Index

Abernathy, W.J. 53, 73, 169, 277, 294
Acs, Z.J. 2, 242
Agarwal, R. 24, 86, 88
Anderson, A. 110
Ansoff, I.H. 168
archetypes, innovation 15–16
Argenti, J. 139
Arrow, K.J. 332, 334
Audretsch, D.B. 2, 24, 68, 69, 70, 85, 86, 87, 88, 91, 93, 95, 96, 242
Austria, innovation in 71
balance sheet 315–17, 319–26
bankruptcy 14–15, 134, 329
in Canada 134, 136, 165
profile of 138, 139–43
industry differences 161–2
information on 137–44
prevention of 161
reasons for 137–8, 144, 146–62
external 147
financial 141, 148
human resources 141–2, 148, 159–61
management 140–41, 145, 148, 149–58
marketing 142, 158–9
trustees 134, 138–9
Bartley, J.W. 141
Beckstead, D. 30
Berger, A.N. 313
Bernstein, J.I. 332
Birch, D. 24
Blackburn, V.L. 139
Boardman, C.M. 141
Braker, J. 139
business cycle
bankruptcy and 147
survival of new firms and 100–104
Business Register (BR) 29–30, 32, 36
Caldwell, D. 343
Canada
bankruptcy in 134, 136, 165
survey of 138, 139–43
business cycle 101
data sources 7–8
Business Register (BR) 29–30, 32, 36
LEAP database 30–33, 34, 36, 37, 38, 41, 42, 85
LMRF database 33
Survey of Innovation 216
Survey of Innovation and Advanced Technology 278
Survey of Operating and Financing Practices (SOFP) 49–50, 51, 75, 244, 312–13
employment in
entry as employment creation 29–33
impact of long-run entry on 40
self-employment 27, 28, 29
human resources strategies 291
innovation in
financing of 343
surveys 72–3
manufacturing sector in 24
new firms in 40–42
employment and 27, 28, 29–33, 40
Innovation strategies and performance in small firms

- exit process 84
- survival 95–6, 104
- types of entry 33, 34, 35
- research and development (R&D) in 332
- service sector 239
- small firm sector 1–2, 11, 107
- research and development (R&D) in 67
- capabilities for innovation 66, 171–5
- capital
  - human 78–9
  - structure 313–15, 326–30
  - firm-specific determinants 328–30
  - industry-level determinants 327–8
- Chaganti, R. 168
- Chandler, A.D. 287
- Chandler, W. 25, 280, 319, 323
- Cohen, W. 71, 72, 236, 335
- commercialization of innovations 69
- communications innovations 229–32
- competencies 336
  - capital structure and 329–30
  - firms as collections of 4–5
  - innovation 76–7
  - technology 77–8
- competition
  - assessment of competitiveness 113, 121
  - competitive environment facing
    successful new firms 50–54
  - conditioning of innovation by 235–6
  - exit process and 135–7
  - innovation in dynamic service sector and 216–40
  - common elements of innovation process 223–7
  - communications innovations 229–32
  - competitive environment 227–8
  - financial innovation 232–3
  - implications for innovation policy 235–8
  - incidence of innovation 220–23
  - intersectoral differences in innovation regimes 229–35
  - technical business services innovations 233–5
  - job turnover as marker for 88, 91, 95, 104
- new firms and 246
  - science-based industries 248–52,
  - 253–61, 270
- uncertainty 328
  - comprehensive innovator 172, 174, 209
  - strategies 190–92, 197–203
  - computers 80, 81, 82
- copyright 225
- Cosh, D.J. 314
- customers
  - competitive environment and 52
  - dynamic service sector 223–4
  - relationships with 68
  - repeat 246
  - science-based industries 249–50, 271
- Da Pont, M. 67, 223, 225
- D’Amboise, G. 56
- data sources 6–10
  - on bankruptcy 137–44
- Canada 7–8
  - Business Register (BR) 29–30, 32, 36
  - LEAP database 30–33, 34, 36, 37, 38, 41, 42, 85
  - LMRF database 33
  - Survey of Innovation 216
  - Survey of Innovation and Advanced Technology 278
  - Survey of Operating and Financing Practices (SOFP) 49–50, 51, 75, 244, 312–13
  - new firms in science-based industries 244–5
  - on types of innovator 170–71
- Davis, S.J. 24
- debt
  - debt-to-asset ratio 337–40
  - intensity of, research and development (R&D) and 334–40
- Diverty, B. 222, 306
- Doukas, J.A. 137
- Dunne, T. 40, 86, 87, 139
- Dupuy, R. 26, 135
- economic growth, innovation and 242
Index

