Index

adjusted unit values 118
agriculture, Dutch Vecht 260–62
agroenvironmental policy, UK 155
aircraft noise value 347
aircraft noise value studies
  meta-analysis 235–45
  results 240–44
Aitkin, M. 167
Allenby, B.R. 272
analysis 4–5
Anselin, L. 347
Archer, B. 215
Archer method 215, 217
Archibugi, F. 304
Arrow, K.J. 38
Ashenfelter, O. 179
Asian Development Bank 339
astronomy 32–4
  and meta-analysis 20
Baaijens, S. 11, 13
Bal, F. 4, 9, 13, 19, 40, 41, 42, 49, 50
Banister, D. 272
Barbier, E.B. 248, 249, 251, 265
Barendregt, A. 247
Bateman, I.J. 11, 21, 41, 91, 98, 158, 162, 167, 168, 170, 171
Bayesian analysis 209, 345
  disadvantages 229–30
  methodology 210–13
  worked example 222–8
Bayesian approach 65, 70
Bayesian perspective, and meta-
  analysis 208–31
Becker, B.J. 14
Begg, C.B. 185, 186, 194
benefit analysis 19–20
benefit function transfer 134, 343, 344
  benefit transfer 134
  and meta-analysis
  conceptual comparison 135–8
  empirical comparison 138–50
  study selection and
  methodology 139–45
  versus meta-analysis, in policy
  making 133–54
benefit transfer 5, 12–13, 90, 117–32,
  134, 208, 341
  adjusted unit values 118
  based on meta-analysis 134
  contextual and cognitive
    psychological issues 348–51
  definitions 54, 133
  demand in the US 133–4
  ‘direct benefit transfer’ 134
  entire valuation function 118
  and GIS-based methodology
    154–76
  hypothesis to be tested 120–22
  and meta-analysis 337–53
  methodological and statistical issues
    343–7
  Norwegian surveys 122–3
  results 123–31
  statistical inference in 344
  testing 119–22
    experimental setting 119–20
  types 134
  unadjusted unit value 118
  valuation model 125–6
  see also benefit function transfer
  benefits of wetland function 248–9
Benson, J.F. 170
Bergh, J.C.J.M. van den 5, 10, 11, 19,
  21, 28, 35, 39, 48, 64, 81, 82, 85,
  134, 177, 208, 215, 271, 272, 273,
  317, 332, 345
Bergland, O. 13, 41, 124, 343
Bergstrom, J.C. 12, 133, 155
Bernoulli random movements 217
Index

Berry, D. 209
Bevington, P.R. 25
Bingham, T.H. 137
biodiversity, valuation 268
Blaas, E. 59
black boxes 38–9, 40, 41, 44, 103
Bockstael, N.E. 155, 156
bootstrap regressions 345
bootstrap standard errors 126, 127
Boyle, K.J. 12, 133, 155
Brainard, J.S. 156, 158, 170, 171, 347
Breheny, M.J. 304
Brisson, I. 91, 340
Brouwer, R. 12, 93, 95, 98, 103, 105, 106, 239, 241, 251, 267
Brundtland Report 306
Brunsdon, C. 65
Bryant, F. 273
Button, K.J. 4, 5, 12, 35, 39, 76, 82, 134, 272, 273, 345
Camagni, R. 304, 307
Cameron, T.A. 124
Capra, F. 37
Card, D. 179
Carson, R.T. 98, 105, 165, 306
Cartesian philosophy 4
Cartesian reductionist approach 36–7
case studies
  meta-analysis 347–8
  value transfer 348
case study approaches 44
CBS 258, 259
ceteris paribus 347, 349
ceteris paribus clause 342
  and meta-analysis 35–46
  transport impact model 54
  and value transfer 35–46
Chi-squared distribution 222
classification techniques, transport
  impact studies comparison 65–6
classification tree \( T \) 55, 56, 64, 65, 66, 67, 69
cluster analysis, transport impact
  studies comparison 66
Colenutt, R.J. 156, 157, 158
Commission of the European
  Communities 48, 59, 71
comparative studies in spatial
  sustainability 273–4
Comprehensive Environmental
  Response, Compensation and
  Liability Act (CERCLA) 339–40
concordance analysis 10
concordance tests of effect size,
  publication bias 185
consumer surplus 135
contextual and cognitive psychological
  issues
  benefit transfer 348–51
  meta-analysis 348–51
contingency table analysis 10
contingent valuation (CV) 95, 98, 103, 105, 106
dimensions underlying methodology
  99
estimates 43
experiments 124
method 165, 339
contingent values surveys, and value
  transfer 108–10
Cook, T.D. 273
Cooper, H.M. 76, 273, 345
Costanza, R. 12, 91
cost–benefit analysis (CBA) 90–91, 103
doctorate sustainable nature policy, Dutch
  Vecht wetlands area 246–70
Countryside Commission 155
Cressie, N. 347
Crowards, T. 340
Dalhuisen, J.M. 14, 180, 190, 199, 341
data augmentation 218–19, 221
Daubert, J.T. 138
David, M.H. 137
Davidson, R. 128
Davis, D. 223
The Death and Life of Great American
  Cities 6
Debreu, G. 29, 38
decentralized energy, and
  environmental policy 305–7
delphi techniques 78
Department of the Environment 155, 340
Desvousges, W.H. 12, 117, 119, 133, 155
Dijkstra, E.J. 20
‘direct benefit transfer’ 134
Index 357

