Index

Acs, A. *et al.* 216
Advanced Technology Program (ATP) 12, 13, 20, 21, 23, 27, 96
impact/importance 23, 43
aerospace industry 78, 167, 168, 170
agglomeration economies 53, 54, 57
*see also* productivity levels
Agrawal, A. 217
agricultural research 27
Akron University Medical Imaging Devices, Detectors and Biosensors Laboratory, Ohio 69
Albu, M. 209
American Institutes for Research 120
AMMI (company) 91
antitrust regulations 17
asocial capital concept 154
Association of University Technology Managers (AUTM) 34, 38, 100, 199
Atkinson, R. 159, 164
Atlanta, Georgia: Black American entrepreneurs in 192–3
Audretsch, D. 27, 35–6, 43
automobile industry 51, 167, 168, 170
patent use 77, 99
Bach, R. L. *see* Portes, A. and R. L. Bach
Bakouros, Y. L. *et al.* 209–10
banks
borrowing from 132–5
lending relationships 132, 134–5
Bates, T.
*Race Self-Employment and Upward Mobility…* 194, 196–7
Baumol, W. 11
Bayh–Dole Act 1980 18, 21, 27, 31, 36, 47
purpose/effect 40–41, 45, 199–203, 215
Becker, G. S.
*Human Capital* 56
Belgian Community Innovation Survey 211
Bellandi, M. 154
Berger, A. N. 135
Bernstein, T. 41
Bingham, R.
*Industrial Policy American Style* 12
biomedical devices 78
electromedical (EM) 96–7, 171
*see also* medical technology industry
biotechnology industry 35–6, 38–9, 43, 155, 166, 214
bioMEMS network 67, 69, 74, 76–7, 79, 82, 96
government funding 200
Black Americans
civil rights 192, 193
education for 190
as entrepreneurs 185–6, 189–94
Free Blacks 190
segregation laws 192, 193
women 195–6
Blair, D. and D. Hitchens
*Campus Companies…* 35
Bodkin, J. *see* Dimanescu, D. and J. Bodkin
Bok, D. 200
Boston, T. D.
*Affirmative Action and Black Entrepreneurship* 193
Bozeman, B. 20–21
brain drain
definition 102, 104–5
from developing countries 104
economic effect of 104–5
economic model of 108–10
numbers involved 104, 105–6, 110–19
Economic development through entrepreneurship

Policy issues on 102, 103, 107, 110, 119–22, 124–6

life event 103, 106, 107, 110–19
reduction/control 1, 4, 102, 103, 119–22
by financial aid 103, 110, 112–13, 119–21, 124–6
return migration 103, 107, 109–10
from universities 4, 102–26
graduates 107, 113–16
undergraduates 105–7, 111–13
See also labour market mobility

Braunerhjelm, P. et al. 205
Bureau of Economic Analysis 64
business colocation/agglomeration see cluster-based planning
business subsidies 50
business support services 168–70, 208
Butler, J. and G. Kozmetsky
Immigrant and Minority Entrepreneurship… 185
Buttel, F. et al. 27

California University 43, 44, 81
graduates of 91–2
Canada
brain drain from 104–5
science parks 209
capital
foreign direct investment (FDI) 211–12
liquidity constraints 56
private sector 24–5, 43
social 154
venture capital 35–6
See also government/state funding; Small Business Administration
Guaranteed Loan Program
capital intensive firms 55
Carlsson, B. 202, 217
Case Western Reserve University (CWRU), Ohio 69, 102, 126
faculty members as consultants 93
graduates of 91, 92
licensing by 87, 88, 89
patents owned by 83, 84, 85, 85
Case Western Reserve University Microlithification Laboratory 69
Cassiman, B. 211
Casson, M. 10
Census Bureau 52, 58, 102, 110, 122, 186–7, 189, 194, 195
Center for Advanced Liquid Crystalline Optical materials (ALCOM), Ohio 89
certified development companies (CDCs) 131
Chalmers University of Technology, Sweden 204
Charles, D. 34
chemicals/plastics industry 167, 168–70
Chinese immigrants: as entrepreneurs 188–9
Choice Grants, Ohio 119–20, 125
Cincinnati University 69
graduates of 91
laboratory facilities 69
licensing by 88
patents owned by 84, 85, 86
Clark, B.
Creating Entrepreneurial Universities 9
Clark, J. 24
Cleveland Clinic bioMEDS facility, Ohio 69
Cleveland State University 78–9, 93
cluster economies 53, 212, 213–14
See also productivity levels
cluster identification 156–9, 166–79
emerging/potential clusters 157, 166–8, 171, 175–9
cluster-based planning 154–82
definition 154, 155, 156
factor analysis 157
for the knowledge economy 4, 155, 159–80
process of 157–9
purpose 154
qualitative analysis 158–9
quantitative analysis 157–8, 159
regional economic development and 4, 155, 159–80, 181–2
science parks and 208–10
value of 156, 158
Cohen, W. et al.
University–Industry Research Centers… 7
Collins, S. 43
Colombo, M. G. 209
Economic development through entrepreneurship

