

Index

- Aalders, M. 249
Ackerman, F. 293
Acton, Jan Paul 240
Adger, N. 114
Aghion, P. 283, 295
agrarian societies
 as systems 50
 transition to industrialism 51–4,
 69–70, 214–17
agrarian to industrial transition in
 United Kingdom (UK) 51–3
Ainslie, G. 169
Albert, M. 203
Albin, Peter S. 222
Ajzen, Icek 182
Aldred, J. 72, 181
Almond, Gabriel A. 90
Amazonas, Brazil 15, 20, 259
 see also Rio Negro region case
 studies
Anderson, T. 281
Andreasen, Alan R. 183, 184, 187
Andreoni, J. 128
Anslow, M. 62
Arestis, Philip 12, 54–5, 56–7, 141,
 252
Arrous, J. 141
Arrow, Ken 8, 13, 38
Arrow–Debreu–Mackenzie model
 13
Ayres, I. 242
Ayres, L.W. 10
Ayres, R.U.
 analyses of matter flows 122
 industrial ecology 10
 industrial metabolism 10, 47
 industrialization's new technology
 cluster 51
 laws of thermodynamics applied to
 economics 5, 55, 178
 ‘responsive’ regulation 242
Babylonianism 27–8, 30, 31, 35, 39, 41,
 43
Backer, Thomas E. 189
Baer, Paul 86, 90, 93
Bagozzi, R.P. 182
Bailey, R. 109
Balance Reports 187–91
Bamberg, S. 182
Barbier, E. 290
Barnett, Harold 262
Bascompte, Jordi 230, 231
Batabyal, Amit 263, 266
Bateman, B. 28
Becker, Gary 10
Becker-Olsen, K. 194
Beder, S. 109
Behrens, W.W. III
 economic growth's environmental
 and social impacts 55, 121
 limits to economic growth 6, 121
 *Limits to Growth: A Report for the
 Club of Rome's Project on the
 Predicament of Mankind* 121,
 122
 mainstream economists' critiques
 of *Limits to Growth* book
 122
 resource limitations 121
Bell, Stephanie 248
Bellah, Robert N. 89
Bengston, D.N. 144
Benhaïm, J. 283, 295
Berr, E. 114, 121
Berry, Thomas 91
Bhaskar, Roy 28
Bietz, Sabine
 consumer choice 13–14
 consumer choice on cars 13–14
 Project Balance 19, 180, 190, 191
Biller, Dan 270
bioengineering 59, 61, 87

- Bird, P.J.W.N. 144, 164
 Böhm-Bawerk, E. von 205
 Bortis, H. 284, 294
 Boulding, Kenneth
 closed system 5, 18, 101, 101–4
 ‘cowboy economy’ of neoclassical economists 103
 criticisms of neoclassical economics 99, 100
 decision-making and Post Keynesian economics 18, 106, 107
 Earth as closed system 5, 18, 101, 101–4
 ecological economics’ key tenets 18, 102–5
 on economic growth 108, 111
 ‘The economics of the coming spaceship earth’ article 99
 economy affecting environment 99
 environment affecting economy 99
 environment as dynamic system 18
 government regulations protecting the environment 109
 historical time 18, 106, 107–8
 on human societies as open systems 108
 knowledge (information) and human development 104
 non-ergodic systems 106–7
 open system of neoclassical economics 103, 107, 111
 policy prescriptions 109–12
 on population growth 104–5
 population growth management 111
 population growth theorems 104–5 and Post Keynesian economics 18, 101, 105–11
 principle beliefs of regarding economics 105–9
 real-world studies needed 111
 social investment 109, 112
 ‘spaceship earth’ 5, 18, 99, 102–3, 106, 111, 121
 steady-state population 105
 sustainability 18, 101–2, 105, 107
 systems 5, 18, 100–104, 106–9, 11
 theorems on population growth 104–5
 uncertainty 18, 106, 108
 see also economic growth; historical time; uncertainty
 bounded rationality 18, 117, 119, 125, 127, 171, 245, 286, 288
 see also satisficing approach
 Bower, Blair T. 78
 Bowles, S. 203
 Brady, M. 40
 Braithwaite, J. 242
 Brauer, Fred 230
 Brekke, Kjell Arne 85
 Brennan, A.J. 48
 Brenner, R. 251
 Brock, William A. 225
 Bromley, D.W. 114, 117, 118, 123, 143, 144, 145
 Brookshire, D.S. 6
 Brown, Peter G. 87
 buffer stock employment 248–9
 Bush, President George W.
 EPA budget reduction and 110
 Byrne, M. 283
 Cambridge capital controversy 16, 59
 Cambridge controversy *see* Cambridge capital controversy
 Campbell, C. 38
 Campus, A. 205
 capital
 Cambridge controversy *see*
 Cambridge capital controversy
 controversies 29–30, 43, 59, 252
 substitution effects of 5
 see also Clayton, A.; environmental capital; ethics; human capital; human-made capital; natural capital; social capital; Spash, Clive L.; sustainable development
 capital markets 244
 Carabelli, A. 12
 carbon trading 49, 158, 159, 160–62, 181
 Carlson, E. 250
 Carpenter, Stephen R. 224
 Carrillo-Hermosilla, J. 286–7
 Carvalho, F. 37
 Casey, James 259
 Casson, M. 160

- catastrophically discontinuous
 ecologic-economic systems 223–6
 catastrophic thresholds 108–9, 174,
 223–6, 231
 Chandler, A. 237
 chaotic dynamics 20, 108, 226–31, 232
 chartalism 237, 247–8, 251, 252
 Chattopadhyay, A. 186
 Chen, Z. 229
 Chiarella, Carl 232
 Chicago School 9, 10
 China 19, 101, 167, 179, 213–17, 218, 293
 Christensen, P. 35
 Cialdini, R.B. 182
 Clark, Colin W. 225, 227, 228
 Clark, L.A. 190
 Clawson, Marion 6, 78
 Clayton, A.
 capital controversies 29–30, 43
 critical and non-critical natural
 capital 29–30
 natural capital 29–30, 43
 probability and risk 37–8
 probability and uncertainty 37–8
 Close, C. 109
 closed system 5, 40, 101, 102, 103, 104,
 239
see also Boulding, Kenneth
 Coase, Ronald H. 132–3, 133, 243
 Colander, David 17, 81, 203
 Coleman, James S. 182
 Commons, John R. 116–17, 118, 132
The Competitive Advantage of Nations
 238
 competitive advantage theory 20, 237,
 238–9
 Competitive Enterprise Institute 109
 complex dynamics 20, 108, 221–2
see also dynamic complexity
 complex ecologic-economic dynamics
 and (Post) Keynesian uncertainty
 223–9
 complex systems 4, 7, 19–20, 108–9,
 162–3, 222–3, 232, 232
 complexity 18, 31, 37, 60–61, 103,
 123–5, 221, 222–32, 286, 291–2
 complexity and uncertainty 18, 123–5,
 221, 223–9, 291, 292
 Conklin, James E. 228
 Considine, T. 284
 consumer choice
 ecological economists' endorsement
 of 142–5, 154
 heredity principle 143
 influences on 18–19, 141
 multidimensional choice 144–5
 principles of 141–5
 precautionary principle 143
 relevance for ecological economists
 143–5
 substitutions and trade-offs 142, 145,
 146–8
 trade-offs 125, 129, 142, 145, 146,
 149, 150, 164, 167, 181, 224
 uncertainty 143
 vs. neoclassical consumer analysis
 145–8
 weak comparability 144–5
see also consumption and
 production patterns; contingent
 valuation; Georgescu-Roegen,
 N.; Kneese, A.V.; rational
 consumer choice
 consumerism promoted by
 corporations 10, 67–8, 178, 179,
 194, 195
 consumption and production patterns
Adbusters 180
 addictive consumption 169–72
 advertising to change consumer
 behaviour 183
 affluent consumer and status 166,
 167–8
 altering environmentally destructive
 consumption 158, 178
 carbon trading 49, 158, 160–62, 181
 cognitive dissonance theory in
 166–8, 169, 171
 conspicuous consumption vs.
 environmental consumer class
 166–9
 corporations and consumerism 10,
 67–8, 178, 179, 194, 195
 credit offsets for pollution 60, 158,
 160, 168
 demarketing 192
 durable assets as barriers to reducing
 consumption 163, 165
 education to change consumer
 behaviour 183

