Index

accounting solutions 323, 329, 337
accumulation paradox 67–71, 92
ACRIB (Associazione Calzaturifici della Riviera del Brenta) 229, 238–9, 240, 241
Adobe Systems Inc. 292, 293
agglomeration
as distinct from cluster 3
see also industrial agglomeration
Aguascalientes, IT clusters in 313, 319, 338–43, 344, 353
Ahn, H. 153–4
Aichi Prefecture 27, 33
FDI in North America by automotive parts manufacturers located in 26–7
localization of automobile industry in 13, 18–22, 356
Aichi Seiko 13
Aikawa, Yoshisuke 36
airline connections 89, 120, 123, 128
Aisan Industry 30, 31
Aishin AW 30, 31, 33
Aishin Seiki 13, 30, 31
Alba, Francisco 336
Alfa 330
All Soft 335
Amata industrial zone 116, 117
American Automobile Network Exchange (ANX) 29
Amiti, M. 174
Analysys Consulting 298
ANCI 228
Andersson, T. 144
Anjo 19, 20
Annen, K. 274
Anshan Iron and Steel Group 176
Antar 335
Appalachia coalfields 56
Apple Computers 298, 314, 327
application service providers (ASPs) 323, 343, 346
Arakawa Auto Body 30, 31
Arora, A. 289, 301, 303
‘artery’ industries 39, 54, 60
Asanuma, B. 15
ASCI 337
AS400 336
Asia-Pacific Import Mart (AIM) 54
Asian crisis 118, 140
Asian Development Bank 119
Asociación Mexicana de la Industria de las Tecnologías de la Información (AMITI) 320–21, 327
Aspel 320, 323, 324, 329, 337
Aspray, W. 298, 300
Assopiastrelle 256
Athreye, S. 301, 303
Audretsch, D.B. 249, 252
automobile industry, Japanese 9–32
globalization affecting location of 22–8, 30–31, 32, 356–7
IT applications in 29–32, 39, 60, 356–7
in Kyushu 18, 39, 56, 357
localization in Aichi Prefecture 13, 18–22
production structure of Toyota 13–14
compared with non-hierarchical US system 14–17
production system of 10–13
Autonomous University of Nuevo Leon (UANL) 334
average capital productivity 98, 118
Axsis Tecnologia 332, 334–5
Azzalini, A. 212
B. Braun Carex 254
Baake, P. 283
backbone networks 275, 277–8
Baden-Fuller, C. 249
Bai Chay Bridge 121
Balassa, B. 205, 206
Balassa Index of Revealed Comparative Advantage (RCA), applied to Italy 205–18
Balasubramanyam, A. 316
Balasubramanyam, V.N. 316
bandwidth 271, 280, 282
Bang Khadi industrial zone 105, 107, 108
Bang Pakon industrial zone 105, 107, 109, 111
Bang Phlee industrial zone 105, 106, 108
Bang Poo industrial zone 105, 106, 108
Bangalore, software cluster in 1, 140, 316, 353
Bangchan industrial zone 105, 106, 108
Bangkok
distance from Hanoi 129
distance of industrial zones from 106–7
industrial zones near 104, 105, 111
Bangkok Industrial Park 111
banks 322, 330
Bansal, A. 299
Barba Navaretti, G. 259
Barr, A. 291, 294, 295, 296
barriers to entry, in luxury goods market 231
Barro, R.J. 100
Batisse, C. 174
Battese, G. 89
Batum, industrial zones in 116
Bayan Lepas industrial zone 102, 354
Becattini, G. 219, 220, 248, 273
Becchetti, L. 250
Beijing 178, 180
Beijing Economic–Technological Development Area 199
Berg, T. 298, 299, 300, 303
Bhagwati, J. 293
big-push theory 195–6
Biggiero, L. 252
Bihn Bridge 121
Binhthuan, growth rate of 119
Bintan, industrial zones in 116
Biofil 254
biomedical district of Mirandola 250, 252–5
biotechnology 139, 273

Blitz Software 326
Blonski, M. 273
bluetooth 67
Board of Investment (BOI) of Thailand 105
Boari, C. 249, 254
Borrus, M. 293
Bowman, A.W. 212
brand names 230–31, 234
Brazil 50, 256
Brenta shoe district 228–9, 353
customers 229–30
implications of globalization for implications of globalization for 241–3
local governance in Brenta 238–41
in the top brand chain 232–8, 356
broadband 64, 140
Brooks, F. 308
Brown, E. 298, 299
brownfield sites, restoration of 39, 57
Brusco, S. 247, 248, 249, 273
Brynjolfsson, E. 65
BT Garment Co., Ltd 129–34
bundled software 314
Bureau of Statistics, Japan 80
business promotion policies, Korean 147–8
Business Software Alliance (BSA) 293, 301
Business Week 298
buyer-driven chains 227, 231, 237, 242
Buzali, Alfredo 327
cable communication, and population density 73, 74, 75, 78, 82
Cai, F. 174
Cairong port 120, 121, 123, 124
California 23, 27, 293
Camagni, R. 244
Canada, Toyota plants and parts suppliers in 27
Canon 119, 128, 129, 130, 135, 136, 293
capability maturity model 331
capacity building 121, 137
capital–labor ratio 214
Carmel, E. 289, 293
Carmel Ray industrial zone 114, 115
Carnegie-Mellon University 331
Castellón ceramic tile cluster 255–6
Index

CCC21 (Construction of Cost Competitiveness for the 21st Century) 32

cellular phones
communication using
and population density 73, 76, 77, 79, 83
relationship between face-to-face meetings and 85–92
penetration rate of 64, 76, 83
CEMEX 330, 334, 335, 336
Cemtec 334
Censis 250
centripetal and centrifugal forces 2–3, 268
affecting Japanese automobile industry 29, 39, 60
affecting Japanese steel industry 60
affecting North American software industry 291–9, 299–300
affecting peering decision 279
information technology affecting 270, 271
relational governance as a centripetal force for districts 272–5
ceramic tile district of Sassuolo 250, 255–8
chaebol 145, 146
chemicals industry, Italian 216
Chikuho coalfields 35, 41, 56
China
change in regional and industrial disparity in 175–82
Construction of the Third Front in 177, 180, 196
FDI in regions of 180, 183, 357
FDI inflows in 2001 119
Five Year Plans 176, 195, 196
GDP growth rate 173
industrial agglomeration in eastern area of 182–95
industrial zones in 116, 118, 354
iron ore imported from 41
Japanese investment in 23, 43, 50, 139, 355
population in 2000 181
relations with USSR 176–7
taxes in 125, 126
trade with Japan 54
wages in 122
western development 195–7
Zhong Guan Cun IT cluster in 353
Chiryu 20
Chrysler 32
Chu-Chiang River Delta 354
Chuo Spring 30, 31
Cikarang industrial zone 112, 114
cities
as information base 72–81, 92
IT clusters in Japanese cities 68, 70, 93
spillover effects and growth in 150–64
support for development of medium-sized cities in Mexico 340
City College of New York 337
CLAIR (Council of Local Authorities for International Relations) 57
clothing industry, Italian 209, 210, 216
Club dei Distretti 250
cluster
as distinct from agglomeration 3
see also industrial clusters
clustering policy
in Aguascalientes, Mexico 319, 341–3
in China 174
importance of 5, 60, 61, 354
see also tax and lending incentives
CMM assessments 335, 338
CNEL/Ceris-CNR 250–51, 255, 256, 259
coalfields 35, 41, 56
Coase, R.H. 15
collective efficiency 5, 354
commodities, distribution of, by distance 85, 86
communication technologies, types of 73–4
complementarity between face-to-face meetings and telecommunications 81–93, 149–50
and population density 74–81, 82, 83
Compac 337–8
Compaq 293
comparative advantage
based on connectivity 270–71
