Subject index

ABARE see Australian Bureau of Agricultural and Resource Economics ABS see Australian Bureau of Statistics ABS surveys of household expenditure 286-7 ABS surveys of sources of income 286-7 absorption matrix 119-122 Access Economics 16,37,301 accumulation relationships 43-6, 216-9 active and passive accumulation 8, 216 actual rates of return 33,189,193-8 adaptive expectations 154 add-on programs 1,27,34-5,279,286 addition rule 130-1 adjustment costs and problems 4,19, 34-6,76,105,279,289-99,307 adjustment costs, requirements for quantification 289 AE-CGE 37 agricultural sector 138,151,169-71 agriculture in historical simulations 253-6 algorithm for forward-looking expectations 195-8 APEC (Asia-Pacific Economic Cooperation) 108 arbitration court 31-2 Armington assumption 29-30,168-9, 303 Armington elasticity 29,55-6,59-60, 62.71 Asian financial crisis 267

asset price of capital or cost of a unit of capital 47,88,125,150,154, 158,193-5,218-9,244,273 assignable variables 11 Australian Bureau of Agricultural and Resource Economics (ABARE) 16,238,266,286-7 Australian Bureau of Statistics (ABS) 27,39-40,124,200,212,238, 259.283-5.297.300.302 Australian policy issues 306 Australian Treasury 16,186-7,264, 277.301-2 average propensity to consume 86, 238-9.243.246-7.253.261.264.271. 273 average propensity to save 44-6, 274-5 **BACHUROO**, Australian demographic model 304 back-of-the-envelope (bote) calculations and algebra 3,19,21-3, 38,41,67-70,76,101-2,108-9,234, 306,308 back-of-the-envelope model for tariff simulation 88-91 back solving 134 balance of payments 27,158,239,303 balance of trade 271-3 balanced growth 100 see also steady state balancing conditions 25,122-5,184-5 basic prices 28-9,71,88,103,119,

black box 109 black coal 9

121,124-5,151,154

bottoms-up regional modelling 281 budget deficit 8,101 budget neutrality 31,212,269 see also public-sector deficit and revenue-replacement tax Bureau of Tourism Research 16 business confidence 33,48 Button plan 71 by-law (tariff exemption) 86,103, 186-7 calibration 127 capacity to produce 161-2,169 capital and investment 4,90,130, 154-6,235,301,303-4 capital creation 150,161,164,166-9 capital gains 219 capital gains tax 194 capital in historical simulation 252 capital/labour technological bias 261-2,272 see also twists in labour/capital choice capital stock, aggregate growth in 91-3,97,245 capital stock, measures of 69,124-5 capital supply functions 33,156. 189-93.264 see also investment supply function car industry see motor vehicle industry Centre of Policy Studies 282,289 CES (constant elasticity of substitution) function 126,164-5. 168,220-1,223 CET (constant elasticity of transformation) function 170,222 client-driven research 305-8 closeness of employment categories 293,297 closure, trial for schematic model 159-61 closures 1,3,10-1,19-21 see also historical, decomposition,

forecast and policy closures closures, developing new 160-1, 233-74 closures, notions of exogeneity 274-7 Cobb-Douglas production functions 175 coefficients, evaluation of 128-32 combinatorial methods 22,113 commodity classifications see industrial and commodity classifications commodity-saving technical change see input-saving changes in technology and preferences communications 26,30,177,179-81 comparative statics 43-4,100,155, 192,300-2 compensating variation 25,103,211 comprehensive versus special purpose modelling 307-8 computational methods 22-4 computer skills 283 computers and other high-tech equipment 58 condensation 134-5 confidence see business confidence constant returns to scale 149,152, 160,165,220 consulting 36 consumer demand see household demand consumer prices in historical simulation 259-61 contributions of employment and other factors to GDP 96 see also GDP decomposition corner solutions for exports 303 cost neutralization in historical simulation 258-9 Cournot aggregation 177-8 CPI for different households 286-8 CRESH (constant ratios of

elasticities of substitution, homothetic) 164-5,168,219-23 CRETH (constant ratios of elasticities of transformation, homothetic) 170,219-22 current account deficit 8,27-8,30, 137,158,185,212-3

