Index

abuse see infringement procedures
access
bit-stream 76, 77, 78, 241, 416
broadband see broadband services
carrier select 137
fixed see fixed access
and interconnection 10, 71, 74, 76, 84, 169, 262, 311, 317–30, 432–3
leased lines 71, 75, 77, 84, 343–4, 356, 415, 416–17, 421, 437–8, 441–2
local see local loop unbundling
metered 437
network 135–68, 421
one-way 136–42, 143
pricing see access pricing
shared see local loop unbundling
and SMP operators see SMP operators
and sunk costs see sunk costs
third-party 223
two-way 142–5
access pricing
backward-looking 141
common cost allocation 157–61
and economies of scale 36, 39, 174
ECPR (efficient component pricing rule) 139–40
first-best solution 137–40
forward-looking 141–2, 171
high, universally 164–5
and local loop unbundling 169–82
low 29, 174–6
margin squeeze 37, 150–56, 173, 177–9
policies 28, 174–80
prepaid 29, 149
Ramsey pricing 138–40, 146–7, 149, 155, 157–60, 166, 262
rules, dynamic 140–42
service bias 29
termination see termination
traffic-independent 137
two-way see interconnection
usage-based 139
see also tariffs
accounting separation 21, 22, 36, 39, 84, 105, 297–8, 324–5
ADSL (asynchronous digital subscriber line) 14, 137, 175, 179
advertising 34, 51
Airports UK 158–9, 161
Airtouch/Vodafone merger 124, 386
Airtours 31, 121, 125
allocation of frequencies see spectrum
Alsatel case 118
America see USA
Ameritech/SBC merger 53, 55, 245, 247
analogue line 77, 178, 179
see also local loop
anticompetitive practices 5, 25, 135, 152, 173, 239–40, 260, 270–71, 281, 283
see also competition
antitrust laws
and collusion 104–5
economics of 239–42
role in telecommunications 4–5, 260–65
applied game theory 152
asynchronous digital subscriber line (ADSL) 14, 137, 175, 179
AT&T 53–4, 55, 56
AT&T/BT joint venture 56
auctions and spectrum allocation 191–4, 197, 199–205, 214, 215, 220, 222
Australia
call termination 63
spectrum trading in 218
Austria
interconnection prices 13
leased line prices 12, 13
and local loop unbundling 173
mobile call termination regulation 19
spectrum allocation in 195–6, 197, 198, 199, 200, 201, 202, 203
stock prices 201
UMTS licence allocation 197–203
Authorisation Directive 15, 22, 217, 232, 305–16
Azko v. The European Commission case 154
Baby Bell 56
bandwidths 29, 76, 77, 137, 159, 164, 225, 231, 435
see also broadband services; frequencies
Baumol–Willig rule 139
beauty contests and spectrum allocation 191, 192, 197, 199, 205, 214, 215
Belgium
cable providers in 176, 241
interconnection prices 13
leased line prices 12, 13, 14, 274, 275
and local loop unbundling 173
long-distance calls in 14
mobile call termination regulation 17–18, 19
spectrum allocation in 195–6, 197, 198, 201
stock prices 201
3G licence assignment 221
UMTS licence allocation 197, 198, 201
Bell Atlantic/GTE merger 53, 55
Bell Atlantic/NYNEX merger 53, 54, 55, 61
bit-stream access 76, 77, 78, 241, 416
Blu 222, 226
bottlenecks 56, 58, 63, 64, 142, 148, 149, 169, 171, 261
Britain see UK
broadband services 64, 240–41
bit-stream access 76, 77, 78, 241, 416
domination by incumbents 14, 170, 173, 178, 439
and Europe 2005 Action Plan 419
market definition 64, 76, 78, 240–41, 438
see also cable providers; digital services;
Internet access; UMTS technology
broadcasting transmission services 31, 73, 76, 77, 417
BT Cellnet 194
BT/AT&T joint venture 56
BT/Esat merger 124, 386
Buigues, Pierre A. 9–26, 71
cable providers 29, 40, 58, 137, 163–4, 173–6, 273, 337, 361, 378, 430
caching 63
call
charges see price; tariffs
incoming see CPP; termination
calling party pays (CPP) 18, 58, 61, 63, 66, 143, 144–5, 148–9, 166, 447–8
Canada
and local loop unbundling 164
spectrum trading in 218
Canoy, Marcel 135–68
capacity constraints 95, 412
carrier preselection 57
cartel theory 114, 115
