
<td>Golub, Alexander</td>
<td>351</td>
</tr>
<tr>
<td>Gomez, I.A.</td>
<td>283, 284</td>
</tr>
<tr>
<td>Gomez-Ibanez, Jose A.</td>
<td>200</td>
</tr>
<tr>
<td>Goodwin, Phil B.</td>
<td>244</td>
</tr>
<tr>
<td>Gordon, D.V.</td>
<td>8, 23</td>
</tr>
<tr>
<td>Gordon, H. Scott</td>
<td>13</td>
</tr>
<tr>
<td>Gordon, Peter</td>
<td>237</td>
</tr>
<tr>
<td>Gothenburg Protocol (1999)</td>
<td>89, 155</td>
</tr>
<tr>
<td>Goulder, L.H.</td>
<td>340, 344</td>
</tr>
<tr>
<td>government and the state management of environmental risk and</td>
<td>161–3</td>
</tr>
<tr>
<td>revenue possibilities of market-based pollution control policies</td>
<td>339–40, 343–5</td>
</tr>
<tr>
<td>Graham, D.A.</td>
<td>40</td>
</tr>
<tr>
<td>Graham, J.D.</td>
<td>234–5</td>
</tr>
<tr>
<td>Gray, C.W.</td>
<td>349, 350</td>
</tr>
<tr>
<td>Green, E.</td>
<td>137</td>
</tr>
<tr>
<td>Greene, David</td>
<td>199, 230, 232</td>
</tr>
<tr>
<td>Greene, Mark</td>
<td>167</td>
</tr>
<tr>
<td>Greene, W.H.</td>
<td>314</td>
</tr>
<tr>
<td>greenhouse effect</td>
<td>see climate change</td>
</tr>
<tr>
<td>Grether, D.</td>
<td>43</td>
</tr>
<tr>
<td>Grossi, Patricia</td>
<td>161, 166</td>
</tr>
<tr>
<td>Grossman, P.Z.</td>
<td>361</td>
</tr>
<tr>
<td>Gruenspecht, Howard</td>
<td>217</td>
</tr>
<tr>
<td>Gulkani, Polat</td>
<td>162, 178</td>
</tr>
<tr>
<td>Gurvich, Evgeny</td>
<td>351</td>
</tr>
<tr>
<td>Güth, W.</td>
<td>137</td>
</tr>
<tr>
<td>Haab, T.C.</td>
<td>271, 273, 284</td>
</tr>
<tr>
<td>Haefele, M.A.</td>
<td>314</td>
</tr>
<tr>
<td>Häggström, J.</td>
<td>323</td>
</tr>
<tr>
<td>Hajivassiliou, V.A.</td>
<td>324</td>
</tr>
<tr>
<td>Hamilton, Bruce</td>
<td>240</td>
</tr>
<tr>
<td>Hanemann, Michael</td>
<td>275, 276, 277, 282</td>
</tr>
<tr>
<td>Hanley, N.</td>
<td>305</td>
</tr>
<tr>
<td>Hariharan, G.</td>
<td>59</td>
</tr>
<tr>
<td>Harless, D.</td>
<td>44</td>
</tr>
<tr>
<td>Harrington, Winston</td>
<td>195, 196, 218, 221, 225, 226, 234, 339, 340, 344</td>
</tr>
<tr>
<td>Hart, S.</td>
<td>122</td>
</tr>
<tr>
<td>Harvey, Greg W.</td>
<td>225</td>
</tr>
<tr>
<td>Hauber, A.B.</td>
<td>280</td>
</tr>
<tr>
<td>Hausman, J.A.</td>
<td>280, 310</td>
</tr>
<tr>
<td>Hayes, D.</td>
<td>54, 70</td>
</tr>
<tr>
<td>Heal, G.</td>
<td>137</td>
</tr>
<tr>
<td>Heberlein, T.</td>
<td>290, 327</td>
</tr>
<tr>
<td>Hedley, C.</td>
<td>2</td>
</tr>
<tr>
<td>Heister, J.</td>
<td>85, 105</td>
</tr>
<tr>
<td>Helfand, G.</td>
<td>67</td>
</tr>
<tr>
<td>Hellerstein, D.</td>
<td>272, 273</td>
</tr>
<tr>
<td>Helsinki Protocol (1985)</td>
<td>82, 84, 85, 86, 89, 112, 154</td>
</tr>
<tr>
<td>Henderson, Dennis K.</td>
<td>247</td>
</tr>
<tr>
<td>Hensher, D.A.</td>
<td>308, 315, 316</td>
</tr>
<tr>
<td>Herriges, J.A.</td>
<td>271, 277, 280, 282, 285, 286, 287, 292</td>
</tr>
<tr>
<td>herring fishery</td>
<td>17, 26–8, 30</td>
</tr>
<tr>
<td>Name</td>
<td>Page Numbers</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Heyes, A.</td>
<td>40</td>
</tr>
<tr>
<td>Hiebert, L.D.</td>
<td>64</td>
</tr>
<tr>
<td>Hillman, A.L.</td>
