agglomerations
   importance of industrial 120–121, 137
   regional 1, 2, 6, 14
   theoretical aspects 137–8
   see also industrial agglomeration study
Airbus 159, 172–3, 176, 177
aircraft industry
   characteristics 143
   China 168–73
      Chengdu 173–80
   government support for 166
   as complex product system 141–2
   importance of external linkages 179
   Indonesian investment in 144
   as innovation-intensive industry 142
   internationally competitive 143–4
IPTN (Industri Pesawat Terbang Nusantara) 146–7, 160–162
   development of new technology 155–7
   implementation 151, 152
   influence of Habibie 149–50
   Joint Venture Programme 153–5
   large-scale R&D programme 157–8
   licence programme 151, 153
   long-term goals 147–9
   subcontracting and other activities 159–60
   Taiwanese 167–8
   technological requirements 143
Amsden, A. 7, 9, 15
anchor firms 12, 137
Anwar, S. 120, 136
ARJ21 regional aircraft 171–2, 176–7
ASEAN countries 121, 127–9, 133
Asian financial crisis 11, 26, 27, 29, 32, 34, 121, 125, 144, 157
Asian triangle 12
Audretsch, D.B. 45, 69, 78
average labour productivity (ALP) growth 24, 30–31, 34–7
Aviation Industry Corporation of China (AVIC) 170–171, 172, 173
Bailey, J. 150, 169
Bandung, Indonesia 146, 153–5, 159–60
Belgium 47, 57
bio-ventures 73, 78
biomedical clusters 66–7, 80–82
   drivers of cluster formation
      intermediary organizations 76–7
      local government 75–6, 81
      star ventures 78–80
      universities 73–5
   theory and practice of industry cluster 67–70
   Wonju, South Korea 70–73
Biopolis, Singapore 70
Bluegrass Auto Manufacturers Association 68
Boeing 159, 169, 172–3, 176
Bohai Bay, China 102–3, 107–9, 116, 117
   business incubation centres 71, 74–5, 78
C919 narrow-body jet-airliner 172–3
capability-building
   strategies 11, 16
   technological 89, 90, 142
CASA, Spain 151–4, 159, 160, 161
catch-up growth 1–2, 7, 8, 11, 13, 87–9
Chengdu Aircraft Industries Group (CAC) 173–4, 175, 176–7
Chengdu, China 173–8
   aircraft industry 177–80
   Chengdu 173–8
commercial aircraft production 166
early years 168–9
and open-door policy 165, 169, 170–171
in twenty-first century 171–3
concentration of industrial activities 45–6, 47
Cultural Revolution 169, 174
economic and industrial
development 165
imports to Vietnam 133–4
PC hardware manufacturing 40
protection of intellectual property 59
socialist market reform 49
transformation into biomedical
R&D hubs 70
see also global economic crisis in China; industrial agglomeration study
ChoongWae Medical 74, 75
cluster engine catalysts 78–80
cluster policies 1–2
and clusters 2–4
East Asian 11–16
industrial 137
and role of the state 4–6
clusters 2–6
aircraft industry 166–8, 173, 179
biomedical, in South Korea 66–82
in coastal regions 40, 43
components of East Asian 12
established versus emerging 67
formation of 3, 73–80
importance of development in Vietnam 137
industrial, and FDI-induced transfer of technology 120–121
industrial, theory and practice 67–70
see also industrial agglomeration study
CN-235 aircraft 148, 153–5, 158, 159, 160
co-agglomeration effects 53–6
coefficient of variance (CV) index 46
competition amongst electronics firms 49
balance with cooperation 3
for low-cost labour 136
and Porterian cluster approach 5–6
for use of scarce land 125
‘competitive advantage of nations’ 5, 66
competitiveness 2–3
in China 92–3
international 10, 11, 16
and local labour market 68
technological improvement 142
threats to 59
in Wonju 73
coordinators 75–6
culture, local, and cluster formation 3
Dassault, France 177, 178
developmental state concept 7, 8–10, 15
dissimilarity index 46
Dongguan, China 110
see also industrial agglomeration study
Dunning, J.H. 42–3
East Asia
‘East Asian Miracle’ 6–7
entrepreneurial states 6–11
performance of economies 70
‘Renaissance’ cluster policies 11–16
Ebner, A. 4, 9, 10, 11, 15
electronics industry
firm-level survey in Guangdong 109–14, 116–17
Taiwanes, in Dongguan 40–62
Ellison and Glaeser (EG) index 41, 46–8, 51–3, 56–7, 60–61
embedded autonomy 7
Embraer 143, 172
entrepreneurial states 1, 6–11
entrepreneurs
biotech 70
confidence in China 95–6
innovative 69, 73–5
and management know-how 77
Eriksson, S. 141, 143, 162, 163, 166–73, 176, 180
ERJ-145 regional jets 172
ESI Group, France 177, 178
Europe
investment in technological activities in manufacturing FDI 127–9
supplying companies 171
and Vietnamese exports 133
external linkages 4, 166, 179