- emissions standards 158, 172
- emotions and 182–4, 186, 190, 193
- environmental behaviour 180
- halo-effects 193
- lifestyle barriers to changing consumption 165–6
- manipulation of consumer 10, 67–8, 178, 179, 194, 195, 195
- mass communication and 180, 184–95
- persuasion (advertising) to change consumer behaviour 183
- prices and 14, 15, 19, 52, 53, 54, 65–6, 68, 79, 82, 83–4, 89, 93, 120, 123, 131, 158–9, 161, 163–5, 174, 181, 207, 208, 229, 281
- price-based approaches to reducing car addiction 158
- Project Balance 19, 180, 184–94, 195
- pro-social behaviour 180
- ‘pull-media’ vs. ‘push-communication’ 186
- reducing car addiction 169–72
- resource usage rates 158, 159
- reward and punishment model to change consumer behaviour 183
- social group influences on consumers 193
- social influence to change consumer behaviour 184
- social marketing to change consumer behaviour 184
- standards-based approaches to reducing car addiction 158
- standards-based policies for environmental improvement 172–5
- sustainable (environmental) consumption 19, 178–80, 182–3, 186, 188, 190, 191, 193–5, 232
- tradable pollution permits 6, 49, 60, 105, 158, 160, 161–2, 168, 181
- Transtheoretical Model of Behaviour Change 186–7
- contingent valuation 6, 16, 123–4, 144, 145, 148–53
- Copes, Parzival 225
- Cormago Conceicao, O.A. 114
- corporate governance
 - command-and-control regulation 242
 - definition of 244
 - development and implementation of systems of 237
 - EU and end-of life vehicle legislation 242
 - influence of over innovation 238
 - microeconomic mechanisms of 251
 - orthodox approaches to 244–5
 - ‘smart’ or ‘responsive’ regulation 20, 237, 241–2, 249
 - social conditions of the innovative enterprise (SCIE) 245, 246, 247
 - transaction cost theory 244–5
 - voluntary self-regulation 242
 - see also* Lazonick, William; O’Sullivan, Mary; Porter, Michael
- Corrado, C. 209
- cost-benefit analysis 6, 15, 38–9, 43, 78, 83, 106–7, 108, 194–5, 279, 280–81, 282, 284
- Costanza, Robert 8, 114, 133, 160, 287, 295
- Costello, C. 284
- Cotton, David 186
- Cournot, Augustin 83
- Courvisanos, Jerry
 - capitalism’s failures 20
 - dynamic satisficing framework 20, 288–92, 293–4
 - ecological goals 20–21
 - innovation clustering and investment bunching 294
 - instability in investments 20, 286, 289
 - investment planning for sustainable development 12
- Kalecki, Michał 279, 280, 282, 286, 289, 290, 291, 294
- Lowe, Adolph 279, 289–90, 294
- Lowe–Kalecki sustainable development investment framework 286, 289, 290, 292, 293
- macroeconomic measures to facilitate necessary innovation 131

- Minsky and Crotty analyses 294
 optimization strategies 20
 Post Keynesian principles 20–21
 public investment control 131
 susceptibility cycle of investment 294
 sustainable development 12, 20–21, 279
 technology and inappropriate use 20
 uncertainty causing investment instability 289
 critical and non-critical natural capital 29–30
 Critical Realism 28, 31, 40, 41, 119
 Crivelli, R. 143
 Crotty, J.R. 282, 294
 Cudmore, B.A. 194
 Cummings, R.G. 6
 Cunfer, G. 52
 Cuthbertson, K. 244
- Daly, Herman
 biophysical equilibrium 284
 economics linked to biophysical basis 121, 122
 natural resources input into the economy controlled 131
 optimal steady-state economy (SSE) 284–5, 295
 on population 105, 111
 scale of economic growth and concern with 10, 72, 122
 steady-state economy to avoid environmental disaster 6, 8, 56, 121, 178, 284–5
 sustainable development and ecological economics 284–5, 295
 sustainable development and uncertainty 295
 technology that limits natural resource exploitation 287
 unsustainability of rapid uncontrolled economic growth 101, 104, 105
 Damant, D.C. 244
 d'Arge, R.C. 5, 6, 55, 122, 178
 Dasgupta, Partha 8, 122, 133
 David, P. 13
 Davidson, Paul
 axiomatic framework 43
- Babylonianism 28
 complexity theory 31, 223
 decision-making 36
 distribution of income 47, 119
 econometrics 40
 general systems theory 31
 historical time 47
 income effects vs. substitution effects 15
 'Keynes Post Keynesian' school 223
 labor demand 119
 money 119
 non-ergodic systems 12
 and nonergodicity 31, 36, 106–7, 162
 open systems 30–31
 Post Keynesian economics (PKE) methodologies 47
 uncertainty 12, 47, 106, 162, 221, 223, 288
- Day, Richard H. 222, 232
 Debreu, G. 13, 38
 DeCanio, Stephen J. 92
 deficit spending
 and consumer goods 20
 and employment 20, 247, 252
 Denison, E. 282
 Dequech, D. 127
 Desai, Meghnad 230
 Dettinger, Michael 86
 DiClemente, Carlo C. 186
 Dillard, James P. 184
 Dixon, Lloyd S. 240
 Done, T.J. 224
 'dot-com' boom 244
 Douglas, M. 129
 Doveri, F.
 Dow, Sheila 27, 37, 39, 40, 43
 Downward, P. 28, 41
 Drakopoulos, S.A. 141
 Dryzek, John S. 58, 88
 Duggins, D. 224
 Dunlap, R.E. 181
 Dunn, Stephen 109, 288
 Dutch flower industry case study 239
 dynamic complexity
 butterfly effect 223
 catastrophically discontinuous ecologic-economic systems 223–6

- chaotic dynamics 20, 108, 226–31, 232
- definition of 221–3
- ‘the four Cs’ 222–3
- global warming 221, 223, 226, 231, 293
- non-linearity of 222
- and non-quantifiable uncertainty 223
- as policy-making complication 231–2
- and Post Keynesian theory 20, 108, 221, 223–9
- and Post Keynesian uncertainty 20, 223–9
- precautionary principle 231
- predator–prey model 20, 30, 221–2, 224–5, 229–31, 232
- scale-matching principle 231
- ‘small tent’ complexity 222–3
- Earl, Peter E.
 - behavioural theories and consumption 48
 - consumers and bounded rationality 171
 - consumers and cognitive dissonance 167
 - consumers and moveable aspiration levels 171
 - economic psychology 10
 - hierarchy of targets becoming socially or morally unacceptable 164
 - government standards needed for automobiles 15
 - government standards reducing environmental consequences of consumption 19
 - lifestyle as assumptions for how to live 165
 - Post Keynesian consumer theory 141, 288
 - psychological economics 10, 195
 - psychological theories and consumption 48
 - reducing greenhouse gas emissions from automobiles 19
 - resource allocation and product development decisions 173
- Easterlin, R.A. 64, 178
- Eckersley, R. 281
- Eckstein, Otto 83
- ecologic–economic systems and complex dynamics 19–20, 108–9, 226–9
- ecological economic dynamics 19–20
- ecological economics
 - biophysical equilibrium 284
 - biophysical processes as basis of economic system 122
 - co-evolution of systems 32
 - complementarity and biophysical systems 122–3
 - consumer choice 142, 143–7, 154
 - core ideas of 115, 121–4
 - on economic growth 18, 49
 - economic growth’s negative environmental consequences 17
 - entropy and the economy 5, 121, 285
 - general systems theory 30–31, 121 and history 32
 - and institutional analysis 48, 114
 - interdisciplinary and pluralistic focus of 7–8, 48
 - International Society for Ecological Economics (ISEE) 7
 - justice and ethical treatment of others 194
 - and laws of thermodynamics 5, 55, 104, 121, 178, 285
 - market-based view of 285–6
 - vs. neoclassical economics 5–6, 7
 - Meadows, D., *Limits to Growth* 121
 - non-ergodicity 123
 - origins of 121–2
 - and Post Keynesian economics compared 4, 17, 20, 29, 42–3, 47, 48, 49, 59, 115, 124–32, 142, 143–7, 154, 256, 257, 276
 - resilience and socio-ecological systems 123
 - resilience concept 123
 - self-organizing dissipative systems 121
 - social ecological economics 9–11
 - social metabolism 122
 - ‘spaceship earth’ 121
 - steady-state economy 6, 56, 121, 122, 178, 284–8