Edmonds, S.E. 169, 288
ew see new firms
efficiency, innovation and 70
employees see human resources
employment
new firms and
entry as employment creation 29–33
impact of long-run entry 37–40
self-employment 27–9
small firms and 24, 70, 107
Enos, J. 69
entrepreneurship 4–5, 24–5, 66
entry see new firms
Evans, D. 238
exit process 84–5, 134–66
bankruptcy and 14–15, 134, 329
industry differences 161–2
information on bankruptcy 137–44
profile of Canadian bankruptcies 144–6
reasons for 137–8, 146–62
trustees 134, 138–9
competitive process and 135–7
new firms 84–5
export activities 336
small firms and 129
Feeney, L.S. 343
financing 177–9
financial innovation 222, 232–3
of innovation 310–44
balance sheet 315–17, 319–26
capital structure 313–15, 326–30
problems 313–19
sources 323–6
statistical analysis 330–42
reasons for bankruptcy 141, 148,
151–4
business and financial planning 155–8
science-based industries 260–61, 272
conditions imposed by lenders 263–4
financial structure 261–3, 272–3
matching of use and source of funds 264–7, 274
firms
bankrupt 14–15, 134
as collections of competencies 4–5
life-cycle model 73, 308–9
new see new firms
small see small firms
Fleissner, P. 71
Freeman, C. 69, 70, 75, 114, 168
Gaskill, L.R. 138
Gellatly, G. 25, 221, 248, 281
Girard, A. 30
Gorecki, P.K. 334
Gort, M. 24, 50, 53, 73, 86, 88, 169
government and the state
impediments to innovation 303
small firm sector and 109, 124–5
Gray, T. 259, 280, 285, 291
greenfield entry 27, 33, 34
Growing Small and Medium-Sized
Enterprises (GMSE) survey 108,
110, 111, 112, 114–15, 116, 170
growth of firms
capital structure and 328–9
factors affecting 120–21
innovation and 56–61
measures of success 117–19
strategies 112
Gu, W. 336
Has, H. 247
Haines, G. 343
Hall, B.H. 139, 238
Hall, G. 137, 139, 152, 160, 161
Haltiwanger, J. 24, 40
Hamberg, D. 69
Hanel, P. 67, 68, 72, 73, 76, 236, 278,
306, 334, 335, 336
Haswell, S. 139, 149
Hayes, R.H. 169
Hinchley, C. 9, 87, 96, 105, 280, 281
Hofkirchner, W. 71
Holbrook, J.A.D. 335
Hollander, S. 75
Holmes, S. 139, 149
Holmes, T.J. 87, 95
Hughes, A. 314, 316, 318, 326
human resources 176–7, 225
human capital 78–9
reasons for bankruptcy and 141–2,
148, 159–61
science-based industries 259, 271
strategies 290–93, 307
Innovation strategies and performance in small firms

industry environment
- bankruptcy and 161–2
- dynamic change in 24
- innovation and 16–17
- science base 18–19
- new firm survival and 87–8
  - framework for exploration of 88–91
information technologies 80, 82
innovation
- archetypes 15–16
- capabilities for 66, 171–5
- capital structure and 329
- commercialization of 69
- competencies 76–7
- competitive environment and 53
  - in dynamic service sector 216–40
  - common elements of innovation process 223–7
- incidence of innovation 220–23
- financing of 310–44
  - balance sheet 315–17, 319–26
  - capital structure 313–15, 326–30
  - problems 313–19
  - sources 323–6
  - statistical analysis 330–42
- getting it right 352–4
- growth of firms and 56–61
- industry environment and 16–17
- science base 18–19
- inputs 236–7
- lessons from study 346–54
- meaning of 2–3
- new firms and 12, 56–61
  - breadth of innovation in successful entrants 66–83
  - comprehensiveness of innovation 79–82
- financing innovation 310–44
  - profiles 74–6
  - obstacles to 238, 301–6
  - output and efficiencies 69–71
  - prediction of likelihood 340–42
  - process of 217–20
  - product life-cycle model and 167–70
  - regimes of 69, 229–35
  - science-based industries 256–7, 270–71
  - small firms and 1–6, 13–14, 114–16, 128
activities and success 126–9, 349–50
- data sources 6–10
- evaluation from innovation surveys 71–3
- evaluation of role of 73–4
- financing innovation 310–44
  - as growth factor 120–21
  - as key to success 107–32, 349–50
  - manufacturing sector 297–300
  - outputs and efficiencies 69–71
  - profile 112–25
  - strategies 21–2, 107–12, 308
- surveys 71–3
- types of innovator 167–211
strategies 281–5
- competencies 279–300
- competition and 300
- complementary strategies to innovation 277–8
- impediments 301–306
- measuring strategic emphasis 278–9
- new firms 61–3
- small firms 21–2, 107–12, 308
- strategic capabilities in innovative manufacturing firms 277–309
- types of innovators 181–208
- types of innovator 167–211
- analysis of success factors 179–81
- information on 170–71
- route to success 194–208
- strategies 171–9, 181–203
- input cost reductions 81
- intellectual property rights 76, 80, 307
  - copyright 225
  - patents 68
  - trademarks 225
investment 175
- financing of innovation 310–44
  - balance sheet 315–17, 319–26
  - capital structure 313–15, 326–30
  - problems 313–19
  - sources 323–6
- statistical analysis 330–42
Japan, electronics firms in 277
Jardine, R. 24
Jewkes, J. 69
job turnover 88, 91, 95, 104
Index

