Index

absorptive capacity
  in firms 11
  and foreign spillovers 121–44
  and ICT adoption 258–9
  and innovation 11
  productivity growth see productivity growth
  and technologies 128, 129
Accenture 52
Acorn Computers 36–7, 42
adaptationism
  in evolutionary biology 207–8, 209
  institutional, Cambridge 43–4
agents
  bounded rational 2, 6
  co-location of 10
  efficiency of 205
  interaction of 183, 210, 241, 249
  representative 1–2, 5
  see also networks
agglomeration
  automobile industry 70, 86–8, 90
  automobile industry, US 7, 8, 14–15, 30, 70, 74–80
  creative destruction 2
  extraordinary 87–8
  and information spillovers 158
  and infrastructure 16–17
  and innovation 70
  mobile production factors 1, 2
  and patents 235
  and performance 70
  and production costs 89
  productive capacity in Europe 231
  radio industry 73, 74, 77, 86
  and shakeouts 88–9
  and spin-offs 30, 86–8
  television receiver industry 70, 71–4, 77, 79, 85–6, 89
  tire industry 84, 86–8, 90
  and wealth distribution 1, 18
  see also clusters
agglomeration economies
  and automobile industry 86–8, 90
  location choice 8, 69–70, 79–80, 86–8, 90
  new firm location 8
  and related industries 9
  as spillover 88
  spin-offs 30
  and television industry 74, 79–80
  and tire industry 84, 86–8
  see also path dependency; spin-offs
Air France 51
Alchian, A. 208
Allergan 52
Amadeus 51
Amin, A. 1, 163
Amsterdam see Netherlands
Andersson, C. 12
Antonelli, C. 2, 182
ARM 36–7, 42
Arrow, K. 93, 152, 158, 161, 163
Arthur, W.B. 2, 7, 8, 29–30, 180, 210
Attaran, M. 204
Audretsch, D. 163, 258, 262
Audubon Society 99, 104, 105–6
automobile industry
  agglomeration 70, 86–8, 90
  and agglomeration economies 86–8, 90
  agglomeration in US 7, 8, 14–15, 30, 70, 74–80
  geographic structure, evolution of 76–90
  heterogeneity 79
  incumbents as source of competence 85–6
  knowledge diffusion 8, 9, 16
  knowledge, tacit 79, 80
  mergers 78
  networks 8
  pre-entry experience 79
  related industries, influence of 88
Index

