## Index

Abernathy, W. 150  
Adjerad, S. 87, 88–9  
Afonso, A. 72–3, 74  
Aigner, D. 20  
Anderson, R. 52  
Arrow, K. 126  
Asai, S. 76  
Ashaye, T. 69, 70  
Australia  
- benchmarking strategies 181  
- financial services evolution 51  
- productivity and efficiency in universities 73  
- public sector efficiency and performance 74  
- public sector performance 74  
- public services output indicators 69  
Austria, productivity of insurance services 51, 52  

banking industry  
- assimilation and differentiation strategies 167  
- DEA productivity measurement 73  
- efficiency 51, 52  
- industrialization of services 169  
- and technological innovation (ATMs) 150  
- value as ‘net banking income’ 46, 49, 51, 55, 57–8  
Barras, R. 148, 150, 180  
Barraud-Didier, V. 129  
Barro, R. 127  
Barros, C. 52, 76  
Barros, C. 51  
Bartelsman, E. 124  
Bassanini, A. 123  
Batley, R. 179  
Battese, G. 20  
Bauer, P. 13  
Baumol, W. xiii, 25, 28, 34, 144–6, 172  
Baxter, M. 69, 70  
Bélanger, J. 133  
Belgium  
- performance measurement in Post Offices 73  
- public sector efficiency 74  
Bell, D. 152, 153–4, 157  
benchmarking  
- inter-organizational comparisons 29  
- productivity, traditional factors influencing 138  
- public services, productivity factors 181  
Bernatchez, J. 7  
Berry, M. 211  
Billaudot, B. 24  
Blandin, O. 6  
Bluestone, B. 152  
Boltanski, L. 52, 77  
Bonneville, L. 26, 30, 152  
Boorsma, P. 137  
Boulaine, N. 133, 134, 135  
Boyer, R. 24  
Broussolle, D. 37  
Burchell, B. 127  
business incubators, output and performance 82–5  
Canada  
- organizational changes in social affairs sector 175  
- police service productivity 75  
- private-sector management principles in civil service 178  
- productivity in Ministerial Administrative Services, integrated approach 183–4, 212  
Statistics Canada workplace and employee survey 133, 134  
Caplan, D. 65, 70  
Castagnos, J. xii  
Caves, D. 17  
Chaffai, M. 13
Index

Charnes, A. 16, 18
Chu, S. 51
Clark, C.  xi
Coe, D. 124
Coelli, T. 76
Cohen, M. 127
Cohen, S. 152
collective consumption and
productivity measurement 65–6, 69

competition
‘European competitiveness report’ 176
lack of, and public services 63–4, 73
and productivity, link between 25
consultancy services 102, 103–4, 106, 108, 110, 111, 112, 206, 211–12
productivity factors 164–5
consumers, direct and indirect 66–7
Cora, G. 20
Cully, M. 135
Cunéo, P. 123, 124
customer influence
and public services, productivity factors 197
service challenge 37–8, 39–40, 41, 46, 54, 55, 57
see also self-service society
Czech Republic, education system
output indicators 75

Danjou, B. 200, 201
data envelopment analysis (DEA)
and efficiency 16–17
and public services 72–5
service challenge 48, 51, 52
Debreu, G. 13
decentralization
health services 203
and public services, productivity factors 179, 185, 203, 207, 215
Delaunay, J.-C. 159
Delfini, C. 77, 80–1
Denison, E. 23
Dewatripont, M. 138
Dixit, A. 138, 182
Dolton, P. 182
Donthu, N. 51
Dopuch, N. 51, 52
Drake, L. 51, 73, 76
Drucker, P. 152
Du Tertre, C. 6
Dumez, H. 180
e-government proposals
ADELE plan, France 188
European Commission 180–1
public services, productivity factors 180–1, 185, 188
US 180–1
economic crises, positive effects of 139
economic growth and living standards, link between 21–4
economic theory, and public services 63–4
education system
collective consumption and
productivity measurement 66
DEA productivity measurement 72, 73
econometric productivity measurement 76
governance structures and agency
theory 182
output indicators 35, 74–5
output measurement and collective
consumption 66
output and outcome indicators 62, 70
output quality measurement 71
performance problems 64
and self-service society 159
service sector, productivity factors 162
efficiency
and data envelopment analysis (DEA) 16
definition 5
and effectiveness, link between 5–6
in European banking 52
of labour 8
and performance, distinction between 72–3
productivity 34–5
public sector 63, 74
public services and productivity factors 173, 182, 183, 185
scaling problem 6
