

# Index

- Adding up conditions, 40n19
- Additive logarithmic model, 26
- Additive quadratic model, 26
- Additivity, 28, 32
  - explicit, 32
- Aggregation, 23
  - across industries, 47-48
  - bias, 181
- Allen elasticity of substitution, 50, 51
- Appliance stock, 25-26
- Autocorrelation, 106
- Aviation gasoline, demand for, 235, 236
- Bridging method, for estimating energy price index, 72-73
- Chi-square test, 33, 50
- Cobb-Douglas production function, 50
- Complementarity, of capital and energy, 180-181
- Consumer preferences, 27
- Covariance model, 78, 78n11
- Data
  - description of, 79-90
  - industrial sector, 83-87
  - residential sector, 79-83
  - transportation sector, 87-90
- Demand elasticities, for translog cost function, 52-53
- Demand equations, 27
- Depreciation rate, of stock of cars, 61, 62
- Diesel fuel demand, 59, 235, 236-237
- Divisia index, 71, 71n8, 84
- Duality, 28
- Dummy variables, regional. *See* Regional homogeneity
- Dynamic adjustments, 36-40
- Efficiency, thermal. *See* Thermal efficiency
- Elasticities
  - for logit model, 43n23
  - of demand
    - for indirect translog utility function, 34-35
    - partial, 34-35
    - total, 34-36
  - of substitution, estimates of, 212-213
    - partial vs. total, 34-35, 52-53
    - short-run vs. long-run, 2-5, 23, 64, 106, 112, 115, 171
- Elasticity
  - of average cost of production, 54
  - of cost of output, 179
- Energy-capital substitutability, 44
- Energy consumption, gross vs. net, 69-70
- Energy/GNP ratio, 5-6
- Energy, noncommercial. *See* Noncommercial energy sources
- Energy policy, in the U.S., 280-282, 281n11
- Energy price aggregator. *See* Price aggregator
- Energy price index, 52, 70-73
  - bridging method, 107
  - industrial, 172-174
  - residential, 106-109
- Energy price indices
  - industrial sector, 206-207
  - residential sector, 126-127
- Energy shortages, 266, 280
- Estimation methods, 76-78
- Fisher ideal index, 67-68
- Frisch's welfare indicator, 33-34
- Fuel efficiency, of automobiles, 62-63, 230-231
- Fuel oil, demand for, 255, 256
- Gasoline demand, dynamic characteristics, 60-61
- Gasoline, demand for, 58-63, 225-235, 255, 256

- Generalized Cobb-Douglas utility function, 29n11, 45n26
- Generalized Leontief function, 29n11, 45n26
- Homogeneity
  - of share equations, 30
  - of translog cost function, 49
  - regional (*See* Regional homogeneity)
- Homotheticity, 28, 32, 47
  - explicit, 32
  - in residential demand model, 110
  - of aggregate cost function, 176
  - of translog cost function, 50
- Homothetic separability, 47n29
- Import dependence, of developing countries, 257-258
- Income elasticity, in developing vs. developed countries, 251-252
- Index of scale economies (SCE), 54, 178, 216
- Indirect translog utility function, 26, 27-30, 29n11
  - dynamic versions, 36-40
  - share equations for, 30
- Indirect utility function, 27
  - restrictions on, 28-32
- Inflationary impact, of energy price increases, 274-275
- Intercountry elasticity differences, 73-76
- International Energy Agency, 257n8
- Iterative Zellner estimation, 77n9, 78, 106
- Jet fuel, demand for, 235, 236
- Kerosene, demand for, 255, 256
- Koyck lag, 254
- Linear expenditure system, 26
- Linear-logarithmic demand models, 63-65
- Logit model, 40-43
  - dynamic, 42
  - industrial demand, 183-184
  - multinomial, 40-43
  - of industrial fuel demand, 57-58
  - of residential demand, 121-123
- Log-linear model, 254
- Macroeconomic impact, of energy price increases, 267-276
- Marginal prices, 81n15
- Marginal utility of income, 33
- Materials, as factor of production, 46
- Maximum-likelihood estimation, 77, 106
- Motor gasoline. *See* Gasoline
- Net complements, 50-51
- Net substitutes, 50-51
- Neutrality, explicit, 31n12
- Noncommercial energy sources, 250-251
- OPEC (Organization of Petroleum Exporting Countries), 1, 3, 15, 277-281
- Output elasticity, 53
  - of energy demand, 216
- Parameter restrictions
  - in industrial model, 175-176
  - in model of consumption expenditures, 109-111
  - in residential fuel expenditures, 113-114
  - testing for, 32-33 (*See also* Chi-square test)
- Pooled data, 27, 46
- Price aggregator, 35
- Price index for aggregate energy use. *See* Energy price index

- Price
  - of capital services, 84–85
  - of labor, 84
- Purchasing power parities (PPP),
  - 66–69, 86–87, 92–93
  - implicit, 67n2
  - multilateral, 68
- Regional homogeneity, 75–76
  - and energy prices index, 107
  - test for, 105, 111, 114, 169
- Registrations, new, 61
- Roy's identity, 28, 30, 38
- Separability
  - explicit groupwise, 32
  - groupwise, 28, 31–32
- Shepard's lemma, 49
- Shortages. *See* Energy shortages
- Simulation, of gasoline demand
  - model, 233–234
- Standard errors, of elasticity
  - estimates, 54–55, 112–113, 171
- Stationarity, 28, 31, 31n12
- Stochastic specification, 76–78
- Stock adjustment hypothesis, 229–230
- Stock of cars, 61
- Substitutability, of energy and capital, 177, 180–181, 269
- Symmetry restrictions, 31
- Thermal efficiencies
  - engineering estimates of, 94–95
  - estimates of, 70, 94–95
- Thermal efficiency, 69–70, 70n5
- Thermal-equivalent, 18
- Total price elasticities, industrial demand, 178
- Traffic volume, 62, 230
- Translog cost function, 48–49
  - dynamic versions, 56–57
  - expenditure shares for, 48–49
- Translog price aggregator, 71–72
- Translog production function, 49
- Transportation sector, 58–63
- TROLL system, 78
- Units of measurement, 18–19
- Utility function, 27
- Utility maximization, 26, 27, 29,
  - 30, 110, 110n1
- Utility tree, 25n4
- Weak separability, 46–47