loan forgiveness programs 120, 121
student loans/scholarships 110, 119–20, 124–6
Edulbehram, J. 188
Eisinger, P.

The Rise of the Entrepreneurial State 9
electromedical (EM) industry 96–7, 171
Emergency Banking Act 1933 129
enabling technologies 70, 72, 74, 78–9, 99
endogenous growth theory 216
see also economic development

Entrepreneurial History 26
entrepreneurship
by Black Americans 185–6, 189–94
cultural issues and 214–15
definition 8–12, 28, 29
economic development and 1–3, 6–8, 9, 11, 12–15, 17–18, 27, 33
education/training in 26, 28
in Europe 5, 198
government support for 1, 15–20
historical survey 12–15
by immigrants 183–5, 186–9
impact/importance 1, 13, 17–18, 28
by minority groups 4, 183–97
motivation for 183–4
policy issues 1, 3, 4–5, 7–8, 15–20, 198–217
science parks and 208–10, 217
supply/demand issues 5, 215–17
technology partnerships see public/private technology partnerships in universities 9, 11–15, 19, 33, 198–217
by women 4, 194–6
see also innovation; technology transfer
Europe
entrepreneurship 5, 198
intellectual property rights 198, 203
policy issues 198
spin-off companies 203
technology transfer 198, 203–17
see also individual countries
Explorations in Economic History 27
external economies 54

Federal Home Loan Bank 135, 136, 147, 153
Feldman, M. 41, 42, 43, 202, 212
Feser, E. J. 180
Finland: science parks in 209–10
food industry 166, 167
foreign direct investment (FDI) 211–12
see also capital
France
spin-off companies 35, 36, 43–4, 207
technology transfer 207
Fridh, A. 202
funding
of education 103, 105
government/state see government/state funding
by private sector 24–5, 43
of public/private technology partnerships 7, 10, 11–12, 16, 19, 20–21, 23–4, 25
of research and development see research and development funding
of spin-off companies 40, 41, 42–3, 45–6
venture capital 35–6
see also Small Business Administration Guaranteed Loan Program