<td>138</td>
</tr>
<tr>
<td>Hirschmann, D.</td>
<td>349, 350, 351</td>
</tr>
<tr>
<td>Hirshleifer, J.</td>
<td>39</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>71</td>
</tr>
<tr>
<td>Hoel, M.</td>
<td>87, 105, 112, 114, 116, 117, 119, 130</td>
</tr>
<tr>
<td>Hogarth, Robin</td>
<td>175</td>
</tr>
<tr>
<td>Hoglund, Lena</td>
<td>226</td>
</tr>
<tr>
<td>Holgate, P.</td>
<td>284</td>
</tr>
<tr>
<td>Holling, C.</td>
<td>52</td>
</tr>
<tr>
<td>Holtzclaw, J.</td>
<td>238</td>
</tr>
<tr>
<td>Honduras, environmental risk management in</td>
<td>162–3</td>
</tr>
<tr>
<td>Hotelling, Harold</td>
<td>271–2, 294</td>
</tr>
<tr>
<td>Huang, Ju-Chin</td>
<td>293</td>
</tr>
<tr>
<td>Huber, Richard</td>
<td>350</td>
</tr>
<tr>
<td>Huppert, D.D.</td>
<td>272</td>
</tr>
<tr>
<td>Hurley, T.</td>
<td>73</td>
</tr>
<tr>
<td>Immordino, G.</td>
<td>73</td>
</tr>
<tr>
<td>incentives for technological change</td>
<td>340, 345–6</td>
</tr>
<tr>
<td>income</td>
<td></td>
</tr>
<tr>
<td>elasticity and motor vehicle use</td>
<td>207–8</td>
</tr>
<tr>
<td>growth trends in</td>
<td>244–5</td>
</tr>
<tr>
<td>India, motor vehicles in</td>
<td>192, 193</td>
</tr>
<tr>
<td>Indonesia</td>
<td>353</td>
</tr>
<tr>
<td>information economy</td>
<td></td>
</tr>
<tr>
<td>pollution control policies and</td>
<td>339, 343</td>
</tr>
<tr>
<td>Ingram, Gregory K.</td>
<td>242</td>
</tr>
<tr>
<td>Innes, R.</td>
<td>224</td>
</tr>
<tr>
<td>institutions</td>
<td></td>
</tr>
<tr>
<td>institutional capacity as scarce resource in</td>
<td>347–52</td>
</tr>
<tr>
<td>developing countries</td>
<td></td>
</tr>
<tr>
<td>institutional demands of</td>
<td>341–7</td>
</tr>
<tr>
<td>market-based pollution control policies</td>
<td></td>
</tr>
<tr>
<td>insurance</td>
<td></td>
</tr>
<tr>
<td>characteristics of</td>
<td>165–7</td>
</tr>
<tr>
<td>encouraging loss reduction measures</td>
<td>166–7</td>
</tr>
<tr>
<td>monitoring and control</td>
<td>167</td>
</tr>
<tr>
<td>risk spreading</td>
<td>165</td>
</tr>
<tr>
<td>segregation of risks</td>
<td>166</td>
</tr>
<tr>
<td>variance reduction</td>
<td>165–6</td>
</tr>
<tr>
<td>environmental risk and</td>
<td>39, 163–86</td>
</tr>
<tr>
<td>examples 175–85</td>
<td></td>
</tr>
<tr>
<td>historical perspective</td>
<td>163–5</td>
</tr>
<tr>
<td>insurability of risk</td>
<td>167–75</td>
</tr>
<tr>
<td>third parties and 180–85</td>
<td></td>
</tr>
<tr>
<td>insurability of risk</td>
<td>167–75</td>
</tr>
<tr>
<td>adverse selection 171–2</td>
<td></td>
</tr>
<tr>
<td>ambiguity of risk</td>
<td>170–71</td>
</tr>
<tr>
<td>correlated risk</td>
<td>174–5</td>
</tr>
<tr>
<td>identification of risk</td>
<td>168–9</td>
</tr>
<tr>
<td>insurability conditions and demand for coverage</td>
<td>175</td>
</tr>
<tr>
<td>moral hazard</td>
<td>173–4</td>
</tr>
<tr>
<td>setting premiums for specific risks</td>
<td>169</td>
</tr>
<tr>
<td>self-insurance</td>
<td>40, 45–6, 47</td>
</tr>
<tr>
<td>intelligent transportation systems (ITS)</td>
<td>248–9</td>
</tr>
<tr>
<td>International Agreement</td>