- sustainability 194
 and uncertainty 47, 125, 127, 231, 287
see also Boulding, Kenneth; Daly, Herman; dynamic complexity; ecological systems; environmental capital; Georgescu-Roegen, N.; irreversibility; precautionary principle; Rio Negro region case studies; sustainable development
- Ecological Economics* journal 102, 121, 286
- ecological models 20
- ecological sustainability 120–21
- ecological systems 5, 88,
 Boulding on 102–5
 collapse of 86
 and complex economic dynamics 221
 complementarity and biophysical systems 122–3
 and economic systems 125, 285
 neoclassical economics and 100, 293
 and socio-ecology 127
 and socio-economics 88
 and uncertainty 125, 127
see also ecological economics; economic systems; environmental systems; socio-ecological systems
- econometrics
 critique of modern techniques 40
 and closed systems 40
 domination of economics 7
 Post Keynesian environmental economics 42
- economic growth
 Boulding on 108
 Galbraith on 108
 historical perspective on 50–58
 and negative consequences 17
 neoclassical models of 100
 Post Keynesians on 108
 unsustainability of 5
see also agrarian societies; industrialization and agrarian transition
- Economic Journal* 105
- economic psychology 10, 158
- economic systems
 agrarian societies as systems 50
 complex global system 77, 79
 consumer society 69
 costs of running 117
 ecological or biophysical processes
 as basis of 122
 and environment 115, 130
 and growth 130
 and industrial revolution 49
 market economies 56
 modern economies 65
 as open 56
 preferences as endogenous to 116
 and technology 210
 and values of 67
see also economism
- economics of climate change report 92
- economism
 academic realm of beliefs 81
 acculturation through schools,
 books and popular press 81
 assumptions as working doctrines 83–4
 beliefs influencing economists' work 81
 conservation biologists and 82–4
 defined 80
 everyday popular beliefs and beliefs of specialists 81
 influencing economics 77, 78, 80–85
 integrated environmental assessments 94–95
 and Intergovernmental Panel on Climate Change (IPCC) 18, 91–2, 296
 Millennium Ecosystem Assessment confronting 91–3, 95
 and popular politics on ends and means 81
 and postmodern culture 78, 82, 85–91
 and reducing greenhouse emissions 95–6
 as secular religion affecting values 79, 82, 88, 89–90
 as threat to environment and populations 84

- economy as an evolutionary system *see* Veblen, Thorstein
- ecosystem
 addressing integrity of 82
 analysis of and problematic set of axioms 39
 degradation of and change in human interaction with nature 77
 models of 12
 services 77, 79, 82, 83, 92, 262–3
 and theory of probability 37
 transformation of 17–18
see also environmental systems; Millennium Ecosystem Assessment
- Edgeworth, F.Y. 205, 206
- Edwards, S.F. 145, 149, 150, 151, 153
- Eichner, A.S. 141
- Ekins, P. 59
- Ellner, S. 231
- Elton, Charles S. 224
- Elster, J. 168
- Embrechts, Paul 226
- energy
 and agrarian to industrial transition 50–54
 in agrarian societies 50–51
 ecosystems as cycles of 9, 12
 as renewable or non-renewable 10, 50, 51, 55, 104, 107
 sustainable stock 104
- environment
 neoclassical (mainstream) approach to *see* environmental economics
see also Boulding; ecological economics; environmental capital; environmental economics; free market environmentalism; Post Keynesians; think-tanks
- Environmental and Energy Study Institute 109
- environmental beliefs and science 80–81
- environmental capital 20, 256–7, 258, 262, 263–4, 266, 269, 276, 277
- environmental economics
 and mixed-methods research 41–2
 models of growth and sustainable development 6–7, 17–19, 262, 280–84
 and need for realism 29, 154
 and neoclassical economics principles 6–7, 99–100, 159–66, 294
 problems with 6–7, 17–19, 29, 32–3, 36, 41, 77, 121, 154
see also ecological economics
- environmental problems and market solution to 161, 283
see also carbon trading; tradable rights
- environmental problems and scientific method 60–63
- Environmental Protection Agency (EPA) 110, 112
- environmental systems 66, 78, 86
see also ecological systems
- EPA (Environmental Protection Agency) 110, 112
- Estes, J.A. 224
- ethics
 of communication 194, 195
 in economics 10, 27, 37, 48, 84, 87, 95, 160
 natural capital and economic profits 59–63
- EU 242, 245
- Faber, M. 47, 123, 285, 287
- Falconi-Benitez, F. 210
- Fararo, Thomas J. 182
- Ferrari-Filho, F. 114
- Festinger, L. 167
- Feynman, R. 39
- Fishbein, Martin 182
- Fisher, A.C. 6
- Fisher-Kowalski, M. 53, 122
- fishery dynamics 225–8
- flow-fund model 204, 209–10
- Foley, Duncan K. 222
- Folke, Carl 8, 123
- Föllmer, Hans 223
- Foroni, Ilaria 228
- Forstater, Mathew 110, 289
- Franceschi, Dina 263, 266
- Frank, Thomas 87
- Franklin, J. 37
- free market environmentalism 281, 286
- free market system
 and bioengineering 87

- carbon permits and credits 161
- concerns about 4, 71, 282
- conflict with environmental protection 108, 110
- and conservative think-tanks 109
- corporate advocacy of 67–8, 87
- and environmental problems 79, 100, 108, 109, 110, 161
- vs. government control 88, 281
- green invisible hand 100
- individual vs. collective choice 88–9
- market-based instruments 181, 281, 284
- and optimal outcomes 4
- and the rich 87, 88
- self-correcting economic systems 68
- shift away from government control 281
- see also* free market
 - environmentalism; neoclassical economics
- free-rider problem 14
- Frey, B.S. 128, 181
- Funtowicz, S.O. 7, 48, 62, 63, 123
- Furnham, A. 196
- Fusfeld, D. 280
- futurity 63–8

- Galbraith, John Kenneth
 - on affluence 56, 67
 - as bridge between Post Keynesian and ecological economics 68
 - consumer manipulation by corporations 10, 67–8, 178, 179, 194, 195
 - consumer theory 141
 - consumerism promoted by corporations 10, 67–8, 178, 194, 195
 - corporate control of prices 68
 - corporate power supported by outmoded economic ideas 109
 - corporations and consumers 10
 - corporations and free market advocacy 68
 - corporations and political power and behaviour 48
 - corporations and state ensure adequate consumer demand 195
 - on economic growth 101
 - environmental degradation 295
 - environmental problems affected by production and consumption 108
 - free market conflict with environmental protection 108, 110
 - managerial class and wealth 67–8
 - market control of behaviour 10, 67–8, 178, 179, 194, 195
 - military industrial complex 67–8
 - non-independence 141
 - Post Keynesian economics built on Galbraith's work 288
 - as Post Keynesian economist 56
 - public and private planning for the public 293, 295
 - quality of life examined 4
 - regulations to limit military–industrial complex 68, 109, 110
 - technology as possible element in environmental degradation 295
 - unions vs. military industrial complex 68
 - against zero growth policy 286
- Gelso, B. 35
- genetic engineering 59, 61, 87
- Georgescu-Roegen, N. 104
 - complexity of environment 18, 141
 - 'credibility' of a statement 143
 - cutting-edge work of the 1970s 9
 - and Daly's steady-state economy optimal rule 285
 - entropy and the economy 5, 121, 285
 - flow-fund model 204, 209–10
 - heredity principle 143–4, 154
 - historical time 13
 - irreducibility principle 145, 154
 - laws of thermodynamics and economics 55, 104, 178
 - realism in consumer theory 154
 - unifying concept for ecological economics 285
- Germany *see* Project Balance
- Giampietro, Mario
 - complexity theory concepts 123
 - exosomatic energy as economic input 210–13
 - human activity as economic input 210–12

- the MSIASM approach and China 213–17
- model of production based on flow-fund model 204, 210–17
- multi-scale attributes of socio-ecological systems 123
- Multi-Scale Integrated Analysis of Societal Metabolism (MSIASM) 210–17
- Gintis, H. 142, 203
- Glick, M. 251
- global warming 221, 223, 226, 231, 293
- Godal, O. 281
- Goodwin, Richard M. 221, 222, 229–31
- Gordon, H. Scott 226, 227, 228, 232
- Gordon–Schaefer–Clark fishery model 227–8
- Gowdy, John
 - biological/ecological concepts in economics 9
 - consumer models based on experimental results for behaviour 29
 - consumer models in environmental analysis 29
 - consumer theory and preferences 143
 - cost–benefit analysis and methodological objections 38
 - ecosystem models 12
 - fundamental uncertainty associated with environmental issues 147
 - heredity principle 143–4, 149
 - lexicographic choices in the field of environment 145
 - Marx on nature as source of all wealth 205
 - Marxian value theory 205
 - model of vertical integration in an input–output framework 208
 - multidimensional choice and conflict creating agent’s inability to choose 144
 - neoclassical welfare economics’ failure to describe actual human behavior 19, 203
 - realistic foundation for consumer choice in ecological economics 154
 - social economy vs. the Chicago school 9
 - uncertainty 12
 - weak comparability criterion 144, 145
 - ‘wealth’ and ‘value’ 205
 - willingness to pay (WTP) and willingness to accept (WTA) 148
- Grabosky, P. 242
- Grandmont, Jean-Michel 228
- Granovetter, M. 176
- ‘Green and competitive: ending the stalemate’ 237, 238–41
- Greenwood, D. 4
- Grigg, D.B. 52
- growth, in economy *see* economic growth
- Gruebler, A. 51
- Gu, En-Guo 231
- Gunderson, Lance H. 226
- Gunningham, N. 242
- Gunter, B. 186
- Hahnel, R. 203
- Hale, Jerome L. 184
- Hamouda, O.F. 119
- Hanley, N. 145, 149, 153
- Hansen, A.H. 67
- Hansson, S. 38
- Harberger, Arnold 84–5
- Harcourt, Geoff C. 16, 29, 119, 208, 252, 294
- Hare, M. 295
- Harris, J. 29, 38, 40
- Harris, K.E. 186
- Hartwick, John 262, 277
- Havard, G. 142
- Harvard Business Review’s* environmental debate 237, 238–41
- Heal, G.M. 122
- Healey, Michael 86
- Heilbroner, Robert 99
- Helm, D. 280
- Henrich, J. 203
- heredity principle 19, 142, 143–4, 149, 153, 154
- Heritage Foundation 109
- hierarchy of needs (‘principle of subordination’) 14, 120, 142, 147, 166