Gage, S. J. 60
Gans, J. S. 213
Generating Opportunity by Forgiving Education Debt for Service (GOFEDS) Act (proposed) 120–21
Georgia see Atlanta, Georgia
Germany: technology transfer in 204, 208
Gittleman, M. 43–4
Glennan Microsystems Initiative, Ohio 69
globalization
impact of 16, 51, 62, 67, 91, 156, 179
multinational firms 211–12
Goe, W. 44
Goldfarb, B. 205
Goldman, M. 36
Gottlieb, P. 107
government policies see policy issues
government procurement 42
government/state funding
of biotechnology 200
of education 103
of Manufacturing Extension Partnership program 58, 59, 60
of manufacturing industry 12, 13, 23, 27, 50
of MEMS network 68, 69, 81
of research and development 3, 7, 11–12, 13, 16–17, 19–20, 36–9, 47–9, 176, 200
of technology partnerships 7, 10, 12, 16, 20–21, 23–4, 25
of spin-off companies 41, 42–3, 45–6
see also Small Business Administration Guaranteed Loan Program
graduate employment 91–3, 97–8
brain drain and 107, 113–16, 120–21
on government service 120–21
self-employment 116
Grandi, A. 207
Greece: science parks 209–10
Grimaldi, R. 207
Harden, B. 102
Harris, A.
\textit{The Negro as Capitalist} 185, 190
Harvard University 41, 200
Henderson, R. 217
Henrekson, M. 205
Hitchens, D. see Blair, D. and D. Hitchens
Hochfelder, D. 99
Honeck, J. 62
Hope Scholarships, Georgia 103, 112–13, 119
Hotchner, A. E. 28
Howells, J. 211
Hsu, D. 41
Hughes, T.
\textit{American Genesis} 11
iCleveland network 121
immigrants
Chinese 188–9
Cuban 186–7, 189
as entrepreneurs 183–5, 186–9
Indian 188–9
Japanese 188–9
Mexican Americans 186–7
incubator facilities 41, 45, 127
India
brain drain from 104
immigrants from 188–9
India Institute of technology (IIT) 104
industrial liaison offices (ILOs) 204
industrial upgrading 62
industry
heavy industry 167, 168, 170
innovation networks 3, 54
inter-firm networks 54, 56
the knowledge economy 159–80
manufacturing 3, 50–65
market failures in 55–61
MEMS network and 94–5
Original Equipment Manufacturers (OEMs) 51, 60, 61–2
policy issues 3, 50, 55–61, 63–5
productivity levels 3, 53–6, 59, 60–61
profit levels 53–4, 55, 65
research and development by 93–4
sales levels 54–5
university links 1, 2–3, 6–8, 9, 10, 22, 24–5, 78–9, 87, 89, 91, 93, 198, 203–8, 213–14
see also public/private technology partnerships; specific industries
industry clustering see cluster-based planning
information exchange 56, 60, 62, 74, 78–9
know-how trading 62
see also technology transfer
information technology industry 167, 168–70, 171
innovation 8, 22
diffusion process 18, 22–3; see also technology transfer
by small businesses 13, 18, 19–20, 27, 127
see also entrepreneurship
innovation networks
economic development and 4, 66–101
Economic development through entrepreneurship

as enabling 70, 72, 74, 78–9, 99
investment in 4, 66
in manufacturing industry 3, 54
microelectrical mechanical systems (MEMS) networks 4, 66–101
productivity levels and 3
regional 5
see also technology transfer

institutional structure: for technology transfer 199, 203–8, 212–16

intellectual property
in Europe 198, 203
in Japan 39, 40, 41
ownership issues 5, 39–40, 45, 48, 198, 199–203, 215
types of 200
university created 1, 3, 5, 36, 39–40, 198, 199–203, 215
see also licensing; patents; technology transfer

interest rates 133, 134
International Association of Science Parks 208
inventory reduction 56, 57
Investment Company Act 1958 130
Ireland: technology transfer in 203–4
Italy
science parks 209
technology transfer 207, 209
Ivarsson, I. 211

Jacob, M. 204
Jacobs, J.
Cities and the Wealth of Nations 183
Jaffe, A. B. 201
Japan 68
immigrants from 188–9
intellectual property rights 39, 40, 41
Jarmin, R. 27, 58–9, 60–61
Jensen, R. A. et al. 202
Jewell, J. O. 192
job creation 19, 21, 24, 102, 121
by small businesses 127
by spin-off companies 34, 44
job losses: in manufacturing industry 50, 51, 52

Jobs Now program, Missouri 120
John Carroll University, Ohio 125–6
Johns Hopkins University: technology transfer policies 212–13
Jones-Evans, D. et al. 203–4
Kane, E. J. 132, 134
Kaufman Foundation 11
Kelley, M. 41, 42, 43
Kennedy, Paul
The Rise and Fall of the Great Powers 18
Kenney, M. 44
Kent State University, Ohio 91, 99
Kenzer, R.
Entreprising Southerners… 191
Kihlgren, A. 210
Kloosterman, R. and J. Rath
Immigrant Entrepreneurs… 197
Kneller, R. 41
know-how trading 62
knowledge see information exchange; technology transfer
knowledge economy
cluster-based planning for 4, 155, 159–80
definition 157
economic development and 15–16
growth of 155, 187–8
industries involved in 161, 164, 165, 166–74
policy issues 157
requirements for 161
as virtual 161
Kozmetsky, G. see Butler, J. and G. Kozmetsky
Krucken, G. 204