<td></td>
</tr>
<tr>
<td>Inter-American Development Bank</td>
<td>163, 176, 351</td>
</tr>
<tr>
<td>international agreements on transboundary pollution see</td>
<td>transboundary pollution agreements</td>
</tr>
<tr>
<td>International Commission for the Conservation of Atlantic Tunas (ICCAT)</td>
<td>29, 30</td>
</tr>
<tr>
<td>International Commission for the</td>
<td></td>
</tr>
<tr>
<td>Northwest Atlantic Fisheries (ICNAF)</td>
<td>24</td>
</tr>
<tr>
<td>International Commission for the Regulation of Whaling (ICRW)</td>
<td>155</td>
</tr>
<tr>
<td>International Panel on Climate Change (IPCC)</td>
<td>38</td>
</tr>
<tr>
<td>irrationality risks</td>
<td>53–6</td>
</tr>
<tr>
<td>issue linkage, transboundary pollution agreements and 88–9, 118–20, 133–5</td>
<td></td>
</tr>
<tr>
<td>Jacobs, Jane</td>
<td>190</td>
</tr>
<tr>
<td>Jacobson, H.K.</td>
<td>85</td>
</tr>
<tr>
<td>Janson, Heinz</td>
<td>225</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
</tr>
<tr>
<td>fisheries management and 21 motor vehicles in</td>
<td>192–3</td>
</tr>
<tr>
<td>Jeppesen, T.</td>
<td>115, 116</td>
</tr>
<tr>
<td>Johansson-Stenman, Olof</td>
<td>223</td>
</tr>
<tr>
<td>Jordan, A.</td>
<td>87</td>
</tr>
<tr>
<td>Jordan, Stacy</td>
<td>242</td>
</tr>
</tbody>
</table>
Kågeson, Per 198
Kahnemann, D. 44, 62
Kaitala, V. 2, 6, 7, 8, 10, 11, 14, 18, 20, 21, 24, 102, 103
Kane, S. 39
Kanninen, B. 322
Kao, Y. 292
Kask, S. 71
Katsoulacos, Y. 118, 119
Kazimi, Camilla 217
Kealy, M. J. 280, 290, 292
Kean, M. 59
Kennedy, J. 21
Kenworthy, J. R. 237, 238
Keohane, R.O. 85
Kerr, Suzie 218
Khazzoom, J. Daniel 234, 235
Kim, H. J. 290
Kitamura, Ryuichi 239
Kleit, Andrew N. 232
Kling, C.L. 227, 271, 277, 280, 292, 293
Knapp, K. 44
Kneto, K. 44
Knetsch, J. 272
Kockelman, Kara Maria 211, 239
Koh, W. 227
Kolstad, C.D. 137
Konar, S. 342
Kopp, R.J. 272
Kozeltsev, Michael 350
Kreimer, A. 161, 178, 180
Kremer, M. 71
Kreps, D.M. 44
Kridel, D.J. 292
Krinksky, I. 293
Kruitwagen, S. 343
Krupnick, Alan 213, 221
Krutilla, J.V. 89
Kuhn-Tucker model 281–3
Kummer, K. 87
Kunreuther, Howard 73, 161, 162, 166, 170, 171, 175, 181, 182, 186
Kurz, M. 122
Kwoka, John E. 232
Laffont, J. 40, 59
Laitila, T. 272

Lakhan, V. Chris 350
land-use
demand for travel and 238–41
integrated models of travel and 210
Larson, D. 290
Lave, Lester B. 200, 250, 252
law of large numbers 165
Layton, D. F. 324, 325
lead (metal)
exposure to 48–51, 71
motor vehicles emissions 213
Ledbetter, Marc 235
Lee, D. 227
Lee, Douglas 198
Lee, K. 48
Lee, L.F. 282, 283
Leiby, Paul 211
Lem, L.L. 242
Lence, S. 70
Leon, J. 293
Lerman, S. 209
Levine, D. 137
Lewin, G. 327
Lewis, T. 40
life, value of 59, 60–62, 71
life cycle analysis, motor vehicles and
200–201
List, J. 70
Littman, Todd 198
Little, Arthur D. 220
Liu, Zhi 242
Lomax, Tim 246
Loomis, John 271, 272, 273, 280, 290, 293
Loomis, L. B. 314
Losada, Carlos 347
Louviere, J.J. 305, 308, 315, 316
Lovei, Magda 349
Lutter, R. 72
McClelland, G. 69
McConnell, K. E. 271, 273, 284, 289, 290, 291, 293