- Higgs, R. 109
 Hill, R.P. 194
 Hinterberger, F. 122
 Hirsch, F. 55, 64, 178,
 Hirsch Hadorn, G. 287, 292, 296
 historical time 11, 12–13, 15, 17, 18,
 47, 106, 107–8, 121, 282, 283–4,
 286, 289
 Hodge, I. 291, 292
 Hodgson, G.M. 56, 117, 203
 Hoehn, J. 281
 Hoffmann, H. 290, 292
 Holland, A. 43, 123–4, 129
 Holling, C.S. 9, 49, 123, 224
 Holt, Richard
 Babylonianism 28
 ecological sustainability 120–21
 historical vs. logical time 12–13
 neoclassical welfare economics
 (NWE) collapse 203
 Post Keynesian and ecological
 economics 4, 42, 49, 101, 114,
 143, 288
 Post Keynesian methodology 121
 sustainable development 288
 Hommes, Cars H. 222, 225–8
Homo economicus 19, 142, 203–4
 Horgan, John 222, 232
 Howarth, Richard B. 57, 84, 92, 93
 Howitt, P. 283
 Huang, Yibing 231
 Hughes, T.P. 224
 human capital 20, 258, 262–6, 269–70,
 276, 277, 283
 human-made capital 123, 125, 126, 258,
 262–3, 265–6, 269–70, 276, 277

 income effects
 importance of 11, 14–15
 vs. substitution effects 14–15
 Independent Institute 109
 industrial agriculture 268
 industrial ecology 10
 industrial metabolism 10, 47
 industrialism and consumer society 65
 industrialization and agrarian
 transition 51–4, 69–70, 214–17,
 218
 industrialization of agriculture 52, 63,
 214, 268

 institutional economics
 bounded rationality concept and
 117, 127, 288
 ‘classic’ and ‘new’ positions of 115
 comparison with Post Keynesian
 and ecological economics 18,
 114, 115, 124–6, 127
 core ideas of 114, 115–18
 and ecological economics 18, 48,
 114, 121–4
 plural rationality 117
 and Post Keynesian economics 18,
 56, 115, 124–32, 288
 power concept in 117–18
 private and social preferences 117
 Simon, Herbert 117
 Veblen, Thorstein 115–17
 see also Kapp, K.W.
 Intergovernmental Panel on Climate
 Change (IPCC) 18, 91–2, 296
 International Society for Ecological
 Economics (ISEE) 7
 IPCC *see* Intergovernmental Panel on
 Climate Change
 irreducibility principle 120, 145, 154
 irreversibility 123, 124, 226, 250–51,
 266, 268, 286
 Isaac, S. 184
 ISEE *see* International Society for
 Ecological Economics

 Jacobs, M. 124
 Jansson, AnnMari 133
 Jegen, R. 181
 Jevons, W.S. 61, 65, 205
 Jevons paradox 65
 Johnson, T.R. 170
 Jones, Dixon D. 224, 225
 Juniper, James
 chartalism 237, 248–51
 deficit spending and jobs 20
 government surpluses and jobs
 248–49
 ‘spatial Keynesian’ employment
 creation 237, 248–51
 uncertainty 12

 Kahn, James R.
 Amazonas, Brazil 15, 20, 259
 environmental capital 20, 263–4, 266

- health care 259
- human-made capital 263–4, 266
- social capital 263, 266
- sustainable development 15, 20, 263–4
- uncertainty 226
- Kahneman, D. 149–50, 171, 203
- Kaldor, Nicholas 12, 221, 228, 288
- Kalecki, Michał
 - class conflict 208
 - cost-of-production theory of prices 208
 - on countercyclical fiscal policy by governments 280
 - criticism by Steedman 208
 - demand-side perspective planning 290
 - economic surplus going to owners vs. workers 208
 - endogeneity of macro fluctuations 229
 - full employment through government intervention 120
 - fundamental instability in economic activity 279, 294
 - investment cycle variables 286
 - macrodynamics group influenced by 221
 - non-optimal (satisficing) framework for sustainable development 20, 279
 - planning approach 290, 292
 - real depreciation 290
 - resource-saving coefficients 290–91
 - socialization of investment 282
 - sustainable development framework 293
 - traverse economics 289
 - utilization of existing productive capacity 290
- Kals, Elisabeth 182, 183
- Kamien, M. 283
- Kaneko, Kunihiko 231
- Kant, S. 143, 145, 154
- Kapp, K.W.
 - consumer manipulation by corporations 10, 178, 179, 194, 195
 - corporate role in promoting consumerism 178, 179, 194
 - on costs passed on to others 56
 - economic systems as open systems 56
 - environmental analysis of business enterprise 56
 - environmental problems created by modern institutions
 - environmental problems as systems-dependent 131
 - institutional economics and 56
 - market institutions as controlling consumption behaviour 179, 195
 - mechanistic cause–effect relationships criticized 9
 - The Social Costs of Private Enterprise* 65
- Karl-Måler, Göran 133, 225
- Katzev, R.D. 170
- Keat, R. 38
- Keller, R. 114
- Kemp, R. 282, 283
- Keynes, John Maynard
 - adjustments to shocks 159
 - on affluence removing the drive for work 65
 - alternative theory of probability 27
 - ‘animal spirits’ 11, 37, 40
 - apologia for 55
 - on the art of life itself 65
 - Babylonianism inspired by 27–8
 - bounded rationality theory 119, 120
 - and chartalism 247, 252
 - coordination problems 19
 - Critical Realism inspired by 27–8
 - critique of econometrics 40
 - critique of probability theories 27
 - decision-making in uncertain environments 38
 - economic causes of war 54
 - economic theory summarized 54
 - in the establishment 54
 - full employment 67
 - and futurity 50, 63–7, 68
 - The General Theory of Employment, Interest and Money* 11, 118–19
 - government intervention 110, 159, 247
 - individuals in relation to other parts of a system 119

- on institutions 118
- 'Keynes Post Keynesian' school 223
- on leisure society of the future 63–6
- long chains of deductions from
 - axioms 39
- methodology 27
- money as non-neutral 118
- organicism 30, 119
- philosophy and ethics writings of 27
- on population stabilization 72
- and Post Keynesians 119, 221
- probability theory 27, 28, 30, 174
- procedural or bounded rationality
 - theory 119, 120
- on pursuit of future wealth 65
- realism 28
- reduced work hours 64
- relative prices freed up 19, 159
- scarcity of demand 119
- socialization of investment 282
- on solving material needs using
 - capitalism 65
- subsistence needs 64
- Treatise on Probability* 27
- on uncertainty 11, 27, 36–8, 47–8, 106, 223
- underestimation of negative effects
 - of material affluence 65
- unemployed resources 55
- unemployment 118, 119
- on unethical behaviour 64
- on valuing the useful over the good
 - 65
- on war 54, 67
- welfare state and 58
- writings on philosophy and ethics 27
- 'Keynes Post Keynesian' school 223
- King, John E. 11, 119, 203, 221
- Klaassen, G.
- Kneese, A.V. 5, 6, 55, 78, 122, 178
- Knetsch, Jack L. 6, 78, 124, 148–50
- Knight, Frank H. 47–8, 105, 106
- Knightian (radical) uncertainty 118, 123, 125
- Knudsen, C. 117, 120
- Kolberg, William C. 228
- Kotchen, M.J. 181
- Kotler, P. 184
- Krause, U. 144
- Krausmann, F. 47, 51, 53
- Kregel, J. 35
- Kroeber-Riel, W. 186
- Krutilla, J.V. 6
- Kuckartz, Udo 195–6, 196
- Kuhn, T. 35
- Kula, Ehrun 99
- Küppelberg, Claudia 226
- Kurz, H. 208
- Kurzweil, Ray 87
- La Porta, Rafael 244
- Lancaster, K.J. 141, 164
- Laros, F. 182
- Larson, D. 284
- Lavoie, Marc
 - contingent valuation 294
 - government deficit spending 252
 - hierarchy of needs 14, 120, 164
 - historical time 107
 - income effects 14
 - on Keynes, John Maynard 119
 - lexicographic preferences of
 - consumption 120, 128
 - 'non-compensatory filtering
 - procedures' 120
 - Post Keynesian consumer theory 19, 35, 120, 128, 141–2, 164
 - 'principle of irreducibility' 120
 - 'principle of non-independence' of
 - needs 120
 - procedural or bounded rationality
 - theory 119, 120
 - stock-flow consistent (SFC) model
 - 252
 - uncertainty 120
- Lawn, P. 284–5
- Lawson, Tony 6, 28, 36–7, 55
- Layard, R. 132
- Lazonick, William
 - critiques of orthodox corporate
 - governance 244
 - EU reports 245
 - innovative organization theory of
 - 237, 238, 245–6, 248
 - social conditions of the innovative
 - enterprise (SCIE) 245, 246
 - transaction cost theory 244–5, 247
- Leal, D. 281
- Lee, N. 184
- Lehtonen, M. 114