Feldman, M.P. 45, 69, 70, 78
Feser, E.J. 48, 68, 77
foreign direct investment (FDI) in Vietnam 119–20, 121–3, 134–8
industrial clusters and FDI-induced transfer of technology 120–121
industrial zone developments 123–5
manufacturing gross output and value-added 129–31
technological content of foreign trade 131–4
Francis, J.L. 69, 70, 78
general purpose technology (GPT) 21
Gini coefficient 45–6
Glaeser, E.L. 42
see also Ellison and Glaeser index (EG) index
global economic crisis in China
determinants for development impact on growth paths 92–4, 117
institutional evolution and role of state 91–2
market orientation 91
resilience, regional growth and catch-up paths 87–9
sectorial structural change 89–90
technological capability building 90
discussion 114–16
economic recovery 85–6, 116
hypotheses on 86–7, 92–4, 116
regional analysis
firm-level survey of electronics industry 109–14, 116–17
general findings 95–6
impacts and recovery by industrial sector 96–101
impacts and recovery by province and region 101–5
impacts on technological upgrading 105–6, 117
patent applications 106–9
Global Seed Capital 70, 82
globalization 5, 11, 42, 90
governed markets 7
government-business relations 1, 2, 6, 8, 12, 15
gross output, manufacturing 129–31
gross value of industrial output (GVIO) 124–30, 138
growth accounting model algorithms 22–4
data description
ICT capital stock and price index 25–30
labour input 30
national account data 24–5
growth paths 86, 87–9, 97–100, 103, 117
Guangdong, China
Dongguan’s location in 45
economic characteristics 102
firm-level survey of electronics industry 109–14, 116–17
growth rates in industrial value-added 104–5
output shares 58
patent applications 107, 108–9
sectorial structural change 89–90
successful recovery of 115, 117
Habibie, B.J. 144–50, 154–6, 158, 161
Hamburger Flugzeugbau (HFB) 146–7
Hanoi, Vietnam 123, 125
He, C. 43, 45, 46, 53, 61, 100
Hebei, China 102, 103, 105, 115
Herfindahl-Hirschman index 46–7
Herfindahl index 46
Ho Chi Minh City, Vietnam 123, 125, 135
Hong Kong
technological capability building 90
ICT and economic growth 31–7
ICT capital stock and price index 28–9
investment in technological activities in manufacturing FDI 128–9
labour input 30
national account data 24–5
Hsia, C.J. 43, 60
Huangjiang, Dongguan, China 49–51, 55–6
Human-Tech 78
Clusters and economic growth in Asia

ICT capital stock and price index
25–30

ICT (information and communication technology) study
model description 22–30
results and analysis 30–36
role in economic growth 21–2, 36–7

Indonesia
aircraft industry 160–162
economic policies 144–6
establishment of IPTN 146–60

industrial agglomeration study 40–42, 60–62
co-agglomeration effects 53–6
extent of agglomeration 51–3
and firm size distribution 56–7
formation of electronics cluster 49
‘home effects’ 43
implications for upgrading 58–60
and inter-firm linkages 42–4
methods and data
firm-level data and interviews 48–9
measure of agglomeration 44–8
town-level analysis 44
spatial distribution of electronics firms 49–51
sub-industries 51, 53–6, 61
three-digit industries 48, 51, 53–4, 58, 61
two-digit industries 48, 51–2, 54–5, 58, 60–61
industrial clusters 120–121
industrial policies and state functions 9–10
industrial zones (IZs) 123–5, 126–7, 135–8
industry sector recovery in China 96–101
industry tiers and groupings 100, 142–3
innovation 6, 9–11, 12, 14–16, 141–2
innovative entrepreneurs 69, 73–5
innovative milieu 3
institutional evolution and role of state 91–2
inter-firm linkages 41, 42–4, 53, 61
intermediary organizations 76–7, 81