Cave, Martin 15, 27–41
cellophane fallacy 51
CEPT (European Conference of Postal and Telecommunications Administrations) 214, 216, 217–18
CFI (Court of First Instance) 21, 114, 118, 119, 122, 384
cheating 93–4
see also disputes; infringement procedures;
sector inquiry
Choumelova, Dessislava 269–84
Clayton Act 245
Clear-Telecom 106
closed user groups 61, 148
collar effects 101, 108
CMB (Compagnie Maritime Belge) case 120–21, 125
Coase theorem 249
collective dominance 14–15, 20–21, 91–113
and Internet access 124
lawyer’s perspective, from a 114–31
and Merger Control Regulation 122–4
collusion
competition and 102–6
cooperation and 106–7
and e-commerce 108–9
and innovation 94, 108
logic of 91–2
market characteristics 93–102, 107–8, 207
regulation and 105–6
and terminating access prices 144
Communications Bill (UK) 219
Compagnie Maritime Belge (CMB) case 120–21, 125
competition
and collusion 36, 102–6
discrimination 36
and dominance 114–15, 118
and GSM 205–7
and increased choice 149
infringement procedures 11, 24, 32, 38, 155, 270, 272
long-term 171
and mandatory access 37
and market definition 33, 78, 80–83, 225, 319, 335, 375, 398–409, 411
in mobile market 29, 61, 185–212
monitoring 269–84
NCAs and 31, 84, 376, 389–90, 426
non-discrimination 22, 35–6, 39
policy approach 9–26, 30, 31, 225, 239–42, 318, 413
and regulation 3–4, 35, 224–6, 290, 291, 423, 425
short-term 171
and telecommunications 260–65, 269–84
and 3G licences 226–7
and transparency 206, 398
and UMTS 185–212
see also anticompetitive practices; sector inquiry
Competition Commission 61
competition and entry barriers 207
Concert Alliance 124
connectivity
end-to-end 34
universal 106, 108
consumer
behaviour 47, 52, 406
buying power 100
lock-in 31
loyalty 99
protection 28, 32, 38, 273–4, 338
switching costs 31, 34
transparency 207, 336
welfare 39, 138
contracts 336, 344–5
convergence, technological 15, 63
cost accounting system 11, 21, 37, 325–6, 335
costs
common, allocation of 157–61
embedded direct 141, 171
fixed 50–52, 206, 207
shared 107
stand-alone 154, 156, 158
switching 207
see also access pricing; price; tariffs
country pairs 56
Cournot 62
Court of First Instance (CFI) 21, 114, 118, 119, 122, 384
Court of Justice (ECJ) 21, 114, 115, 118, 120, 384
CPP (calling party pays) 18, 58, 61, 63, 66, 143, 144–5, 148–9, 166, 447–8
cross-subsidies 39, 151, 153–4, 156, 178, 263
customer see consumer
Czech Republic, GSM operators in 196
data protection 10, 11, 15, 22, 296
Data Protection Directive 15, 22
DCS (Digital Cellular System) 225, 382
de Bijl, Paul 135–68
Debitel 203
delay–degrade strategy 173
Delgado, Juan 169–82, 269–84
demand
elasticity 100, 206, 207
fluctuations 98
growth 98, 108
substitution 45, 47, 53–4, 56–7, 63, 66, 378, 400–401, 405, 411
Denmark
interconnection prices 13
leased line prices 13, 241
local loop unbundling 163–4, 173, 282
spectrum allocation in 195–6, 197, 198, 200, 201, 202, 204
stock prices 201
UMTS licence allocation 197, 198, 200, 201, 202, 204
deregulation mechanism 82
Deutsche Telecom see T-Mobile
DG Information Society 74–5
Digital Cellular System (DCS) 225, 382
digital sources 14, 77, 178, 179, 318, 355, 437
see also broadband services
digital subscriber line (DSL) 14, 163, 173, 175, 178, 179
directory assistance 53, 339–40, 345–6, 361
DirecTV/Echo Star merger 245
disabled users 11, 296, 333, 340
disclosure rules 105
discount plans 53, 273
discretionary decisions and spectrum allocation 191, 192
discrimination 56, 108, 271, 324, 406
disputes 32, 291, 296, 300–301, 347
see also cheating; infringement procedures; sector inquiry
dominance 31–3, 224, 380–86
abuse of 25
collective see collective dominance
joint 31, 35, 290
single 31, 35
see also market power
DSL (digital subscriber line) 14, 163, 173, 175, 178, 179, 436, 437