seeding industries 76–7, 79
shakeouts 88–9
spillovers 88
spin-offs 77–8, 79, 85, 86, 87–8, 90
subcontracting 78, 79, 88
technological progress 77
UK 8–9, 16
Aventis 52
Aydalot, P. and D. Keeble 6
Aztema, O. and J. Weltevreden 258
Baptista, R. 163
Barabasi, A. and R. Albert 10, 11–12, 234
Barrat, A. 12
Basu, S. and D. Weil 123
Battese, G. and T. Coelli 126, 127
Becker, M. 18
Begg, I. 203
Bell, M. 162, 175
Bertolini, Luca 279–310
biotechnology research, Cambridge 7, 27, 31, 32, 33, 34, 39–41
Birke, Daniel 180–200
Black, D. and V. Henderson 203
Bonaccorsi, Andrea 256–76
Borgatti, S. 167, 182, 240
Boschma, Ron A. 1–24, 30, 162, 163, 166, 203, 212, 281
Bottazzi, G. 2
Brakman, S. 1, 204
Brenner, T. 2
Breschi, S. 2, 10, 18, 28, 29, 88, 162, 182, 235, 236, 240, 241
Brundtland Report 308
Buenstorf, G. and S. Klepper 70, 80, 81, 82–3, 84, 87, 89
Buick/General Motors 78
Burt, R. 10
business angels 60
Cadillac 78
Cambridge
academic entrepreneurship 28
Acorn Computers 36–7, 42
bioinformatics 41
biotechnology research 7, 27, 31, 32, 33, 34, 39–41
chemical engineering department 37
clustering 30, 31–41
customers, international 29, 30
Defense Advanced Research Agency (DARPA) 44
Element-14 36
entrepreneurship 43–4
entry barriers, low 35
firm turnover 34
Greater Cambridge Partnership 44
Human Genome project 41
ICT 35–41, 43
industrial ink jet printing 38–9
Innovation Centre 43
instrumentation sector 34–5
internationalisation 41–2
IP rights 36, 37–8, 39, 41, 43
Medical Research Council 41
Network Computer 36
networks 28, 39, 43–4
new business models 42
new entrants 32, 35–7, 39, 41, 42, 43
outsourcing 29, 39
scientific instrumentation 32–5
Small Business Innovation Research (SBIR) 44
spin-offs 28–9
spin-outs 35–41, 42
survival rates 32, 35
technical design consultancies 37–8, 42
technology transfer 43
university links 35, 39, 40
US investment 41–2, 43, 44
venture capital 41–2
Cambridge Antibody Technologies 39–41
Cambridge Consultants Ltd (CCL) 37–8
Cambridge Display Technology and Plastic Logic 39
Cambridge Instruments 34
Cambridge Scientific Instruments 34
Camison, C. 161, 164, 172
Canada, ICT regional disparities 257
Caniëls, M. 2, 12
Cantner, U. 9, 183
Cantwell, J. and S. Iammarino 18
Capello, R. and A. Faggian 161, 164, 165, 174
Carrington, P. 10
Carroll, G. and M. Hannan 9
Castells, M. 3, 14
CDT 42
Celltech 41
Chandra, S. 204, 210, 213
Chang, H.-J. 15
Chile, wine clusters analysis 166–76
China, ICT regional disparities 258
Chiroscience 41
Christensen, K. 306
Chrysler 79
Cird/Galderma 52
CIS 42
clusters
Cambridge 30, 31–41
embeddedness in 164, 165–6, 168, 171–4
as endogenous process 28–30
geographic 69
heterogeneous performance, effects on 164–6
heterogeneous performance and networks 161–79
and innovation 162, 163, 172
local supply chain benefits 28–9
network analysis 10, 11, 240–45
and patents 235
spatial, evolutionary models 29
specialised 5, 30
and spin-offs 29–30
US 30, 70
wine in Chile 166–76
see also agglomeration
Cohen, W. and D. Levinthal 122, 128, 165, 258
Coleman, J. 147, 151
collective action, and technological change 95–6
collective invention 162
comparative advantage theory 206
competition
and co-location 29
competitive advantage 163
cost 7–8
in Europe 235
and exiting firms 7
international 9, 34, 74
and regional development 204, 210, 257
and spatial concentration 9
US 74
complexity
complex knowledge transfer 148–53
informational and knowledge diffusion 147–60
urban transportation planning 280, 281, 308
congestion 6, 70, 223
connectivity 11, 12, 14, 15, 62, 64, 65
see also networks
consumers
and bounded rationality 11
co-locating with 28
and market networks 180
networks 11
peer effect 180
preference changes 94
and social status 180
convergence 12, 122, 123, 257
Cooke, P. 11
Cordis/Zeneca 52
Cowan, R. 11, 180, 183
Crang, P. 113
creative destruction 2
DARPA (Defense Advanced Research Agency) 44
data envelopment analysis 125, 126
Davis, G.F. 93, 94, 95, 147
De Jong, M. 6
DEC/Compaq 52
defence spending 45
deregulation 94
developing countries, technological progress 127, 257
Diamond Rubber 82
DiMaggio, P. and W. Powell 114
disk drive industry 90
Dissart, J. 204
diversity
evolutionary potential 12, 205, 206, 207–8, 209–11
in firms 208
Herfindahl index 213–14
and innovation 15, 207, 210
in new industries 77
optimality and stability 208–9
and path dependency 210
portfolio theory 211–13
Koen Frenken - 9781847205391
Downloaded from Elgar Online at 06/08/2019 04:16:48AM
via free access
Index

and productivity levels 123
radio industry 73, 86
regional development 13, 16, 204–23, 205
as risk-minimizing strategy 210, 211
and selection 205, 207–8, 210
Sophia-Antipolis science park 50, 52, 60, 62
stability and growth 206–13
and survival 208
tire industry 82, 83
US 203–29
US county business patterns employment data 213–23
Domino Printing Services 38, 39
Dopfer, K. 19
Dosi, G. 2, 19, 165, 207, 281
see also dotcom revolution 56, 59–60, 62
Echointeractive 62
economic geography 93, 206, 208
economic growth
decline and vested interests 12
efficiency improvements 13
and firm success 7
inputs growth 13
product life cycles 8, 12
and regional development 204, 206–13
and routines 204
Sophia-Antipolis science park 6–7, 15, 16, 17, 55–6
and spillovers 13
uneven 2, 5
urban 14
and variety 13, 204
see also productivity growth
Edison Electric Institute 105, 106
efficiency
adaptive 205, 207–10
dynamic and static 15
and specialization 212
electrical power industry, US see US power industry
Ellison, G. and E. Glaeser 69, 87, 270
Elmjet 39
employment levels
Cambridge 31–2, 33
Sophia-Antipolis science park 49, 51, 52–3, 55, 56, 59
US county business patterns 213–23
see also unemployment
entrepreneurial opportunity
collection 93–120
diagnostic framing 100–102
legal and regulative structure 97–8
motivational framing and resource mobilization 104–7
prognostic framing 100, 102–4
and social movements 95–7, 100, 104
US power industry see US power industry
entrepreneurship
academic 28
Cambridge 43–4
and clusters see clusters
coevolutionary process of 6
and collective action 95–7
competent, importance of 15
and corporate form, problems with 96
demand side 94
endogenous nature of 6
and evolutionary economic geography 5–7
and geographical proximity 5
high-tech 6
and productivity growth see productivity growth
regional, uneven rates of 5
Sophia-Antipolis science park 53, 54, 56, 60, 62
Enzymatics 41
EPÖ co-patenting applications 231–3, 235–6, 238, 242–7, 249–50
Erasmus student flows 231–3, 236–7, 238–40, 243, 246–7, 250
Eriksson 45
Essletzbichler, Jürgen 2, 5, 203–29
ETSI (European Telecom Standard Institute) 56, 62
Europe
agglomeration and productive capacity 231
Index