McConnell, Virginia 195, 217, 218, 237
McDonald, John F. 242
McFadden, Daniel 208, 209, 210, 275, 277, 285, 316, 327
McKenzie, James J. 198
MacLean, Heather L. 200, 250, 252
McNamara, Robert 352

Index
Index

McNeely, J.G. 272
McRae, D 2, 3, 5
Machina, M.G. 42, 44
Maddala, G.S. 324
Madronich, Sasha 245
Maffioletti, A. 69
Mäler, K.-G. 83, 88, 129, 130–31
Marauhn, T. 89
Marchiori, C. 119, 120, 121, 124
Maré, David 218
Mariotti, M. 124, 137
Markandya, Anil 350
market-based pollution control policies 222–8
developing countries and 332, 336–47, 352–60
case for 337–41
experiment and experience with 352–60
government revenue possibilities 339–40, 343–5
incentives for technological change 340, 345–6
information economy and 339, 343
institutional capacity as scarce resource 347–52
institutional demands 341–7
self-enforcing character 341, 346
static efficiency and 333–4, 338–9, 342–3
taxes 224–6
trading policies 223, 226–8
markets 269
endogenous risk and 39
Marshall, Alfred 68
Marshall, J. 39
Mayes, Inge 219, 226
membership models of transboundary pollution agreements 96–125, 136
cooperative game theory 97, 98–104
concept of the core 98–101
evaluation 104
results 101–3
non-cooperative game theory 97, 98, 104–25
commitment 115
cost of internatinal and external stability 104–7
heterogeneous countries and no transfers 112
issue linkage 118–20
new coalition theory 120–25
non-material payoffs 116–18
symmetric countries 107–12
transfers 113–18
Mendelsohn, R. 273, 291
mercury emissions 72–3
Mexico
financial sector in 177
insurance in 178, 180
motor vehicles in, emissions control policies 222, 224, 227
migratory fish stocks 3
Miles, E. 6, 7, 9
Miller, K. 14, 15, 18
Miller, Peter 198
Mills, E.S. 242
Milon, J.W. 277
Moffet, John 198
Mokhtarian, Patricia L. 247
Molenaar, E. 22, 23
Montgomery, D.C. 308, 342
Moore, Mark 182
moral hazard 40
insurability of risk and 173–4
Morey, E.R. 274, 275, 277, 280, 282, 285, 287, 292
Morgenstern, O. 42, 45
Moriconi, F. 124
motor vehicles 190–256
ages 192–4
climate change and 202, 203, 228–36, 246
conventional pollutants 194, 212–28
fuel economy standards and 233–4
market-based policies 222–8
policies towards 215–28
responsibility for emissions 194–5
special characteristics of motor vehicles 194–6
types of pollutants 213–15
variation in emission rates 195–6
costs of vehicle ownership and use 196–204
external costs 198–204
private costs 196–7
fuel economy 229–36
income elasticity and use of 207–8
modelling ownership and use 204–12
aggregate models 205–8
integrated land-use and travel models 210
structural models with microdata 208–12
numbers of vehicles 191–2
overcoming political opposition to control instruments 255–6
shifting focus of environmental concern 253
taxation and 197, 224–6, 229–30
towards sustainable transport 244–52
technologies 246–52, 254–5
trends 244–6
transaction costs and 253–4
urban environment and 190, 202, 203, 236–44
air pollution 214
land-use and demand for travel 238–41
transport cost and urban travel demand 242–3