- leisure society of the future 63–6
- lexicographic preference and
environmental action 120, 123,
128, 145–8, 149–53, 181
- Lichtl, Martin 184
- lifestyle of health and sustainability
196
- Limits to Growth: A Report for the
Club of Rome's Project on the
Predicament of Mankind* 121, 122
- critiques of by mainstream
economists 122
- Lindsay, D. Michael 90
- Lineton, Z. 186
- living systems 5, 126
- Loasby, Brian J. 12, 48, 160
- Lockwood, M. 145, 149, 151, 153
- logical time 13, 106, 107
- LOHAS *see* lifestyle of health and
sustainability
- Lohmann, L. 60
- Lomborg, B. 109, 111
- Lorenz, Hans-Walter 228
- Lotka, Alfred J. 225, 229, 230
- Lovejoy, Thomas 266, 270
- Lowe, Adolph
- instrumental policy analysis 289–90
 - non-optimal (satisficing) framework
for sustainable development 20,
279
 - supply-side analysis 289–90
 - sustainable development 279
 - technology used inappropriately
279, 294
 - traverse economics 289
- Lowe–Kalecki planning approach 290,
292
- Lowe–Kalecki sustainable
development framework 293
- Ludwig, Donald 60–61, 224, 225
- Lutz, B. 51
- Lutz, M.A. 151, 166
- Luz, K. 151, 166
- MA *see* Millennium Ecosystem
Assessment
- Ma, C. 286, 287, 288, 295
- McAnulty, J.C. 229
- McCauley, Joseph P. 222
- McFarling, R. 105
- McShane, K. 183
- Maes, Jürgen 182
- Maibach, Edward W. 186
- mainstream economics *see* neoclassical
economics
- Maler, K. 8, 55
- Malone, Elizabeth L. 92
- Malthus, T. 204–5
- Manne, A. 207
- Manstetten, R.M. 47, 123, 285, 287
- market *see* free market
- market signals 281–2, 284, 295
- Markose, Sheri M. 222
- Martinez-Alier, Joan 9, 41, 43, 48, 66,
123, 124, 126, 133, 144–5
- Marx, K. 204, 205
- Maslow, Abraham H. 14, 166
- Mastrandrea, Michael 86
- Mattey, J. 209
- May, Robert M. 226
- Mayer, S. 41, 43
- Mayumi, Kozo
- China's economic transition 19,
213–17
 - consumer choice theory foundation
154
 - critique of neoclassical indifference
approach 147
 - Homo economicus* 19
 - human behavior 19
 - multidimensional choice 144–5
 - 'Multi-Scale Integrated Analysis of
Societal Metabolism'
(MSIASM) 19, 210–17
 - neoclassical welfare economics 19
 - Post Keynesian production model
and biophysical human activity
19
- Meadows, D.H.
- economic growth's environmental
and social impacts 55, 121
 - limits to economic growth 6, 121
 - Limits to Growth: A Report for the
Club of Rome's Project on the
Predicament of Mankind* 121,
122
 - mainstream economists' critiques
of *Limits to Growth* book
122
 - resource limitations 121

- Meadows, D.L.
 economic growth's environmental and social impacts 55, 121
 limits to economic growth 6, 121
Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind 121, 122
 mainstream economists' critiques of *Limits to Growth* book 122
 resource limitations 121
- Mearman, Andrew
 ecological economics and macroeconomic issues 49
 ecological economics and methodology 4, 17
 mixed-methods research 41
 moral realism 43
 Post Keynesian and environmental/ecological economics 27, 49, 101, 114, 120–21, 130
 Post Keynesian methodology 4, 17, 27, 28, 32, 42
- Medema, S.G. 117
- Ménard, C. 160
- Menger, C. 205
- Merchant, Carolyn 85
- Michael, W.B. 184
- Mikosch, Thomas 226
- Miles, D. 244
- Mill, J.S. 204, 205
- Millennium Ecosystem Assessment (MA) 91–3, 95
- Miller, J. 208, 209
- Minsky, H.P. 282, 294
- MIPS 122, 133
- Mirowski, P. 205
- Mishan, E.J. 5, 55, 178
- Mitchell, W.F. 237, 248, 250
- Mohr, L.A. 186
- Monahan, Jennifer L. 184
- Montada, L. 182, 183
- Morris, W. 66
- Morse, Chandler 262
- MSIASM *see* 'Multi-Scale Integrated Analysis of Societal Metabolism'
- multidimensional choice 144–5
- 'Multi-Scale Integrated Analysis of Societal Metabolism' (MSIASM) 19, 210–17
- Munda, G. 35, 41, 43, 123, 124, 143, 144–5, 154
- Muradian, R. 226
- Naines, Joseph B. Jr 229
- natural capital 17, 29–30, 43, 43, 49, 58–60, 72, 262–3, 266, 277, 295
- natural resource economics 99–100
see also ecological economics; environmental economics
- natural systems 56, 69–70, 91
- Nell, Edward J. 141
- neoclassical ecological economists 133
- neoclassical economics
 Arrow–Debreu–Mackenzie model 13, 207
 axiom of indifference (Archimedes axiom or gross substitution) 144, 145–8, 154
 behavior of human agents 114, 128, 145
 biophysical limits 218
 'Cambridge criticisms' of 208
 challenged by *The General Theory* of Keynes 11
 choice theory framework 148–53, 150, 152
 concept of capital 16, 14–16, 29, 116, 208
 concept of private property 116
 consumer analysis of 145–8
 control shift from government toward free market 281
 cost–benefit analysis 6, 15–16, 38–9, 43, 78, 83, 106–7, 108, 194–5, 279, 280–81, 282, 284
 critiques of 3–4, 15–16, 19, 27, 42, 99, 100–101, 115–16, 117, 118, 121, 123, 154, 206–7, 258, 276, 293
 critique of by Boulding 99, 100–101
 critique of by Commons 117
 critique of by Georgescu-Roegen 154
 critique of by Sraffa 207–8
 'dot-com' boom and 244
 and ecological economics 5–8
 and *Ecological Economics* journal 6, 121

- ecological economists' criticisms of 99, 123
- ecologists and 6, 122
- empirical critiques of 203
- environmental capital 265, 277
- environmental economics 17–18, 43, 99–100, 122, 133, 295
- and environmental issues 3, 6–7, 15–16, 55, 99, 131, 258, 279, 82
- on environmental social costs 282
- the firm as a nexus of contracts 243
- and 'growth theory' models 206–7, 265, 266, 277
- hedonist perspective of 117
- human-made capital 262
- marginal utility 117
- market signals 281–2, 284, 295
- maximization 118
- mechanistic equilibrium models 4
- models assuming path-independence 256
- natural capital 262
- natural resource economics as subfield of 99–100
- neoclassical ecological economists 133
- and 'new' institutional economics 115
- open system of as like cowboy economy 103, 107, 111
- optimality approach 279, 280–84
- Post Keynesian criticisms of 15–16, 19, 27, 42, 115, 123
- prestigious positions in schools and editorial boards 203
- and production theory 204, 205, 206–7
- rational consumer choice 3, 13
- rationality and selfishness of people 3, 13, 128
- social capital 265
- sustainability 15, 121, 207, 262, 276, 277, 279
- substitution 5, 14–16, 142
- on technology 104
- transactions costs 244
- 'value-free' methodology and analysis 4
- Veblen's critiques of 115–16
- see also* free market system; human-made capital; logical time; natural capital; neoclassical welfare economics
- neoclassical optimality approach 279, 280–84
- see also* steady-state optimality approach
- neoclassical welfare economics (NWE)
 - behaviorist critique of 203–4
 - collapse of 19, 203
 - critiques of 203
 - dominance of 203
 - empirical evidence against 19, 203
 - history of production theory 204–7
 - Homo economicus* 19, 142, 203–4
 - human behavior model 204
 - prestigious positions in schools and editorial boards 203
 - real production in economic theory abandoned 204–7
 - recent Nobel Prize winners' move beyond 203
- NEP (New Ecological Paradigm) 180–81
- New Ecological Paradigm (NEP) 180–81
- non-ergodic systems 12, 106–7
- nonergodicity 12, 31, 36, 106–7, 123, 162
- non-quantifiable uncertainty 223
- Norgaard, Richard B.
 - bioengineering and ethics 87
 - co-evolution of systems 32
 - 'command' and choice 85
 - complex systems and multiple methodologies 7
 - discursive democracy 88
 - ecological economics and history 32
 - ecological economics and methodology 7
 - economics merged with biology 9
 - economism 78, 80–84
 - ecosystem models 12
 - environmental economics problems 17–18
 - environmental movements as critics 17
 - environmentalists' failure 90
 - fossil hydrocarbon technologies and economy 85