technical, and data envelopment analysis (DEA) 16–17
technical, and production frontier
in urban public transport, France 76
employment services
outputs and performance in France 77
production worlds 80–1
and productivity, link between 25–6
energy services
econometric productivity
measurement of electricity 76
performance problems 64
Englander, A. 124
equality of treatment, public services 64, 67
Europe
banking efficiency 52
European Council, stability and
growth pact 27
European Foundation for the
Improvement of Living and
Working Conditions survey 135
European Quality Prize 179
European Work Organization survey 134
policies for productivity
improvement 176–81
public sector performance 74
European Commission
e-government proposals 180–1
ESA (European System of
Accounts) output indicators for
public services 68
‘European competitiveness report’ 176
Handbook on Price and Volume
Measures in National Accounts 27
Eurostat
output measurement proposals 68
and quality variations 71
family welfare offices
production worlds 87
productivity and performance 85–90
and relational bureaucracy 87–9
Färe, R. 17
Farrell, M. 13, 14, 15, 16, 18
Farsi, M. 76
Fernandez, C. 52
Finland
education system output indicators 75
public services output indicators 69
fire service
econometric productivity
measurement 76
output and outcome indicators 35, 62, 70
Fisk, D. 69
Fleck, J. 127
Fordism 132–3, 162, 168
Forte, D. 69
Fox, K. 173
France
budgetary reform 186–8
civil service recruitment flexibility 174
Department of Health and Social
Affairs, model application 100–2, 103–4, 105
Department of Health and Social
Affairs model of organizational
levels 95–8, 103
Department of Health and Social
Affairs, output and productivity
of planning and steering
functions 111–17
e-government (ADELE plan) 188
efficiency in urban public transport 76
evolution of manual and
management employment in
manufacturing and services 154, 156
government department outsourcing 199–202
human resource management 188
Ministry of Health and Public
Affairs, intensive productivity
strategies 209–10
Ministry of Health and Public
Affairs, productivity in 202–15
Ministry of Health and Public
Affairs, recent productivity
developments 202–4
Ministry of Health and Public
Affairs, reforms and
diminishing returns for concept of productivity 206–15
Organic Law on the Finance Acts (LOLF) 184, 186–8, 200
outputs and performance in National Employment Service 77, 80–1
Post Office performance tree 189–99
Post Office performance tree, improving 198–9
Post Office performance tree, limitations 196–7
Post Office productivity and performance 77, 78–9
productivity and French regulationist school 23–4
productivity in public services improvement strategy 184–8
productivity and R&D 123, 124
public sector efficiency 74
public-private partnerships (PPPs) 188
retail and distribution, industrialization of services 168
and self-service society 159
‘Solidarity and integration’ objective 187
total quality management (TQM) and European Quality Prize 179
Freeman, C. 25
Fuchs, V. xiii
Fuentes, H. 52
Gadrey, J. 21, 26, 30, 34, 39–40, 41, 43–4, 46, 47, 55, 56, 102, 154, 156, 157, 159, 160, 163, 166, 168, 170, 199, 211–12, 215
Gaebler, T. 173
Gamache, R. 8, 21, 121, 140
Germany
R&D elasticity of output 124
work organization and performance 135
Gerschuny, J. 157–9
Gilbert, R. 73
Giles, A. 25
Goffman, E. 54
Gollac, M. 127
Gordon, R. 123
Gorz, A. 152
government administrative services
collective consumption and productivity measurement 66
DEA productivity measurement 73
e-government proposals see e-government proposals
tax offices, econometric productivity measurement 76
see also local government
Green, F. 127, 128
Greene, W. 52
Greiner, J. 66, 173
Griliches, Z. xiii, 123, 124
Gueret-Talon, L. 179
Halachmi, A. 137
Hall, B. 124
Hall, M. 51
Hammond, C. 73
Handler, H. 69, 70
Harris, G. 21, 121, 139, 140, 141
Harrison, B. 152
He, Y. et al 52
health services
assimilation and differentiation strategies 167
cost reduction and saving on resources 213, 214
DEA productivity measurement 72, 73
decentralization 203
econometric productivity measurement 76