vehicle policies and the urban environment 243–4
urban travel demand 209–10
Mumpower, J. 164
Munro, G. 2–8, 10, 12, 13, 14, 15, 16, 19, 20, 21, 23, 24
Musgrave, P. 113
Muth, R.F. 242
Nagpal, T. 221
Nash, J. 14, 15
natural catastrophes
insurance and 169, 170, 174, 176–80
losses caused by 160–61
Navas, F. 272
Needleman, M.S. 292
Netherlands, road pricing in 248–9
new coalition theory 120–25
New Zealand, fisheries management and 21
Newell, Richard G. 196, 218
Newman, P.W.G. 237, 238
Newton, C. 9
Ng, Y.-K. 65, 70
Nickerson, P. 40
Niklitschek, M. 293
Nivola, Pietro 203, 230
Noland, R.B. 242
Nolet, Gil 349, 350
non-cooperative game theory and membership models of transboundary pollution agreements and 97, 98, 104–25
commitment 115
concept of internal and external stability 104–7
heterogeneous countries and no transfers 112
issue linkage 118–20
new coalition theory 120–25
non-material payoffs 116–18
symmetric countries 107–12
transfers 113–18
non-expected utility theories 43–5
Nordhaus, W. 103, 111
North East Atlantic Fishery
Commission (NEAFC) 28
Northwest Atlantic Fisheries Organization (NAFO) 7–8, 24–6
Norway, spring-spawning herring fishery 17, 26–8, 30
Oates, Wallace 194, 218, 225, 339, 342
O’Connor, David 340
Ohl, C. 137
Onursal, Bekir 214, 221
opportunity cost of trips in models of recreation demand 288–90
Opschoor, J.B. 351
Orebech, P.K. 19, 20
Organization for Economic Cooperation and Development (OECD) 332, 351
O’Ryan, Paul E. 333
Osbourne, M.J. 125
Oslo Protocol (1994) 82, 86, 89, 155
Ozog, M.T. 280, 287
ozone as motor vehicles emission 212, 253
Ozuna, T. 283, 284, 292
Index

Panayotou, Theodore 332, 335, 338, 339, 340, 341
Parry, Ian 202, 204, 254
Parsons, G.R. 280, 287, 292
participation models of recreation demand 271–5
Payne, Mark 347
Pearce, D. 60, 331, 340
Peltola, J. 44
Perrine, J.D. 38
Pethig, R. 137
Petrakis, E. 115
Peterson, H. 323
Phaneuf, D.J. 271, 277, 281–7
Pickrell, Don 242
Pindyck, R. 52
Pintassilgo, P. 29
Pitt, M.M. 282, 283
Pizer, William A. 229
planning, pollution control and 335
Plott, C. 43
Poe, G. 40
Pohjola, M. 18
Pollner, John 161, 163, 176, 177
pollution
air see air pollution
policy choice in developing countries 331–62, 371
background 331–2
definitions and distinctions 333–6
experiment and experience with 352–60
institutional capacity and 341–52
market-based instruments 332, 336–47, 352–60
transboundary see transboundary pollution agreements
population trends 244
Porteous, E. 44
Porter, R. 137
Portugal, fisheries management and 24
Pratt, J.W. 47
preferences
non-expected utility theories and 44–5
nonconvex 51–3
reversals 43
risk aversion 42, 43, 45, 48, 65–7
risk aversion and 48
price in recreation demand models 293–4
Priest, George L. 162
prisoner’s dilemma 13–14
profitability, international agreements and 83–4
Proost, Stef 201, 203, 219, 226, 254
protection premia 46–8
Provencher, Bill 288, 290, 291
public goods 269
Quiggin, J. 39, 40, 57, 58
Quinet, Emile 199
Ragland, S.E. 89, 133
Randall, A. 288–9