competitiveness 235
EPO co-patenting applications
   231–3, 235–6, 238, 242–7, 249–50
Erasmus student flows 231–3, 236–7, 238–40, 243, 246–7, 250
Fifth Framework Programme (5FP)
   235
income levels 231
inter-regional knowledge flows
   230–55
Internet hyperlinks 231, 232, 233–4, 238, 239, 240, 242, 243, 246–7, 248
knowledge flows network analysis
   240–45
Lisbon 2000 European Council 231, 236
Maastricht Treaty (Article 130G)
   235
mobile networks pricing strategy
   181
R&D facilities from extra-European firms
   55
research networks 231, 232, 234–5, 238–40, 242, 243, 246–7, 249
Single European Act 235
Sophia-Antipolis science park see Sophia-Antipolis science park

evolutionary biology
   adaptationism 207–8, 209
   survival in 207

evolutionary economic geography applications of 1–24, 162, 163–4
case-study research 3
and entrepreneurship 5–7
and institutions 2
macro levels 3, 4, 12, 13
meso levels 3, 4, 7, 163, 164, 165
methodology 3
micro levels 4, 163, 164, 165
network analysis 10–12, 240–45
new industries see new industries
path dependency 2, 6, 18
spatial concentration 9
survival analysis 9
territorial differences 2
see also geographical distance; geographical proximity; institutional economic
go geography; new economic geography

evolutionary economics
diversity and selection 12, 205, 206, 207–8, 209–11
and innovation 5, 182–3
and knowledge diffusion 183
regional development 15
and routines 18, 207–8
social network analysis 11–12, 182–3
and social network theory 182–3
spatial clusters 29
urban transportation planning see urban transport planning

evolutionary growth theory 18

Farrell, J. and G. Saloner 180
FDI 121, 246
Feldman, M.P. 163, 203, 232
Firestone 80, 81, 82
firms
   absorptive capacity and innovation 11
   in agglomerated regions see agglomeration
   clusters see clusters
   co-location 29
core competencies 5
diversity in 208
economic behaviour, variety in 282
economic growth and success 7
embeddedness of 164, 165–6, 168, 171–4
evolutionary growth theory 18, 165, 281–2
exiting 7, 8, 57, 74
founder history and location 5, 6, 8
heterogeneous 5, 11, 129, 161–79
high-tech 6, 10
innovation in see innovation
internal resources 165, 174
knowledge diffusion see knowledge diffusion
location behaviour 5, 6, 28, 29
migration 13
and networks see networks
new entrants see new entrants
non-local relationships 11
outsourcing 6, 29

Koen Frenken - 9781847205391
Downloaded from Elgar Online at 06/08/2019 04:16:48AM via free access
performance and geographical proximity 162–4, 174–5
productivity levels see productivity levels
in related industries 84–5
relational proximity 161, 162–4
relocation 5, 6
routines in 5, 8
size and spin-offs 7
spatial concentration 7, 8, 9
supply chain externalities 28
technology sharing 128
Fleming, Lee 147–60
Fligstein, N. 93, 94, 95, 97
footwear industry 11, 89–90
Foray, D. 15
Ford Motor Co. 75, 78, 79
France
engineering sector 16
infrastructure 17, 44, 50
science-industry relationships 60
Sophia-Antipolis science park 6–7, 15, 16, 17, 44, 48–66
university Internet hyperlinks 234
see also Europe
free-riders, and collective action 94
Freeman, C. 10, 12
Frenken, Koen 1–24, 30, 149, 162, 208, 211, 212
Friedland, R. and R. Alford 95
Friends of the Earth 105
Fujita, M. 1, 211
Galliano, D. and P. Roux 258
Garnsey, Elizabeth 7, 27–47
General Motors 75, 79
geographic attractiveness 29
clusters 69
geographical distance 5, 163, 231–2
gravity equations 246–51
see also evolutionary economic geography
geographical proximity and entrepreneurship 5
and knowledge diffusion 10, 14, 18, 152–3, 155–7, 161, 162–4
networks and 10
and performance 162–4, 174–5
social boundaries and 152, 155, 157
see also evolutionary economic geography
Germany
environmental sector 16
synthetic dye industry 10
university Internet hyperlinks 234
see also Europe
Gertler, M.S. 1
ghost towns 212
Giampietro, M. and K. Mayumi 206, 207, 211
Gifford, J. 279, 306
Giugni, M. 95, 114
Giuliani, Elisa 11, 161–79
Glaeser, E. 69, 87, 204, 270
Goodrich 80, 81, 82, 87–8
Goodyear 80, 81
Grabher, G. 12, 210
Granovetter, M. 10, 18, 114, 152, 164, 210
gravity equations 246–51
Guimerá, R. and L. Amaral 12
Gulati, R. 166
Hagedoorn, J. 10
Hall, P. and A. Markusen 6
Hannan, M. 9
Hansatech 39
Harris, C. 93
Harvey, D. 203, 210
Heffernan, Paul 27–47
Henderson, J. 203, 204
heterogeneity
accumulation process in Sophia-Antipolis science park 51, 52–4, 56
automobile industry 79
effects on clusters performance 164–6
firms 5, 11, 129, 161–79
in industry and labour productivity 139
knowledge bases 165
performance of clusters and networks 161–79
routines 7, 8
in routines 7, 8
Sophia-Antipolis science park 51, 52–4, 56
spatial in ICT adoption 268
Index