dual-till system 158–9
Dutch auctions 192–3
Dyestuff case 116
e-commerce 108–9
E-Plus 124, 264, 386
EchoStar/DirecTV merger 245
ECJ (Court of Justice) 21, 114, 115, 118, 120, 384
economies of scale 16, 36, 39, 174, 186–7, 200, 241, 382
ECPR (efficient component pricing rule) 139–40
EDC (embedded direct costs) 141, 171
efficiency
and competition 200
dynamic 161, 163, 165, 170–71
Index

static 161, 163, 170–71
efficient component pricing rule (ECPR) 139–40
EFTA Surveillance Authority (ESA) 272
Ercom 124, 386
embedded direct costs (EDC) 141, 171
emergency call number 77, 345–6
English auctions 192–3, 197, 203, 204
competition and 207
dynamic efficiency 161
and local loop unbundling 151
and market definition 33–5, 83, 93, 224
and merger control 103
roaming tariffs and 280
environmental protection 22
EPMU (equal proportionate mark-up) 159, 160, 161
ERG (European Regulators Group) 23–4, 218
ESA (EFTA Surveillance Authority) 272
Esat/BT merger 124, 386
ETSI (European Telecommunications Standards Institute) 214
European Commission Sector Inquiries 12–14, 269–84
European Commission v. Azko case 154
European Conference of Postal and Telecommunications Administrations (CEPT) 214, 216, 217–18
European Regulators Group (ERG) 23–4, 218
European Telecommunications Standards Institute (ETSI) 214
excessive prices 37, 38, 104–5, 137, 154, 173, 176–7, 271, 280
facilities, resale of 22, 170
FCC (Federal Communications Commission) 53, 54, 55, 56, 61
FCFS (first come first served) and spectrum allocation 191
Federal Communications Commission (FCC) 53, 54, 55, 56, 61
Fehrenbach, Jérôme 169–82
fibre-optic networks 163, 165, 174, 176, 273, 439
Finland
access problems in 136
interconnection prices 13
leased line prices 12, 13, 241
and local loop unbundling 163–4, 173, 282
mobile call termination regulation 18, 19
spectrum allocation in 194–6, 197, 198
3G licensing 222
UMTS licence allocation 197, 198
firms
collusion among 96–7
centrization of 205–7
maverick 96
number of 205–7
First Choice 121
first come first served (FCFS) and spectrum allocation 191
first generation see 1G
first-best solution, access pricing 137–8
fixed access 54, 78, 333, 340, 415, 421, 430–42
Basic Access Services 60
versus mobile 54
Flat Glass case 118–20
foreign exchange service 53
Commission Recommendation 410–13, 415
and market definition 71–4, 79–82, 225
and spectrum trading 217, 218
transition to 420–23, 426–8
France
cable providers in 176
interconnection prices 13
leased line prices 13, 14
and local loop unbundling 173, 177
long-distance calls in 14
mobile call termination regulation 17–18, 19
and MVNOs 231
price index for mobile services 208
spectrum allocation in 194–6, 197, 198, 199
termination charges 264
3G licence assignment 221, 222
UMTS licence allocation 197, 198, 199
universal service provision infringements 11
France Telecom 14, 203, 204, 222, 275
France Telecom/Orange merger 124, 386
frequencies
allocation, property rights for see spectrum co-ordination 216
management of 296, 306–7, 310–11
trading 216
see also bandwiths
Gabathuler, David 213–35
Gencor case 118–20, 121, 125
General Packet Radio Service (GPRS) 200
Germany
colloction fees 283
interconnection prices 13
leased line prices 12, 13, 14
and local loop unbundling 163–4, 173, 282
mergers 124
mobile call termination regulation 17
mobile roaming inquiry 275
MVNO access 229
network sharing 227, 229
price index for mobile services 208
Index

spectrum allocation in 194–6, 197, 198, 199, 200, 201, 202, 203–5
stock prices 201
termination charges 263–4
3G licence assignment 221, 222, 226
UMTS licence allocation 197, 198, 199, 200, 201, 202, 203–5
GSM (global system for mobile communications) see GSM
global telecommunications services (GTS) 124, 386
GPRS (General Packet Radio Service) 200