random coefficient models, stated preference methods of environmental valuation and 323–5
Rapaport, Eric 220
rationality, risk reduction and 67–8
Ray, D. 124, 137
recreation demand models 269–94
aggregation/extent of market 292–3
combining revealed and stated preference data 293
cross-cutting challenges in implementation 288–93
dynamic aspects of recreation choices 290–91
functional form 292
generalized error structures 285–6
historical development 271–88
Kuhn-Tucker model 281–3
modern variations 280–88
multiple site trips 291–2
opportunity cost of trips 288–90
participation models 271–5
repeated choice models 287–8
site selection models 275–80
statistical precision and bias 293
system of counts 283–4
regulation, pollution control and 335
Rejda, George 165
repeated choice models of recreation demand 287–8
Revelt, D. 285
Rhoads, T. 73
Richardson, Harry 237
risks  
  aversion 42, 43, 45, 48, 65–7  
  environmental see environmental risks  
roads  
  congestion 198  
  road metering and electronic toll collection 248–9  
Robb, A.L. 293  
Roberts, Marc 228  
Roe, B. 313  
Rokovada, J. 179  
Romero-Lankao, Patricia 349, 350  
Romieu, Isabelle 213, 214  
Rosen, H.S. 276  
Roson, Roberto 201  
Ross, Marc 195, 196  
Rothschild, Michael 172  
Rubin, J. 67, 211  
Rubinstein, A. 125  
Rubio, S. 105, 137  
Ruckelshaus, William 37  
Rundshagen, B. 87, 118–25, 129, 130, 132, 135  
Russell, Clifford S. 137, 272, 342, 345, 353  
Ruud, P.A. 310, 324  
safety, fuel economy standards and 234–6  
Sahlins, M. 37  
Salomon, Ilan 247  
sanctions, transboundary pollution agreements and 89–90  
Sand, P.H. 85, 89  
Sandy, R. 71  
Savage, L. 42  
Scarf, H. 101  
Schaefer model 12  
Schafer, Andreas 245  
Schimek, Paul 211, 240  
Schipper, Lee 219  
Schneider, K. 116, 117, 119  
Schwab, Robert 218  
seas and oceans  
  exclusive economic zones (EEZs) 2, 4–5, 10, 24  
  freedom of 5  
  territorial limits 2  
  see also fisheries management  
Selden, L. 44  
self-enforcement  
  market-based pollution control policies and 341, 346  
  transboundary agreements 85  
self-insurance 40, 45–6, 47  
self-protection 40, 45–6, 47, 57–8, 63–4  
self-restraint 52  
Serôa da Motta, Ronaldo 344  
Settle, C. 72  
Sexton, R.J. 293  
Shah, J.J. 221  
shared fishery resources 2  
Shaw, D. 272, 273  
Shaw, W.D. 280, 284, 287, 289, 290, 292  
Shin, H. 121  
Shogren, J.F. 37, 39, 40, 45, 46, 47, 51, 52, 57, 58, 60, 62, 63, 64, 65, 66, 69, 70, 73  
Shonkwiler, J. 273, 283, 284, 292  
Shrank, David 246  
Shubik, M. 17  
side-payments 14–16  
Silberberg, E. 57  
Simon, H.A. 54  
Singapore, emissions control policies in 222, 227  
Siniscalco, D. 107, 114, 115, 118, 119, 137  
site selection models of recreation demand 275–80  
Small, Kenneth A. 198, 202, 204, 240, 254, 276, 313  
Smith, V.K. 62, 73, 271, 272, 273, 280, 281, 293  
Smith, V.L. 69  
smoking 71  
social costs, of motor vehicle ownership and use 198–204  
Sofia Protocol (1988) 86, 89, 154  
South Korea 222  
Spagnolo, G. 135  
Spain  