discriminant analysis 11
transport impact studies comparison 67–8
Doren, C. van 6
Downing, M. 14, 119, 120, 121, 130
Duhem, P. 29
Dunlap, W.P. 186
Dutch Vecht wetlands area agriculture 260–62
cost–benefit analysis of sustainable nature policy 246–70
economic activities and values 251–62
framework for economic analysis 248–51
costs of conservation 255
costs of restoration 255–8
impact modelling of land use changes 262–4
nature based recreation 258–60
nature conservation 253–8
problems and further research 266–8

Ecological Economics 12
economics, and the role of theoretical science 28

The Economist 69
Efron, B. 126
Ehrenfield, D. 268
emissions, valuation 62, 63
energy efficiency and spatial sustainability
assessment of progress in scientific knowledge 296
ESF studies compared 293–5
energy policies, factors of success and failure 330
Engel, S. 13, 133, 343, 344; see also Kirchhoff, S.
entire valuation function, in benefit transfer 118
environmental economics, and meta-analysis 47–9, 68–71, 190–202
Environmental and Energy Prediction (EEP) model 307
environmental impact
types 55
valuation methods for 61–2
environmental policy, and decentralized energy 305–7
environmental pressure, and transport movements 63
environmental quality, in European space 271–303
environmental valuation, and meta-analysis 239
environmental value transfer 90–114
generally applicable models 91–2
multiple studies 96–101
single studies 93–6
‘technical’ criteria for valid value transfer 92–101
environmental values 350
Espey, M. 13, 341
Eucken, W. 36
European Environmental Agency 307
European Science Foundation (ESF) 271
European space
comparison and synthesis 276–98
design of studies 276
energy efficiency and environmental sustainability, password collector 300
environmental quality in 271–303
project approach 274–5
transport and the environment, password collector 299
workshops 274, 275
Feitelson, E. 237
file draw test 194
Fisher, A.C. 248, 264
Fisher, M. 60
Florax, R.J.G.M. 237
Forest of Dean, survey 157–8
Forestry Commission 155, 162
‘four-stages’ model 60
Freeman, A.M. 237
Friedman, M. 29
Friesz, T. 61
fuel price elasticity 62, 63
fugitive literature 183
funnel graphs 191, 193, 194
fuzzy set theory 11, 208
Gallant, S. 66
Garrod, G.D. 95
Gazetteer of Great Britain 158
Gelfand, A. 224
Gelman, A. 210, 223
Geman, D. 212
Geman, S. 212
general equilibrium approach 49, 50
general equilibrium models 38, 50, 54, 60, 61, 69, 70
generalized linear models 167
Geographic Information Systems (GIS) 11, 156
GIS-based methodology for benefit transfers 154–76
Welsh case study 161–5
and value transfer 345
geospatial pattern in studies 218–20
Georgescu-Roegen, N. 28
Giaoutzi, M. 272
Gibbs sampler 212, 213, 216, 220, 221, 224, 227, 229
Gilbert, R. 306
Ginsburgh, V. 50
Givens, G. 221
Glass, G.V. 7, 78, 177, 180
global warming 47
Glymour, C. 37
Gowdy, J.M. 268
Graedel, T.E. 272
Greene, WH. 128, 129, 189
Greenhouse, J.B. 178, 186, 220
Gren, I.G. 248, 249, 251
Grigalunas, T.A. 340