- interest rate changes and
 - environmental rights 84
- interdisciplinary approach and
 - economism 91–5
- International Society for Ecological Economics (ISEE) 7
- materialism 85
- Millennium Ecosystem Assessment (MA) 86, 93
- on neoclassical approaches 30
- prices over time 93
- resource scarcity 93
- separability of factors of production 30
- social ecological economics 9
- sustainability and ethics 84
- sustainable development 57
- uncertainty 12
- North, D.C. 132–3
- Noy-Meir, I. 225
- Nozick, R. 160
- NEW *see* neoclassical welfare economics

- O’Neill, J.F. 41, 43, 48, 72, 123, 144–5
- O’Neill, Robert V. 226, 263, 266
 - open systems
 - Babylonianism and 27
 - living things as 103
 - neoclassical growth models and 100–101
 - neoclassical view of environment as 103
 - and non-random evolution 37–8
 - organicism and open systems 30–36, 119
 - Post Keynesian analysis of 106, 108, 109, 119
 - Post Keynesians and 17, 28, 56
 - and the precautionary principle 40
 - theories about 30–32
 - optimality *see* neoclassical optimality; steady-state optimality
 - organicism 30–36, 119
 - Ostrom, E. 128
 - O’Sullivan, Mary
 - critiques of orthodox corporate governance 244
 - EU reports 245
 - innovative organization theory of 237, 238, 245–6, 248
 - social conditions of the innovative enterprise (SCIE) 245, 246
 - transaction cost theory 244–5, 247
- Paavola, J. 114
- Pahl-Wostl, C. 295
- Pareto, V. 205
- Pasinetti, Luigi L. 141, 204, 205, 208, 217
- Pearce, David W. 92, 133, 280, 285, 295
- Perrings, Charles 8, 58, 225
- Peterson, J. 35
- Pezzey, John 262, 277
- Pfister, C. 52
- Pisano, G. 241, 242–3
- PKE *see* Post Keynesian economics
- Pohjola, Matti T. 230, 231
- Polanyi, K. 51, 56
- Polimeni, J.M. 65
- Pomeranz, K. 51
- population
 - ageing of 172
 - and agricultural production 205, 213–17
 - Boulding’s theorems on 104–5
 - catastrophic declines of 223–7, 230–31
 - and economic system 79
 - economism as threat to 84
 - exposure to environmental dangers 61
 - growth and size of 5, 51, 52, 54, 61, 63, 66, 72, 77, 86, 100–101, 102, 104–5, 107, 111, 205, 213–17
 - and income inequality 57–8
 - as natural system 7
 - of predators/prey 221–2, 224–7, 230–31, 232
 - rural areas 256, 259, 260, 267–70, 276
 - of traditional peoples 78, 256, 259, 260, 268–70, 276
 - urban areas 214, 217, 267–8, 270
- Porter, Michael
 - competitive advantage and environmental regulation 238–9

- competitive advantage framework
20, 237, 238–9
- The Competitive Advantage of Nations* 238
- corporate governance 237, 238, 244
- critique of competitive advantage framework 241–4
- Dutch flower industry case study 239
- environmental debate 237, 238–41
- environmental innovation 237–41
- environmental regulations for corporations 20, 237, 238
- ‘Green and competitive: ending the stalemate’ 237, 238–41
- Harvard Business Review*’s environmental debate 237, 238–41
- ‘smart’ or ‘responsive’ regulation 20, 237, 241–2, 249
- see also* corporate governance; Lazonick, William; O’Sullivan, Mary
- Portney, Paul R. 84
- Post Keynesian economics (PKE)
- Babylonianism 27–8, 30, 31, 35, 39, 41, 43
- on bubbles and social rationality 3
- compared with ecological and institutional economics 115, 120–21, 124–32
- consumer choice theory of, 35, 120, 128, 141–2, 164, 288
- core ideas of 115, 118–24
- Critical Realism 28, 31, 40, 41, 119
- criticisms of neoclassical economics 15–16, 19, 27, 42, 115, 123
- critiques of neoclassical methodology 4, 7, 16
- decision-making in 18, 106, 107
- dynamic complexity and 20, 108, 221, 223–9
- and ecological economics compared 4, 17, 20, 29, 42–3, 47, 48, 49, 59, 101, 105–9, 114, 115, 121–32, 142, 143–7, 154, 256, 257, 276, 288
- and ecological sustainability 120–21
- on economic growth 17, 18, 108, 120–21
- environment policy prescriptions 109–11
- and environmental capital 20, 256–7, 258, 262, 263–6, 269, 276, 277
- and environmental/ecological economics 27, 49, 101, 114, 120–21, 130
- environmental interest low 49, 55, 120–21
- on full employment 15, 20, 54, 55, 56, 70, 71, 110, 120, 121, 237, 247, 248, 250, 251, 292, 294
- fundamental Keynesians 119–20
- Galbraith as bridge between Post Keynesian and ecological economics 68
- Galbraith as Post Keynesian 4, 56, 288
- on government deficit spending 20, 237, 247
- hierarchy of needs (‘principle of subordination’) 14, 120, 142, 147, 166
- income distribution 48
- inflation 48, 55, 56, 68, 248, 251
- and institutional economics comparison 18, 56, 115, 124–32, 288
- interest rates 15, 48
- Kaleckians 119–20
- Keynes and 119, 221
- ‘Keynes Post Keynesian’ school 223
- macrodynamic models 19–20
- mechanism in theory 32
- methodology of 4, 17, 27–8, 32, 39–40, 42, 41–3, 47, 119, 121
- microeconomics and 120
- on military–industrial complex 55
- money 15, 27, 36, 48, 59, 64, 66, 118–19, 125, 252
- and open systems 17, 28, 30–36, 56, 106, 108, 109, 119
- open systems analysis 30–36, 106, 108, 109, 119
- organicism and open systems 30–36
- pluralism of methods 41–2
- Post Keynesian environmental economics 42
- principle of irreducibility 120
- principle of non-independence 120

- production model and biophysical human activity 19
 realism and ontology 28–30, 55
 satisficing framework for investment in sustainable development *see* Post Keynesian satisficing approach
 Simon's influence on consumer choice theory 18, 141
 Sraffians/neo-Ricardians 119
 structure in theory 32
 and substitution effects 142, 145
 sustainable development investment policy 20–21, 288–93
 on uncertainty 11–12, 13, 15, 28, 32, 36–9, 43, 119, 120, 121, 127, 221, 223, 279, 288, 292
 uncertainty as common ground for Post Keynesian, ecological and institutional economics 127
 unemployment 3–4, 48, 70, 71, 126, 130–31, 237, 247, 248, 251, 256
see also consumer choice theory; Davidson, Paul; Galbraith, John Kenneth; historical time; Keynes, John Maynard; uncertainty
 Post Keynesian satisficing approach 10, 20–21, 127, 164, 279, 288–94, 295
see also bounded rationality
 precautionary principle 16, 40, 123, 143, 226, 231
 predator–prey model 20, 30, 221–2, 224–5, 229–31, 232
 Pressman, Steven 109, 288
 prices relative to consumption and production patterns 14, 15, 19, 52, 53, 54, 65–6, 68, 79, 82, 83–4, 89, 93, 120, 123, 131, 158–9, 161, 163–5, 174, 181, 207, 208, 229, 281
 Prigogine, Ilya
From Being to Becoming: Time and Complexity in the Physical Sciences 121
 general systems theory 121
 Princen, T. 131
 principle of subordination 14, 120, 142, 147, 166
 procedural theory 119–20
see also bounded rationality
 Prochaska, James O. 186
 production
 abandoned in economic theory 204–7
 alternative approaches to analysis 207–10
 ecological economists on 209
 MSIASM implemented in China 213–17, 218
 'Multi-Scale Integrated Analysis of Societal Metabolism' (MSIASM) 19, 210–17, 218
 social accounting matrix (SAM) 209
 societal metabolism 19, 210–17, 218
see also consumption and production patterns; Georgescu-Roegen, N.; Kalecki, Michał; Sraffa, Piero
Production of Commodities by Means of Production 208
 Project Balance 19, 180, 184–94, 195
 Proops, J. 47, 123, 285, 287
 Prowse, Stephen D. 244
 psychological economics 10, 195
 radical (Knightian) uncertainty 118, 123, 125
 Ramos-Martin, Jesus
 China's economic transition 19, 213–17
Homo economicus 19
 human behavior 19
 'Multi-Scale Integrated Analysis of Societal Metabolism' (MSIASM) 19, 210–17
 neoclassical welfare economics 19
 Post Keynesian production model and biophysical human activity 19
 Randall, A. 281
 Randers, J.
 economic growth's environmental and social impacts 55, 121
 limits to economic growth 6, 121
Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind 121, 122
 mainstream economists' critiques of *Limits to Growth* book 122
 resource limitations 121