and technical efficiency 129
and technical efficiency 129
tire industry 84
in urban transportation planning
279
Hewlett Packard 34–5
high-tech
region, Cambridge 6, 15, 17, 27–47
SMEs 57, 58–60, 62–4
see also ICT
Hodgson, G. 1, 205, 207
Hohenberg, P. and L. Lees 14
Holling, C.S. 205, 206, 208
Hudson, R. 203
Human Genome project 41

ICT
ICT
ICT
and absorptive capacity 258–9
Cambridge 35–41, 43
domain names as proxy for adoption
259–64
dotcom revolution 56, 59–60, 62
high-tech entrepreneurship 6
infrastructure 14
Internet hyperlinks 231–4, 238–40,
242–3, 246–8
local digital divide 257–9
and market characteristics 259
new technologies, territorial
adoption of 256–76
regional disparities 257, 258
regional disparities, US 257
Sophia-Antipolis science park 51–2,
53–5, 57, 59–61, 63–5
spatial econometric approach to
inequalities 256–76
spatial heterogeneity in 268
territorial adoption, econometric
models of 264–9
see also high-tech
incumbents as source of competence
85–6
India, ICT 257
Indonesia
labour productivity analysis 121–44
see also productivity growth
industry
industry
industry
de-concentration of 7
dynamics 4, 7–10
geographic structure, evolution of 90
life-cycle model 7
organisational ecology 9
self-reinforcing process 9
see also firms
infrastructure
Sophia-Antipolis science park 50,
51, 54, 55, 63, 64
UK 17, 305
innovation
and agglomeration 70
and clusters 162, 163, 172
and collective action 96
and diversity 15, 207, 210
and evolutionary economics 5,
182–3
and firm’s absorptive capacity 11
and industrial dynamics 94
Innovation Centre, Cambridge 43
network analysis 10–12, 183, 240–45
and new sectors 10
patents see patents
post-entry 9
process 7–8
and productivity growth 123, 124–5
as search process 148, 149
Sophia-Antipolis science park 49,
54, 56, 57, 60–65
spatial distribution 262
and technology levels 123
in UK 41
see also spillovers; patents; R&D
INRIA 56
institutional economic geography
applications of 1, 93, 113–14
case-study research 1–2
see also evolutionary economic
geography
institutions
co-evolutionary process 9–10
and collective action 95–6, 100
and environmental shocks 94
frameworks 5–6
new 10
reform of 6–7
rigidities 12
and spatial evolution 9–10
theory 5
intellectual property 36, 37–8, 39, 41,
43, 64
interactive learning, Sophia-Antipolis
science park 52, 56, 57, 60, 61, 62–3
international trade theory, gravity model 14
internationalisation, Sophia-Antipolis science park 50–51, 55, 56, 57–8
Ireland, ICT 257
Italy
  cooperative banks in rural areas 97
  domain name registrations 260–64
  footwear industry 11
  ICT regional disparities 258
  patents 267, 269
  territorial ICT adoption 264–9
Third Italy 203
university Internet hyperlinks 234
wine clusters analysis 162, 166–76
see also clusters
Erasmus student flows 231–3, 236–40, 243, 246–7, 250
and evolutionary economics 183
face-to-face interaction 106, 232, 236, 242, 248, 249
and geographical proximity 10, 14, 18, 152–3, 155–7, 161, 162–4
global knowledge 14, 18
gravity equations 246–51
and informational complexity 147–60
inter-regional in Europe 230–55
Internet hyperlinks 231–4, 238–40, 242–3, 246–8
knowledge receipt as search 148–50
location choice 29
network analysis, Europe 240–45
and network structure 10, 183
and new entrants 83
and relational proximity 9, 161, 162–4
research networks 231, 232, 234–5, 238
social boundaries 10, 151–3, 155–8, 163–4
and technological communities 152, 153, 155, 157, 166
tire industry 88
types of 232–7
US utility patents analysis 153–8
see also spillovers
Kogut, B. and U. Zander 6, 18, 93–4, 147, 148
Kort, R. 203
Krackhardt, D. 181, 193
Krugman, P. 1, 2, 28, 29, 69, 161, 204, 211, 232, 235
labour
  migration 13
  mobility 10, 39
  skilled 9, 29
labour productivity
  stochastic frontier analysis 121–44
Lamboo, J. 2, 5, 15, 162, 212
large company effects 45
laser industry 90
Lazerson, M. and G. Lorenzoni 161, 164
learning-by-doing 5, 128–9