Johnson, J. 9, 78, 87, 96, 105, 139, 202, 221, 246, 259, 280, 281, 285, 291, 293
Jovanovic, B. 86, 93, 144, 238
Keats, B. 139
Khoury, S.L. 169, 288
Kirchenhoff, B.A. 139
Kirzner, I. 25
Kleinknecht, A.H. 67, 71, 348
Klepper, S. 50, 53, 71, 72, 73, 169, 236, 335
Knight, F.H. 25
knowledge
capital structure and knowledge base 327
financing investment in 21–2
innovation as commercialization of 2–3
Kochan, T.A. 291
Kuznets, S. 169
labour see human resources
large firms
coeexisting with small firms 68, 73–4
innovation and 72, 73
output and efficiencies 69–71
research and development (R&D) and 66–7
LEAP database 30–33, 34, 36, 37, 38, 41, 42, 85
learning-by-doing 95
Lee, F.C. 247
Levin, R.C. 277, 335
life-cycle model
of firms 73, 308–309
products
innovation and 167–70, 209, 210
strategic behaviour of firms and 50–51
Lin, Z. 28, 303
Little, B. 277, 287, 294
LMRF database 33
Lundvall, B. 168
Lussier, R. 137, 139, 149
McGuiness, N.W. 277, 287, 294
Mahmood, T. 86, 87, 91, 95
Main, O.W. 287
Majluf, N.S. 314
Malerba, F. 2
management 179
bankruptcy and 140–41, 145, 148, 149–58
abilities 150
actions 151
attitudes 150–51
business planning 155–8
financial management 141, 148, 151–4
general skills 149
knowledge skills 149–50
marketing 142, 158–9
manufacturing sector strategic capabilities 294–6
science-based industries 253–6
small firms 109, 123
Mansfield, E. 26
manufacturing sector 24
capital structure 327
new firms in 42–6
strategic capabilities in innovative manufacturing firms 277–309
competencies 279–300
competition and 300
complementary strategies to innovation 277–8
differences in emphasis between small and large innovators 297–300
human resource strategies 290–93, 307
impediments to innovation 301–306
innovation strategies 281–5
management strategies 294–6
marketing strategies 287–90, 307
measuring strategic emphasis 278–9
production strategies 285–7
marketing 176
reasons for bankruptcy and 142, 158–9
science-based industries 258–9
small firms and 107, 109, 122, 129
strategies 287–90, 307
markets
concentration 88, 90, 95, 97, 101, 104
experience effects 95
maturity 59–60
science-based industries 252
Innovation strategies and performance in small firms

strategies 54–6
Mata, J. 87, 88
Matzner, E.F. 290
merger 27, 34–5
Miles, R.E. 168
Millar, J.H. 73
Miller, M. 314
Modigliani, F. 314
Moore, B. 313, 343
Mowery, D.C. 67, 236, 291, 347
Mozes, D. 222
Mulford, C.L. 139
Myers, S.C. 314