evaluation of output and performance 63
French Department of Health and Social Affairs model of organizational levels 95–8, 103
governance structures and agency theory 182
industrialization of professional services 165–6
informational asymmetries between producers and consumers 63
IT and regulatory changes and productivity 76
output definition difficulties 60–1
output indicators 74
output measurement and collective consumption 66
output and outcome indicators 62, 70
performance problems 64
and policy reform 214
production or consumption externalities 64
and self-service society 159
service pentagon 61
service triangle 59–60
Helpman, E. 124
Hempell, T. 52
Hill, P. 38, 39
Hollingsworth, B. 18, 73
Holmstrom, B. 138
Holzer, M. 176
Holzer, S.-H. 176
hotels and restaurants, assimilation and differentiation strategies 167
Hulten, C. 37
human resource management, public services, productivity factors 176–8, 188, 204–6, 210
Hungary, education system output indicators 74–5
ICTs
and productivity 52
public services, productivity factors 180–1, 183–4, 202, 207, 211
service sector, productivity factors 145–8, 162–3
incentive systems
and agency theory 137–8
public services, productivity factors 178, 182–3, 197, 210, 211
individual competency levels
and productivity factors 152, 154
services applied to 41–3, 44
industrialization
professional services in service sector, productivity factors 165–6, 167–8, 169
and service challenge 38–9
innovation
and productivity 26
and service challenge 34, 54
solutions, ad hoc, in internal steering, planning and design departments 107–8, 110

technological see technological innovation
institutional factors
and productivity 140–1, 175, 186
regulatory institutions and public services 60, 61
international comparisons, public services 72–5
international investment and trade 139–40
Ireland, public sector performance 74
Italy, public sector efficiency 74
Jaldell, H. 76
Japan
banking efficiency 51
productivity growth in telecommunications 76
public sector efficiency and performance 74
R&D elasticity of output 124
Jensen, M. 137
Jeunemaître, A. 180
Jex, S. 30
Johnes, G. 73
Johnes, J. 73
Jorgensen, D. xiii
Joumard, I. 176
Jowett, P. 181
justice system
and criminality 35
DEA productivity measurement 73
output and outcome indicators 62, 70
prison system, output and outcome indicators 62, 70
as ‘pure public good’ product 64
see also police
Karasek, R. 30
Karlaftis, M.76
Karpik, L. 9, 28, 108
Keh, H. 51
Kingman-Brundage, J. 160–1
Knight, F. 86
knowledge
circulation, modalities linked to, public services 106–7
intellectual services and organized productive knowledge 41, 42, 43, 44
learning phenomena and productivity, traditional factors influencing 126–7
knowledge economy
knowledge-intensive services 104–7
knowledge-intensive services, consequences of cognitive nature of 107–9
knowledge-intensive services, horizontal relationships 112
and productivity 28–9, 30
and service sector, productivity factors 152–3, 165
Knox Lovell, C. 172, 173
Koopmans, T. 13
Kopel, S. 178
Kubr, M. 109
Lakshmanan, T. 148
Lawler, E. 129
Lawrence, D. et al. 181
Lay, G. 135
Le Duff, R. 173
Le Maître, D. 7, 213
Le Pen, C. xii, 65, 75
Lee, B. 73, 76
Leibernstein, H. 127, 129–30
leisure industry
and self-service society 157–8
travel agencies, assimilation and differentiation strategies 167
travel agency and hotel industry efficiency, Portugal 51, 52
Levinthal, D. 127
Levitt, T. 160
Lewin, A. et al. 73
Lichtenberg, F. 124
Lindsay, C. 173
Lindsay, W. and J. Petrick 179
local government
DEA productivity measurement 73
econometric productivity measurement 76
see also government administrative services
Lovelock, C. 160
Lowe, G. 30
Lucas, R. 126
Lundvall, B. 127
Luxembourg, public sector performance 74
Mahar, M. 152
Mahlberg, B. 51, 52
Mairesse, J. 123, 124
Malaysia, productivity improvement recommendations 176, 177
Malerba, F. 127
Mallaret, V. 111, 112
Malmquist, S. 17–19
Maniatis, N. 73
Mansfield, E. 123, 124
Massa, E. 200, 201
McCarthy, P. 76
Meckling, W. 137
Meeusen, W. 20
Meisenheimer, J. 154
Menon, N. 76
Miles, I. 157–59
Milgram, P. 138