labor market
brain drain and 107, 113–16, 119–21
government employment 120–21
for graduates 91–3, 97–8, 116
self-employment 116
labor market mobility 43–4, 46, 56, 214
commuting 161, 162–3
see also brain drain
labor quality 63–4, 161
land grants 14–15, 27, 33
Larsen, J. see Rogers, E. and J. Larsen
Laryea, S. 105
Lerner, J. 43, 153, 201
Leslie, L. see Slaughter, S. and L. Leslie
Levenstein, M. 190
Levin, S. G. 200
Lewis, D. 184–5
license fees 42
licensing 3, 34–5, 38, 48, 87–9, 199, 200, 201, 213
contract terms 202
in Europe 198
exclusive 40–41
see also intellectual property; patents; technology transfer
Light, I.
Ethnic Enterprise 186
Lindelöf, P. 208
Link, A. N. 208
liquid crystal research 91, 99
loan forgiveness programs 120, 121
see also student loans/scholarships
localization economies see regional economic development; urban areas
Lockett, A. et al. 42, 206
Löfsten, H. 208
Lowe, R. 43
Luger, M. 180
Luria, D. 55, 59, 61, 64
McDougall, W.
Freedom Just Around the Corner 27
Malkiel, B. G. 132, 134
Malone, R. 41
Manufacturing Extension Partnership (MEP) program 12, 13, 23, 27, 50, 51, 57, 58
criticism of 61
funding levels 58, 59
performance analysis of 55, 58–61, 62, 63, 64–5
purpose 58
for small firms 60
manufacturing industry
component manufacturing 50–65
innovation networks 3, 54
inter-firm networks 54, 56
job losses 50, 51, 52
market failure in 55–61
microelectronics 4, 66–101
policy issues 2, 50, 55–61, 63–5
productivity levels 3, 53–6, 59
profit levels 53–4, 55, 65
sales levels 54–5
subsidies available to 3, 50, 56, 58, 60, 61
in urban areas 3, 50–51, 52, 53–4, 55–6, 57, 62
wage levels 3, 54–5, 57
market failure
in credit market 132–4, 136, 145
in manufacturing industry 55–61
of new technologies 80–81
Marshall, A. 54, 154
Massachusetts Institute of Technology (MIT) 34, 35, 36, 41, 71
patents owned by 87, 217
medical services industry 167, 168–70
medical technology industry 166, 167, 168–70, 174, 175
biomedical devices 78
electromedical (EM) 96–7, 171
Mehregany, M. 91
Mexican Americans: as entrepreneurs 186
Miami University 105, 106
Michigan Manufacturing Technology Center Performance Benchmarking Service 50, 52, 63
microelectrical mechanical systems (MEMS) network
bioMEMS 67, 69, 74, 76–7, 79, 82, 96
commercialization of new technologies by 79–81
economic development and 4, 66–101
as enabling 70, 72, 74, 78–9, 99
funding of 4, 66, 68, 69, 70, 81
as geographically concentrated 70–71, 72–4
growth of 70–71
industry, cooperation with 94–5
as innovative 81–95
patents generated by 70, 71, 78, 92, 99
performance analysis 70–77, 81–95
research and development by 68–98
structure/organization 81–95
as university based 68, 99
microelectronics industry 4, 66–101
migration see brain drain; job mobility
Miller, M. 100
minority groups
as entrepreneurs 4, 183–97
women 4, 184, 195–6
Monjon, S. 207
Moore, K. 184–5
Mora-Valentin, E. M. et al. 207–8
Mowery, D. 20, 200, 201
Mueller, S. L. 214–15
Muller, T.
Immigrants and the American City 185
multinational firms 211–12
see also globalization
Mustar, P. 35, 36
NASA 69
National Association of Manufacturers 58
National Consortium of Entrepreneurial Centers 9
National Institute of Standards and Technology (NIST) see Manufacturing Extension Partnership programs
National Institutes of Health (NIH) 39, 81
National Science Foundation (NSF) 68
National Venture Capital Association (NVCA) 152
Nedeva, M. 211
Negro Business League 190
Nelson, R. R. 199, 217
Nerkar, A. 213
networks
iCleveland 121
for innovation 3, 45, 54, 66–101
inter-firm 54, 56
microelectrical mechanical systems (MEMS) 4, 66–101
Ohio MicroMD 69–70
new economy see knowledge economy
North Carolina: Black entrepreneurs in 191–2
North Carolina Research Triangle 159–64, 166
cluster-based planning 155, 164–80, 182
definition/purpose 180
North Carolina University (UNC) 166
Northeast Ohio Council on Higher Education (NOCHE) 30
Oberlin College, Ohio 105
Ohio
brain drain from 102–26
reduction/control of 4, 102, 103, 110, 112–13, 119–22, 124–6
MEMS network in 66–101
Ohio Instructional Grant 125
Ohio MicroMD network 69–70
Ohio State University 69, 81, 105
bioMEDS facility 69
licensing by 87, 88
patents owned by 83, 84, 85, 86
Omnibus Trade and Competitiveness Act 1988 23
Original Equipment Manufacturers (OEMs) 51, 60, 61–2
Owen-Smith, J. 201, 213
partnerships see public/private technology partnerships
patents 21, 38, 39, 48, 66
in automobile industry 77, 99
cited patents 83, 86, 87, 92, 97, 98, 217
in microelectrical mechanical systems (MEMS) 70, 71, 78, 92, 99
university owned 83–7, 91, 99, 199, 201, 203, 213, 217
value/importance 83, 201
see also intellectual property; licensing; technology transfer
Perez, M. P. 205–6
Petersen, M. A. 132, 134–5
pharmaceutical industry 166, 167, 168–70, 174, 175
Phillips, S. A. M. 210
Pierce, J. A.
Negro Business and Business Education 192–3
Pirnay, F. et al. 205
policy issues
on brain drain control 102, 103, 107, 110, 119–22, 124–6
regional 4, 155, 157
Index