data adjustment, inside versus outside 27-8,200-1,239,259-60 data incompatibilities 122,137,153, 159,181,200-1,239,258-9 see also phantom & genuine taxes debt accumulation 216-9.306 decomposition closures and simulations 1,11-5,19-21,29,32-3, 37-8,42-67,137,157-8,160,189, 198-200,233-41,244,262-3,274-7, 300 decomposition of optimizing 160-4 decomposition simulations, computation 198-200 deflators for GDP and its expenditure components 54-5 demand pressure 42,60 see also pro-cyclical import response depreciation rates and allowances 91,124-5,130,190,193-4 derivative methods 22-3,113 see also Johansen/Euler computational technique dexterity skills 283 direct and indirect allocation of imports in input-output tables 26 direct taxes 31,86,213-4 discouraged workers 293,295 disequilibria in investment 10,190-3, 197.263 Divisia indexes 23-5,75,97,102,137, 187-9,227,231-2 see also quantity and share effects Eastman/Stykolt hypothesis 305

economies of scale 305 employment deviations, long-run 209-10 employment in historical simulation 250-1 employment in policy simulation 274 end-of-year stock variables 261,263 energy modelling 166,307 Engel aggregation 177-8 equivalent variation 25,101-2,210 exchange rate 30,217-9,248-9,264, 272-3,303 see also valuation effects on foreign liabilities exogeneity, criteria for 274-7 expectations of rates of return 5-7, 20 see also static expectations and forward-looking expectations expected rates of return 30,33, 154-6.189-98 explicit representation of differential form 113,132 export demand curves, and shifts in 55,151-2,179-80,205-6,222-5,238, 244,247-53,264,266,271-2 export demand elasticities 29, 179-80,222-5,246,303 export demand specifications 137, 151-2,179-81,222-5 export prices, f.o.b. 55,122,222-3, 303 export prices in historical simulation 255-8 export supply 63-4,247-50 export taxes 153,256-7,266 exports in forecast simulation 266-7 extrapolation of historical results 201-4 extrapolation procedure 118 factor price frontier 48,253,268 factor productivity growth 41,58, 66,240

FEDERAL-F model 281 file management 23 financial assets/liabilities 8 flow diagrams decomposition closure 47-9,235 forecast closure 262 historical closure 241 policy closure 269 forecast closure and simulations 1, 11,15-7,19-21,27-30,32,34,37, 70-4.137,153,156-57,160,173,185, 192,195-6,200-4,233,238-9,261-8, 274-7.300 forecast closure, development of 261-8 forecast rerun 133,196-7 forecasting 3-4 forecasts, role in policy results 75-6, 100,108-9,306 foreign assets 158,187,213,217-9, 239.303 foreign equity 213,215,217-9,303 foreign investment 216-9 foreign liabilities 8,21,27,30,43-7. 49,58,61,63,65,67-70,86,137, 157-8,187,212-3,216,219,239-40, 245-7,250-3,261,263,303 foreign ownership 9,25,219,303 foreign savings 275 forward-looking expectations 6.33. 87,133,136-7,154,189-90,195-8 304 free parameters and variables 125-7 fringe benefits tax 59 FRISCH coefficient 172 **GAMS 7,22** GDP decomposition 21,80,93-100, 109-11 GDP, expenditure and income measures 26,123-4,264 GDP identity 243

132-6,166,199,233,245,276,305 GEMPACK, role in CGE modelling 305 General-Theory-Keynesians 274 genuine taxes see phantom and genuine taxes government accounts 27-8,157 government debt 8 government demands and expenditure 65,151,157 see also public consumption greenhouse 307 gross national expenditure (GNE) 65 gross national product (GNP) 30, 44-5,48-9,60,63,67-70,158,238-40, 243.303 GST (goods and services tax) 276-7, 306-8 GTAP 2,36,281 halfway database 137,158,198-200 see also mid-point Hertel, Tom 2 historical closure, development of 234-61 historical closures and simulations 1,11-5,19-21,26-30,33-5,37-42, 137,153-4,156-7,173,182-3,185, 189,192,199,200-4,233,238-60, 263,274-7,300 historical simulation for updating input-output tables 300 homogeneity test 233,239-40 homogeneous of degree one 161, 163 see also linearly homogeneous homotopy variables 22,24,46,49, 68-70.244 household demands 171-3,177-9, 306 household disposable income 30, 86-7,137,158-9,212,215,271,273-4