Mintzberg’s model of organizational levels and productivity 92–9, 100, 101, 105, 202, 203, 214
Mittelstädt, A. 124
Mohren, P. 123
Murillo-Zamorano, L. 13
Mutter, R. 76
Nachum, L. 51, 110
Nadiri, M. 124
national defence
collective consumption and productivity measurement 66, 69
as ‘pure public good’ product 64
Nemoto, J. 76
Netherlands public services output indicators 69
R&D elasticity of output 124
TNO survey on work organization and performance 135
Nonaka, S. 106
Northwood, K. 69
Norway, productivity and efficiency in vehicle inspection services 73
Noyelle, T. 154
Odeck, J. 73
OECD
handbook on measurement of prices and volumes in national accounts 47–8
and knowledge-based economy studies 148
output and productivity measurement proposals 68, 69
PISA (Programme for International Student Assessment) survey 74
Statistics Directorate and Committee for Public Management (PUMA) 68
survey of methods of measuring value added 46–7
Oi, W. 37
Olson, M. 65
opportunism 137, 138
organizational and intra-organizational levels, public services, productivity factors 188–215, 206, 208–11
Osborne, D. 173
Ouellette, P. 73
Oum, T. 76
outsourcing, productivity, traditional factors influencing 136
Papillon, J. 173
Parienty, A. 21
Patel, P. 124
patent applications and productivity growth 123
Pavitt, K. 148
pay levels
incentives see incentive systems
public services, productivity factors 176–8
wages and prices, service challenge and deflation of value produced by 47, 49
see also prices
Perret, B. 29, 152–3
Petit, P. 25, 147–8
Pilat, D. 8
Poland, education system output indicators 75
police
DEA productivity measurement 73
econometric productivity measurement 75, 76
output definition difficulties 60, 61–2
output and outcome indicators 62, 70
quality and outcome indicators 71–2
see also justice system
Porat, M. 152
Portugal, travel agency and hotel industry efficiency 51, 52
postal services
DEA productivity measurement 73
input reduction problems and unit costs 174
outputs, 'families of criteria' for defining 78–9, 193–4
performance problems 64
performance tree in France see under France
productivity and performance in France 77, 78–9
prices
productivity measurement, gross output and value added (net output), reservation prices for new products 11–12
variations, allowing for 9, 10–11, 15
and wages, service challenge and deflation of value produced by 47, 49
see also pay levels
Pritchard, A. 36, 69, 70
productivity
absolutism, doubt on 30–1
and competitiveness, link between 25
concept of, in economic theory 21–6
concept of, questioning 26–31
conceptual invalidity and abandonment of notion of productivity 28–9
confusion with related notions 4–6
and cost efficiency 34–5
definition 3–7
definition, and service output 33–4
and demand regime 24
and economic growth and living standards, heterodox growth theories 23–4
and economic growth and living standards, link between 21–4
and economic growth and living standards, measurement of 21–3
and economic well-being, measurement of 30–1
efficiency 34–5
and employment, link between 25–6
evaluation 51–5
and French regulationist school 23–4
and ICTs 52
improving strategy and cost-cutting 36
individual level of analysis 6–7
and innovation 26
and inter-organizational comparisons 29
intra-organizational level of analysis 6–7, 31
and knowledge economy 28–9, 30
labour, and capital availability 8–9, 22, 24
labour and capital, defining and measuring 12
macroeconomic level of analysis 30
meso and macroeconomic level of analysis 6
microeconomic level of analysis 6, 30
multi-criteria evaluation, need for 29–31
and neoclassical view of workforce 31
physical, value and volume terms 9
and price variations, allowing for 9, 10–11, 15
ratios, problem with too many 138
regime 23
service challenge see service challenge
and service quality 28
service sector see service sector, productivity factors
and uncertainty 29
and unit labour costs 25
and value 31, 41
productivity measurement
analysis levels of 6–7
and definition of output 10–12
deterministic frontier techniques 19–20
econometric approach, advantages of 20
error and correction argument 26–8
