

Index

- aggregator function, 18, 285
- allocative (in)efficiency, 27, 37, 38, 40, 101, 149, 151, 173, 203, 204, 208, 209, 211, 212, 215–219, 223–225, 227, 229–232, 236
- Battese-Coelli efficiency index (BC index), *see* efficiency index
- CMAD, 53
- Cobb-Douglas function, 20
- concavity condition, 105, 107
- constant elasticity of substitution (CES), 17
- constraints
 - budget, 41
 - credit, 43
 - cross-equation, 151, 154
 - financial, 43, 242
 - isure, 154, 179, 191, 194
 - normalizing, 35, 36
- convergence, 62, 64, 80, 226, 249, 257, 260
- copula function, 56, 314
- Corrected OLS (COLS), 50, 53, 109, 134, 152, 247
 - technical inefficiency, 52, 211
- cost frontier models, 39, 54, 100, 104, 116, 122, 150, 204
- cross-sectional data, 149, 203
 - multiple output, 40
 - system model, 149, 151, 158, 203, 204, 208
- cost function, 9, 103, 294
 - minimum, 102, 108, 149, 150
 - pseudo, 150, 170
 - single, 152
 - translog, 104, 110, 133, 204, 207
- cost minimization, 40, 109, 125, 150, 169, 204
- cost minimization and allocative inefficiency, 38
- cost share, *see* share
- cost system, *see* cost frontier models
- cross-sectional data, 47, 55, 100, 128, 149, 173, 203, 230, 241
- degree of freedom, 66
- distance function, 9, 25, 27
 - input, 27–30, 32, 97, 302
 - output, 29, 30, 32, 97
- distribution
 - basic, 86
 - exponential, 61, 90, 91, 93, 120
 - gamma, 59
 - half-normal, 59, 60, 73, 117
 - pre-truncated, 70, 80, 249
 - truncated-normal, 59, 73, 74, 76, 125, 139
- distribution free
 - estimator, 176
 - model, 49, 55, 108, 110, 134, 152, 176, 179
- economies of scale, 22, 60, 160
- efficiency index, *see also* inefficiency index
 - Battese-Coelli efficiency index, 68, 119, 190
 - confidence interval, 68, 78, 87, 92
 - marginal effect on, 72, 83
 - ranking, 67, 97
- error
 - composed, 49, 56, 67
 - one-sided, 56, 65, 67
 - systematic, 212, 222, 226
- estimation command
 - `sf_cst_compare`, 219, 220, 237, **347**
 - `sf_fixeff`, 268, **344**
 - `sf_init`, 65, 73, 137, 159, **334**
 - `sf_mixtable`, 66, **338**
 - `sf_pft_compare`, 237, **348**
 - `sf_predict`, 69, 84, 119, 138, 237, 250, **336**
 - `sf_srch`, 65, 76, 81, 226, **335**
 - `sf_transform`, 63, 160, 165, **336**
 - `sfmodel`, 62, 65, 73, 76, 81, 89, 93, 99, 118, 120, 121, 126, 137, 139, 180, 212, 225, 234, 263, 273, 277, 288, 292, 297, 302, 305, **331**
 - `sfspan`, 249, 256, 258, 260, 265, **342**
 - `sfprim`, 212, 219, 221, 223, 226, 234, 237, **345**
 - `sfsystem`, 159, 162, 163, 165, 192, 194, **338**
 - `sfsystem_profitshares`, 177–179, 182, 183, 185, 188, 189, **340**
 - `showini`, 159, 162, **339**
- exogenous determinants of inefficiency, 15, 71, 73, 79, 81, 84, 88, 92
- expenditure share, *see* share
- first order condition (FOC), 41, 102, 171, 173, 196, 208
- first-difference, 244, 266