for entrepreneurship 1, 3, 5, 7–8, 15–20, 198–217
in Europe 198
for the knowledge economy 157
on labor market mobility 43–4
on land/agriculture 14–15, 27
in manufacturing industry 3, 50, 55–61, 63–5
on public/private technology partnerships 22–6
in research and development 15–16
for small businesses 3, 50, 55–61, 63–5, 127, 129–30, 146, 147
for spin-off companies 36–46, 47–9
on tax incentives 3, 50, 56, 58, 61
in technology transfer 18, 48, 205, 212–17
Pollard, S. 9
Porter, M. 164, 166

Clusters of Innovation… 155, 161, 180, 181

The Competitive Advantage of Nations 155
Portes, A. and R. L. Bach
Latin Journey 186
Powell, W. W. 213
Pressman, L. 34, 35, 41
private sector funding 24–5, 43
productivity levels: in manufacturing industry 3, 53–5, 59, 60–61
profit levels: in manufacturing industry 53–4, 55, 65
Progressive Policy Institute (PPI), Washington 159
proprietary rights 200
see also intellectual property
public/private technology partnerships 2–3, 6–8, 9–12, 29–32, 121
cut backs in 23–4
economic development and 4, 15–20, 66–101
funding of 7, 11–12, 16, 19, 20–21, 23–4, 25
future of 22–6
growth of 15–20
historical survey 12–13
impact/importance 20–22, 23, 24, 78–9
innovation networks 4, 66–101
policy issues 22–6
types of 16, 20–22
see also research and development; universities
Putnam, R. D.

Making Democracy Work 154
Raghuram, G. R. 134–5
Rath, J. see Kloosterman, R. and J. Rath
Reconstruction Finance Corporation (RFC) 129
see also Small Business Administration
regional economic development 4, 30–31, 35–6, 44, 54–6, 63–5
Black Americans and 185–6, 189–94
cluster economies 53, 212, 213–14
cluster-based planning 4, 155, 159–80, 181–2
cultural issues 214–15
immigrants and 183–5, 186–9
innovation networks and 4, 66–101
minority groups and 183–97
policy issues 4, 155, 157
reasons for 184–5
women and 4, 194–6
see also economic development; urban areas
Regional Economic Issues (REI) Center, Cleveland 30–31
regional economics: differences in 159–64
regional innovation networks 5
regions: definition of 155
reputational rights 200
see also intellectual property
research and development (R&D)
academic see universities
agricultural 27
community based 95–6
criticism of 18, 19
economic development and 18–19
growth of 16–20
historical survey 12–15
industrial 93–4
in microelectrical mechanical systems (MEMS) 68–98
policy issues 15–16
technology partnerships see public/private technology partnerships
Economic development through entrepreneurship