factor proportion theory of 214
in Italy 4–5, 205–19
complementary effects, face-to-face
meetings and IT 81–2, 93, 149–50
empirical evidence for 83–92
COMPRA-NET 328–9
Computer Aided Design (CAD)
systems 254
computer-assisted software engineering
294–5
concurrent engineering 32
congestion 3, 39
connectivity, comparative advantage
based on 270–71
Consejo Nacional de Ciencia y
Tecnología (CONACYT) 328
Consorcio Uno 327–8
Consorzio Centro Veneto Calzaturiero
238
Consorzio Maestri Calzaturieri del
Brenta 238
consumption goods, diversity of
149
ContaPAQ 337
Conti, G. 219
cooperative companies 13–14
cooperative information sharing 273
core competencies 231, 234, 243
core–periphery model 174, 195–7, 269
dynamic 357
Corporate tax rates 99, 111, 125, 126
Corporation Recycle Tech 39
Correa, C. 289, 290
cost accounting 323
Crawford, V. 274
CRM software, see customer relations
management (CRM) software
CT&D Group of Taiwan 116
custom software 293, 316, 323, 327,
331
customer relations management
(CRM) software 64, 329, 330, 334,
346
customs clearance 125
customs operations, software assisting
326–7
cutlery cluster in Solingen, Germany
353
CVEC 116
CxNetworks 334
Cygnus Tech 335
Czech Republic, Japanese investment
in 23
D’Aspremont, C. 268
Da Nang 123
Daedeok Science Town 145–7
Daejeon Metropolitan City 145–7, 160,
165
Dahlman, C. 144
Daihatsu 13, 30, 56, 136
Dalesio, E. 295
Danang, growth rate of 119, 137
Danang export-processing zone 116
Dademesis 330
De Benedictis, L. 207, 215, 219
de Nardis, S. 210, 215, 219
decentralization
IT investment and 67–8, 92
national decentralization program in
Mexico 340
of power in China 177
of production to low-wage countries
236, 237, 241, 242
dedicated assets 255
Dedrick, J. 289
defense considerations 40, 41
Deng Xiaoping 177, 196
Denso 30, 31, 33, 130, 136
Desarrolladores 327
Detroit, automotive cluster in 353
developed countries, changing clusters
in 355–7
development zones 183
Dia 327
dialogue projects 327–8
digital subscriber line (DSL) 64
diseconomies of scale and scope
299
distributed networks 67
Distrito Federal, IT clusters in 312,
313, 317, 319, 320–21, 327–8
DITSNBS (Department of Industrial
and Transport Statistics of
National Bureau of Statistics),
China 184, 186
diversification 231
diversity, and agglomeration formation
148, 151–4
in Korea 154–8, 159, 161–6
division of labor among firms 182, 183, 185, 187, 248, 256
inter-regional 174
Dixit, A. 173, 182
Dodge, M. 271, 283
Dokai Bay 41
Dolan, C. 227
domain knowledge, US control of 291, 293
Dong Nai 123
Dong-Sung Cho 145
Dongfeng-Citroën Automobile Co., Ltd 187
Dragon Logistics Center 125, 130
Du Yang 174
Dutta, S. 296
dynamic scale economies in industrial districts 214, 215
e-business 329, 334
e-commerce 239, 355
e-kanban 29
East Jakarta Industrial Park 112, 114
ECLAC–World Bank 206, 210, 211, 213
ecology towns 39, 44, 54, 58
Economic Planning Agency, Japan 93
economic rents 231, 236, 237, 238, 243
Economist 290, 293
education sector
Korean 142–3, 168, 169, 170
Softtek’s linkages with 331–4
software support for Mexican education sector 329, 346
see also schools; universities
Egan, T. 293, 294
Eischen, K. 290, 291, 293, 294, 295, 298, 299, 308
El Informador 337
El Salto 319
electricity supplies 59, 120, 195, 357
electronics cluster in Jalisco 319,
335–6, 338
Ellison, G. 173
Ellison, Larry 343
embedded software 291, 341
embodied technological change 252, 257
Emilia-Romagna region, industrial districts in 5, 247–65
biomedical district of Mirandola 250, 252–5
catching-up issues facing 355
ceramic tile district of Sassuolo 250, 255–8
econometric analysis of technological change in 258–64
identification of districts 250–51
machinery industry in 251–2, 254–5
MNCs in 253–4, 255, 264–5
employee relationship management (ERM) software 329, 330, 335, 343–6
encryption technologies 272
endogenous growth theory 71
English language proficiency 301, 302, 303, 304, 305, 307, 331
enterprise resource planning (ERP) software 64, 329
environmental protection, investment in 39, 53
Epifani, P. 215, 219
ERM software, see employee relationship management (ERM) software
ERP software, see enterprise resource planning (ERP) software
European Patent Office 248, 258, 261
Evans, P. 289
Expansion 324
expatriate knowledge networks 290, 301, 302–3, 304–5, 307
explicit contracts 273, 275
export agents 230
export-oriented firms, innovative capability of 259, 260, 263
export-processing zones (EPZs) in Indonesia 105, 112, 113, 114
in Malaysia 102, 105
in Philippines 115
in Thailand 104, 105, 111
in Vietnam 116, 117, 119, 125
external diseconomies 27, 49, 60, 249
economic agglomeration 2–3, 268
communication technologies and 73, 275
in industrial districts 214, 215, 248, 249, 255, 260
knowledge spillovers and 5, 37, 60, 255, 312
in software industry 291, 293, 312
external service providers (ESPs) 295
Fabiani, S. 219, 220
face-to-face interactions, see meetings (face-to-face), communication using
factor proportion theory of comparative advantage 214
Factory Forestation Agreements 43, 53
Fair Trade Commission 47
fashion industry, top brand value chain in 230–32
Brenta in 232–8, 356
Fehr, E. 275
Feldman, M.P. 252
FEMSA/Cervecería Moctezuma 330, 334, 335
Fernandez, Sergio 337
filiere organization 251–2, 255
Filstrup, B. 283
firm size, and innovative capability 258, 259, 261, 263
First Cavite industrial zone 114, 115
flexible specialization, in industrial districts 248–9
focal firms 249
Fondazione G. Brodolini 250, 251
footwear industry, Italian Brenta shoe district 228–30, 232–43, 353, 356
comparative advantage of 210, 216, 218
and global value chains 227, 228–43, 356
foreign direct investment (FDI) in Chinese regions 180, 183, 357
effect on clusters 355
in industrial zones 98–120, 128–34, 135, 136–7, 354
decisive factors for 121–8
investment function of 100
by MNCs in industrial districts 253–4, 255, 264–5
by MNCs in Mexico 314, 319, 320, 335–6, 338, 340–41, 343–6
motivation for 23
by Nippon Steel Corporation in developing countries 50
relocation of Japanese FDI to China 139, 355
by Toyota and its parts suppliers 22–8, 30–31, 32
foreign ownership, constraints on 99, 101–2, 114, 128, 340
Forni, M. 252, 255
Forrester Research 299
foundations 58, 59
France Brenta shoe district sales to 229
Japanese investment in 23
Lyon textile cluster in 353, 355–6
free riding 278, 283
free trade zones (FTZs) 102–3
Freeman, P. 298, 300
freight, distribution by distance 85, 86
Fuji Iron and Steel Co. 40, 43, 47
Fujita, M. 3, 97, 149, 150, 173, 174, 182, 199, 268, 269, 270, 354, 357
Fukui, textile industry in 355
Fukuoka City 36, 70, 93
Fuller, W. 89
functional downgrading 233–4, 237, 238, 242