  fisheries management and 8, 10, 24  
  management of environmental risk in 161  
Spence, Michael 228  
spillover effects, fisheries management and 9
Index

Stamland, T. 60, 62
Starmer, C. 44
stated preference methods of environmental valuation 305–28
choice experiments 314–20
comparison with contingent valuation (CE) methods 325–7
experiment 314–16
measuring willingness to pay (WTP) 318–20
modelling and estimation 316–18
experimental design 320–23
full-profile experiments 306–14
experiments 307–9
model formulation and estimation 309–13
preference function 306–7
valuation of attribute levels 313–14
random coefficient models 323–5
Stavins, Robert N. 196, 339, 340
Stedman, D.H. 196
Steele, P. 340
Steinbock, Robert 25
Stern, David I. 331
Stern, S. 286
Stern, Thomas 206, 207, 226
Stewart, J. 40
Straszheim, Mahlon 237
Straub, Stéphane 347, 351
Sugden, R. 44
Sünder, S. 54
sustainability 331
transport and 244–52
technologies 246–52, 254–5
trends 244–6
Sutherland, R.J. 272
Sveigny, Maureen 225
Sweden
carbon and sulphur taxes in 344
motor vehicles in, emissions control policies 220
Switzerland, motor vehicles in, emissions control policies 220
Sykuta, Michael 230
Széll, P. 89
taxation 344
motor vehicles and 197, 224–6, 229–30
Taylor, L.D. 292
technology
communications technology 247–8
incentives for technological change 340, 345–6
risk reduction and 47, 48–51
riskiness of technology 63–4
willingness to pay and 57–60, 63–4
sustainable transport and 246–52, 254–5
environmentally benign vehicles 249–52
management of infrastructure 248–9
transport substitution 246–8
telecommuting 247
terrorism, insurance and 169, 171, 186
Thomson, C.J. 272, 280, 292
Thorpe, Steven 233
Tietenberg, T.H. 342
Tjøtta, S. 129, 130, 131
Tlaiye, Laura 351
tradable permit systems 223, 226–8
Train, Kenneth 211, 212, 285, 286, 323, 324
transaction costs, motor vehicles and 253–4
transboundary pollution agreements 82–138
background information and fundamentals 83–96
basic model framework 90–92
extended model framework 92–6
problems of cooperation 83–6
treaty design 86–90
compliance models 96, 125–36
evaluation, extensions and practical issues 135–6
grand coalition 129–32
issue linkage 133–5
subcoalitions 132–3
transfers 128–9
issue linkage and 88–9, 118–20, 133–5
membership models 96–125, 136
cooperative game theory 97, 98–104
non-cooperative game theory 97, 98, 104–25
transport
choice experiments and 314–20
sustainability and 244–52
technologies 246–52, 254–5
trends 244–6
see also motor vehicles
treaties on transboundary pollution see transboundary pollution agreements
Tribe, Michael 350
Trice, A. 272
Trieschmann, James 167
Tschirhart, J. 73
Tulkens, H. 99–104, 136, 137
Turkey, management of environmental risk in 161–2, 176
Turnham, David 340, 352
Tversky, A. 44, 62
Ulph, A. 105, 137
United Kingdom
insurance in 164
motor vehicles in 202
emissions control policies 220
road pricing in 249
United Nations
Agenda 21 (1992) 11
Conference on Environment and Development (UNCED) 11
Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks 1, 22