GEMPACK 2,7,18-9,22-3,114,

household types 1,19,27,279,286-9 housing services 91,246 ideal statistical validation 302 imperfect competition 305 import duties 119-20,122 see also tariffs import prices, c.i.f. and landed-dutypaid 55-7,71-2,74,90,119,238,257, 305 import prices in historical simulation 256-8 imports 29,59-60,126 imports in policy simulation 271 imports, special treatments 177 income distribution 34-5,119,286-9 income, sources of 287 income taxes 32,57,85-6,157 see also direct taxes incorporation of improvements 307-8 index of labour-market adjustment costs see LILI indirect taxes 28,86,119,121-4,150, 152-3,181-7,213-4,267,271 see also phantom and genuine taxes industrial and commodity classifications 8,27,35,38,156,200, 283.302 Industry Commission 37,39-40,75, 107 see also Productivity Commission initial conditions 44 initial solution 10,22-3,26,45-6, 113-4,118-9,124-9,133,226 input demand 126-7,164-6 input-output accounting 26 input-output closure 276 input-output data and tables 25-7, 113,118-28,181,184-5,284 input-output data, disaggregated 283-6 input-output model 25,280

input-saving or using changes in technology and preferences 14. 33-4,41,132,149-50,162,173-9, 220.222.254 input-saving or using changes in technology in historical simulation 258-9 installation costs 5-6 interest and dividend payments to foreigners 158-9,213,215,217-9, 239 interest on public debt 157.213 interest payments and receipts 215-9 interest rates 30,193-4,215-6,239 international trade, growth in 33,50, 66-7.209 inter-temporal inconsistencies 184-5 intra-industry competition 304-5 inventories 108,121-2,151,166, 254-6.268 investment 4-7,30,32-3,43-6,48-9, 58,87,137,154-6,158,189-94,235, 247,263-4,273,303-4 investment in policy simulation 273 investment-savings gap 30,43-6,158 see also saving/investment nexus investment supply function 4 see also capital supply functions Johansen/Euler computational technique 2-3,22-3,113-8,126, 128,130,132-6,188-9,207-10, 225-6,232,276

Johansen L. 22

Johansen school 274-5 joint-product industries and commodities 138,148-9,152,

169-71,222,253-5

joint-product matrix *see* make matrix

Klein-Rubin utility function 171-3 Kohlhass, Michael 45 labour demand by different characteristics 282-3.304 labour income 287-8 labour market 31-2,76 see also sticky wages and wage adjustment labour market adjustment costs see adjustment costs and problems labour market briefing service 282 labour market deregulation 9 labour market flows 290-7 labour mobility 36,297 labour productivity 251 labour-saving technical change 173 labour supply 35,205-7,303,307 lagged adjustment processes 4.9. 205-10 lags 114,159,209 land, agricultural 62,122 Laspeyres and Paasche cost differences 25,81,102-3,210-2 Laspeyres and Paasche indexes 24. 188,225,230-2 leads and lags 22-4 see also lags Leontief function 164 Leontief, W. 25,166 LILI (labour input loss index) 290-9 linear and non-linear programming 22,113 linear percentage-change form 128-32 linearization errors 15,131,137,197 linearly homogeneous 150 see also constant returns to scale and homogeneous of degree one LMPST regional method (Leontief, Morgan, Polenske, Simpson and Tower) 280-1 local commodities 280-1 logistic function 190,264 long-run comparative statics 155. 302-3

macro effects in adjustment costs

197-9

macro forecasting 301 macro models linked to CGE 301 macro variables and definitions 154 make matrix 119-23.185 margin commodities, listed 152 margin services, costs 12,18,28, 71, 103-4,119-23,126,134,151-3,180 margins in historical simulation 258-9 marketing boards 254 Meagher, Tony 282,286,288-9,304 mean value theorem 199 microeconomic reforms 279,288-9 microsimulation model 289 mid-point 15,50,94,111,158,241 MM. Australian macro model 301 MMRF, Australian regional model 281 model-consistent expectations see forward-looking expectations modified cost and revenue shares 221-2 momentum 24,43-55,68-9,240 money flexibility 172 motor vehicle industry 19-21,37-108 MRSMAE, Australian regional model 281 multi-household analysis see income distribution multi-level functions 161-2 see also nested production functions and nested utility functions multiplication rule 128,131 multiplier effects, regional 281 NAIRU (non-accelerating inflation rate of unemployment) 76,205 national commodities 280-1