Napolitano, G. 277
Nelson, R.R. 168
neoclassical economics, industry entry/exit and 26
Netherlands
innovation in 71
research and development (R&D) in 67
networking 68, 74
new firms 11–13
comparison of Canada and US 40–42
employment and entry as employment creation 29–33
impact of long-run entry 37–40
self-employment 27–9
failure see exit process
importance of 24–47
innovation and 12, 56–61
breadth of innovation in successful entrants 66–83
comprehensiveness of innovation 79–82
financing innovation 310–44
profiles 74–6
maturation of entrants 35–7
measuring entry 25–7
overview of emerging firms in all sectors 246–7
science-based industries 242–75
competitive strategies 253–61, 270
conditions imposed by lenders 263–4
data sources 244–5
differences from other sectors 247–68
environment 248–52
evolution in firm capabilities 269–70
financial structure 261–3, 272–3
issues 243–4
matching of use and source of funds 264–7, 274
overview of emerging firms in all sectors 246–7
stage of market 252
small firms and entry process 24–5
successful firms 49–65
breadth of innovation in 66–83
competitive environment 50–54
innovation and growth and 56–61
product, market and production strategies 54–6
strategic differences between innovative and non-innovative firms 61–3
surviving the entry process 49–50
survival of 12–13, 84–105
analysis 93–6
brand-new versus more mature firms 96–100
business cycle and 100–104
evaluation 85–6
firm-specific determinants 86–7
impact of industry environment 88–91
industry-level determinants 87–8
macroeconomic determinants 91–2
types of entry 33–5
non-innovators 209–10
strategies 193–4, 203–208
Nunnally, J.C. 110
obstacles to innovation 238, 301–306
Organisation for Economic Co-operation and Development (OECD) 242
outcome-oriented approach 3
patents 68
Pavitt, K. 22, 334
Pearce, J.A. 139
Pearson, J. 139
Peck, M.J. 69
pecking order theories 314
Penner, W. 26
Peters, V. 221, 281
Index

Peterson, G. 343
Phillips, B.D. 139
Picot, G. 2, 28, 135
Pisano, G.P. 169
planning, business and financial 155–8
Pohl, M. 71
Portugal, P. 87, 88
prediction of likelihood of innovation 340–42
process innovation 172, 174, 195
strategies 192–3, 203
process of innovation 217–20
process-oriented approach 3
production
costs of 175
innovations and 81
quality 56
reasons for bankruptcy and 159
science-based industries 250, 257–8
small firms and 70, 123
strategies for 54–5, 285–7
productivity, measure of success and 117, 119
products
competition and 52–3
life-cycle model
innovation and 167–70, 209, 210
strategic behaviour of firms and 50–51
product innovation 51, 172, 174, 195,
208–209, 222
science-based industries 270–71
strategies 181–90, 196–7
quality 54
strategies 54
profitability, measure of success and 117
quality 54, 56
total quality management (TQM) 193
Rafiquzzaman, M. 96, 136, 144, 258, 287
Ratcliff, R.L. 141
regimes of innovation 69, 229–35
Reid, S.R. 169
Reijnen, J.O.N. 71, 348
Reiss, P.C. 335
research and development (R&D) 1,
110, 130–31
debt intensity and 334–40
expenditure on 334–7
financial structure and 332
as growth factor 120–21
innovation surveys and 72–3
new firms 246
science-based industries 247
small firms and 66–8, 126–7
Reshef, Y. 290, 294
Riding, A.L. 343
Roberts, M.J. 86, 87
Robinson, R.B. 139
Robson, M. 270, 334
Rosenberg, N. 67, 236, 291, 347
Rosenbloom, R.S. 169, 277, 294
Rothwell, R. 2, 24, 68, 69, 70, 242
Sabourin, D. 119, 222, 236, 258, 294,
306, 334, 336
Samuelson, L. 86, 87
Sawchuk, G. 343
Sawers, D. 69
Scherer, F.M. 66, 300, 334
Schmitz, J.A. 87, 95
Schmookler, J. 67
Schrader, C.B. 139
Schuh, S. 24
Schumpeter, Joseph 1, 66
Sciadas, G. 222
science-based industries 18–19, 242–75
competitive strategies 253–61, 270
customers 249–50, 271
data sources 244–5
differences from other sectors 247–68
environment 248–52
evolution in firm capabilities 269–70
financing 260–61, 272
conditions imposed by lenders 263–4
financial structure 261–3, 272–3
matching of use and source of funds 264–7, 274
human resources 259, 271
innovation 256–7, 270–71
issues 243–4
list of 274–5
management 253–6
marketing 258–9
markets 252
overview of emerging firms in all sectors 246–7
Science-based industries
Innovation strategies and performance in small firms