frontier techniques 13–20
gross output and value added 10, 11–12
index-based methods 8–13, 20, 68–72
Malmquist index 17–19
monofactorial and multifactorial indicators 8–9
non-parametric methods 16–19
non-parametric methods, data
evelopment analysis (DEA) 16, 18, 19
non-parametric methods, and decision-making units (DMUs) 16, 17
problems with 9–13
public services 67–76
and quality and innovation life cycles 9–10
and service output 33–4
stochastic frontier analysis (SFA) 20
productivity in public services see public services, productivity factors
productivity, traditional factors
influencing 121–42
benchmarking 138
competency improvement 126–7
economic crisis, positive effects of 139
economic factors 138–40
education and training 126
equipment investment 123
exchange rates 139
human factors 125–30
incentive systems and agency theory 137–8
international investment and trade 139–40
and learning phenomena 126–7
opportunism 137, 138
organization of production process 131–6
organization of production process and HRM practices 135–6
organization of production process and worker participation 133–4
organizational factors 130–8
outourcing 136
patent applications and productivity growth 123
political and institutional factors 140–1
R&D investment 123, 124, 125, 134
social factors 140
technical factors 123–5
technological innovation 123, 124–5
technological innovation and rejection of change 125
technological innovation and time lag 124–5
trade unions 140
unemployment 139
work effort and intensity 127–30
work effort and mobilization practices 129
and X-efficiency theory 127, 129–30
public libraries, DEA productivity measurement 73
public services
Atkinson Report 70–1
business incubators, output and performance 82–5
challenges of 58–90
characteristics and productivity consequences 64–7
collective consumption and productivity measurement 65–6
competition, lack of 63–4, 73
continuity of service 67
and data envelopment analysis (DEA) 72–5
direct and indirect consumers 66–7
econometric methods of productivity measurement 75–6
and economic theory 63–4
and effective output 62
and efficiency in 63
equality of treatment 64, 67
fairness and social justice equity 64, 67
financial consistency 67
input quality measurement 71
international comparisons 72–5
market price, lack of 65
mediate and immediate output, distinction between 62
output consistent with principles of 67
output definition difficulties 60–2, 65
output measurement in terms of activities 68–71
output measurement in terms of input (and cost deflation) 68
output and outcome indicators 62
output and time horizon 62–3
performance and efficiency, distinction between 72–3
production or consumption externalities 64
productivity factors see public services, productivity factors
public dimension of 63–7
‘pure public good’ product 64
quality and outcome indicators 71–2, 86
quality and productivity measurement difficulties 65
and quality variations 71–2
regulatory institutions 60, 61
as services 59–63
specificities and consequences 58–67
and value systems 63, 67
see also service challenge; service sector, productivity factors
public services, internal steering, planning and design departments 91–118
consultancy services 102, 103–4, 106, 108, 110, 111, 112, 206, 211–12
delegated levels 96–7
direct and indirect clients, distinction between 112
French Department of Health and Social Affairs model 95–8, 103
French Department of Health and Social Affairs model application 100–2, 103–4, 105
French Department of Health and Social Affairs, output and productivity of planning and steering functions 111–17
French Department of Health and Social Affairs, units within 113–16
innovative solutions, ad hoc 107–8, 110
intellectual functions 102–4
intra-organizational levels 92–8
knowledge circulation, modalities linked to 106–7
knowledge source, effect of 109
knowledge-intensive service providers, price considerations 110, 111
knowledge-intensive services 104–7
knowledge-intensive services, consequences of cognitive nature of 107–9
knowledge-intensive services, horizontal relationships 112