functional upgrading 228, 234, 242
furniture industry, Italian 209, 216
Futaba Industrial 30, 31
Gambro-Dasco 253, 254
Gansu 177
Garofoli, G. 264
gas supplies 59, 195
Gasper, J. 94
Gateway Business Park 114, 115
General Electric 319, 330
General Motors (GM) 14–17, 23
General Statistical Office, Vietnam 119, 137
Gereffi, G. 225, 227, 231, 237–8
Germany blast furnace technologies from 41
Brenta shoe district’s sales to 229
comparative advantage of 208, 209
Meissen porcelain cluster in 353
printing equipment cluster in 4
Solingen cutlery cluster in 353
Gifu Prefecture 19, 20
Gini’s coefficient 175
Giovannetti, E. 1, 249, 269
Glaeser, E.L. 94, 148, 150, 153, 154–5, 158, 173, 269
Glanz, J. 298
globalization 1, 4
  complications for clusters posed by 355
  effect on Japanese automobile industry 22–8, 30–31, 32, 356–7
  and industrial districts 5, 264–5, 225–43, 264–5, 356
Gnutella 67
government software niche in Mexico 328–9
government support for software development 301, 303, 304, 305, 329, 338
growth in regions, see regional growth
  growth sharing 17
GRP software 346
Grupo Asercom 335
Guadalajara software cluster 317, 319, 335–8, 339
Guangdong 178, 179, 180, 189–91
Guangzhou 129, 189
Gucci 231
Guerrieri, P. 219
Guizhou 177
Gyeongbuk 143, 160, 165
Gyeonggi 140, 141, 143, 160, 165
Haiphong 119–20
  growth rate of 119, 137
  industrial cluster in 129, 130–31, 135, 136–7
  living conditions in 123
  location of 129
  transportation network 119, 120, 121, 123, 124
  wages in 121, 122, 123
Hanson, G.H. 173
hardware industry
  Korean 141–2, 143, 165
  Mexican 312, 313
  United States 294, 295, 296–8
Harian, B. 104
Harrison, B. 264
heavy industry clusters
  factors explaining 59–61
  see also Kitakyushu City industrial cluster; Yawata Works
Hebei 179, 180
Hecker, D. 296
Heckscher–Ohlin theorem 214, 215
Heeks, R. 289, 302, 303, 307
Heilongjiang 178, 180
Hekinan 19, 20
Helleiner, G.K. 289
Henan 177, 179, 180
Henderson, V. 252
Herfindahl concentration index 74–7
Herschman–Herfindahl Index (HHI) 140–41
Hewlett-Packard (HP) 150, 292, 298, 336–7
Hibikinada Hub Port Initiative 39, 54
hierarchical production system 10, 11, 12–13
  compared with non-hierarchical system 14–17
  international division of labor and 28
  reason for 29
Higashi-Mikawa region 19, 20
Higashi Osaka 353
Higashida 41, 42, 43, 55
highways 98, 137, 357
  national highway Route 5 (Vietnam) 98, 118–21, 124, 128, 134, 135
  national highway Route 18 (Vietnam) 120, 121, 124
Hanoi 119–20
  growth rate of 119, 137
  industrial cluster in 129, 130–31, 135, 136–7
  living conditions in 123
  location of 129
  transportation network 119, 120, 121, 123, 124
  wages in 121, 122, 123
national highway Route 10 (Vietnam) 121, 124  
Tokyo Metropolitan Highway 46  
Hikari Works 40, 43, 50  
Hildebrando 320, 323–6, 329, 330  
Hino Motors 13  
Hiroshima City, IT cluster in 70  
Hitachi Metals 36  
Hitt, L. 65  
Ho Chi Minh City  
distance from Hanoi 129  
growth rate of 119, 137  
wages in 122, 123  
Hokkaido 18  
Holtzman, S.R. 268  
Honda 23, 31, 33, 56, 128, 135, 136  
Hong Kong 54, 129–34  
Honshu 36, 39  
Hosei Brake 30, 31  
hospitals 120, 123  
hot potato routing 277, 278  
Hotelling, H. 268  
hotels 123  
housing 120, 123  
Houston, oil and gas-related cluster in 293  
Hsinchu Science Park 354  
Hu, D. 174  
Hubei 177, 179, 180, 187  
human resources 121, 137, 149  
Humphrey, J. 227, 228  
Hunan 177  
Hungyen 119–20, 137  
Huston, G. 283  
Hylsa 330  
Iapadre, L. 219  
IBM 298, 292, 314, 319, 320, 321–2, 323, 329, 336, 343  
Icaza, Miguel 346  
Ikeda, Hayato 46  
Illinois, Toyota plants and parts suppliers in 23, 27  
Imagawa, T. 94, 149  
imigrant workers 241, 295–6, 298, 331  
imperfect competition 3, 182, 268  
IMPERO database 258  
imPLICIT contracts 273  
import tariffs 99, 126, 244  
Inazawa 19  
increasing returns, as source of agglomeration 3, 5, 149, 182, 226, 269, 354  
dynamic scale economies in industrial districts 214, 215  
in Kitakyushu City 37, 60  
Toyota parts suppliers 29  
imcubation business 147  
India  
FDI inflows in 2001 119  
industrial clusters in 1, 97, 140, 316, 353  
Japanese investment in 23  
software development for US market 289, 331  
software industry and growth in 357  
Indiana, Toyota plants and parts suppliers in 27  
Indonesia  
corporate tax rate in 125  
export processing zones in 105, 112–14  
industrial clusters in 97  
industrial zones in 98, 105, 111–14  
Japanese investment in 23, 111, 139  
taxes in 126  
wages in 121, 122  
industrial agglomeration  
definition of 174, 182–3  
mechanism of agglomeration formation 148–9  
proximity and 268–70  
see also industrial clusters  
industrial castle towns (jokamachi) 61, 353, 354, 355, 357  
industrial clusters  
advantages of 226  
centripetal and centrifugal forces affecting, see centripetal and centrifugal forces  
changing clusters in advanced countries 355–7  
common features of 5, 354  
and economic growth 1, 4, 357  
examples of 1, 4, 353–4  
factors explaining heavy industry clusters 59–61  
reasons for geographical location of 354–5  
types of 353
industrial districts in Italy
   Brenta shoe district 228–30, 232–43, 353, 356
   and comparative advantage 4–5, 215–17, 218
definitions of 4, 248–9
in Emilia-Romagna region, see Emilia-Romagna region,
   industrial districts in governance of 273–5
   identification of 250–51
   ‘multi-located’ 257, 264–5, 356
   SMEs in 247, 249, 250, 253, 256
types of 244
   and value chains 5, 225–43, 356
Industrial Estate Authority of Thailand 104–5, 106–10, 134
industrial groups, membership of, and innovative capability 259, 260, 261–3
industrial parks 5, 340, 357
industrial policies 46, 60; see also tax and lending incentives
Industrial Revolution 63–4, 269
industrial zones (IZs)
   characteristics of 99
   in China 116, 118, 354
development by private sector 98, 99, 103, 105–18, 134, 354
development by quasi-public sector 102–5, 106–10, 134
   and economic growth 97–8, 100–102, 134
in Indonesia 98, 105, 111–14
in Malaysia 98, 99, 102–4, 354
in Myanmar 116, 118
in Philippines 98, 111, 114, 115
   as quasi-public goods 97–8, 99, 105, 134
   successful players for industrial agglomeration 98, 134
in Taiwan 354
in Thailand 98, 99, 104–5, 106–10, 111, 134, 354
in Vietnam 97, 98, 354
   development by quasi-public sector 114–18
   northern Vietnam 118–34, 135, 137
Información y Servicios Tecnológicos (INFOTEC) 328, 329
information
   disembodied and embodied 71–2
   production system and required amount of 15–16
   information costs 15
   information spillovers 2, 3, 71–2; see also knowledge spillovers
information technology