Haken, H. 37
Hallyn, F. 20
Hanemann, W.M. 124
Hanley, N. 267
Harmonice Mundi 20, 23–4, 28
Haughton, G. 304, 307
HAVG 254
Hayashi, Y. 272
Hayek, F.A. 28, 29
Heckman, J. 189
Heckman procedure 182
Hedges, L.V. 68, 71, 178, 184, 186, 188, 191, 196, 202, 240, 273, 345
hedonic noise depreciation estimates 236–8
hedonic price (HP) approach 236–8, 339
models 97, 98
noise cost estimates 235–6
HM Treasury 339
Hogenraad, R. 10, 39
Holt, C. 223
homogeneity 181
Huang, J.-C. 12, 82, 134, 179, 182, 239, 241, 242, 243
human behaviour 91
Hunter, C. 304, 307
Hunter, J.E. 19, 20, 21, 40, 43, 177, 185
impact modelling of land use changes, Dutch Vecht 262–4
inference, involving publication bias 220–21
information storage and retrieval 76
inverse Mill's ratio 179
Iyengar, S. 178, 186
Jacobs, J. 6
James, J. 20
Jammer, M. 20
Jarrell, S.B. 273
Jeffreys, H. 211
Johnson, K. 5, 35
Jones, P. 307
Judge, G. 61
Kaoru, Y. 12, 82, 142, 145, 148, 151, 155, 165, 239
Kask, S.B. 12, 91
Kastelijn, T.J. 37
Kealy, M.J. 41, 260
Kepler, J. 20, 22–3, 28, 32–4
kernel density estimate 227
Kerr, J. 12, 39, 82
Keyzer, M. 50
Kirchhoff, S. 134, 139, 142, 144, 149, 151; see also Engel, S.
‘knowledge paradox’ 3
Koestler, A. 20, 23
Koopmans, T.C. 29
Kornai, J. 29
Kriesel, W. 124
Krueger, A. 179
Krutilla, J.V. 248, 264
Lane, D.M. 186
Langford, I.H. 105, 167, 170
Langley, R. 6
Latour, B. 38
Leviton, L.C. 273
Light, R.J. 177, 183
linear regression model 241
literary reviews 76–7
log-linear modelling 10
London Research Centre 159
Loomis, J.B. 5, 13, 41, 93, 118, 119, 121, 134, 139, 142, 145, 148, 149, 150, 155, 156, 337
Lovett, A.A. 171
Lubbe, M. 14, 65
Luken, R.A. 12, 91, 119, 155
Lyengar, S. 220
McConnell, K.E. 133, 151, 154
Mach, E. 29
MacKinnon, J.C. 128
Maddison, D. 340
Magnussen, K. 122, 126
Martin, D. 159
medicine, meta-analytic studies 64
meta-analysis 11, 76, 78–9, 96–7, 345
acceptance of values 81–2
aircraft noise value studies 235–45
in astronomy 20
Bayesian framework for 213–18
Bayesian perspective 208–31
and benefit function transfer
conceptual comparison 135–8
empirical comparison 138–50
study selection and
methodology 139–45
and benefit transfer 337–53
benefit transfer based on 134
case studies 347–8
and the ceteris paribus clause 39–41
compatibility of studies 83
conditions for using 79–84
contextual and cognitive
psychological issues 348–51
criterion for success 24–5
definitions 19, 78, 239, 273
development in the natural and
social sciences 19–34
in environmental economics 47–9,
68–71, 190–202
and environmental valuation 239
future 84–6
independence of studies 84
institutional context 339
methodological pitfalls 180–82
nature of information needed 84
philosophical and contextual issues
341–3
potential 5–10
and previous studies 82–3
prospects 13–14, 30
publication bias 177–207
and the reductionist approach 35
and spatial sustainability 273–4
stability of parameters 83
statistical inference in 344
in the transport field 11
and transport policy impact analysis
47–73
unspecified standard errors 221–2
value and function transfer 74–89
versus benefit transfer, in policy
making 133–54
meta-analytic approaches, survey 62–8
meta-analytic studies, in medicine 64
meta-analytical investigation, urban
sustainability initiatives 311–28
meta-analytical methods and
applications 10–12
meta-regression 134, 208
meta-regression analysis 7–10
statistical procedures 9
micro-based survey research 14
Mill’s ratio 190
Ministerie van Verkeer en Waterstaat
59
Mitchell, R.C. 105, 165
Morrison, M.D. 350
Mulatu, A. 190, 194, 202
multidirection dependence 347
multinominal logit analysis 10
Munda, G. 11
Mysterium Cosmographicum 20, 22–3,
28
National Air Quality Strategy (NAQS)
340
National Oceanic and Atmospheric
Administration (NOAA) 339
nature conservation 253
Dutch Vecht wetlands 253–8
NDI 244
Nelson, J.P. 236, 243
Nester, M.R. 344
Index