labour input structure 112
middle line 92–3, 95, 99, 100, 101
Mintzberg’s model of organizational levels and productivity 92–9, 100, 101, 105, 202, 203, 214
operating core 92, 96, 98, 99, 101
operational support functions 102
performance evaluation of internal intellectual functions 111
productivity for any given level 99–100
productivity at intra-organizational level 98–102
productivity, defining and measuring 102–17
productivity input measurement 110–11
productivity output measurement 110
productivity and strategic steering functions 112
quality of input 108–9
strategic apex (top management) 92, 95, 96, 98, 99, 208–9
support staff 94–5, 96, 99, 100, 101, 102–3, 105, 106, 113–16, 206
technostructure 93–4, 95–6, 98, 99, 100, 101, 103, 112–16, 160, 204, 206, 215
public services, productivity factors 171–216
agency relationships 172
benchmarking strategies 181
cost reduction and saving on resources 213–14
and customer structure 197
and decentralization 179, 185, 203, 207, 215
decentralization 203, 207, 215
delegation 202–3, 207, 214
demand variations, responding to 173
and demotivation 213
e-government 180–1, 185, 188
earlier studies and debate xi-xii
efficiency 173, 182, 183, 185
environmental specificities 196–7
exploitation of sources 207–8
extensive productivity strategies 207–8
flexibility 173
French strategy 184–8
general policies for productivity improvement 175–88
governance structures and agency theory 182–3
government budgetary reform 186–8
human competency levels 212–13
human resource management 176–8, 188, 204–6, 210
ICTs 180–1, 183–4, 202, 207, 211
incentive mechanisms 178, 182–3, 197, 210, 211
induced performance strategies 206
information reliability 183
input reduction problems and unit costs 174, 189–91
institutional factor 175, 186
integrated approach, Canada 183–4, 212
intensive productivity strategies 208–13
internal performance strategies 204–6, 214
internal steering departments see public services, internal steering, planning and design departments
knowledge processing 211
looking beyond 76–90
management objectives 172–3, 174
management reforms 176–9, 180
measurement 67–76
measurement, index-based approach 68–72
organizational and intra-
Index

organizational levels 188–215, 206, 208–11
output control problems 173–4
pay differentiation problems 176–8
performance goals, exploitation of other 213–15
performance tree, French Post Office see under France
policy reform 214–15
private-sector management principles 178–9
privatization and outsourcing 179–80, 185, 199–202, 204, 207
productivity in French Ministry of Health and Public Affairs 202–15
productivity levers 174
productivity sources, depletion of 207
property rights 172
protected status 172
public service performance improvement strategy, UK 181–3
public-private partnerships (PPPs) 179–80, 188
reasons for renewed interest xii–xiii
recommendations for productivity improvement 175–6
relational operations 211–12
resource substitution problems 173, 191
risk management 200, 201, 215
specifications and productivity levers 172–5
statistics, problems with 215
total quality management (TQM) 178–9, 197, 211
see also service sector, productivity factors
public-private partnerships (PPPs) 179–80, 188
quality
European Quality Prize 179
gross output and value added, quality and new product variation 11–12
improvements, and service challenge 34, 46
of input, public services, internal steering, planning and design departments 108–9
input quality measurement in public services 71
and outcome indicators, police 71–2
and outcome indicators, public services 71–2, 86
and productivity measurement difficulties, public services 65
variations, and public services 71–2
R&D
elasticity of output 124
investment, and productivity 123, 124, 125, 134
and new productivity paradox, service sector 150–2
Ratchford, B. 52
Rees, R. 172
resource substitution problems, public services 173, 191
retail services
and distribution, industrialization of services 168
production value 46, 49, 52
Reynolds, D. 51
risk management 200, 201, 215
Rochet, C. 203
Romer, P. 23, 126
Rosenberg, N. 127
Rosko, M. 76