Greece
access problems in 136
interconnection prices 13
leased line prices 12, 13, 274, 275
mobile call termination regulation 19
spectrum allocation in 195–6, 197, 198, 199, 201
stock prices 201
3G licence assignment 221
UMTS licence allocation 197, 198, 199, 201
GSM (global system for mobile communications) 185–6, 194–6, 202–3, 214–16, 225, 382, 444
and competition 205–7
GPRS (General Packet Radio Service) 200
incumbents, number of 198
mobile roaming inquiry 275, 280
see also mobile services; spectrum; spectrum allocation; UMTS
GTE/Bell Atlantic merger 53, 55
GTS (global telecommunications services) 124, 386
Gual, Jordi 45–70, 241
handset subsidies 29, 38, 208
historic cost approach 141, 171
Hocepied, Christian 71–87
Holland see Netherlands
Horizontal Merger Guidelines (US) 243
hypothetical-monopolist test 21, 30, 46, 49, 53, 56, 64–5, 66, 81, 253, 377, 431

IBPs (Internet backbone providers) 57, 63, 228
Iceland
GSM operators in 196
sector inquiry 272
IMTS (international message telephone service) 54
incentives for new entrants 135, 144, 151, 162, 223
incremental costs 154, 156, 158, 174
Independent Regulators Group (IRG) 23–4
infringement procedures 11, 24, 32, 38, 155, 270, 272
see also cheating; disputes; sector inquiry
innovation, technological 5, 17, 64, 83, 93, 161, 412, 424
and collusion 94, 108
and customer response 52
stifling of 37, 39
intellectual property (IP) 261, 262, 264
interconnection
access obligations 10, 71, 74, 76, 84, 169, 262, 311, 317–30, 432–3
indirect 82
international 142–3, 337
and leased lines 73
and legislation 10, 11, 17, 21–2, 35, 106–7, 172, 223, 275
and MVNO 230
prices 10, 27, 38, 141, 142, 155, 163, 166
see also access; individual countries; termination, mobile call
Interconnection Directive 14, 17, 20, 27, 28, 231
international interconnection 142–3, 337
international leased lines see leased lines
international message telephone service (IMTS) 54
international roaming services 18–20, 29, 56, 73, 75, 270–75, 279–81, 415, 417, 431, 435, 444–5
and 3G 226
and bundled services 61
two-way access 142–3
International Telecommunications Union (ITU) 214, 218
Internet access 163, 166, 260, 423, 439–41
collective dominance 124
hype, decline of 201–2
and leased lines 12, 14, 278
and local loops 170, 172, 275, 282
see also broadband services
Internet backbone providers (IBPs) 57, 63, 228
investment 34, 37, 38, 39, 51, 135, 140, 175, 241, 250
IP (intellectual property) 261, 262, 264
Ireland
interconnection prices 13
leased line prices 12, 13
local loop unbundling 159
mergers 124
mobile call termination regulation 18
spectrum allocation in 195–6
3G licence assignment 221
IRG (Independent Regulators Group) 23–4
ISDN 179, 228, 435
Italy
  cable providers in 176
  interconnection prices 13
  leased line prices 12, 13, 274, 275
  and local loop unbundling 173, 179
  mobile call termination regulation 17–18, 19
  price index for mobile services 208
  spectrum allocation in 195–6, 197, 198, 200, 201, 202
  stock prices 201
  3G licensing 222, 226
  UMTS licence allocation 197, 198, 200, 201, 202
  ITU (International Telecommunications Union) 214, 218
joint ventures 56, 92, 103, 264
Katz, Michael L. 240, 242, 243–59
Kemp, Ron 135–68
Klotz, Robert 169–82
KPN (Koninklijke PTT Nederland N.V.) 18
Kruse, Jörn 185–212, 264
leased lines
  access obligations 71, 75, 77, 84, 343–4, 356, 415, 416–17, 421, 437–8, 441–2
  interconnection 73
  international 14, 274
  and Internet access 12, 14, 278
  pricing policies 12, 13, 241
  sector inquiry 12–14, 270, 271, 272, 273, 274–5, 278–9
  terminating 78
  and transparency 356
  see also individual countries
LEC Order 53, 54, 64
legal barriers 16, 412, 425
leniency programmes 104
Lerner index 51, 66
liberalization of telecommunications industry 9, 27–8, 214–15, 423