- Ravetz, J.R. 7, 48, 62, 63, 123
 Rawls, J. 160
 Rayner, Steve 92
 Rees, W.E. 122
 regulation of environment
 and competitive advantage 20,
 238–41
 and emissions 162
 Environmental Protection Agency
 110, 112
 smart (or responsive) regulation 20,
 237, 241–2, 249–51
 Reich, Robert B. 87
 Reiling, S.D. 181
 Reisch, Lucia A.
 consumer choice 13–14, 19, 124, 178,
 180
 consumer choice on cars 13–14
 ecological economics of
 consumption 124
 Germany, media and sustainable
 behavior 19, 180
 market economy 10
 mass media and consumer choices
 19, 178
 material consumption 10, 19
 Project Balance 19, 180, 190, 191,
 195
 sustainable consumption choice 19,
 178, 180
 renewable or non-renewable energy 10,
 50, 51, 55, 104, 107
 resource scarcity 19, 55, 93, 116, 126,
 263
 Rheingans-Heintze, Anke 195–6, 196
 Ricardo, D. 72, 204, 205, 207–8
 Richins, M.L. 190
 Ricoy, C. 292
 Ringold, Debra Jones 183
 Rio Negro region case studies 20,
 258–61, 269–73, 276–7
 Rip, A. 282, 283
 Rivas, Alexandre
 Amazonas, Brazil 15, 20, 259
 health care 259
 Roberto, N. 184
 Robinson, Joan 12, 16, 32, 35, 141,
 208, 282
 Røpke, I. 10, 121, 124, 179, 180
 Rogers, Everett M. 189
 Romer, P. 206
 Roncaglia, A. 71, 208
 Rosser, J. Barkley, Jr
 catastrophic changes due to human
 activity 20, 225
 chaotic dynamics 20, 227–8
 complex dynamics 20, 108, 221–3,
 229
 complex systems 4, 19–20, 108–9
 complexity and uncertainty 221,
 223–9
 ecologic–economic systems and
 complex dynamics 108–9
 ecological economic dynamics
 19–20
 ecological models 20
 ecological thresholds 226–9, 231–2
 endogeneity of macro fluctuations
 229
 fishery dynamics 225–8
 free market and environmental
 problems 110
 Gordon–Schaefer–Clark fishery
 model 227–8
 government and environmental
 problems 110
 neoclassical welfare economics’
 (NWE) collapse 203
 Post Keynesian macrodynamic
 models 19–20
 Post Keynesians 12, 19–20
 precautionary principle 226, 231
 predator–prey model 20, 221–2
 public policy in complex system
 108–9
 scale-matching principle 231
 uncertainty 12, 19–20, 221, 223–9,
 231
 Rothman, H. 203
 Roy, R. 141
 Runde, J. 37
 Rymes, T.K. 208, 217
 Salanti, A. 41
 Salter, W.E.G. 165
 Samuels, W.G. 117
 Samuelson, P.A. 206
 Sandel, Michael J. 87
 Sardanyés, Josep 231
 Satchell, S.E. 244

- satisficing approach 10, 20–21, 127, 164, 279, 288–94, 295
see also bounded rationality
- Say's Law 68, 72, 265
- Schaefer, M.B. 225, 227, 227, 228
- Schaffer, W.M. 230
- Schandl, Heinz
 agrarian to industrial transition 51, 53
 economic growth and negative consequences 17
 energy transition in the United Kingdom (UK) 51
 historical time 17
 industrial metabolism 47
 industrialization and agrarian transition 51, 53, 53
 Post Keynesian and ecological economics 4, 17
 Post Keynesians and economic growth 17
 socio-ecological regime 10
 uncertainty 17
- Schefold, Bertram 141
- Schelling, Thomas C. 223
- Schembri, P. 283, 295
- Schindler, D.W. 224
- Schmid, A.A. 117
- Schulz, N. 10, 47, 51
- Schulze, W.D. 6
- Schumpeter, Joseph A. 105, 173, 247
- Schwartz, N. 283
- Schwartz, S.H. 181
- Schwender, C. 190
- Scott, Robert H., III
 Boulding, Kenneth 18
 economic growth and negative consequences 17
 historical time 17
 Post Keynesian and ecological economics 17
 Project Balance 19
 uncertainty 17
- Screpanti, E. 41
- Sen, Amartya K. 101, 203
- Setterfield, Mark 13, 265, 282
- Shackle, George L.S. 12, 163, 174
- Shaikh, A. 206
- Shaver, Kelly G. 182
- Shleifer, A. 244
- Shuen, A. 241, 242–3
- Siddarth, S. 186
- Siebenhüner, B. 124
- Sieferle, R.P. 10, 50, 51, 53
- Simon, Herbert A.
 bounded rationality concept 117
 influence on Post Keynesian consumer choice theory 18, 141
 optimizing objectives for sustainable development 288
- Simonis, U.E. 10, 47
- Sjöstrand, S.-E. 117
- Smil, V. 52
- Smith, Adam
 individual greed and the public good through markets 86
 natural man 205
 production as central to economic analysis 204–5
The Theory of Moral Sentiments 204
The Wealth of Nations 204–5
- Smith, Christian 90
- Smith, W.A. 184
- Sneddon, C. 57
- social capital 20, 175, 256, 262, 263, 264, 265–6, 269–70, 273, 276–7
The Social Costs of Private Enterprise 65
- social ecological economics 9–11
- social metabolism 122
- social rationality 13–14
- societal metabolism 19, 210–17, 218
- socio-ecological systems 87–8, 123, 295
- socio-economic systems 67, 69, 88
- Söderbaum, P. 48, 114, 124, 285
- Solé, Ricard V. 230, 231
- Solow, R.M. 16, 100, 122, 206
- Sopory, Pradeep 189
- Sorger, Gerhard 228
- Soudack, A.E. 230
- 'spaceship earth' *see* Boulding
- Spash, Clive L. 6
 capital controversies 29–30
 consumer choice 13–14
 consumer choice on cars 13–14
 contingent valuation 124
 cost–benefit analysis 38–9, 194
 critical and non-critical natural capital 29–30

- division among ecological economists 8
- ecological economics description 71
- economic impact of environmental degradation 100
- economics of climate change 92, 100
- economism 92
- economy–environment nexus and political economy 48
- ethical conduct and public policy 194
- historical time 17
- institutional economics and the environment 48
- irreducibility principle 145
- on the Intergovernmental Panel on Climate Change (IPCC) 91–2
- lexicographic preference and environmental action 123, 128, 145–8, 149–53, 181
- mainstream economists 106, 123, 128, 145–8
- on methodology 38–9, 40, 145–8
- about models on climate change 40
- natural capital 29–30, 43, 50, 59
- natural capital and problems with 50
- objections to cost–benefit analysis 38–9
- political economy of nature 48
- Post Keynesian and ecological economics 4, 17
- Post Keynesians and economic growth 17
- probability and risk 37–8
- probability and uncertainty 37–8
- Stern report on economics of climate change 92
- strong uncertainty 17, 47–8, 162–3
- subordination of needs 145
- sustainability approach 92
- willingness-to-pay (WTP) determinants 181
- Spratt, David 86
- Sraffa, Piero 204, 207–8, 217–18, 252
 - Production of Commodities by Means of Production* 208
- Stagl, S. 124
- Stanfield, J. 282–3, 286
- Stanton, E. 293
- steady-state economy 6, 56, 121, 122, 178, 284–8, 296
- steady-state optimality approach 284–8, 296
 - see also* neoclassical optimality approach
- steady-state population 104, 105
- Steedman, I. 144, 204, 208
- Steenkamp, J.-B. 182
- Stern, D. 286, 287, 288, 294, 295, 296
- Stern, Nicholas 92
- Stern, P.C. 181
- Stern report on economics of climate change 92
- Stevens, T.H. 145, 149, 151
- Stiglitz, Joseph 8, 203
- Stirling, A. 41, 43
- Strotz, Robert H. 229
- subordination of needs 19, 120, 1432, 145, 147, 154
- substitution effects 5, 14–15, 142, 145
- sustainability *see* ecological sustainability; sustainable consumption; sustainable development
- sustainable consumption (environmental) 19, 178–80, 182–3, 186, 188, 190, 191, 193–5, 232
- sustainable development
 - Brundtland Report 257, 263, 280
 - conditions for 262–7
 - definition of 280
 - environmental quality protection and 264
 - free market environmentalism 281, 286
 - human capital and 20, 258, 262–6, 269–70, 276, 277
 - human-made capital 258, 262–3, 265–6, 269–70, 276, 277
 - market-based approaches 79
 - market signals and 281–2, 284, 295
 - social capital and 20, 175, 256, 262, 263, 264, 265–6, 269–70, 273, 276–7
 - and traditional peoples 20, 78, 257–8, 259–60, 268–9, 270, 272, 275–6