IPTN (Industri Pesawat Terbang Nusantara) see aircraft industry

Israel 175, 178

J-5 aircraft 174, 178
J-7 aircraft 174–5, 178
J-10 aircraft 175–6, 178
J-20 aircraft 176

Japan
auto TNCs 43
biomedical clusters 76, 82
ICT and economic growth 21–2, 31–7
ICT capital stock and price index 25–6
investment in technological activities in manufacturing FDI 127–9
labour input 30
as late industrializing economy 7
move to skilled-intense activities 142
national account data 24
as regional technology leader 13–14

Jiangsu, China 102, 103, 105, 107, 115, 116
Johnson, Chalmers 7
joint venture programme 153–5

Jorgenson, D.W. 21, 24

key economic areas (KEAs) 123–5
Kim, L. 13, 88
Klimov Company, Russia 175, 178
knowledge, globalized 15
knowledge producers 69, 73–5, 81
knowledge spillovers 68–9
knowledge transfer 11, 165–8, 179
Koo, J. 67, 68, 69, 75, 77, 78
Kroll, H. 85, 90
Kuchiki, A. 12, 138

labour productivity growth 21, 24, 30–31, 34–7
Lall, S. 8, 88, 165
Lavi fighter 175–6, 178
learning 10–11, 165
learning regions 3, 4
Li, Y. 60
Liao, H. 41, 44, 47, 59, 60
linkages
backward 121, 136
external 166, 179
forward 121
inter-firm 41, 42–4, 53, 61
technology 176, 178
local government role 75–6, 81
locational strategies 11, 16
low technology (LT) activities 126–30
Lundvall, B.-A. 5, 6
management consultants 76–7
manufacturing
gross output and value-added 129–31
technological contents of 126–9
in Vietnam 119–25, 132–6
see also industrial agglomeration study
manufacturing value-added (MVA) 130–131
market orientation 89, 91, 93, 97, 111–13
Marshall, A. 3, 42, 67, 120
Martin, R. 2, 42, 86, 87
Maskell, P. 3, 4, 5
McDonnell Douglas 170, 176, 178
MD-80 aircraft 172, 176, 178, 180
MD-82 airliner 170, 179
Mediana 74, 78
Medical Industry Techno Valley (MITV) 71–3, 76–7, 81
medium-low technology (MLT) activities 126–30
Messerschmitt-Bölkow-Blohm (MBB) 146–7, 151, 153
Mikoyan Aero-Science Production Group 175, 178
modular economy concept 13
N-250 turbo-prop 155–8, 161
N-2130 aircraft 149, 158
Naudé, W. 88
Nelson, R.R. 6, 141, 165
Nestor, C. 123, 125, 126, 136, 138
network catalysts 76–7
networks 3–4, 13–16
Nguyen, P.L. 120, 136
OECD (Organisation for Economic Co-operation and Development) 85, 89, 90, 91–2, 121
open-door policy 165, 169, 170–71
paradigm creation 10, 15
patent applications 106–9
Pearl River Delta (PRD) 12, 40, 49, 60, 102, 104, 107, 109–13
Porter, M.E. 2–3, 5–6, 14, 66, 68, 120, 149
Porterian cluster approach 2–3, 5–6, 15
Pratt & Whitney turbofans 169, 175, 178
private domestic sector (PDS), Vietnam 129–30
Progressive Manufacturing Programme (PMP) 151, 153, 160
provincial recovery in China 101–5
proximity, geographical 3, 42, 68–9, 71, 120
Qingxi, China 49–50, 55–6
R&D (research and development)
advanced 142–3
large-scale programme 157–8
locations 70
real GDP growth (RGDP) 23–4, 30–34, 36–7
regional growth evolution 87–9
regional recovery in China 101–5
regulatory state functions and policies 8–10
Research Triangle Park 66, 75, 77, 79
resilience 87–8, 111–12
resource allocators 75–6
Rosenberg, N. 6, 141
Russia 175–6, 178
San Jose 67, 72, 73, 77
Schiller, D. 85, 90
Schumpeterian theory 11, 142
sectorial structural change 88, 89–90
Shane, S. 66, 70
Shijie, China 43, 49–50, 55–6
Silicon Valley 66, 68, 79, 80
Simmie, J. 86, 87
Singapore 11, 12
cluster development 15, 70
ICT and economic growth 31–7
ICT capital stock and price index 29–30
investment in technological activities in manufacturing FDI 127–9
labour input 30
national account data 25
Clustering and economic growth in Asia