licence fees, see also spectrum allocation
licensing 10, 11, 57, 185, 196–9, 217, 221–3, 261
  fees 29, 204–5, 207, 208, 209
  Licensing Directive 27, 215–16
Liechtenstein, sector inquiry 272
LLU see local loop unbundling
local loop unbundling 4, 11, 22, 39, 56–8, 136–7, 141, 163–4, 364–8, 416, 430, 438
  access to 73, 75, 78, 169–82, 241, 321
  alternative technologies and 63
  anticompetitive behaviour and 135
  costing 170–72, 176–7
entry barriers 151
EU approach to 172
EU, poor results in 173–4
high-bandwidth market 29, 159–60
and Internet access 170, 172, 275, 282
and margin squeeze 154
sector inquiry 270, 271, 272, 273, 275–6, 281–3
and SMP 37, 71
and sunk costs 34
theoretical framework 169–72
see also individual countries
local tandem conveyance 76
lock-in effects 31, 101
long-distance calls 14, 53, 54, 55, 56, 170, 273
and cable operators 29
long-run incremental cost (LRIC) 141–2, 146–7, 149, 155–6, 159, 166, 171–2, 176
loss-making 34
lotteries and spectrum allocation 191
Lowe, Philip 239–42
LRIC (long-run incremental cost) 141–2, 146–7, 149, 155–6, 159, 166, 171–2, 176
Luxembourg
  mobile call termination regulation 19
  spectrum allocation in 195–6
  3G licence assignment 221
margin squeeze 37, 150–56, 173, 177–9
mark-up, price 50, 51, 55, 63, 138, 157–8
market definition 23–5, 30–31, 33, 252–3, 452–3
  and bundles of services 59–61
  Draft Recommendation 75–6
  geographic 399–408
  product 399–408, 429–30
  public consultation 76–9
  specificity of 79–82
markets
  bidding 101
  business 55
  characteristics 93–102
  collective 21
  collusion in 93–102, 107–8, 207
  concentration 123
  dominance of see dominance
  failure 10, 17, 83, 269, 271
  and fixed costs 50–52, 206, 207
  multi 101
  oligopolistic 21, 114, 115, 118–22, 385
  participants, number of 94–5, 103
  power 5, 9, 15, 20, 38, 47–50, 146–7, 224–5, 372–92, 418
  regulation of see regulation
relevant 33–5, 50–52
retail 57, 64, 72, 75, 178
secondary, development of 218–22
and SMP (significant market power) see SMP operators
stability 92
symmetry in 95–6, 103
transparency in see transparency
wholesale 57, 72, 74, 75, 178, 411
maverick firms 96
MCI/WorldCom merger 18, 53, 55, 57, 124, 262, 386
MCI WorldCom/Sprint merger 55, 57, 63, 64, 124
Merger Control Regulation (MCR) 21, 25, 114, 122–4
Merger Guidelines 53, 54, 247, 253
mergers 18, 53–5, 57, 61, 63–4, 124, 243, 245, 247, 262, 273, 278, 386, 401
control of 103–4
mirroring 63
mmO2 see O2
MNP (mobile number portability) 207
Mobilcom 203, 204, 221, 222, 226
mobile services 11
access obligations 71, 421, 442–3
call origination 59, 60, 62, 75
call termination see termination
competition in 29, 61, 185–212
mobile number portability (MNP) 207
mobile versus fixed 54
1G (first generation) 194
price index for 208
roaming see international roaming services
spectrum allocation 194–205
subscription 60
termination see termination
3G (third generation) see 3G
2G (second generation) 197, 222, 225, 226, 230
versus fixed 54
see also GSM; spectrum allocation; UMTS
mobile services. MVNO (mobile virtual network operators) 223, 226, 228, 229, 230–32, 445
Mobistar 124, 386
monopoly, hypothetical-monopolist test 21, 30, 46, 49, 53, 56, 64–5, 66, 81, 253, 377, 431
Monti, Mario 3–5
multi-homing 28
MVNO (mobile virtual network operators) 223, 226, 228, 229, 230–32, 445
National Administration and Regulatory Authorities (NARA) 23
national regulatory authorities (NRAs) see NRAs
NCAs (National Communications Authority) and competition policy 31, 84, 376, 389–90, 426
leased lines pricing policies 12
see also individual countries
Netherlands access pricing and competition 28–9
cable providers in 163–4, 176, 241
electricity in 159, 161
interconnection charges 13, 163
investment in 163