Katz, M. and C. Shapiro 180
Kauffman, S. 149–50, 158
Keller, W. 271
Kitson, M. 203
Klepper, Steven 2, 6, 7, 8, 9, 30, 69–92, 128–9, 139
knowledge
  causal ambiguity 148
  codified 148–9, 158, 232–3, 236
  tacit 5, 148, 158, 164, 165, 232, 233, 236
knowledge bases, heterogeneous 165
knowledge diffusion
  in automobile industry 8, 9, 16
  and central hubs 14
  and clusters see clusters
  complex knowledge transfer 148–53
  complexity and access to template 150–51, 156–7
  and economic growth 13
EPO co-patenting applications 231–3, 235–6, 238–40, 243–7, 249–50

Jaaffee, A.B. 10, 16, 93, 161, 163, 232, 235, 250, 258, 270–71
Japan, semiconductor technology 74
Jessop, B. 203
Jovanovic, B. 208

Koen Frenken - 9781847205391
Downloaded from Elgar Online at 06/08/2019 04:16:48AM
via free access
learning, interactive 52, 56, 57, 60, 61, 62–3
Lee, Brandon 93–120
Leitner, H. and E. Sheppard 203
Levins, R. and R. Lewontin 205
Levinthal, D.A. 16, 165, 258
licensing 42
Lisbon 2000 European Council 231, 236
Lissoni, F. 2, 10, 18, 28, 29, 88, 162, 182, 235, 236, 241
localization economies 212
location choice
agglomeration economies 8, 69–70, 79–80, 86–8, 90
co-location 28–9
heterogeneity 8
knowledge diffusion 29
localities growth model 12
and spillovers 27, 28
value chain considerations 28
lock-in, spatial 8, 12, 210, 282
Los, Bart 121–44
Lounsbury, D. and M. Ventresca 95
Lovering, J. 203
Lovins, Amory 101–3
Lybertysurf 62
Maastricht Treaty (Article 130G) 235
McAdam, D. 94, 97
McCarthy, J. 97, 104
Maggioni, Mario A. 2, 230–55
Malizia, E. and S. Ke 214
Markusen, A. 6, 176
Marshall, A. 69, 93, 158, 161, 162–3, 164, 204
Martin, R. 1, 2, 18, 93, 113, 114, 162, 203, 211, 231
Maruyama, M. 29
Maskell, P. 5, 10, 161, 162, 163, 164
Matutinovic, I. 209, 210
Metcalf, J.S. 15, 182, 205, 207, 208
mobile telecommunications industry
operator choice criteria 187–9, 193–6
UK 183–98
Molina-Morales, F. and M. Martinez-Fernandez 161, 164, 165
Moore, G. and K. Davis 90
Moulton, B. 170
MS-DOS 36
multinationals 14, 18, 45
Sophia-Antipolis science park 57–8
see also oligopolies
Neary, J. 211
Nelson, R.R. 2, 9, 15, 113, 122, 205, 207, 208
and S.G. Winter 2, 5, 15, 19, 148, 150, 165, 207, 281
neoclassicism
and economic geography 1, 204
and price differentials 5
Netherlands
Amsterdam land use policy 285–90, 294–5, 296–7, 299, 300, 301
Amsterdam urban transportation planning 283, 284–308
infrastructure 17
Internet adoption 258
see also Europe
networks
agent interaction 183, 210, 241, 249
aggregation 13–14
analysis 10–12, 240–45
Cambridge 28, 39, 43–4
cities 14
cluster firms’ heterogeneous performance 161–79
and clusters 10, 11, 240–45
customer 11
dynamics model 11–12
economics of 180–200
externalities 210, 230
and geographical proximity 10
global knowledge 14, 18
hub-and-spoke 12
indirect effects 181
infrastructure 12
and innovation 10–12, 183, 240–45
inter-city 13–14
inter-regional 13–14
and knowledge diffusion 10, 183
see also knowledge diffusion
local 8
market, and consumers 180
mobile telephony see mobile telecommunications industry
and multinationals 14
preferential attachment 12
quadratic assignment procedure 181, 193
research (Europe) 231, 232, 234–5, 238–40, 242, 243, 246–7, 249
small-world 183
social network theory see social network analysis
Sophia-Antipolis science park 51, 62
transportation 14
see also agents; connectivity
new economic geography
development of 1
diversity and economic growth 204
geographical distance see geographical distance
geographical proximity see geographical proximity
methodology 1, 2
see also evolutionary economic geography; geographical distance; geographical proximity
new entrants
and agglomeration economies 8
bounded rationality 8
Cambridge 32, 35–7, 39, 41, 42, 43
and diversity 212
and knowledge diffusion 83
location choice 8
Sophia-Antipolis science park 49, 54, 56, 59–60
spatial distribution of 5, 9
survival analysis 5, 7, 8, 9, 32, 35
new growth theory 13
new industries
automobile industry see automobile industry
and collective action 94