national wealth see wealth NATSEM (NATional centre for Social and Economic Modelling) 289

naturally exogenous or endogenous 11.16-7.159.240.244 neoclassical CGE modellers 274 neo-Keynesian CGE modellers 274 nested production functions 137,166 see also production functions and multi-level functions nested utility functions 137.150 see also utility functions net foreign liabilities see foreign liabilities neutrality see budget neutrality Newton's algorithm 23,113 non-linear programming see linear and non-linear programming non-recursive models 6-7 non-traditional exports 54,56,64. 66-7,179-80 numeraire 159,217,239 numerical integration 225-6,228 observable variables 11,40,276 occupation-share effect 282 occupations 1,3,19,27,32,34-5,122, 168-9,173-4,279,282-3,286-8 omitting variables 134. optimizing decisions 138,161-79 ORANI model 1-3,19,279-80, 299-306 other costs 122,124,166,169,185 other demands 151 output-augmenting or expanding technical change 173,222,254 Paasche index see Laspeyres and Paasche indexes parameter estimation 36,306-7 partial equilibrium 97-9 participation rate 293,296,304 path dependence 23,189 see also Divisia indexes Pearson, Ken 2,305 people skills 283

percentage-change version, derivation of 128-32 percentage changes versus changes 116-8 pessimistic assumptions 107 phantom and genuine taxes 26,28-9, 31-2,64-5,121-2,137,153,157,159, 181-7,255-8,259,266-7 phantom consumption taxes 259 phantom export taxes 256-8,266-7. 271-2 phantom production taxes 255-6 physical strength 283 policy closure and simulations 1,11, 15-7,19-21,29,32,37,74-111,157, 160,195-6,204-12,233,268-77 policy closure, development 269-74 policy implications of results 107-8 power of a tax 88 power rule 131 preference or taste variables 13-6. 27,33-5, 37,41-2,60-1,67,73-4, 91,150,159,173,177-9,203,222-5, 233-4,246,260,263,300,302 price and quantity indexes 187-9, 225-32 primary factor productivity or technical change 41,240,250,259, 261-4.271-2 PRISMOD 277 private consumption 246 see also household demands privatization 213 pro-cyclical import response 202-3 see also demand pressure producers' prices 18,28 production functions 47,57,88,137, 161-2,166,219-22,243,268,306 production taxes 121-2,152-3,181, 185-6.255 Productivity Commission 16,297 programming models see linear and non-linear programming

protection 56-7,67 see also tariffs public consumption 238.243.245 see also government demands and expenditure public sector deficit and debt 27-8, 31,137,157,212-4,216,269,275 purchasers' prices 18,28-9,56,71-2, 88,103-4,120-1,124-5,151,222-5, 257.303 pure profits see zero pure profits quantity and share effects 75, 91-100.105 see also Divisia indexes quotas on imports 60,71 Ralph, John 193 RAS method for updating inputoutput tables 27,303 rates of return 5.6.32-3.47-8.54. 62-3,87-8,132,154-6,159,189-98, 201,235,244,253,261,263-4,268-9, 273,275,302-3 see also expected rates of return and actual rates of return and required rates of return rational expectations see forwardlooking expectations RBA76, Australian macro model 301 real appreciation/devaluation 54-6. 60,62-4,66-7,71,75,78,90,106,246, 257,263,267-8,301 real exchange rate see real appreciation/devaluation recursive, schematic model with trial closure 160 recursive solution method 6-7 regions 1,3,27,34-5,279-82 see also sub-national regions remuneration packages 73 rental price of capital 47,88,125, 154-5,160,193-5,244,273 required rates of return 35,47,62-3.