in universities 2–3, 6–8, 12–13, 24–5, 27, 36, 99, 176

see also entrepreneurship

research and development funding 7, 11–12, 13, 16–17, 19–20, 24–5, 36–9, 47–8, 176, 205

in biomedicine/biotechnology 206 returns from 67, 98

research quality 200–201

risk-taking see entrepreneurship

Roberts, E. 41

Rogers, E. and J. Larsen 
Silicon Valley Fever… 187

Romijn, H. 209

Rosenberg, N. 20

Royal Society, London 104

RTI International (RTII) 166, 176, 178

Russia: science parks 210

Sadowski, B. M. et al. 209

Saez, C. B. et al. 207

salaries see wage levels

sales levels: in manufacturing industry 54–5

Sampat, B. N. 199

Sanchez, A. M. 205–6

Saxenian, A. 188

Regional Advantage… 187

Schultz, G. 23

Schumpeter, J. 8, 9, 17, 18–19, 26, 27

science parks 208–10, 217

Scott, J. 22

Scott, J. T. 208

self-employment 116

see also labor market

semiconductor industry 77–8

service industries 167, 168–70, 208

Shane, S. 42, 201, 202, 213

Shapira, P. 27, 61

Shearmur, R. 209

Siegel, D. S. et al. 202, 208–9

Siler, P. et al. 211–12

Silicon Valley, California 182, 187

entrepreneurship in 188–9

impact/importance 187–8, 214

Simmel, G. 183–4, 185, 186, 188

Singapore: science parks 210

Slaughter, S. and L. Leslie 
Academic Capitalism 9

Small Business Administration (SBA) 19, 29, 128

certified development companies (CDCs) and 131

credit/loan programs 130–31; see also SBA Guaranteed Loan Program

function 128, 132, 146, 147, 151

historical survey 129–30, 146, 151

Small Business Administration Guaranteed Loan Program

amounts involved 127–8, 131, 132, 148–50

definition 130–31

economic development and 127, 128

impact of 127–8, 135–45, 151–3

numbers of loans 127–8

regression analysis of 139–45, 146

Small Business Innovation Research (SBIR) program 13, 19–20, 21, 23, 27, 43, 152

Small Business Investment Company (SBIC) Program 130, 151–2

Small Business Technology and Development Center (SBTDC), North Carolina 166, 179

small businesses

credit rationing/extending for 4, 127–8, 130–53

economic development and 4, 127, 128, 131, 136–46, 151–3

equity issues 202

in Europe 203–8

importance of 129–30

innovation by 13, 18, 19–20, 27, 127

job creation by 127

in manufacturing 3, 50–65

market failures in 55–61

minority groups as owners of 186–7

policy issues 3, 50, 55–61, 63–5, 127, 129–30, 146, 147

spin-off companies see spin-off companies

tax incentives for 3, 50, 56, 58, 61

in urban areas 3, 50–51, 52, 53–4, 55, 62

wage levels 3, 54–5, 57, 63

Smith, A.