leased line prices 12, 13, 14
and local loop unbundling 163–4, 173, 282
mobile call termination regulation 17–18, 19
spectrum allocation in 195–6, 197, 198, 201, 202
stock prices 201
UMTS licence allocation 197, 198, 201, 202
see also OPTA
network
duplication 38
economics 262–4
effects 5, 34, 101, 108
sharing 227–31, 242
switching 61, 439
new entrants
collusion with 107
complaints from see sector inquiry
fees charged to 177
incentives for 135, 144, 151, 162, 223
New Zealand
interconnection agreements in 106
spectrum trading in 218
1998 package 27–9
1999 Review 9–15, 24, 71
Norske Skog/Parenco/Walsum case 123–4, 386
Norway
GSM operators in 196
sector inquiry 272
and 3G agreements 231
UMTS licence allocation 197, 198
NRAs (national regulatory authorities)
Commission, co-ordination with 9, 11, 23–4, 293–301, 322–3, 390, 426
and competition rules 10, 30, 32, 71, 83, 84, 224, 426
and consultation 23–4
cost-oriented prices 38
and dominance 114
leased lines pricing policies 12
market intervention 16, 30–32, 79, 81–4, 372–9, 413, 419, 422, 427–9
price regulation see price
Index

SMP operators 20–23, 452–3
transfer of rights to use 217
number translation 76
numbering 11, 296–7, 306–7, 310, 346
NYNEX/Bell Atlantic merger 53, 54, 55, 61
O2 203, 221, 227, 229
Official Journal 15
Oftel
and bundling 61
call termination 58, 61–2, 63–4
common costs 160
conditioning charges 165
cost-oriented prices 38
fixed versus mobile calls 54
fixed-mobile termination 148
interconnection tariffs 155, 163
international roaming services 20
and MVNOs 231
shared access 159–60
survey data, use of 54
wholesale and retail markets 57
see also NCAs; UK
oligopolies 21, 114, 115, 118–22, 385
1G (first generation) 194
ONP (open network provision) 149, 171
OPTA
access pricing and competition 28–9
fixed-mobile termination 148
interconnection tariffs 155
see also NCAs; Netherlands
Orange 221, 222, 231
Orange/France Telecom merger 124, 386
overcharging 154–5
Papadias, Lambros 114–31
Parenco/Walsum/Norske Skog case 123–4, 386
patent pools 264
penetration strategy 153
performance indicators 13
Philadelphia National Bank v. US case 61
planning, town and country 22, 297
Poland
GSM operators in 196
UMTS licence allocation 197, 198
Portugal
collocation fees 283
interconnection prices 13
leased line prices 12, 13, 274, 275
and local loop unbundling 173
mobile call termination regulation 19
spectrum allocation in 195–6, 197, 198
UMTS licence allocation 197, 198
pre-pay 29, 149
predatory pricing 14, 38, 137, 152, 153, 154, 156, 260
price
access see access pricing
adjustments, frequency of 93–4
below-cost 153, 154–5, 263
capping 10, 11, 18, 139, 154, 247
cost-oriented 38, 39, 271
costs 36, 178
discrimination 56, 108, 271, 324, 406
e xcessive 37, 38, 104–5, 137, 154, 173, 176–7, 271, 280
fixed line see fixed access
internal transfer 36
leased lines policy 12, 13, 241
marginal cost 50, 51
mark-up 50, 51, 55, 63, 138, 157–8
overcharging 154–5
per minute 143, 147
predatory 14, 38, 137, 152, 153, 154, 156, 260
retail 9–10, 38–9, 139, 178
retail-minus 38, 178
rural, high-cost 39
safety-net 40
squeezes 5, 137, 155
SSNIP test 46, 50, 53, 56, 63, 65, 80–81
urban, low-cost 39
wars 92, 94, 97
wholesale 36, 178
see also costs; tariffs
privacy 10, 22
procurement schemes 100
product
capacity 34
differentiation 99–100
profits margins 92, 141
Proximus 124, 386
PSTN (public switched telephone network) 57, 58, 63
public service provision 157, 333, 340
Quam 221, 222, 226
R&D (research and development) 34, 51, 52, 161, 223
Racal Vodafone 194
radio access networks (RAN) 209, 228, 229
Radio Spectrum Decision 217, 218
Radiocommunications Agency 219
Ramsey pricing 138–40, 146–7, 149, 155, 157–60, 166, 262
Ramsey–Boiteux social welfare level 138
RAN (radio access networks) 209, 228, 229