   growth of regional technology depending on improvements in 153–4
   IT cluster in Bangalore 1, 140, 316, 353
   IT cluster in Silicon valley 1, 5, 68, 71, 140, 150, 273, 289, 353
   IT clusters as local product clusters 353
   IT clusters in Japanese cities 68, 70, 93
IT industry in Korea
   characteristics of software sector 161–8
   factors promoting growth of software sector and industrial agglomeration 144–8, 168–70
   IT, R&D and the education sector 141–4, 168, 169, 170
IT market in Mexico 312, 313
IT revolution 63–4
   accumulation paradox under 67–71, 92
   face-to-face interactions and 81–93, 355
   increasing role of density under 71–81
   productivity paradox under 64–7, 92
in Japanese automobile industry 29–32, 39, 60, 356–7
knowledge creation, agglomeration and IT 149–50
and ‘multi-located’ industrial districts 258, 264
see also hardware industry; Internet; IT service industry; software industry
Innovatia 341, 342
insiderness 271
Institute for Information Technology of Jalisco (IJALTI) 338
Institute of Precision Molding (Penang Skills Development Center) 102
institutions
capital productivity enhanced by building 118
industrial zones facilitating 99, 125 reforms to attract FDI 125–8, 134, 137, 341, 357
for software development 312–14
Instituto Nacional de Estadística Geografía e Informática (INEGI) 317
Instituto Tecnológico de Estudios Superiores de Monterrey (ITESM) 329, 334, 342, 346
instrumental variables (IV) approach 89
intangible activities 243
Integrasis 335
integrated device manufacturers (IDMs) 296–8
intellectual property rights (IPRs) in software 291, 293, 301, 303, 304, 305
Intelmex 326
interconnection agreements 276
interlocking directorate 12, 13
intermediate goods, as source of agglomeration 149, 182
in cities in East Asia 97
machinery industry in China 183, 185–94
Internacional de Sistemas 332, 335
international fairs 238, 239
International Monetary Fund (IMF) 46
Internet 1
clustering forces in the Internet industry 5, 268–83
agglomerating forces on peering decisions 279–83
composition of Internet 275
interconnection agreements 276
peering decision 277–9
proximity and agglomeration 268–70
proximity in cyberspace 270–72
relational governance as a centripetal force for districts 272–5
technological aspects 276–7
economic performance driven by 65
information diffusion and 71, 356
penetration by region in Korea 160
platform for Internet operations in Mexico 346–8
spread of 4, 64, 67, 316, 326
support to businesses through 323, 327, 338
tacit knowledge transferred via 270
Internet exchange points (IXPs) 276
internet service providers (ISPs) 275
peering agreements 275, 276, 280–82
peering decision 277–8
agglomerating forces on 279–83
transit agreements 276, 278
INTERNET 2 software project 329
internship programs 334
inventories 26
investment licenses 125
IPI (Istituto per la promozione industriale) 220
IRC 19
Ireland, software industry in 289
Iris Ceramica 265
Irmen, A. 269
iron ore 41
iron town cluster, see Kitakyushu City
industrial cluster; Yawata Works
Ishihara, K. 198
ISO 9001 certification 334
Israel, software industry in 289
ISTAT 206, 215, 216, 218, 229, 250
IT, see information technology
IT service industry
Korean 141–2, 143
Mexican 312, 313
Italy
Brenta shoe district in 228–30, 232–43, 353, 356
governance of industrial districts in 273–5
industrial districts and value chains in 5, 225–43, 356
industrial districts in Emilia-Romagna region, see Emilia-Romagna region, industrial districts in
peering decision of ISPs in 279–83
specialization and comparative advantage in 4–5, 205–19
Index

Itochu Corporation 105–11, 114, 116, 117
Itoh, M. 93

Jaffe, A. 93
Jakarta 122
Jalisco
  electronics cluster in 319, 335–6, 338
  IT clusters in 312, 313, 319, 335–8, 339
Japan
  automobile industry in, see automobile industry, Japanese
  cities behaving as information base in 72–81
  comparative advantage of 208, 209
  crude steel production 47, 48–9
  economic growth rates 46, 47
  evolution of major steel companies in 45
  exports to US 48–9
  FDI by 22–8, 30–31, 32, 47, 50, 355
    in Mexico 338, 340–41
  iron town cluster in, see Kitakyushu City industrial cluster; Yawata Works
  IT boom in 63–4
  IT clusters in cities 68, 70, 93
  labor productivity and IT investment in 65, 92
  population changes in 68, 69
  production technologies originating in 316
  relationship between face-to-face meetings and telecommunications in 83–93
  tariff on imported shoes 244
  textile industry in 21–2, 355
  trade friction/imbalance 47–9
  Tsubame City kitchenware cluster in 353, 356
Japan Auto Parts Industries Association and Auto Trade Journal 19, 31
Japan Bank for International Cooperation 125, 127
Japan Electronics and Information Technology Industries Association 93
Japan Steel Corporation 41–6
Japanese International Development Agency (JAIPO) 114
Japanese trading corporations, industrial zones established by 98, 105–18, 119, 134, 137
jewellery industry, Italian 216
JFE (Kawasaki Steel Co. and NKK Corporation) 45
Jiang Zeming 195
Jiangsu 178, 179, 180
Jin, X. 174
Johor 102, 103
joint ventures
  automobile industry 23
    Brenta shoe district participating in 239
  difficulty of finding partner for 102
  external purchase of parts by 188, 189
  industrial zones 105, 114, 116
  software industry 326, 328, 330, 331
  steel industry 44, 50
  theme parks 54–5
  jokamachi 61, 353, 354, 355, 357
  juko-chodai 59
Jurong Group of Singapore 114, 115, 116, 117, 353
just-in-time system 17, 21, 29, 316, 357; see also Kanban method
Kagami, M. 1, 46, 357
Kanban method 13, 14, 17, 18, 19, 26; see also just-in-time system
Kandori, M. 274
Kanto Jidosha 13
Kaplinsky, R. 225, 227, 231
Karawan industrial zone 112, 114
Kariya 18, 19, 20
Kariya group 21–2
Kasumigaseki Building 46
Kato, H. 174, 195, 198
Kauffman, D. 301
Kawakami, M. 97
Kawasaki Steel Corporation 50
Kedah State Economic Development Corporation 102
keiretsu 67
Kende, M. 283
Kennedy, L. 97
Kentucky, Toyota plants and parts suppliers in 23, 27
Kernel 332, 334, 335, 336
kernel density 212–14
Khadria, B. 303
Khrushchev, Nikita 177
Kim, S. 173, 252
Kimitsu Works 40, 43, 47, 50
Kirkpatrick, D. 298, 299
Kitakyushu Academic Research Promotion City 39, 53
Kitakyushu City, publications by 35, 39, 53, 54, 183
Kitakyushu City Industrial Census 38
Kitakyushu City industrial cluster automotive industry attracted to 39, 56 compared with Pittsburgh, USA 56–9 as industrial castle town 353 iron and coal nexus cluster 35–7 reasons for cluster formation 59–61, 355 restructuring towards new businesses 37–9 revival following decline of iron and steel industry 53–6, 356 workforce living in 36, 38 see also Yawata Works