production 250, 257–8
research and development (R&D) 247
stage of market 252
technology 250, 257–8, 271
self-employment 27–9
services sector
dynamic 216–17
communications innovations 229–32
competitive environment 227–8
financial innovation 232–3
implications for innovation policy 235–8
innovation in 220–27
intersectoral differences in innovation regimes 229–35
technical business services innovations 233–5
new firms in 42–6
skills 78–9, 81, 176–7
Small Business Administration (SBA) 69
small firms 5–6
advantages of 68, 73, 107
assessment of competitiveness 113, 121
coexisting with large firms 68, 73–4
developmental strategies 121–3
dynamic service sector 226
employment and 24, 70, 107
entry process and 24–5
export activities 129
financial problems 107
financing investment in knowledge in 21–2
flexibility 68
government assistance 109, 124–5
growth
capital structure and 328–9
factors affecting 120–21
innovation and 56–61
measures of success 117–19
strategies 112
innovation and 1–6, 13–14, 114–16, 128
activities and success 126–9, 349–50
data sources 6–10
evaluation of role of 73–4
financing innovation 310–44
as growth factor 120–21
as key to success 107–32, 349–50
manufacturing sector 297–300
outputs and efficiencies 69–71
profile 112–25
strategies 21–2, 107–12, 308
surveys 71–3
types of innovator 167–211
management 109, 123
marketing and 107, 109, 122, 129
measures of success 117–19
problems of 107–108
production and 70, 123
research and development (R&D) and 66–8, 126–7
technology and 109, 123
Smits, W. 71, 348
Snow, C.C. 168
Squires, R.J. 335
staff see human resources
Stewart, John M. 168
Stillerman, R. 69
strategies
developmental strategies 121–3
growth of firms 112
human resources 290–93, 307
for innovation 281–5
competencies 279–300
competition and 300
complementary strategies to innovation 277–8
comprehensive innovator 190–92, 197–203
impediments 301–306
measuring strategic emphasis 278–9
new firms 61–3
small firms 21–2, 107–12, 308
strategic capabilities in innovative manufacturing firms 277–309
types of innovators 181–208
management strategies 294–6
marketing 287–90, 307
markets 54–6
non-innovators 193–4, 203–208
process innovation 192–3, 203
product innovation 181–90, 196–7
production 54–5, 285–7
science-based industries 253–61, 270
strategic capabilities in innovative manufacturing firms 277–309
competencies 279–300
competition and 300
complementary strategies to innovation 277–8
differences in emphasis between small and large innovators 297–300
human resource strategies 290–93, 307
impediments to innovation 301–306
innovation strategies 281–5
management strategies 294–6
marketing strategies 287–90, 307
measuring strategic emphasis 278–9
production strategies 285–7
Stuckey, J.A. 287
successful firms 49–65
analysis of success factors 179–81
breadth of innovation in 66–83
competitive environment 50–54
foundations for success 351–2
idiosyncratic elements of success and failure 350–51
innovation and growth and 56–61
innovation as key to success 107–32, 349–50
measures of success 117–19
product, market and production strategies 54–6
route to success 194–208
strategic differences between innovative and non-innovative firms 61–3
surviving the entry process 49–50
Survey of Operating and Financing Practices (SOFP) 49–50, 51, 75, 244, 312–13
surveys of innovation 71–3, 216
Survey of Innovation and Advanced Technology 278
survival of new firms 12–13, 84–105
analysis 93–6
brand-new versus more mature firms 96–100
business cycle and 100–104
evaluation 85–6
firm-specific determinants 86–7
impact of industry environment 88–91
industry-level determinants 87–8
macroeconomic determinants 91–2
Sussex, University of, Science Policy Research Unit (SPRU) 69
Tang, J. 24
taxation 125
self-employment and 28
technical business services innovations 222, 233–5
technology 81, 195
competencies 77–8
information technologies 80, 82
innovation in 51
science-based industries 250, 257–8, 271
small firms and 109, 123
Teece, D.J. 277, 285
Townsend, J. 334
trademarks 225
training 81, 110
government programmes 125
trustees in bankruptcy 134, 138–9
Udell, G.F. 313
uncertainty 227, 328
United Kingdom
financing of innovation in 343
small firm sector and innovation 70
United States of America
human resources strategies 291
new firms in 40–42
small firm sector and innovation 70
Utterback, J.M. 53, 73, 277, 288
wages and salaries
self-employment and 28
small firms and 25
West, D. 294
Wilson, J. 343
Wynarczyk, P. 272
Yates, J. 28
Zegveld, W. 2, 24, 68, 242
Zider, B. 314