Rothwell, M. 181
Rouillard, L. 178, 181
Rouse, P. 51
Roy, W. 76
Rubalcaba, L. 154
Sala-i-Martin, X. 127
Salais, R. 85, 86, 87
Santos, C. 151
Sarkis, J. 73
Sassenou, M. 124
Schreyer, P. 123
Schreyer, P. 8
Schwartz, Y. 6
Scicluna, E. 75
Segal, D. 52
self-service society
and service sector, productivity factors 157–9, 160
see also customer influence
service challenge
banking industry, value as ‘net banking income’ 46, 49, 51, 55, 57–8
cognitive operations 45
contractual operations 45, 56
customer influence 37–8, 39–40, 41, 46, 54, 55, 57
data envelopment methods (DEA) 48, 51, 52
deflation of value produced by price and wages 47, 49
distinction between ‘worlds’ of production 52–3, 63
econometric methods of measurement 48, 52
functional decomposition of services and productivity 44–5
immediate and mediate output 34–5
immediateness of services 38
index-based methods for measuring productivity 45–8, 49–50
and industrialization 38–9
informational operations 44
and innovation 34, 54
intellectual services and organized productive knowledge 41, 42, 43, 44
interactive (co-produced) output 37–8
internal organizational and management services 43–4
internal steering and planning services 44
and labour factor 38
measuring productivity in services 45–55
multi-criteria framework for evaluating 53–5, 57
and output effect over time 34–6
output fuzziness 33–4
output and interactive nature of production 37
output and value systems in public services 36–7
performance and outcome in public services 36
productivity evaluation 51–5
public services, implied deflator (cost per unit of output) 36, 46
and quality improvements 34, 46
retail services production, value of 46, 49, 52
service definition 39
service mediums and productivity analysis 40, 41, 42
service mediums, technical 41
service outcome and performance 35
service triangle 39–40, 59–60
services applied to individuals’ knowledge and capabilities 41–3, 44
specificities and consequences for productivity 38–45
tangible operations 44
technical specificities of services and their consequences 32–8
typology of services for productivity analysis 40–4
see also public services
service sector, productivity factors 143–70
assimilation strategies 155–63, 166–7, 168
Baumol’s model 25, 28, 34, 144–6, 172
blueprint of discount brokerage service 160–2
cognitive rationalization 164–5
consultancy activities 164–5
and costs 145
differentiation strategies 163–6, 166–7, 168
education and training 162
and employment opportunities 153–5, 158, 159
human levers 152–5
and ICTs 145–8, 162–3
individual competency levels 152, 154
industrial rationalization 156, 157, 159–60
industrialization of professional services 165–6, 167–8, 169
integration strategies 166–9
Index

and knowledge economy 152–3, 165
loyalty and credit cards 169
and network firms 149
performance assessment criteria 163
personal interactive services 148, 149
productivity levers 143–55
productivity strategies 155–69
professional rationalization 156, 163–5
R&D and new productivity paradox 150–2
and self-service society 157–9, 160
service dispensing activities 148, 149
specialized suppliers and technological innovation 149–50
and standardization, formalization and routines 164
task-interactive services 14, 148
technical levers 144–52
technological trajectory approaches 148–50
see also public services, productivity factors
Sharle, P. 180
Shostack, G. 160
Shu, W. 52
Simper, R. 73, 76
Smith, A. 131, 132
Smith, P. 182
social services
 collective consumption and productivity measurement 66
 output indicators 70
 policy reform 214
Soete, L. 25, 124, 148
Solow, R. 22–3, 124, 147, 152, 211
Spain, productivity in insurance services 52
Srinivasan, S. 124
Stankiewicz, F. 30–1
Stevens, P. 73, 76
Storper, M. 85, 86, 87
Strassman, P. 52
strategic apex (top management) 92, 95, 96, 98, 99, 208–9
Sundbo, J. 167
support staff 94–5, 96, 99, 100, 101, 102–3, 105, 106, 113–16, 206
Sweden
 DEA methods 19
 education system output indicators 75
 management consultancy productivity 51
 NUTEK survey on work organization and performance 135
 public sector efficiency 74