Kitakyushu Eco-town project 39, 54
Kitakyushu International Airport 53
Kitakyushu International Distribution (KID) Center 54
Kitakyushu International Techno-Cooperative Association (KITA) 37–9
Kitakyushu Port and Harbor Bureau 54
Index
Five Year Plan 104
free trade zones in 102–3
industrial zones in 98, 99, 102–4, 354
Japanese investment in 23, 50, 139
State Economic Development Corporations of 102–4
Mallinckrodt 254
Manila 114, 115, 122
manufacturing industry
change in regional industrial disparity in China 175–82
‘hollowing out’ of 355, 356
industrial disparity indices by sector 182, 184
share of machinery industry output value in 185, 186
Map Ta Phut industrial zone 105, 106–7, 109
Marche region 238, 248
market power 269
marketing function 234, 356
Markusen, A. 244
Marshall, A. 248, 269, 273
Marshallian trinity 3, 37, 60
Marubeni Corporation 105–11, 112, 114, 115
Marukawa, T. 174, 177, 198
Maskus, K. 293
Massachusetts, software cluster in 5, 289, 291, 292, 293, 353
Masscorp of Malaysia 116
Matloff, N. 296
maximum differentiation, principle of 268–9
Mazda 30, 32, 56, 356
mechanical engineering industry, see machinery industry, Chinese; machinery industry, Italian
meetings (face-to-face), communication using and population density 73, 74, 76, 77, 79
empirical evidence for 83–92
Meiji government 40
Meissen porcelain cluster 353
mergers and acquisitions 93, 231, 233, 254
Metropolitan Autonomous University 322
Mexico
debt crisis in 314
effect of NAFTA on 312, 316–17, 330–31, 356
growth of GDP per capita on 314–15
IT market in 312, 313
management revolution and emergence of software industry in 5, 312–48, 356
Aguascalientes software cluster 313, 319, 338–43, 344, 353
dialogue and agglomeration experience 327–46
Distrito Federal 312, 313, 317, 319, 320–21, 327–8
driving forces in Mexican software industry 314–21
first movers in the IT revolution 321–7
geographical distribution of software market 313
government software niche 328–9
in-house training 321, 322, 336
Jalisco software cluster 313, 319, 335–8, 339
measuring emergence of software industry 317–20
Monterrey software cluster 317–19, 330–35, 336
platform for Internet operations 346–8
size of software market 314, 315, 317, 346, 348
Software Development Program 346, 347, 348
value chain of software industry 317, 318
National Researchers’ System in 319
opening of economy 316
Mexico City, IT community in 320–29; see also Distrito Federal, IT clusters in
Meyer, J.-B. 290, 302
Meyer-Stamer, J. 255–6
Microsoft 292, 293, 316, 320, 323, 329, 337, 343, 346
Microsoft bCentral 338
Microsoft Office 337
Microsoft Windows 293
Mie Prefecture 19, 20
Miller, R. 276
Minamata disease 49
minimum differentiation, principle of 268
mining industry, Chinese
change in regional industrial
disparity 175–82
industrial disparity indices by sector 184
share of machinery industry output value in 185, 186
Ministry of Information and Communication (MIC), Korea 144, 147, 148, 160, 170
Ministry of Internal Affairs and Communication, Japan 69, 93
Ministry of Land, Infrastructure and Transport, Japan 68, 70
Mir, A. 303
Mirondola, biomedical district of 250, 252–5
Missouri, Toyota plants and parts suppliers in 27
Mitsubishi Corporation 31, 105–11, 114, 115, 116, 117, 118, 130
Mitsui Hightech 36
MIX (Milan Internet Exchange), peering decision of ISPs connected with 279–83
Miyazawa, Kiichi 125
Miyoshi 19
MM2100 EPZ/IZ 112, 114
Modena 253, 256
Modiano, P. 219
Monden, Y. 13
monodukuri 58
monopolistic competition 3, 173
Montelongo, Roberto 331
Monterrey software cluster 317–19, 330–35, 336
Moore, S. 299
Moore’s Law 294, 296
Mori, T. 97, 173
motorcycle industry 129
Moussanet, M. 250
‘multi-located’ industrial districts 257–8, 264–5, 356
multinational corporations (MNCs)
effect on clusters 355
in industrial districts 253–4, 255, 264–5
in industrial zones 354
in Mexico 314, 319, 320, 335–6, 338, 340–41, 343–6
multi-plant firms, innovative capability of 259, 260, 261, 263
Murakami, N. 183, 185, 187, 188
Murphy, K.M. 199
musical instruments industry, Italian 216
Myanmar, industrial zones in 116, 118
Mytelka, L. 227
mythical-man month 308
Nacional Financiera (NAFIN) 328, 340
NAFTA, see North American Free Trade Agreement (NAFTA)
Nagoya
IT cluster in 68, 70
population changes in 68, 69
Toyota parts suppliers in 19, 20
Nagoya Port 18
NAMEX 279
NASA 55
National Autonomous University of Mexico (UNAM) 322, 323, 346
National Bureau of Statistics of China 181
National Science Board (NSB) 300, 301
National Science Foundation (NSF) 301
national security 299
nationalization of banks 322
natural resources 23, 37, 354
nearshore services 331, 356
Neoris Corporation 333, 334, 335
NET México 346
netiquette 272
Netscape 293
network access points (NAPs) 276, 279
network externalities 248, 249, 275, 291, 293
New Duong Bridge 121, 124
new economic geography 2, 173–4, 214, 273, 279
New United Motor Manufacturing, Inc. (NUMMI) 23
New York City, multimedia software cluster in 293
newspapers, communication using, and population density 73, 74, 75, 78, 79, 82
Ng, L.F.Y. 174
Nicholson, B. 289, 290, 302, 303, 307
Nihon Keizai Shimbun 139
Ningxia 177
Nippon Denso 13
Nippon Steel Corporation 40, 41, 43, 44, 45, 47, 48–9, 50, 60
Nishi-Mikawa 18, 19, 20
Nishikimi, K. 97, 173
Nishio 19, 20
Nishiwaki, T. 33
Nishizawa, M. 174
Nissan Motor Co. 23, 30, 32, 36, 39, 56, 340–41, 356
Nisshin Steel Co. 44, 45, 50
Nissho Iwai Corporation 111, 112, 114, 115
NKK Corporation 50
Noi Bai EPZ/IZ 116, 117
Noibai International Airport 120, 128
Nomura Haiphong industrial zone 116, 117, 119–20, 125, 135
tenant companies 129–34
Nomura Securities Co., Ltd 116, 117, 119
non-codiﬁable knowledge 270
non-metallic mineral manufacturing industry, Italian 216
non-proﬁt organizations (NPOs) 58–9, 60, 67
North American Free Trade Agreement (NAFTA) 312, 316, 330, 331, 356
Nuevo Leon, IT clusters in 312, 313, 317–19, 330–35, 336
object-oriented programming 295
OECD, see Organization for Economic Cooperation and Development (OECD)
Office of Technology Assessment (OTA) 289, 293
Office Xpress Manufacturing Co., Ltd 129, 132
ofﬁcial development assistance (ODA) for transportation infrastructure 98, 121, 135, 137
Ohara, M. 198
Ohbu 19
Ohio, Toyota plants and parts suppliers in 27
Ohno, T. 13
Ohta Ward, Tokyo 353
oil shocks 37, 43, 47, 59
Okamoto, N. 187, 190
Okazaki 19
one-stop service 125
Onida, F. 219
Onoe, E. 174
Open Service 333, 335
Oracle 320, 329, 343–6
Oracle Classroom 346
organizational changes 65–7
organizational communities 255
origin–destination (OD) matrix 74–6, 85, 87, 89
Ornati, O. 249
Osaka