SinoDefence 174, 176
software investment 27–9, 37
Solow Paradox 21, 37
South Korea 11, 14
  biomedical clusters 66–82
  ICT and economic growth 22, 31–7
  ICT capital stock and price index 25–9
  investment in technological activities in manufacturing FDI 127–9
  labour input 30
  national account data 24
  transformation into biomedical R&D hubs 70
star ventures 67, 78–80, 81
state-owned enterprises (SOEs) 129–30, 139
state, role of 4–6, 89, 91–2
statistical standards 24
Stiglitz, J. 85, 91
subcontracting 159–60, 176–7
Suharto, President 144–5, 147, 148, 160
Sunley, P. 2, 42
Taiwan 11, 12, 14–15
  inter-firm linkages 41
  investment in technological activities in manufacturing FDI 127–9
  PC manufacturing output 40
  relations with China 168
  rising production costs 49
Taiwanese electronics firms see industrial agglomeration study
Tangxia, China 49–50
Techno-Park Development Project 71, 74
technological capability building 89, 90, 142
technological content
  of foreign trade 131–4
  of manufacturing 126–9
technological innovation 14–15
technological learning 7, 42, 142
technological upgrading 8, 105–7, 109, 117
technology
  commercialization of 9–10
  and Habibie 145, 147, 149–50, 160
  levels of 126–30
  and manufacturing FDI 126–9
in modern aircraft 143–4
new, development of (phase in establishment of IPTN) 155–7
start-ups 75–6
transfer 120–121, 136, 151, 160–161, 176–9
see also ICT (information and communication technology) study
total factor productivity (TFP) 22, 23
Toyota Corporation 68
transformative capacity 8
transnational corporations (TNCs) 42–4, 46, 57, 59, 61
Tsui, M. 12, 138
UNCTAD (United Nations Conference on Trade and Development) 43, 44, 121, 132, 134, 142
UNIDO (United Nations Industrial Development Organization) 126, 131, 137
universities 69, 73–5, 81
USA
  airline trips 169
  and Chinese aircraft project 175, 178
  contractors to China 171
  ICT and economic growth 21–2
  investment in biomedical start-ups 66
  investment in technological activities in manufacturing FDI 127–9
  and Vietnamese exports 133, 134
value-added
  growth, development 96, 98–101, 104–5
  manufacturing 126, 129–31
Vietnam
  challenges faced by 137
  economic reform programme 119
  exports 132–3, 135–6
  FDI-driven economic development 134–5, 136
  FDI overview 121–3
  impact of FDI 129–31
  imports 132, 133, 135–6
  industrial clusters 120–121, 135, 137–8
Index

industrial zones (IZs) 123–5, 135, 137
manufacturing sector 136–7
technological content of foreign trade 131–4
technological intensity 132
technological transfer 120–121, 136
trade balance 133–4
trade with China 133–4

Wade, Robert 5, 7
Weber, A. 67
Wei, Y.H.D. 41, 59
Wong, P.K. 8, 88

Wonju, South Korea 67, 70–79, 81
World Bank 6–8, 11–13, 100–101, 130–131

Yang, C. 41, 43, 44, 47, 56, 59, 60, 61
Yang, Y.R. 43, 60
Yangtze River Delta (YRD) 40, 43, 59
Yeung, H.W.C. 43, 61
Yonsei University 71, 74

Zhejiang, China 102, 103–5, 107, 115, 116, 117
Zhou, Y. 91, 102