Netherlands municipal energy management 308–10
urban energy policies, critical success factors 311–28
urban energy policy strategies 307–11
see also Dutch Vecht wetlands area
neural networks 66–7
Newcomb, S. 223, 224
Newton, I. 24
Nijkamp, P. 4, 5, 9, 10, 11, 13, 19, 36, 37, 40, 41, 42, 47, 49, 50, 51, 55, 59, 77, 272, 276, 304, 306, 307, 318
Noise Depreciation Index (NDI) 236, 237, 240–41, 347
normal correlation analysis 11
Norton, B.G. 267
OECD 304, 306, 307, 308
Oinas, P. 306
Olkin, I. 68, 71, 178, 184, 240, 345
Opaluch, J.J. 340
opportunity cost 248
optimal data sampling 6
optimal experimentation 6–7
ordinal meta-regression analysis 10
Ordnance Survey 158
Ortuzar, J. 60
Orwin, R.G. 185
Osborne, L.L. 43, 181, 260
Ostro, B. 340
Ouwersloot, H. 65
Ozuna, T. 14, 119, 120, 121, 130

Parsons, G.R. 41, 260
partial equilibrium models 60, 61
Pauli, W. 20
Pawlak, Z. 66, 208, 317, 332
Pearce, D.W. 91, 93, 308, 340
Pearson test 188, 189, 196, 197
Pepping, G. 11, 49, 55, 304, 318
Perrels, A. 304, 306
Persky, J. 13, 37
Petitti, D.B. 64, 183
physics, and the role of theoretical science 28
Pillemer, D.B. 183
policy evaluation 75

policy making, benefit function transfer versus meta-analysis 133–54
pollution 86
Popper, K.R. 20, 26, 27, 28
Porter, R. 248, 265
Principia 24
probit model 179
Provincie Noord-Holland 256, 261
Provincie Utrecht 254, 255
publication bias 179, 181–2, 191, 346, 347
concordance tests of effect size 185
detecting and remedying 182–90
quasi-statistical graphical techniques 183–4
file drawer test 184–5
inference involving 220–21
techniques for detection, and examples from environmental economics 190–202
two-stage Heckman approach 189–90
weighted distribution theory 186–9

qualitative multi-criteria analysis 10
quasi-statistical graphical techniques, and publication bias 183–4
Quiggin, J. 124