communication use in 78, 79
Higashi Osaka in 353
IT cluster in 68, 70
population changes in 68, 69
Osborne, M.J. 283
Otsuka, K. 173, 198
Owari group 21–2
Owari region 19, 20
Paba, S. 252, 255
Pacific War (1941–45) 42
packaged software 291, 293, 317, 323, 324, 331, 335, 339
Padoan, P.C. 215
Pambianco 231
paper industry, Italian 216
Index

Parker Processing VN Co. 129, 130, 136
parts suppliers, Toyota’s, see primary parts manufacturers, Toyota’s;
secondary parts manufacturers, Toyota’s; tertiary parts manufacturers, Toyota’s
patents
hardware and software 298
information flows from 72
inter-firm differences in patenting activity 248, 258–64
path dependency 18, 249
Pavitt, K. 259, 260
Pearl River Delta 191
peering agreements 275, 276, 280–82
peering decision 277–9
agglomerating forces on 279–83
peering matrix 280–81
Pemex 343
Penang 102, 103, 354
Penang Skills Development Center 102
Penang State Economic Development Corporation 102
Peneder, M. 312
People’s Republic of China, see China
Perak, industrial zones in 102
personal computers (PCs)
domestic shipment of 64
ownership per 1000 residents and software export success 301, 302, 303, 304
software developed for 314, 316, 317, 327, 336
Phan Van Khai 125
Philippines
export-processing zones in 115
industrial zones in 98, 111, 114, 115
Japanese investment in 23, 111, 114, 139
taxes in 126
wages in 121, 122
Pieriovanni, R. 258
pillar industries, development of 174, 196, 197
Piore, M.J. 249
Pitchik, C. 283
Pittsburgh, iron and steel agglomeration in 56–9, 353
Plaza Accords 43, 104
Pohang Steel 43, 50
Polanco 321, 322
pollution 37, 49, 53, 56, 57
POLYNE de México 327, 329
population density, communication technologies and 74–81, 82, 83
porcelain cluster in Meissen, Germany 353
port facilities 40, 41, 59, 80, 98, 137, 357
Cairong port 120, 121, 123, 124
Haiphong port 98, 120, 124, 128, 134, 135
Hibikinada Hub Port Initiative 39, 54
Kitakyushu 54, 58
Porter, M. 4
Portugal, Japanese investment in 23
pottery and china industry, Italian 209
Powell, W. 273
PPND (Pittsburgh Partnership for Neighborhood Development) 58
Prada 231
Prai industrial zone 102
Prasad, M. 306
price negotiations, in Japanese automobile industry 16, 21
primary parts manufacturers, Toyota’s 10–12
automotive assemblers supplied by 28, 30–31
FDI in North America 26–7
location of headquarters and factories in Japan 18, 19
ties with Toyota 13–14, 21
principal–agent model 15, 16
principle of maximum differentiation 268–9
principle of minimum differentiation 268
printing equipment clusters 4
private companies
external purchase of parts by 188, 189
industrial zones established by 98, 99, 103, 105–18, 134, 354
private–public partnerships 341
privatization 330
PRM software, see provider relationship management (PRM) software
probability density function (PDF) 210, 212–14
process upgrading 228
Prodigy network 326
Prodigy Pymes 323
producer-driven chains 227
product design 227, 232–3, 242, 356
product differentiation, price competition with 268–9
product innovation 254–5
product upgrading 228, 236
production efficiency 16–17
production function 100–101, 150
production process 227
upgrading 228
productivity paradox 64–7, 92
Prometeia 256, 257
property, plant and equipment, value of, and innovative capability 259–60, 261, 263
property rights 125
intellectual (IPRs) in software 291, 293, 301, 303, 304, 305
provider relationship management (PRM) software 329
Puga, D. 269
pure transfer of technology (PTT) 321
Pyke, F. 244
Qingdao 176
Qinghai 177, 195
Qiu, B. 174
quality assessments 335, 338
quality circles 316
quality control 254, 316
quality management (QM) 17, 21
quasi-hierarchies 227–8, 237, 242
R&D, see research and development (R&D)
R&I (Ricerche and Interventidi Politica Industriale) 253
R&T Manufacturing VN Co., Ltd 129, 132
Rabellotti, R. 226, 238, 244
railways fares 89
planned projects in China 195
proximity to 68, 80
raw materials, proximity to 40, 41, 59
Ray, S. 299
Readman, J. 227
recycling 39, 44, 54, 56, 58, 59–60, 356
regional growth 148–64
basic model of growth in regions 150–53
educational and R&D institutions and 168, 169, 170
IT sector in Korea 161–70
knowledge creation, agglomeration and IT 149–50
mechanism of agglomeration formation 148–9
regression analysis on growth in regions of Korea 154–64
results of previous studies 153–4
regional specialization, and agglomeration formation 148–9, 151–4
in Korea 154–8, 159, 161–9
related parts manufacturers 10
relational contracts 273
relational governance 272–5
Renaissance Project 57
rents, economic 231, 236, 237, 238, 243
reputation 239, 272–5
research and development (R&D) controlled by MNCs 254
facilities 3
and growth of IT sector in Korea 168, 169, 170
joint activities 12, 13, 19
location of MNCs’ 341
national research laboratories 145
scientists and engineers working in 301–2, 304, 305, 307
shared in industrial clusters 354
software 298
workers employed in Korean R&D sector 142–3
restaurants 123, 137
restricted or prohibited industries 128
Reyes, Carlos 334, 335
risk sharing 17
roads, see highways
Robb, D. 306
robotics, industrial clustering in 4
Romania, outsourcing to 236, 237, 241, 242
Rosenberg, N. 252
Index

Rosenstein-Rodan, P.N. 195
Rossi, S. 219
Route 128 software cluster 5, 289, 291, 292, 353
Russo, M. 256
Russo-Japanese War 41
Saai. M3 327
Sabah, industrial zones in 104
Sabel, Ch. 249
Sakai Works 40, 43, 50
Sakakibara, M. 145
Sakata, I. 147
Sala-i-Martin, X. 100
Salim Group of Indonesia 116, 117
San Martin Associates 322
Sango 30, 31
Sanyku Co. 36
Santa Catarina ceramic tile cluster 256
Santarelli, E. 252, 258, 264
Santomas VN Co. 129, 130
SAP 320, 329, 343, 345
Sapporo City, IT cluster in 70, 93
Sarawak, industrial zones in 104
Sassuolo, ceramic tile district of 250, 255–8
satellite television, communications using, and population density 73, 74, 75, 78, 82
Saxenian, Annalee 273, 289, 298, 302, 307
scale-intensive firms, innovative capability of 259, 260, 261, 263
Schmitz, H. 226, 227, 228, 244, 245
schools 120, 123, 329, 346
Schwe, R. 290
Schwartz, J. 299
SCM software, see supply chain management (SCM) software
SDINET 327
search costs 74
Sebu 122
second Schumpeterian hypothesis 259
Second World War 41, 68, 214, 228, 247
secondary parts manufacturers, Toyota’s 12
location of factories 18, 20 ties with Toyota 14
Seki, M. 174
Selangor 102, 103
Select IDC 313
Sendai City, IT cluster in 70, 93
Seoul concentration of industries in 140, 141
centralization of software industry in 143–4, 164, 165, 170
growth of hardware and software industries in 165
number of workers in IT, R&D and education in 143
tele-density and Internet penetration in 160