Wealth of Nations 183

social welfare issues 55, 57–8, 61
Index

Sommers, D. 123–4
Sorenson, O. 214
Spain: technology transfer 205–6, 207–8
Spielkamp, A. 208
spin-off companies 1, 3, 5, 9, 19, 33, 37–8, 47–9, 90
creation of 40–42, 70, 89, 202, 205–8
economic development and 33–6, 45
equity issues 42, 44, 45, 202
in Europe 34, 35, 36, 42, 43–4, 203–10
evaluation of 89
in France 35, 36, 43–4
funding of 40, 45
government/state 41, 42–3, 45–6
job creation by 34, 44
labor market mobility and 43–4, 46
multinational 211–12
multiplier effects from 35
path dependencies in 206–7
policy issues 36–46, 47–9
in United Kingdom 34, 35, 42
university facilities, use of 41–2
see also small businesses
Stanford University 41, 44
start-up companies see spin-off companies
state funding see government/state funding
Stephan, P. 35–6, 39
Stern, S. 213
Stiglitz, J. E. 132–4
Storey, D. J. 210
Stough, R. R. et al. 157
strangers: definition of 183–4
see also immigrants
strategic research partnerships
see public/private technology partnerships
Stuart, T. 214
student loans/scholarships 103, 110, 112–13, 119–20, 124–6
loan forgiveness programs 120, 121
Sumell, A. et al. 107, 116
Sweden 39
science parks 208
technology transfer 203–4, 205, 211
tax incentives: for small businesses 3, 50, 56, 58, 61
technological innovation see innovation
technology partnerships see public/private technology partnerships
technology transfer 5, 99
Bayh–Dole Act, effect on 199–203
commercial development and 35, 41, 87, 97–8, 127, 200–201, 203–8, 210, 213–14, 216
in Europe 198, 203–17
by graduate employment 91–3, 97–8
historical survey 27
information exchange 56, 60, 62, 62
innovation networks and 3, 54, 67, 81
institutional structure for 199, 202–8, 212–16
international 16, 207, 211–12
licensing and 3, 34–5, 38, 40–41
multinational firms and 16, 211–12
policy issues 18, 48, 205, 212–17
process of 82–3
science parks and 208–10, 217
to spin-off companies see spin-off companies
from universities 1, 3, 7, 12, 31, 37–8, 39, 48–9, 82–94, 198–208
see also entrepreneurship; intellectual property; patents
technology transfer offices (OTTs) 199, 202–3
Tether, B. S. 210
Thomas, A. S. 214–15
Thomson, J. 143, 147
Thursby, J. G. and M. C. Thursby 200
Tornatzky, L. et al. 42, 43
training: in entrepreneurship 26, 28
training expenditure 56
training subsidies 3, 57, 58, 60, 61
see also Manufacturing Extension Partnership (MEP) programs
transportation/shipping industry 167, 168, 170
Udell, G. F. 135
United Kingdom (UK)
brain drain from 104
economic decline 17–18
science parks 208–9
Scotland 211–12
spin-off companies 34, 35, 42, 206–7, 211–12
universities
brain drain from 4, 102–26
doctoral degrees 116, 118–19, 188–9
economic development and 1–3, 7, 12–15, 23–5
as entrepreneurial 9, 11–15, 19, 33, 198–217
entrepreneurship programs 26, 28
in Europe 198
graduate employment 91–3, 97–8, 107, 113–16, 120–21
immigrant students 188–9
industry links 1, 2–3, 6–8, 9, 10, 22, 24–5, 78–9, 87, 89, 91, 93, 198, 203–8, 213–14
intellectual property created by 1, 3, 5, 36, 39–40, 198, 199–203, 215
leave of absence from 44, 46
MEMS networks in 68
patents owned by 83–7, 91, 99, 199, 201, 203, 213, 217
research and development by 2–3, 6–8, 12–13, 24–5, 27, 36–9, 99
agricultural 27
student loans/scholarships 103, 110, 112–13, 119–20, 121
technology partnerships see public/private technology partnerships
technology transfer from 1, 3, 7, 12, 31, 37–8, 39, 48–9, 82–94, 198–203
undergraduates 105–6, 119–20
university spin-offs (USOs) see spin-off companies
University–Industry Research Centers (UIRCs) 89, 91, 92
see also public/private technology partnerships
urban areas
economic development 30–31, 35–6, 44, 54–6, 63–5
manufacturing industry 3, 50–51, 52, 53–4, 55–6, 57, 62, 63–5
wage levels 55, 57, 63, 65
see also regional economic development
US News and World Report 105, 106
venture capital 35–6
see also Small Business Administration Guaranteed Loan Program
Veugelers, R. 211
Vohora, A. et al. 206
Waelbroeck, P. 207
wage levels 176, 177
in small businesses 3, 54–5, 57, 63
in urban areas 55, 57, 63, 65
Wakoh, H. 43
Washington, B. T. 190, 191
wealth creation see economic development
Weber, M.
The Protestant Ethic... 184
Weiss, A. 127, 132–4
Wiarda, E. 61, 64
Wickstead, S.
The Cambridge Phenomenon 36
Wildavsky, A. 161, 164
wine industry 182
Winfield, D. see Witsil, A. and D. Winfield
Winter, S. 26
Wisconsin Manufacturers’ Development Consortium (WMDC) 60
Witsil, A. and D. Winfield
R&D Inventory and Growth Opportunity Analysis 180
women
Black 195–6
as entrepreneurs 4, 194–6
gender roles 195
Yeung, H. W. C. 210
Zhou, M.
Chinatown... 189