diversification 77
evolution of geographic structure in 69–92
outsourcing 74
radio industry agglomeration 73, 74, 77, 86
seeding industries 76–7
television receiver industry agglomeration 70, 71–4, 77, 85–6, 89
tire industry see tire industry
new sectors
co-evolution of 9–10
and regional policy 16
new technologies, territorial adoption of see ICT
Nottingham University Business School social network survey 181–2, 185–98
Nuvolari, A. 149, 162
Odisei 62
Oerlemans, L. and M. Meeus 164
off-shoring 6
Olds Motor Works 78, 79, 87–8
oligopolies 70, 80
see also multinationals
Olivetti 36
organic food industry 96
organizations
and collective action 95–6, 105
and consultancy use 96
development of multi-locational 18
environmental shocks 94
membership 152
routines 281–2
theory 93, 94–5
outsourcing 6, 29, 39, 74
Overman, H. 1
Paci, R. and S. Usai 235
Pack, H. 122, 123, 141
patents
and agglomeration 235
and clusters 235
EPO co-patenting applications 231–3, 235–6, 238, 242–7, 249–50
and networks 28
see also innovation: R&D
path dependency
and cumulative process 30
and diversity 210
evolutionary economic geography 2, 6, 18
technology 180
urban transportation planning 283–4, 298–300, 302
see also agglomeration economies; spin-offs
Pearson coefficients 173, 232, 239, 240, 268
Penrose, E. 165
Perez, C. 10, 12, 15
performance, and agglomeration 70
Perrow, C. 95
Philips 34
Pinch, S. 161
Piore, M. and C. Sabel 93, 161
Piscitello, Lucia 256–76
planning
framework programmes, EU 235
and regional development 206
urban transportation see urban
transportation planning
Plouraboue, F. 11
Polanyi, M. 147, 148
policy
evaluation 3, 4
freedom 15, 16
implications 3, 4, 14–17
Porter, M. 5, 28, 161, 163, 204
portfolio theory 13, 311–13
Portugal
entrepreneurial start-ups 83
ICT regional disparities 258
Powell, W. 10, 114, 174
Poyhonen, P. 246
Pred, A. 14
price differentials 5–6
product life-cycle hypothesis 8, 12
product standardisation 7–8
product variety 215
production costs, and agglomeration
89
production location see location choice
productivity growth
accumulation theories 122
assimilation theories 122–3, 124
capital deepening (creating potential) 124
and convergence 12, 122, 123, 257
data envelopment analysis 125, 126
decomposition analysis 139–40
and diversity 123
estimation method 126–7
frontier and inefficiency estimation
131–9
source identification 124–6
stochastic analysis 121–44
see also economic growth
proximity
gerographical 5, 10, 152, 155, 157, 175
relational 163, 175
social 155, 157, 163, 175
spatial 270
Pumain, D. 12, 14
Pyke, F. 161
Quéré, Michel 48–66
Quigley, J. 204
R&D
Europe, facilities from extra-
European firms 55
and new entrant survival 9
research networks 231, 232, 234–5, 238
Sophia-Antipolis science park 50, 51, 52–3, 54, 55, 56, 57–8, 65
spillovers (Indonesia) 125–6, 127–8, 130–39
see also innovation; patents
Rabellotti, R. and H. Schmitz 161, 164
radio industry agglomeration 73, 74, 77, 86
Rammel, C. and van den Bergh, J. 206, 207, 208, 209
Rao, H. 93, 94, 95, 97, 100
Reed, R. and R. DeFillippi 147
regional development
co-evolutionary process of 6
and competition 204, 210, 257
and convergence 12, 122, 123, 257
diversification 13, 204–23
diversity 13, 16, 204–23, 205
and economic growth 204, 206–13
and economic survival 205
evolutionary 15
external shocks in demand 13
and firm success 7
gravity equations 246–51
and ICT see ICT
infrastructure provision 16–17
inter-regional knowledge flows in Europe 230–55
inter-regional networks 13–14
and new sectors 16
and planning decisions 206
portfolio theory 13, 311–13
renewability 12
revolutionary 15
spatial autocorrelation econometrics 13
spatial lock-in 8
and specialization 210–11
stability 206–13
US 203–29
US county business patterns
employment data 213–23
variety in 12–13, 16, 204, 212
see also individual industries
relational proximity 175
and knowledge diffusion 9, 161, 162–4
renewable energy technology, US
power industry 10, 95, 98–100, 102–7, 108
resources, creation of new 15
Respublica 62