recoupment 152
regulation
and collusion 105–6
and competition 25–6, 105–6, 224–6, 423, 425
economic aspects of 27–41, 239–42
failure 200
fragmentation of 11–14
infrastructure investment 27, 29
new framework 9, 11, 15–26
old framework 9, 10, 17–18
price see price
regulatory capture 26
sector-specific 4, 10, 15, 20, 40, 71–2, 81, 84,
114, 219, 231
see also Access Directive; Authorisation
Directive; Framework Directive
resale of facilities 22, 170
Resale Price Maintenance 96, 105
research and development 34, 51, 52, 161, 223
resellers entry 29
retail services control 9–10, 38–9, 57, 139, 178,
430–31
retaliation 92, 95, 98, 99, 101, 107, 122
revolving-doors problems 105
Rey, Patrick 91–113
ring-fencing 36
roaming services see international roaming
services
Roundtable 239–42
RPI-X regulation 160
satellite providers 40, 58, 217, 273, 337, 361,
378
Sauter, Wolf 213–35
SBC/Ameritech merger 53, 55, 245, 247
sealed-bid auctions 192–4, 197, 204
second generation see 2G
secondary markets in spectrum allocation
218–21
sector inquiry 12–14, 269–84
sequencing 217
see also licensing
service
below-cost 34
bias 29
bundles 59–61
complaints see sector inquiry
complementarities in 60–61, 65
differentiation 31
directory queries 53, 77
emergency calls 77, 345–6
number translation 76
obligations, universal see universal service
obligation
operator-assisted 77
parameters 352
quality of 13
service-level agreements (SLA) 274
Services Directive 215
share prices 29, 201–2
Sherman Act 104, 246
short messaging service (SMS) 57, 58, 77, 443,
446, 448–9
SMP (significant market power) operators 32–3
access obligations on 71, 74, 226, 427–9,
452–3
designation of 20–23, 25, 28, 374, 375,
381–8
and local loop unbundling 37, 71
SMS (short messaging service) 57, 58, 77, 443,
446, 448–9
soft law 15, 172
Sonera 203, 204, 222
Spain
cable providers in 176
interconnection prices 13
leased line prices 12, 13, 14, 274, 275
and local loop unbundling 173
long-distance calls in 14
mobile call termination regulation 18, 19
spectrum allocation in 195–6, 197, 198, 199
tariff rebalancing 11
3G licence assignment 221, 222
UMTS licence allocation 197, 198, 199
special needs users 11, 296, 333, 340
spectrum
allocation see spectrum allocation
availability of 186–7
scarcity 28
spectrum allocation 15, 33, 39, 108, 185,
auctions 191–4, 197, 199–205, 214, 215, 220,
222
beauty contests 191, 192, 197, 199, 205, 214,
215
discretionary decisions 191, 192
in European mobile communication 194–205
FCFS (first come first served) 191
frequency trading 216
intermodal 189–90
inframodal 187–9
and licensing 217
lotteries 191
methods of 190–94
and regulatory framework, new 216, 361
secondary markets, development of 218–21
and 3G see 3G
UMTS see individual countries; UMTS
Spectrum Directive 15
Sprint/MCI WorldCom merger 55, 57, 63, 64, 124
SSNIP test 46, 50, 53, 54, 56, 63, 65, 80–81
stand-alone costs 154, 156, 158
standardisation 299–300
STIRA (standard international roaming agreement) 280
stock prices 4, 29, 201–2
stopping rule 145
stranded assets 141, 142
subscription fee 143, 178, 179
subsidies, cross 39, 151, 153–4, 156, 178, 263
substitution 21, 51, 207
demand 45, 47, 53–4, 56–7, 63, 66, 378, 400–401, 405, 411
supply 30, 45, 47, 53–7, 62–3, 65–6, 76, 377, 378, 401–2, 411
sunk costs 16, 29, 34, 39, 45, 47, 51–2, 57–8, 174, 206–7, 220, 377
sunset clauses 30, 40, 145, 162, 165
Sweden
interconnection prices 13
leased line prices 12, 13
and local loop unbundling 173, 282
mobile call termination regulation 18, 19
price index for mobile services 208
spectrum allocation in 195–6, 197, 198, 199
3G licensing 222
UMTS licence allocation 197, 198, 199
Swisscom 203, 279
switching networks 61, 439
Switzerland
GSM operators in 196
stock prices 201
UMTS licence allocation 197, 198, 201