- fixed-effect, *see* panel stochastic frontier model
- frontiers
- cost, *see* cost frontier models
 - deterministic, 50, 52, 249
 - efficient, 53
 - input requirement, 27
 - panel, *see* panel stochastic frontier model
 - production, *see* production frontier
 - profit, *see* profit frontier models
 - quantile approach, *see* quantile approach of frontier estimation
 - stochastic, 48
 - thick, *see* thick frontier approach
- gamma distribution, *see* distribution
- generalized least squares (GLS), 246, 271
- generalized production function (GPF), 22, 223
- half-normal distribution, *see* distribution
- Hessian matrix, 106, 107
- heteroscedasticity, 70, 79, 88, 92, 139
- homogeneity assumption, *see* price homogeneity
- homogenous function, 132, 144, 199, 208
- homogenous technology, 124
- hypothesis tests, 65, 67, 116, 315, 338
- incidental parameters, 266
- indirect production function (IPF), 41
- inefficiency index, *see also* efficiency index, 14, 15, 19, 21–23, 25, 48, 52, 95, 101, 122, 126, 130, 143, 149, 169, 171, 173, 179, 190, 195, 196, 211, 236, 243, 250, 256
- JLMS inefficiency index, 68, 125, 158, 182, 190, 256
- confidence interval, 68, 78, 87, 92
- marginal effect on, 72, 83
- ranking, 97
- input demand function, 40, 102, 123, 130, 150, 170, 197, 205, 209, 210, 216, 225
- input distance functions (IDF), *see* distance function
- input requirement functions (IRF), 31, 33, 37
- input-oriented (IO) inefficiency, 12–14, 21–23, 25, 27, 31, 33, 39, 95, 101, 125, 143, 149, 169, 195, 294, 304
- inputs
- aggregate, 18–20
 - allocation of, 203, 287, 288
 - endogeneity of, 15, 40, 97, 98, 128, 149, 203
 - multiple, 10, 28, 55, 285
 - over-use of, 27, 32, 101–103, 119, 125, 215, 225, 228
- isocost, 38, 39, 209
- isoquant, 13, 14, 19, 20, 26, 27, 37–39, 209
- JLMS index, *see* inefficiency index
- latent class model, 13, 311
- least square dummy variable (LSDV), 244, 271
- likelihood ratio test (LR test), 65, 82, 140, 167, 261
- marginal effect, *see also* efficiency index and inefficiency index, 83, 84, 90, 93, 127, 168
- maximum likelihood estimation, 49, 55, 115, 136, 145, 233
- median absolute deviation (MAD)
- regression, 53
- metafrontier, 13
- mixed chi-square distribution, 66, 77, 118, 338
- monotonicity, 69, 105, 106
- non-monotonic, 80, 83, 84, 141
- nonparametric and semiparametric SF models, 314
- output
- intended, 196
 - potential, 41, 52, 70, 79, 214, 227
 - price of, 27, 131, 134, 177, 188, 287, 299
 - unintended, 196
- output distance functions (ODF), *see* distance function
- output supply function, 40, 130, 144
- output-oriented (OO) inefficiency, 12, 14, 19, 21–23, 25, 26, 31, 48, 122, 125, 126, 130, 149, 171, 173, 196, 286, 304
- panel stochastic frontier model, 263, 266
- fixed-effect, 243, 245, 251, 272, 275
 - random-effect, 247, 250, 265, 273, 276
 - true fixed-effect, 243, 263, 267, 268
 - true random-effect, 243, 263, 265
- parameterization, 62, 66, 67, 71, 75, 79–81, 83, 92, 124, 162, 169, 249, 253
- parametric approach, 49, 136, 156, 176, 181, 189
- parametric distribution assumption, 59
- persistent inefficiency, 241, 263, 269, 270, 274
- price homogeneity, 103, 107, 131, 144, 153
- primal approach, 39, 203, 204, 208, 212, 226, 230–232
- production frontier, 12, 27, 39, 47–49, 58, 62, 74, 98, 177, 212, 225, 286, 292
- production function, 10, 13, 15, 100, 275, 286, 304
- homogeneous, 15, 16, 20, 126, 131–133, 137, 144, 172, 191, 199
 - homothetic, 20
 - indirect, *see* indirect production function
 - multiple output, 25, 27
 - transcendental, 23
 - translog, 24, 224, 233
- production possibility function (PPF), 26
- profit frontier models, 128, 131, 137, 138, 144, 145, 173, 174, 177
- profit function, 9, 130, 144, 174, 193, 197, 198, 231
- translog, 137, 173, 181, 197, 233
- profit share, *see* share
- quantile approach of frontier estimation, 113, 114
- quasi-fixed inputs, 125, 128, 132, 152, 173, 183, 185, 189, 213
- radial
- contraction, 14, 27, 101, 209
 - expansion, 26, 27
- random-effects model, *see* panel stochastic frontier model
- regulation, 75, 100, 118, 119, 129, 221, 279

Cambridge University Press

978-1-107-02951-4 - A Practitioner's Guide to Stochastic Frontier Analysis Using Stata

Subal C. Kumbhakar, Hung-Jen Wang and Alan P. Horncastle

Index

[More information](#)*Index*

359

- sample selection, 313
- scaling property, *see* technical inefficiency
- scaling-property, 85, 120
- seemingly unrelated regression (SURE), 153, 154, 167, 176, 177, 191, 194
- share
 - cost, 106, 153, 158, 160, 175, 196, 198, 206
 - expenditure, 84, 85, 90
 - profit, 4, 175, 183, 190, 196
- share-based estimation, 183, 185, 189, 193
- skewness, 56, 116, 155
- Stata command, *see* estimation command
- system equation, *see* cost, profit
- technical change, 16, 18, 19, 21–24, 252
- technical efficiency, *see* efficiency index
- thick frontier approach (TFA), 54, 110–113
- time-decay model, 258
- time-invariant model, 243, 254, 269, 275
- time-varying model, 19, 241, 250, 253, 254, 270, 274
- total factor productivity (TFP), 286
- transformation function, 19, 31, 35
- true fixed-effect model, *see* panel stochastic frontier model
- true random-effect model, *see* panel stochastic frontier model
- truncated-normal distribution, *see* distribution
- two-tier stochastic frontier model, 314