67,69

required solutions 114-5,128-31,226 result interpretation 21 retrenchments 290,294-5,298-9 revenue maximization 163,222 revenue replacement tax 57,75,80, 85-6,101,183,186-7,212,219,271 see also budget neutrality sales taxes see indirect taxes savings 30-1,43-6,49-50,58,67-70, 101,158,252 savings/investment nexus 274-5 see also investment-savings gap schematic model 137-61,233-77 SCM (car model) 37 sensitivity analysis 109 separating charges 179,223-5,303 sequence of solutions 132-6,195 service exports 308 services to transport 119 share and quantity effects see quantity and share effects shift variables 20,33,151,159,179, 182-3,203-4,208-9,235,238 SHOCKTRAN 136 shooting algorithm 7 short-run policy closure 159 sketch model 234,243-7,250,252 small country assumption 90,238 smooth growth assumption 30,44-5, 49,157-8,217 social security payments 31,35,274 see also transfer payments special exports 179-81 spreading and non-spreading phantom taxes 183-4,238,257,260, 266 spreadsheets 27 start-of-year stock variables 59,261, 263 static expectations 6,87,137,154, 190,194-5,198

steady-state 47,206 see also balanced growth step-by-step development of closures see also closures, developing new sticky wages 9,17,25,31-2,76,89, 157,205,268,272,274-6 Stone-Geary utility function 171-3 sub-input-output commodities 19, 27,34-5,279,283-6 sub-national regions 19,34-5,279-82 subsidies 121 subsidy to handle car-import by-law 86.103 sub-state districts 280 substituting out variables 134 substitution between primary factors 168-9 supply functions 148-9,222 swap effects in adjustment costs 297-9 swaps to create new closure 135, 233,245,276 TABLO computer language 18, 133-5,198,209 tariff-refund scheme see by-law tariffs 37,56-7,71-2,74-108,122, 151,181,186-7,233,244,263, 268-75,300,305 see also import duties taste variables see preference or taste variables taxes see income taxes and indirect taxes and phantom and genuine taxes technology variables 13-6,27,33-5, 37,41-2,57-9,66-7,73-4,87,94, 126-7,132,134,149-50,152,159, 162,165-6,173-7,203,233-4,240, 243-5,247-50,263-4,271-3,300,302 terms of trade 25,29,54-8,60-1,64, 67,75,79,89-90,101-2,108, 243-6,248-1,253,255,257,263,

266-8,271,273,275 test simulations 240 see also homogeneity test tops-down distributional modelling 286-9 tops-down regional modelling 281-2 tourism 26,29,54,56,66-7,137, 179-80,266-7 Tourism Forecasting Council 266 trade see international trade trade deficit 158 trade elasticities 307 see also Armington elasticity and export demand elasticities trade model 55 tradeable emission permits 109 traditional exports 54,56,66-7, 179-80,222-5 training as an adjustment cost 294, 296.298 training courses 2 transfer payments 157-8,213,239, 289 transformation frontier 148-9,161, 169-71,220,222,249 transport equipment 38-9 transport services 30,179-81 Treasury see Australian Treasury trial closure for schematic model 159-61 TRYM, Treasury model 302 twists in domestic/import choice 29, 36,41-2,59-60,66,71-2,105-7, 149-50,173,175-7,201-4,243,246, 264,267,271,300-1 twists in labour/capital choice 41, 149-50,173,175-7,252,263,267 unemployment 304 unemployment benefits 31-2,157, 213-4,274,304 unique-product industries and commodities 138,148-9,152

unit records 287 United Nations 26 unobservable variables 11 updated files 135-6 updating input-output tables 26-7. 300 utility functions 137,150,161-2,171, 210 utility maximization 163-4,171 vacancies 294 validation 35,300-2,307 value added, price of 155,252,255 valuation effects on foreign liabilities 219,303 van Meijl, Hans 21 variety in imports 60,71 vintage capital 4 wage adjustment 9,25,31-2,47,66-7, 76,85,157,159,205-10 wage adjustment cycle 85 wage rates in forecast simulation

267-8 wage rates in historical simulation 252-3 wage rates, pre-and post-tax 209, 276 wage stickiness see sticky wages water transport 26,29,119,179,180-1 wealth 9,30-1,75,81,85-6,101-2, 137,187,219,275,303 web site 1,3,18-20,26,28,125-6,128, 132-3,138,177,187,198-9,202, 267.305 welfare 25,28-30,81,102-3,109,137, 184-5,204,210-2,219,303,305 welfare rectangles and triangles 93, 97-100 wharves 209,306 "what if" analysis 4 wool 224 wool and grain in forecast simulation 267-8 wool and wheat in historical simulation 254-6 year-to-year simulations 156,189, 263 zero pure profits 152-3,255