sewage processing plants 120
Sforzi, F. 250
Shaanxi 177, 196
Shabondama Soap 36
Shadlen, K. 293
Shandong 178, 179, 180
Shanghai intra-China parts purchasing from 189
joint venture with Brenta shoe manufacturers 239
manufacturing industry based in 176 share of production base 178, 179, 180
wages in 122
Shanghai Baoshan Steel 43, 44, 50
Shanxi 177, 178
Shenzhen 122
Shibuya Bit Valley 1, 68
Shizuoaka Prefecture 20
shopping facilities 123, 137
Shikurow 61
Sialkot medical products cluster 354–5
Sichuan 177
Sigma Tao 326, 330
Silicon Valley 1, 5, 68, 71, 140, 150, 273, 289, 291, 298, 305, 353
Silverman, B.W. 212
Singapore 139, 353
SISTEC 328
Sistema Nacional de Investigadores 319
Sistemas Dinámicos Internacionales (SDI) 320, 326–7
slope production method 46
Small- and Medium-scale Enterprise Agency 4
small and medium-sized enterprises (SMEs) in Aichi Prefecture 21–2
government policy towards 354 in industrial districts 247, 249, 250, 253, 256
software developed by 319
SMBA 147, 148
Smithonian monetary system 47
‘smoke towns’ 56, 57
social networks 273–4
social sanctions 274, 275, 283
Softtek 319, 330–34, 335, 336
software industry
developmental advantages of 289–90
emergence in Mexico 5, 312–48, 356
Aguascalientes software cluster 313, 319, 338–43, 344, 353
dialogue and agglomeration experience 327–46
Distrito Federal 312, 313, 317, 319, 320–21, 327–8
driving forces in Mexican software industry 314–21
first movers in the IT revolution 321–7
geographical distribution of software market 313
government software niche 328–9
in-house training 321, 322, 336
Jalisco software cluster 313, 319, 335–8, 339
measuring emergence of software industry 317–20
Monterrey software cluster 317–19, 330–35, 336
platform for Internet operations 346–8
size of software market 314, 315, 317, 346, 348
Software Development Program 346, 347, 348
value chain of software industry 317, 318
Indian
‘leapfrogging’ industrialization 357
software cluster in Bangalore 1, 140, 316, 353
software development for US market 289, 331
institutional framework required for 312–14
Korean
characteristics of 161–8
concentration in Seoul 143–4, 164, 165, 170
factors promoting growth and industrial agglomeration 144–8, 168–70
number of establishments and workers in 141–2, 143
skilled labor necessary for 2, 294–9, 300–302, 303, 304, 305, 319, 331
spending by principal region and world total 297
United States 5, 289–307
centrifugal forces affecting 291–9
centripetal forces affecting 299–300
challenges to North American monopoly 289, 356
correlates of North American software imports 300–307
hardware-to-software migration 296–8
labor shortages 294–9
‘lock-in’ mechanisms 291–3
in Pittsburgh 57
principal segments 291
top software firms located in US 291, 292
wages 295, 296, 298
see also Silicon Valley
Sogoshosha 98, 134
SOHO (small offices, home offices) 67
Solingen cutlery cluster 353
Solow, R. 65
Solow paradox, see productivity paradox
Sonobe, T. 173, 198
‘Space World’ 55
Spagnolo, G. 273, 274
Spain
Castellón ceramic tile cluster in 255–6
comparative advantage of 208, 209
spatial economics 2, 173–4, 182
Special Free Zone for International Distribution 54
specialized parts manufacturers 10–12
specialized suppliers, innovative
capability of 259, 260, 261
spot markets 275
Stalin, Joseph 177
standards, software 293, 296
Stanford Computer Industry Project
(SCIP) 291
State Economic Development
Corporations of Malaysia 102–4
state-owned enterprises (SOEs) 176,
187, 188, 189, 328–9
steel industry cluster, see Kitakyushu
City industrial cluster; Yawata
Works
Steinmuller, W.E. 291, 293
Sterlacchini, A. 252
Stiglitz, J.E. 173, 182
stock holdings 12, 13
strategic alliances 323, 337
subcontractors
externalities derived from 354
to high fashion companies 232–8
in industrial districts 253, 254–5,
273, 274–5
Japanese automobile industry 12,
356
see also primary parts
manufacturers, Toyota’s;
secondary parts manufacturers,
Toyota’s; tertiary parts
manufacturers, Toyota’s
substitution effects, face-to-face
meetings and IT 81, 84, 85, 89, 92
Suehiro, A. 110
Sueyoshi, Koichi 53
Sumitomo Bakelite 128, 130, 136
Sumitomo Coil Center 129
Sumitomo Corporation 111, 112, 113,
114, 115, 116, 117, 118, 119, 120,
128, 129
Sumitomo Metal Industries Ltd 44, 45,
50, 136
Sun Microsystems 292, 298, 343, 346
supplier dominated firms, innovative
capability of 259, 260, 261
supply chain management (SCM)
software 64
Sumanaree industrial zones 105, 107,
108, 109
surplus change 346
Sustainable Pittsburgh 58
Suzuki 31
tacit knowledge 5, 144, 255, 269–70,
354
Taiwan
industrial clusters in 97
industrial zones in 354
Japanese investment in 23
trade with Japan 54
Takahama 19, 20
Takashimaya Nippatsu 30, 31
Tamberi, M. 207, 215, 219
Tan Tuan export processing zone 116
tax and lending incentives 357
in industrial parks in Mexico 340
in industrial zones 98, 99, 111,
125–8, 134, 137
in Japan 46, 60
in Korea 148
for software development 303
 techno poles 329, 338, 341
Technological University of
Netzahualcoyotl 322, 346
Technoparks 39, 53
Teheran Valley 144, 170
telecommunications
relationship between face-to-face
meetings and 81–2, 92–3,
149–50, 164, 271, 274–5, 355
empirical evidence for 83–92
software to hardware spending ratio
298
tele-density and regional growth in
Korea 158–64, 166–8, 169
see also cellular phones; telephone,
communication using
telecommuting 67
Teléfonos de Mexico (Telmex) 323
privatization of 330
software network of 324–6, 329
telephone, communication using
and population density 73, 75, 77,
79, 83
relationship between face-to-face
meetings and 85–92, 149–50
telephone circuits 120
Index

Television, communication using, and population density 73, 74, 75, 78, 79, 82
Tennessee, Toyota plants and parts suppliers in 27
Teran, H. 303
Terdiman, R. 298, 299, 300, 303
Terengganu, industrial zones in 103
Tertiary education, and software export success 300–301, 303, 304, 305
Tertiary parts manufacturers, Toyota’s 12, 14
Tesser, S. 291, 294, 295, 296
Texas, hardware-related software cluster in 293
Texas Instruments (TI) 340, 341
textile industry
external purchase of parts in
Chinese 187, 188
French 353, 355–6
Italian 209, 216
Japanese 21–2, 355
software developed for 327
Thailand
export-processing zones in 104, 105, 111
Industrial Estate Authority of 104–5, 106–10, 134
industrial zones in 98, 99, 104–5, 106–10, 111, 134, 354
Japanese investment in 23, 111, 139
taxes in 126
trade with Japan 54
wages in 121, 122, 123
Thang Long industrial park 116, 117, 119–20, 122, 125, 135
tenant companies 128, 129, 130–31
theme parks 54–5
thick markets 3, 60
Thisse, J.-F. 3, 173, 199, 268, 269, 270, 354, 357