- see also* environmental capital;
 natural capital; neoclassical
 optimality approach; Post
 Keynesian satisficing approach
- Sutton, Phillip 86
- Swaney, J.A. 117
- Swanson, T.M. 60
- Swimme, Brian 91
- systems
 catastrophically discontinuous
 ecologic-economic systems
 223–6
 definition of 32
 see also agrarian societies; Boulding,
 Kenneth; closed systems;
 complex systems; economic
 systems; environmental systems;
 free market systems; living
 systems; natural systems; open
 systems; socio-economic systems
- technology as solution for
 environmental problems 58–63
- Teece, D.J. 241, 242–3
- terminator gene 62
- Theory of Planned Behaviour 182
- Theory of Reasoned Action 182
- Theory of Trying 182
- think-tanks and environmental policies
 109
- Tool, M.R. 117
- Toyota hybrid cars 166–7, 173
- Toyota Prius 166–7, 169
- tradable rights
 pollution permits 6, 60, 105, 158,
 160, 168, 181
 reproductive rights 105, 111
- traditional peoples and sustainable
 development 20, 78, 257–8,
 259–60, 268–9, 270, 272, 275–6
- transaction cost theory 244–5
- Transtheoretical Model of Behaviour
 Change 186–7
- traverse economics 289
 see also Kalecki, Michał; Lowe,
 Adolph
- Tsuda, Ichiro 231
- Tucker, Mary Evelyn 91
- Turchin, Peter 231
- Tymoigne, E. 114
- UK *see* United Kingdom
- uncertainty 282, 283, 286–9, 295
 ‘animal spirits’ and 11
 arguments for 12
 bounded rationality and 117, 127
 business cycle and 280
 categories of 133
 causal mechanisms and 32
 causing investment instability 289
 choice motivated by 10
 as common ground for Post
 Keynesian, ecological and
 institutional economics 127
 ‘competitive’ version of 246
 and complex dynamics 20, 223–9,
 231
 complexity and 123–5, 221, 223–9,
 291, 292
 corporations creating 116–17
 crises caused by strategy towards
 uncertainty reduction 119
 and decision-making 18, 106, 107–8
 description of 11
 definition of as ‘strong’ vs. ‘weak’
 47–8
 ecological economics and 47, 125,
 127, 231, 287
 and ecological systems 125, 127
 environmental investments and
 250–51
 and environmental issues 10, 125,
 127, 147
 expectations and 11, 47, 116, 282
 fundamental version of 120, 125,
 143, 147, 221, 223, 229, 287,
 288, 292
 and future effects 36–9
 implications of ontology for 17
 and innovation 246
 institutional economics and 127
 institutions as a source of 118
 and investment instability 289
 Keynes on 27, 118, 119
 Keynesian concept of 223, 226, 229,
 231, 232
 Knightian (radical) uncertainty
 15–16, 106, 118, 120, 123,
 125
 mainstream approaches to 162
 mixed-methods research and 41

- and neoclassical economics
 - assumptions 16
- as non-probabilistic 36–9
- and open systems theory 37–8
- as Post Keynesian principle 11
- Post Keynesians and 11–12, 13, 15, 28, 32, 36–9, 43, 119, 120, 121, 127, 221, 223, 279, 288, 292
- and precautionary principle 40, 143
- and probability 37–9
- ‘productive’ version of 246
- radical version of 15–16, 106, 118, 120, 123, 125, 127, 143
- reduction of 119
- and satisficing behavior 127
- in social systems 127
- and speculators 116
- ‘strong’ version of 47–8, 56, 61, 62, 70–71, 147, 162–3
- in technology 282, 283
- uncertain demand 116
- ‘weak’ version of 162
- in working class 116–17
- see also* Keynes, John Maynard; Post Keynesian economics
- United Kingdom (UK) 51–3, 69
- United Nations Development Programme 57

- van den Bergh, J.C.J.M. 35, 124, 143, 145, 154
- Van Liere, K.D. 181
- Vatn, Arild
 - biophysical processes as basis of economic system 122
 - bounded rationality concept 117
 - ‘choices without prices without apologies’ 145
 - Commons, John R. 116–17
 - complementarity and biophysical systems 122–3
 - contingent valuation 123–4
 - ecological economics and institutional analysis 48, 114
 - ecological economics’ core ideas 115, 121–4
 - ecological economics’ origins 121–2
 - ecological economists on economic growth 18
 - ecological, institutional and Post Keynesian economics compared 4, 115, 124–32
 - ethics in environmental choices 123–4
 - Georgescu-Roegen, N. 121
 - hierarchy of needs 120
 - human behavior 117
 - incongruity problem 144
 - institutional economics’ core ideas 115–18
 - on institutional theory 114
 - institutions and individual action 128–9
 - irreversibility 123
 - Kalecki, Michał 119–20
 - Keynes, John Maynard 118–19
 - Lavoie, Marc 120
 - law of entropy for economic process 121
 - Meadows, D., *Limits to Growth* 121
 - motivation and behavior 124
 - multidimensional choice 144
 - neoclassical concept of capital 116
 - neoclassical concept of private property 116
 - non-ergodicity 123
 - plural rationality 117
 - Post Keynesian core ideas 115, 118–24
 - Post Keynesians and ecological economics 4, 115, 124–32
 - Post Keynesians on economic growth 18, 120–21
 - Post Keynesians and low interest in environmental concerns 120–21
 - power concept in institutional theory 117–18
 - precautionary principle and fundamental uncertainty 143
 - principle of non-independence 120
 - private and social preferences 117
 - rationality 124, 128
 - resilience concept 123
 - securing sustainability through altering motivation structures 131
 - Simon, Herbert 117
 - social metabolism 122
 - ‘spaceship earth’ of Boulding 121

- uncertainty 116, 143
- Veblen, Thorstein 115–17
- Veblen, Thorstein 115–17, 119, 124, 129, 166, 206
- Velupillai, Kumaraswamy Vela 222
- Vercelli, A. 280, 286, 288, 289
- Verspagen, B. 283, 294
- Vidal, C. 142
- Villena, M.G. 48, 124
- Vishny, R.W. 244
- Volterra, V. 225, 229, 230
- Wackernagel, M. 122
- Wagener, Florian O.O. 224
- Wakeley, Tim
 - consumer durables and
 - environmental problems 163–6
 - government standards needed for automobiles 15
 - government standards reducing
 - environmental consequences of consumption 19
 - consumer lifestyles and
 - environmental problems 163–6
 - price-based pollution control
 - policies 158, 173
 - reducing greenhouse gas emissions
 - from automobiles 19
 - resource allocation and product
 - development decisions 173
 - standards-based pollution control
 - policies 158, 173–4
- Walker, Brian 8
- Walker, J. 128
- Walras, L. 205, 218
- Walters, Carl J. 60, 61, 225
- Ward, M. 284
- Warshaw, P. 182
- Watson, D. 190
- Webb, D.J. 186
- Weinberg, Peter 186
- Weisz, H. 122
- welfare economics *see* neoclassical
 - welfare economics (NWE)
- Welt der Wunder (World of Wonders)*
 - 187–90, 192, 193
- Weyant, John P. 84
- Wicklund, R.A. 167
- Wicksell, K. 205
- Wicksteed, P.H. 205
- Williamson, Oliver E. 244, 245
- Wilson, Matthew A. 93
- Wilthagen, J. 249
- Winnett, A. 16, 279, 295
- Winslow, E.J. 30
- Withagen, Cees A. 262
- Wolburg, Joyce 183
- World of Wonders see Welt der Wunder*
- Wray, L.R. 105
- Wray, Randy 248
- Wynne, B. 7, 48, 62, 63
- Young, R.A. 174
- Zamagni, S. 143
- Zipf, G.K.
- Zimmer, C. 227

Index prepared by Donna Reeder.