T-Mobile 124, 204, 221, 229, 276, 386
tariffs
affordability of 340–41
handset subsidies 29, 38, 208
innovative 29, 38
pre-pay 29, 208
rebalancing of 11, 34, 282
roaming 84
transparency 21, 22, 32, 39, 319
two-part 143
see also costs; price
Tele2 164, 231
Telecom Italia (TI) 179–80
Telecommunications Act (US) 243, 246, 255
Telefonica 146, 203, 204, 222
TenneT 159
termination
access price 143–4, 148, 149, 226, 260, 263, 264
and bottlenecks 58
and cable operators 29
market definition 73, 74, 75, 77, 84, 416, 421
mobile 146–50, 160, 166, 431, 445–8
mobile call 17–19, 29, 37, 45, 59–60, 61–3
see also individual countries; interconnection
Tetra Pak II case 383
3G (third generation) licences 29, 197, 200, 213, 214, 216, 219–20, 382
assignment process 221–3
competition issues 226–7
implications for 220–21
market definition 225–6
network sharing 227–31, 242
see also MVNO; 1G; spectrum allocation; 2G; UMTS
TI (Telecom Italia) 179–80
Tirole, Jean 242, 260–65
traffic-independent access pricing 137
transit services 76, 416, 421
transparency
and competition 206, 398
consumer 207, 336
and leased lines 356
market 97–8
obligations of 324
regulatory remedies 21, 22, 32, 35, 123, 308, 342, 351
of tariffs 21, 22, 32, 39, 319
and UMTS auctions 199
2G (second generation) 197, 222, 225, 226, 230
2004 Review 84–5, 453–4
UK
cable providers in 176, 241
call termination 17–18, 61–2
Communications Bill 219
Competition Commission 18
dual-till system 158–9
fixed versus mobile calls 54
hypothetical monopoly 46
interconnection prices 13
leased line prices 13
local loop unbundling 159–60, 173
and local loop unbundling 163–4, 173
long-distance calls in 14
mobile roaming inquiry 275
and MVNOs 231
network sharing 227, 229
price index for mobile services 208
shared access 159–60
spectrum allocation in 194–6, 197, 198, 199, 200, 201, 202, 203–5, 219–20
stock prices 201
3G licence assignment 221
UMTS licence allocation 197, 198, 199, 200, 201, 202, 203–5
see also Oftel
ULL (unbundled local loop), and access prices 169–82
UMTS technology 107, 137, 185–212, 220, 228
auctions 197, 199–205
infrastructure sharing 208–9
licensing in Europe 196–9, 225
newcomers, attracting 202–3
regulatory and competition implications of 223–31
resources, allocation of 213–35
see also individual countries
undercutting 91–2, 93, 95, 99
Universal Service Directive 15, 22, 38–40, 331–57, 415, 419, 420, 441
universal service obligation (USO) 28, 38–40, 135, 165, 245, 252, 361
UPC (cable) 163–4
US
access charges 163
access, compulsory 249–50
antitrust enforcement 104, 114, 239, 264
antitrust and regulation, differences between 244–7, 251–4
and entry barriers 47
Horizontal Merger Guidelines 243
hypothetical monopoly 46, 64–5
interconnection in 85
investment levels 163, 175, 250, 251
leased lines prices 12
licensing, compulsory 247
long-distance calls 56
and LRIC 171
market definition in 53, 55, 85, 252–3
merger policies 53, 55, 243, 245–6, 247
public policy in telecommunications market 243–59
regulation and antitrust, differences between 244–7, 251–4
spectrum assignment 188, 218, 245
SSNIP test 53, 56
Telecommunications Act 243, 246, 255
US Federal Communications Commission 218
US Merger Guidelines 50
US v. Philadelphia National Bank case 61
users
closed 48, 61
complaints from see sector inquiry
disabled 11, 296, 333, 340
low-volume 11
special needs 11, 296, 333, 340
USO (universal service obligation) 28, 38–40, 135, 165, 245, 252, 361
Van Geffen, Dr Sjoerd 80–81
veto power of Commission 17
VIAG Intercom 124, 203, 264, 386
see also O₂
Vickrey auctions 192–4
Vodafone 194, 203, 221
Vodafone/Airtouch merger 124, 386
W-LAN (Wireless Local Area Network) 200, 207
Walsum/Norske Skog/Parenco case 123–4, 386
Wanadoo 14, 275
Wind 179–80
Woodpulp II case 116–17, 118
xDSL 77, 78