Tianjin
external purchase of parts to total external purchase ratio in 187, 189
manufacturing industry based in 176
share of production base 178, 180
Tobata Foundry 36
Tobata site 40, 42, 43, 44, 46, 50, 55, 56
Tohoku 18
Tokai 19
Tokaido Shin-kansen (bullet train) 46
Tokyo
communication use in 78, 79
IT cluster in 68, 70
Ohta Ward in 353
population changes in 68, 69
Tokyo Metropolitan Highway 46
TOPIX 279–80
Torii, K. 103
total quality management (TQM) 17, 21
TOTO Ltd 36, 128, 130, 136
Towa Real Estate 13
township and village enterprises 188
toy industry, Italian 216
Toyoda, Sakichi 354
Toyota Boshoku 13
Toyota Central Research Institute 13
Toyota City 18, 19, 20, 353, 354
Toyota Gosei 13, 30, 31
Toyota Group parts manufacturers 13, 17
automotive assemblers supplied by 28, 30–31
FDI in North America 27
location of factories and headquarters in Japan 18, 19
Toyota Jido Shokki 13
Toyota Koki 13
Toyota Motor Corporation 4
FDI by Toyota and its parts suppliers 22–7
and dispersion of location 28, 30–31, 32
in industrial zones in Vietnam 128, 136
IT applications in 29–32
location of factories and parts suppliers in Japan 18–22, 39, 56, 356–7
origin of 354
production structure of 13–14
compared with non-hierarchical US system 14–17
Toyota Motor Manufacturing, Illinois, Inc. (TMMI) 23, 26
Toyota Motor Manufacturing, Kentucky, Inc. (TMMK) 23, 26
Toyota Shatai 13
Toyota Tsusho 13
Trade-Related Aspects of Intellectual Property Rights (TRIPs) agreement 293
Training Center for Human Resource Development (Malaysia) 102
transaction costs, reduction of 15, 258, 274, 299
transfer pricing 308
transit agreements 276, 278
transport density 97
transportation, relationship between telecommunications and demand for 83–92
transportation costs
agglomeration to save 2, 3, 5, 149, 182, 183, 197, 354
in Japanese automobile industry 39
in Japanese steel industry 60
and demand for face-to-face interaction 85, 89, 279
iceberg transport 173–4
Japanese parts manufactured in US 26
linear 268
methods of reducing 125
quadratic 268–9
technology-driven reduction in 270, 271
transportation infrastructure
industrial agglomeration assisted by 59, 80, 98, 99, 121–3, 124, 134, 135, 137
see also airline connections; highways; port facilities; railways
Traü, F. 215
target-price system 49
TRIPs agreement 293
TRIPs-plus 293
trust 82, 272, 274, 275, 279
Tsubame City kitchenware cluster 353, 355–6
Tsuda Industries 30, 31
Tsui, M. 1, 3, 14, 33, 357
Tuan, C. 174
Tuomi, I. 308
Tuscany 248
two-sector priority production method 46
Uchida, T. 198
Udon Thani industrial zone 104
Ueki, Y. 139, 140
United Kingdom
Brenta shoe district’s sales to 229
comparative advantage of 208, 209
Industrial Revolution in 63–4
Japanese investment in 23
United Nations Conference on Trade and Development (UNCTAD) 291, 292, 294, 298, 299, 302
United Nations Development Program (UNDP) 301
United States
Brenta shoe district’s sales to 230
comparative advantage of 208, 209
FDI by Toyota and parts manufacturers in 23–7
FDI in Mexico 312
Japanese steel exports to 49
labor productivity and IT investment in 65–7
production structure of automobile industry in 14–17
software industry in, see software industry
United States Central Intelligence Agency (USCIA) 301
United States Department of Commerce/Economics and Statistics Administration (USDOC/ESA) 294, 295
United States Immigration and Naturalization Service (USINS) 295, 296
universal connectivity 275, 283
Universidad Autónoma de Veracruz (UAV) 346
Universidad del Valle de México (UVM) 346
Universidad Nacional Autonoma de México (UNAM) 322, 323, 346
Universidad Tecnológica de México (UNITEC) 346
Universidad Tecnológica Fidel Velazquez de Netzahualcoyotl 322, 346
universities
government-funded R&D in 145
industry linkages with 121, 140, 146–7, 334, 346
offering IT degrees 319
software engineers graduating from 322, 323, 334, 337
in urban centers 93, 120, 150
University of Monterrey (UDEM) 334
Uno, K. 196
upgrading strategies 228
Urata, S. 97
urban collective-owned enterprises 187, 188, 189
Urban Redevelopment Agency of Pittsburgh (URAP) 58
US Air Force 150
US Steel Corporation 42, 56, 57
USSR, relations with China 176–7
utility function 100

value chains
globalization, industrial districts and 5, 225–43
Brenta in the top brand chain 232–8, 356
Brenta shoe district 228–9
Brenta’s customers 229–30
implications of globalization 241–3
literature on 226–8
local governance in Brenta 238–41
top brand value chain 230–32
governance or coordination of activities in 227–8, 237
Mexican software industry 317, 318
‘vein’ industries 39, 54, 60, 61, 356
Venables, A.J. 269
vendor development programs 341
Veneto 248
venture capital 148, 353
venture companies 146–7, 170
Veronesi, Mario 254
Vietnam
export-processing zones in 116, 117, 119
FDI inflows in 2001 119
growth rates in 118–19, 137
industrial clusters in Northern Vietnam 128–34, 135, 136–7
industrial zones in 97, 98, 354
development by quasi-public sector 114–18
northern Vietnam 118–34, 135, 137
institutional reforms in 125–8, 134
taxes in 125, 126, 134, 137
wages in 121, 122, 123
Vietnam Singapore Industrial Park (VSIP) 116, 117
Vietphong Garment & Textile Co., Ltd 129, 132
Vinh Phuc industrial zone 128
visa application 128
vocational training and education 354
Volex Cable Assembly 129, 130
Vollrath, T.L. 219
voluntary export restraints (VERs) 43, 49
VSSB (Malaysia) 116, 117

wages
in hardware industry 295
in software industry 295, 296, 298, 322, 327, 331, 337
in Vietnam, compared with other Asian countries 121, 122, 123

WARP, see Worldwide Automotive Realtime Purchasing System (WARP)
water supplies 59, 120
waterfall models 295
Wei, H. 174
Weijland, H. 97
Wen, M. 174
Wichmann, T. 283
Williamson, O.E. 15, 255, 273
willingness to pay 236
Word Perfect 293
World Bank 97, 301
World Information Technology and Services Alliance (WITSA) 297, 298, 301, 348
World Trade Organization 293
WorldCom 278
Index

Worldwide Automotive Realtime Purchasing System (WARP) 29–32
Wuhan 187, 188
Xerox 340–41
Xi’an 196
Xu, X. 174

Yamada, K. 99
Yamasha 128, 136
Yantze River Delta 180, 181, 191
Yaskawa Electric Co. 36
Yawata Iron and Steel Co. 40, 43, 47
Yawata Works 40
  choice of location for 354–5
  coalfields owned by 35
  downsizing in Kitakyushu 37, 39
  history 39–53
  investment in environmental protection 39
  new businesses set up by 54–6, 356
  Yohai, V. 220
  Yokkaichi City 353
  Yokohama City, IT cluster in 70
  Yoon, Myoung-hun 146, 147
  Yue, X. 173
  Yunnan 177
  zaibatsu 41
  Zenrin Co. 36
  zero inventory 316
  Zhejiang 178, 179, 180
  Zhong Guan Cun IT cluster 353
  Zhu Xiwei 174
  Zysman, J. 293