Ricardo, D. 206
Rigby, D. 2, 5, 207, 211
Rivkin, Jan W. 147–60
Robert-Nicoud, F. 211
Rodan, S. and C. Galunic 166
Rohlf, J. 180
Rohm & Haas 52
Romanelli, E. and C. Schoonhoven 93, 95
Romer, P. 93
Rossi, Cristina 256–76
routines
disruption of 94
and economic growth 204
and evolutionary economics 18, 207–8
heterogeneous 7, 8
organizational 281–2
variety in 5, 6
Sapir, A. 230
Saviotti, P.P. 13, 207
Saxenian, A. 6, 35
Schneiberg, M. 95, 96, 97, 98, 114
Schoening, N. and L. Sweeney 206
Schumpeter, J. 2, 18, 94, 128, 148
science parks
reverse 53–4
Sophia-Antipolis see Sophia-Antipolis science park
Scott, A. 164, 203
Scott, R. 95, 101, 113, 114
selection
and diversity 205, 207–8, 210
spatial differences 5
shakeouts 88–9
Sheppard, E. 203, 211
Siemens 45
Sierra Club 99, 103, 104–5, 106–12
Simmie, J. 27
Sine, Wesley 93–120
Small world 42
SMEs
Small Business Innovation Research (SBIR), Cambridge 44
Sophia-Antipolis science park 56, 57, 58–60, 62–3, 64
Smith, E. 204
social boundaries
and geographical proximity 152, 155, 157
knowledge diffusion 10, 151–3, 155–8, 163–4
social movement organizations (SMOs) 104, 109, 114–15
social movement theory 93, 94–5, 114
social network analysis 180–200
and evolutionary economics 11–12, 182–3
and knowledge diffusion 147, 151–3, 155
network statistics 189–91
regression results 191–6
social status and consumers 180
social proximity 155, 157, 163–4, 175
Solomon, S. 11
Sophia-Antipolis science park
academic incubators 60
business angels 60
collaboration, local 62
competitiveness 55, 56
diversification 50, 52, 60, 62
employment levels 49, 51, 52–3, 55, 56, 59
entrepreneurial initiatives 53, 54, 56, 60, 62
governance of 49, 50–51, 54–60, 63
GSM technologies 65
historical characteristics 49–54, 63
infrastructure 50, 51, 54, 55, 63, 64
innovation 49, 54, 56, 57, 60–65
intellectual property rights 64
interactive learning 52, 56, 57, 60, 61, 62–3
internationalisation 50–51, 55, 56, 57–8
life sciences 51, 52–3, 54, 55
networking 51, 62
PhD training 54, 55, 56, 62–3
policy implications 60–65
R&D 50, 51, 52–3, 54, 55, 56, 57–8, 65
relocations 62
as reverse science park 53–4
SMEs 56, 57, 58–60, 62–3, 64
spin-offs, local 59–60, 62–3
telecom equipment providers 62, 63, 64
and University of Nice 52, 53–4, 60
venture capital 60
Sorensen, Olav 6, 9, 89, 94, 147–60
Spain
ICT regional disparities 258
university Internet hyperlinks 234
spatial
clusters 29
centration 7, 8, 9, 223
econometric approach to inequalities  in ICT 256–76
heterogeneity in ICT adoption 268
lock-in 8, 12, 210, 282
new entrants distribution 5, 9
proximity 270
systems 12–14
Spearman correlations 239, 240
specialization 12, 15, 29, 203, 206, 210–11, 212, 221
Sophia-Antipolis science park 51
spillovers
absorptive capacity and foreign 121–44
and agglomeration 158
agglomeration economies 88
automobile industry 88
and economic growth 13
free-riders 28
high-tech centres 27
and location choice 27, 28
R&D (Indonesia) 125–6, 127–8, 130–39
stochastic frontier analysis 121–44
technology 128–9
tire industry 88
utility patents analysis for 153–8
variety underlying 13
in wine production 11
see also knowledge diffusion
spin-offs
agglomeration economies 30
agglomeration inducement 30, 86–8
automobile industry 77–8, 79, 85, 86, 87–8, 90
Cambridge 28–9
and clusters 29–30
disk drive industry 90
and firm size 7
inherited routines 7
laser industry 90
model 7, 8–9
Sophia-Antipolis science park 59–60, 62–3
television industry 86, 87, 88
tire industry 82–3, 84, 85, 86–8, 90
in UK 6, 16
see also agglomeration economies;
path dependency
spin-outs 30
Cambridge 35–41, 42
Stam, E. 5, 6, 18
start-ups see new entrants
Stern, R. and S. Barley 95
Stinchcombe, A. 94, 95
stochastic frontier analysis, labour  productivity see productivity
growth
Storper, M. 2, 113
Strang, D. and E. Bradburn 97
structural change 12
Stuart, T. and O. Sorensen 6, 9, 94, 98
Suchman, M. 98, 100–101
sunk costs 12
survival
and diversity 208–9
in evolutionary biology 207
new entrants 5, 7, 8, 9, 32, 35
sustainability
Index