Convention on the Law of the Sea (1982) 2, 3, 4, 5, 9, 10, 18–19, 30
Environmental Programme (UNEP) 84, 351–2
Fish Stocks Agreement (1995) 1, 30, 31
history and origins 1–11
implementation problems 18–24
Food and Agriculture Organization (FAO) 3, 7, 24
Framework Convention on Climate Change (UNFCCC) 38, 84, 153
Framework Convention on Long-Range Transboundary Air Pollution (LRTAP) 84, 86, 154
Law of the Sea Conferences 2, 3, 6
United States of America
environmental risk in 161
management of 161, 162
fisheries management and 3, 4–5, 6, 7, 14, 18, 24, 25
insurance in 164, 166, 167, 180, 182–5
issue linkage and 89
Kyoto Protocol and 83, 116, 122, 138
motor vehicles in 192, 194
costs of vehicle ownership and use 196–7, 198, 202
emissions 195, 196, 228
emissions control policies 216–19, 224, 227, 228
fuel economy standards 230–36
land-use patterns and demand for travel 238–41
road pricing 249
transport cost and urban travel demand 242–3
telecommuting in 247
Universal Convergence 332
urban environment 353
motor vehicles and 190, 202, 203, 236–44
air pollution 214
land-use and demand for travel 238–41
transport cost and urban travel demand 242–3
vehicle policies and the urban environment 243–4
Ursprung, H.W. 138
utility, full-profile stated preference experiments and estimation of 306–14
valuation
of risk reductions 56–71
experimental evidence 68–70
field evidence 70–71
marginal valuations 62–3
rationality and 67–8
valuation (continued)
  selected propositions 57–68
  self-protection 40, 45–6, 47, 57–8, 63–4
  sources of risk and 64–5
  value of life and 59, 60–62, 71
  willingness to pay 57–60, 63–4
stated preference methods 305–28
  choice experiments 314–20, 325–7
  comparison between CV and CE methods 325–7
  experimental design 320–23
  full-profile experiments 306–14
  random coefficient models 323–5
van Dender, Kurt 201, 203, 254
van Mouche, P. 133, 135
van Ypersele, J.-P. 103
Vaughan, W.J. 272, 345
Vickery, William 198
Vienna Convention (1985) 153
Viscusi, W. Kip 59, 71, 182, 185
Vohra, R. 124, 137
Von Haefen, R.H. 283, 284
von Neumann, J. 41, 42, 45
von Winterfeldt, D. 43
Vrolijks, L. 179

wages, value of life and 60–62
Wales, T.J. 282
Walls, Margaret 211, 212, 239, 241
Walsh, Michael P. 192
Ward, F. 271
Washington Consensus 332

water
  contamination of 40
  wetlands and 52
  wealth tradeoff 54
  Weinstein, M.C. 63
  Weitzman, Martin 223, 228
  Werksman, J. 87, 89
  West, Sarah E. 224
  wetlands 52
  Wetzstein, M.E. 272
  Whalley, John 340
  Wheaton, William C. 237
  White, Lawrence J. 223
  Williamson, John 332
  willingness to pay (WTP)
    endogenous risk and 57–60, 63–4
    measurement 318–20
  Willis, K.G. 270, 318
  Wilson, Albert R. 161
  windstorms 161
  Winebrake, James J. 228
  Wittink, D.R. 327
  Wood. S. 272
  Woodland, A.D. 282
  World Bank 331, 332, 352, 353
  World Trade Organization (WTO) 89
  Xepapadeas, A. 115

Yang, Z. 103, 111
Yen, S.T. 280
Yi, S.-S. 121
Yoder, J. 73
Ziemer, R. 292
Zocchi, S.S. 323