rank correlation analysis 10
reductionist approach 35
Rees, W.E. 304
Reggiani, A. 4, 36, 37
regime analysis 10
reporting bias 178
research synthesis 5
retrieval bias 178
revealed choice models 60
Rietveld, P. 39
Rivett, K. 37, 38
Robinson, D.K. 25
Rosenthal, M.C. 183
Rosenthal, R. 68, 71, 178, 184
Roson, R. 272
rough set analysis 11, 81, 208, 332–3
and sustainability policy studies 318
transport impact studies comparison 66
Roy, J. 272
Sagoff, M. 105
sample selection bias 178, 179, 181
sampling frames 182, 183
Samuelson, P. 61
Schmidt, F.L. 19, 20, 21, 40, 43, 177, 185
scientific discovery 36
scientific knowledge 3–4
Sheppard, E. 60
Shogren, J.F. 12, 91
Shoven, J. 50
Sidway, R.M. 156, 157, 158
*The Silent Spring* 306
Silverman, B.W. 227
Simonis, U.E. 272
Slowinski, R. 317, 332
Slowinsky, R. 66
Small, K.A. 272
Smith, A. 224
Smith, P.V. 177
Socolow, R. 272
Spaninks, F.A. 93, 95, 103, 106
Spash, C.L. 267
spatial dependence 347
spatial sustainability
comparative studies 273–4
and meta-analysis 273–4
Spierdijk, S. 66
Stanley, T.D. 273
stated preference (SP) experiments 350
statistical analysis 177
statistical inference
in benefit transfer 344
in meta-analysis 344
Steedman, J. 340
Stefanowksi, J. 332
Störig, H.J. 37
Sturtevant, L.A. 134
subjective quantitative analysis (SQA) 76, 77–8, 81
sustainability 48
sustainability policy studies, and rough set methods 318
synergetic theory 37
Takayama, T. 61
Tanner, M. 218
TERM programme 271
Terrell, G. 227
Terrell’s maximal smoothing method 227
Thetford Forest, study 158–61
Tibshirani, R. 126
Tobler’s law 218
transport and environment, assessment
of progress in scientific knowledge 296
transport and environment studies, comparison 278–92
transport impact model 49–55
ceteris paribus clause 54
transport impact studies
classification 55–62
geographical scale 57
passengers versus freight transport 57
transport modes 57
transport impact studies comparison
classification techniques 65–6
cluster analysis 66
discriminant analysis 67–8
rough set analysis 66
statistical methods 64–5
transport models, comparison 63
transport movements, and
environmental pressure 63
transport policy impact analysis, and
meta-analysis 47–73
transport trends 48
travel cost (TC)
based valuation studies 97
method 155, 156, 339
models 139, 145
and value transfer 107–8
Turner, R.K. 90, 248, 249
two-stage Heckman approach,
publication bias 189–90
UK
agroenvironmental policy 155
Department of Health 340
Environmental Agency 90
government ‘Green Book’ 339
unadjusted unit value, benefit transfer 118
‘unit day value’ method 337–8
*Urban Energy Handbook* 306
urban energy planning 307
urban energy policies 304–33
commercial firms 321–3
critical success factors, Netherlands 311–28
data matrix 318–19
dwellings 323–5
municipal building stock 319–21
synthesis 326–8
transportation 325–6
urban energy policy strategies, Netherlands 307–11
urban sustainability 348
urban sustainability initiatives, meta-analytical investigation 311–28
Ursem, M.E.J. 308
US demand for benefit transfer 133–4
Environmental Protection Agency 90
Forest Service and the US Water Resources Council 337
valuation methods, for environmental impact 61–2
valuation of biodiversity 268
value 91–2
and willingness to pay 102–4
value elicitation, outcome versus process-oriented approaches 101–2
value and function transfer, meta-analysis in 74–89
value transfer 5, 12–13, 49, 74–5, 87
case studies 348
and the ceteris paribus clause 35–46
and contingent values surveys 108–10
and the criterion for success 25–8 definition 19
and Geographic Information Systems (GIS) 345
and hedonic pricing models 107–8
input 76
institutional context 338–40
philosophical and contextual issues 341–3
prospects 13–14, 30
reliability and validity 107–14
and travel cost models 107–8
upsurge of interest in 75–6
values, commensurability of 104–7
van Geenhuizen, M. 51, 307
Verhoef, E.T. 55, 61, 272
Vevea, J.L. 186, 191, 196, 202
Virkkala, S. 306
Wackernagel, M. 304
Walsh, R.G. 12, 142, 148, 149, 155, 165, 258, 259, 337
Water Resources Research 12, 92
weighted distribution theory, publication bias 186–9
Whalley, J. 50
White, D.S. 142, 145, 149, 150
willingness to pay 92, 93, 95, 99, 100, 101, 106, 108, 109, 121, 223, 337
comparison 127
Norwegian surveys 126
and value 102–4
Willis, K.G. 65, 95, 170
Willumsen, L. 60
Wilson, E.O. 268
Wolf, F.M. 19, 96
Wong, W. 218
woodland recreation demand
UK literature 165–6
valuation 165–70
woodland recreation value estimates, cross-study analysis 174–6
World Bank 48
Wortman, P.M. 273
Yamaguchi, Y. 242
Yin, R.K. 6, 35, 317
Young, R.A. 138
Zadeh, L. 208
zonal travel cost method 170