Sophia-Antipolis science park 51, 53, 54–5, 56, 63, 64
urban transportation planning 308
Swaminathan, A. and J. Wade 94
Swann, P. and M. Prevezer 2

Taylor, P. 14
technical efficiency, and heterogeneity 129
technological communities 152, 153, 155, 157, 166
congruence 123, 130–31
proximity 130, 153
technological change 34, 94
and collective action 95–6
technologies
and absorptive capacity 128, 129
capital-intensive 123
FDI 121
path dependency 180
and plant age 128–9
recombination 16
rise and fall of 2
similar, between enterprises 128
spillovers 128–9
technology transfer 90
variety 204
Teece, D. 5, 123
Télémécanique/Schneider 51
television industry
agglomeration 70, 71–4, 77, 79, 85–6, 89
and agglomeration economies 74, 79–80
spillovers 86, 87, 88
Thalès 51
The Technology Partnership (TTP) 38
Thrift, N. 1, 113
Tilly, C. 104
Tinbergen, J. 14, 246
tire industry
agglomeration 84, 86–8, 90
and agglomeration economies 84, 86–8
diversification 82, 83
geographic structure, evolution of 76–90
heterogeneity 84
input markets 88
labour costs 84
location of branch plants 83–4
related industries, influence of 88
seeding industries 84
shakeouts 88–9
spillovers 88
spilloffs 82–3, 84, 85, 86–8, 90
trade unions 84
transportation costs 84
trade associations 84, 94

transportation
network morphology 283, 301, 302
and urban networks 14
see also urban transportation planning

Uberti, T. Erika 230–55
UK
automobile sector 8–9, 16
Cambridge high-tech region see Cambridge
infrastructure 17, 305
innovation in 41
investment levels 41
mobile telecommunications industry 183–98
new sector co-evolution 10
Oxford 44
related industries 9
retail banking industry 10
specialist labour markets 6
spin-offs 6, 16
standardised credit rating 41
university Internet hyperlinks 234
venture capital 37, 41
Ulanowicz, R. 206
uncertainty 15, 16, 17
in urban transportation planning 279–80, 283, 284, 306–8
unemployment 204, 206
structural 13
see also employment levels
UniCam 34
Union of Concerned Scientists 99, 103
Uniroyal 80
universities
academic entrepreneurship 28
Cambridge see Cambridge
Erasmus student flows 231, 232, 233, 236–7
Internet hyperlinks 234
manufacturing modernisation initiatives, US 35
PhD training, Sophia-Antipolis science park 54, 55, 56, 62–3
University of Nice 52, 53–4, 60
see also Sophia-Antipolis science park
urban economic growth 14
urban transportation planning
Amsterdam 283, 284–308
complexity of 280, 281, 308
evolutionary approach 279–310
heterogeneity in 279
path dependency 283–4, 298–300, 302
sustainability 308
system resilience 303–4, 308
transportation network morphology 283, 301, 302
uncertainty in 279–80, 283, 284, 306–8
variety in 280, 303
urbanization economies 212
US automobile industry agglomeration 7, 8, 14–15, 30, 70, 74–80
clustering 30, 70
competition, international 74
county business patterns
employment data 213–23
diversity, stability and regional growth 203–29
electrical power industry see electrical power industry, US
environmental movement 99, 101, 103, 105–7, 109–11
hypothesis data and methods 107–12
motivational framing and resource mobilization 104–7
prognostic framing 100, 102–4
renewable energy technology 10, 95, 98–100, 102–7, 108
Uzzi, B. 10, 183
van den Bergh J. 206, 207, 208, 209, 281
Van Dijk, M. 123, 141
van Wissen, L. 9
variation
in economic behaviour of firms 282
and economic development 13, 204
labour productivity 138
product 215
in regional development 12–13, 16, 204, 212
in routines 5
in spillovers 13
of strategy in science parks 49, 57, 62
strategy in Sophia-Antipolis science park 49, 57, 62
technological 204

Public Utility Regulatory Policies Act (PURPA) 100
radio industry agglomeration 73, 74
railroad industry, Massachusetts 97
renewable energy technology 10, 98–100, 102–7, 108
Route 128 45
semiconductor technology 74
Shockley and Fairchild spin-outs 30
Silicon Valley 7, 34–5, 45, 69, 90, 203
and Sophia-Antipolis science park 50–51
television receiver industry agglomeration 70, 71–4, 79, 80, 85
tire industry agglomeration see tire industry
utility patents analysis for spillovers 153–8
US power industry 98–112
diagnostic framing 100–102
environmental movement 99, 101, 103, 105–7, 109–11
hypothesis data and methods 107–12
motivational framing and resource mobilization 104–7
prognostic framing 100, 102–4
renewable energy technology 10, 95, 98–100, 102–7, 108
Index

in urban transportation planning 280, 303
venture capital
Cambridge 41–2
Sophia-Antipolis science park 60
UK 37, 41
Videojet 39
Vrba, E. and S. Gould 205
Vromen, J. 208

wage differentials 70, 89
Wagner, J. and S. Deller 208
Wassermann, S. and K. Faust 10, 162, 240
Watts, D. 10, 241
wealth distribution 1, 18
Weber, A. 93

Wellcome 52
Weltevreden, J. 258
Werker, C. and S. Athreye 2
Wernerfelt, B. 172
Whitley, R. 1
wine production
and clusters 162, 166–76
and spillovers 11
Winter, S.G. 2, 5, 15, 19, 148, 150, 165, 207, 281

Xaar 39
Zander, U. 6, 18, 93–4, 147, 148
Zucker, L. 28, 93