 Switzerland, public sector efficiency and performance 74
Taylorism 132, 133, 146, 162, 167
 technological innovation and productivity 123, 124–5
 and rejection of change 125
 and time lag 124–5
 see also innovation
tehnostructure 93–4, 95–6, 98, 99, 100, 101, 103, 112–16, 160, 204, 206, 215
telecommunications
econometric productivity measurement 76
performance problems 64
Theorell, T. 30
Thévenot, L. 52, 77
Thompson, G. 51
Thurow, L. 152
Tirole, J. 138
total quality management (TQM) 178–9, 197, 211
Toyotism 133
transport services
 airports, DEA productivity measurement 73
 airports, econometric productivity measurement 76
 econometric productivity measurement 76
 input reduction problems and unit costs 174
 performance problems 64
 productivity and efficiency in vehicle inspection services, Norway 73
railway privatization 179
and self-service society 157, 159
<table>
<thead>
<tr>
<th>Term</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>vehicle inspection services, DEA</td>
<td>73</td>
</tr>
<tr>
<td>productivity measurement</td>
<td>73</td>
</tr>
<tr>
<td>Tulkens, H.</td>
<td>73</td>
</tr>
<tr>
<td>UK</td>
<td></td>
</tr>
<tr>
<td>cost-weighted activity index (CWAI)</td>
<td>69</td>
</tr>
<tr>
<td>efficiency in public library system</td>
<td>73</td>
</tr>
<tr>
<td>efficiency in universities</td>
<td>76</td>
</tr>
<tr>
<td>governance structures and agency theory</td>
<td>182–3</td>
</tr>
<tr>
<td>public service performance</td>
<td></td>
</tr>
<tr>
<td>improvement strategy</td>
<td>181–3</td>
</tr>
<tr>
<td>public services output indicators</td>
<td>69</td>
</tr>
<tr>
<td>public-private partnerships (PPPs)</td>
<td>179</td>
</tr>
<tr>
<td>R&amp;D elasticity of output</td>
<td>124</td>
</tr>
<tr>
<td>research performance of economic departments</td>
<td>73</td>
</tr>
<tr>
<td>work organization and performance</td>
<td>135</td>
</tr>
<tr>
<td>unemployment, and productivity</td>
<td>139</td>
</tr>
<tr>
<td>Url, T.</td>
<td>51, 52</td>
</tr>
<tr>
<td>US</td>
<td></td>
</tr>
<tr>
<td>airport productivity and efficiency</td>
<td>73</td>
</tr>
<tr>
<td>Boskin Commission Report</td>
<td>26–7</td>
</tr>
<tr>
<td>e-government proposals</td>
<td>180–1</td>
</tr>
<tr>
<td>hospital inefficiency studies</td>
<td>76</td>
</tr>
<tr>
<td>life insurance industry efficiency</td>
<td>52</td>
</tr>
<tr>
<td>productivity at American Federal Reserve</td>
<td>73</td>
</tr>
<tr>
<td>public sector management objectives</td>
<td>173</td>
</tr>
<tr>
<td>public sector performance</td>
<td>74</td>
</tr>
<tr>
<td>public services output indicators</td>
<td>69</td>
</tr>
<tr>
<td>R&amp;D elasticity of output</td>
<td>124</td>
</tr>
<tr>
<td>retail and distribution, industrialization of services</td>
<td>168</td>
</tr>
<tr>
<td>Utterback, J.</td>
<td>150</td>
</tr>
<tr>
<td>Valeyre, A.</td>
<td>127, 128</td>
</tr>
<tr>
<td>value</td>
<td></td>
</tr>
<tr>
<td>deflation of, produced by price and wages</td>
<td>47, 49</td>
</tr>
<tr>
<td>as ‘net banking income’</td>
<td>46, 49, 51, 55, 57–8</td>
</tr>
<tr>
<td>and productivity</td>
<td>31, 41</td>
</tr>
<tr>
<td>retail services production</td>
<td>46, 49, 52</td>
</tr>
<tr>
<td>systems, and public services</td>
<td>36–7, 63, 67</td>
</tr>
<tr>
<td>value added measurement of</td>
<td>10, 12, 46–7</td>
</tr>
<tr>
<td>Van den Broeck, J.</td>
<td>20</td>
</tr>
<tr>
<td>Verspagen, B.</td>
<td>124</td>
</tr>
<tr>
<td>Vierstraete, V.</td>
<td>73</td>
</tr>
<tr>
<td>Vivarelli, M.</td>
<td>25</td>
</tr>
<tr>
<td>Völkoff, S.</td>
<td>127</td>
</tr>
<tr>
<td>Von Hippel, E.</td>
<td>127</td>
</tr>
<tr>
<td>wages see pay levels</td>
<td></td>
</tr>
<tr>
<td>Williams, J. and E. Gardener</td>
<td>52</td>
</tr>
<tr>
<td>Worthington, A.</td>
<td>51, 73</td>
</tr>
<tr>
<td>X-efficiency theory, and productivity</td>
<td>127, 129–30</td>
</tr>
<tr>
<td>Yaisawarng, S.</td>
<td>73</td>
</tr>
<tr>
<td>Yoo, B.</td>
<td>51</td>
</tr>
<tr>
<td>Young-Yong, L.</td>
<td>73</td>
</tr>
<tr>
<td>Yu, K.</td>
<td>60</td>
</tr>
<tr>
<td>Yvrande-Billon, A.</td>
<td>76</td>
</tr>
<tr>
<td>Zyman, J.</td>
<td>152</td>
</tr>
</tbody>
</table>