

INDEX

- Aggregates (or aggregations), 3, 62, 64-106, 110, 121, 130
- Albert, A., 24n.
- Ando, Albert, 32, 62, 92, 93, 94n., 97, 113n., 116n., 166n.
- Ando-Fisher theorem, 109-115 passim
- Approximations, 32-35, 41, 42, 45, 46, 48-50, 54, 58-60, 65-67, 84, 85, 87, 93n., 97, 101, 102, 108-113, 123n., 134
- A priori restrictions, 23, 25-27, 33-59 passim
- Auxiliary system of equations, 39-41
- Balanced growth, see Models, balanced growth; Paths, balanced growth
- Block diagonal matrix, see Matrices, block diagonal
- Block recursive systems, see Systems, block recursive
- Block triangular matrix, see Matrices, block triangular
- Bôcher, Maxime, 7, 9n.
- Boler, Ethan, 118n.
- Bottleneck sector, 114, 120, 123, 128, 133
- Cannon, Walter B., 7, 8
- Causality, 1-3, 5-30; 101
examples, 14-17
in nonlinear systems, 29
ordering, 10-13, 19-25
in systems not self-contained, 17-19
- Ceteris paribus, 107-112
see also Decomposability
- Chakravarty, S., 64n.
- Closedness, defined, 138
- Competitive economies, 114
- Consistencies, 42, 56, 58, 60, 87
see also Inconsistencies
- Convexity, 138
- Dantzig, George B., 43n.
- Decomposability, 4, 11, 43n., 61, 62, 67-70, 77, 80, 82, 85-88, 92-106, 113-168
- analysis, 71-75
cases, 70-71, 75-85, 116-134
properties of nearly decomposable matrices, 67-70
Simon-Ando theorem, 93-102
Solow-Samuelson theorem, see Solow-Samuelson theorem
von Neumann ray, see Von Neumann ray
- Diagonal matrix, see Matrices, diagonal
- Diamond, Peter, 121n.
- Disposal, free, 141, 165
- Distance, normalized, 128, 129
- Dorfman, R., 136n.
- Dual system, 137
- Dynamic systems, 17, 45, 61, 62, 64-93, 107-112
long-run, 75, 97, 98
middle-run, 81, 84, 93
short-run, 75, 84, 92, 97
- Efficient paths, 114, 136, 138, 139, 163, 164, 166
- Endogenous variables, see Variables, endogenous
- Epistemology, 1, 5, 6, 22, 23
- Equilibrium, 101, 102, 111
long-run, 75
partial, 99-101
short-run, 3, 75, 99, 101
- Estimation, consistent, 38
full information maximum likelihood, 38
k-class, 38, 39, 41
least squares, 33, 39, 41, 42, 53, 54, 87
limited information maximum likelihood, 38, 87
simultaneous equation, 1, 4, 32-63, 93
see also Liu, T. C.
small sample properties, 60
structural, 32-35
two-stage least squares, 38, 40, 56
- Exogenous variables, see Variables, exogenous
- Experiments, controlled, 1-3, 21, 22, 28-30

- Faxér, P., 53n.
 Feasible path, see Paths, feasible
 "Feedback" effect, 34, 62, 101, 109
 Fisher, Franklin M., 34n., 36n.,
 37n., 64n., 66, 87, 88, 93,
 100n., 102, 116n., 156, 166n.
 Fixed-point theorem (Brouwer's), 117,
 126
 Frisch, Ragnar, 22n., 26n.
 Functional relationship, 6, 7, 8
 Furuya, H., and K. Inada, 136-140,
 144, 145, 149, 152, 155n., 162,
 163
- Girshick, M. A., 15
 Goldfeld, Stephen, 118n.
 Goodwin, Richard M., 17n., 44, 88
 Growth factor, 138
 Growth rate, 155
 maximal, 146-148, 165
 see also Models, balanced growth
- Haavelmo, Trygve, 15, 22n.
 Harberger, A. C., 54n.
 Henderson, L. J., 7
 Hicks-Lange condition, 64, 66, 67, 80,
 88
 Hierarchy of sets, 2-4, 85, 86, 124,
 161
 Hildreth, Clifford, 97n.
 Homogeneity, positive, 137
 Hume, David, 5, 7
 Hurwicz, Leonid, 22n., 97n.
- Idempotency, 76, 77, 79
 Identification, 5-30, 33, 34, 37-40,
 47, 66, 87
 and causal ordering, 21-25
 in complete subsets, 25-29
 order condition for, 26-28, 48
 rank condition for, 26-28, 48-50
 see also Overidentification;
 Underidentification
- Impossibility of the Land of
 Cockaigne, 137
- Inconsistencies, 35, 41, 42, 46, 48,
 50, 53, 54, 57-59, 62, 93n.
 see also Consistencies
- Indices, scalar, see Aggregates (or
 aggregations)
- Inflation rates, 114, 115, 117, 119,
 120, 123n., 125-128, 131-133
- Input-output, see Models, Leontief
 input-output
- Interdependence, 5, 6
 Interest rates, 151, 156
- Jacobs, Walter, 43n.
 Jureen, L., 44n.
- Koopmans, Tjalling C., 5n., 9n.,
 23n., 33n., 48n.
- Laboratory experimentation, see
 Experiments, controlled
- Lange-Hicks condition, 64, 66, 67,
 80, 88
- Leipnik, R. B., 9n., 23n., 28n.,
 33n., 48n.
- Leontief, W. W., 101n.
 see also Model, Leontief input-
 output
- Linearity, 3, 8-14, 20, 21, 23-27, 29,
 30, 62, 67, 70, 87, 92, 93n.,
 98n., 102, 113, 115, 115n.
- Lintner, J., 54n.
- Liu, T. C., 32-36, 41, 42, 45, 60, 61
- McKenzie, Lionel, 113n., 121n., 136n.
 Marschak, J., 9, 13n., 18, 22n., 23n.
- Matrices
 block diagonal, 115n.
 block triangular, 43, 61, 62, 92n.,
 94, 95, 115n.
 decomposable, 67-70, 80, 82, 85-
 88, 92-94
 diagonal, 24, 71, 76
 stochastic, 68, 69, 75-80
 triangular, 17, 42, 88, 95
 see also Recursiveness
- Maximal growth rate, see Growth rate
- Metalanguage, 21, 30
- Methodology, 1, 4, 5
- Misspecification, 34, 36-42, 50, 60,
 62, 66
- Models
 applied, armament races, 109, 110
 balanced growth, 102, 113, 114,
 130-134 passim
 econometric, 33, 34
 Leontief input-output, 64, 86
 linear, 9, 10, 21, 23, 25-27, 29
 nonstochastic, 23n., 25-27, 29
 Solow-Samuelson, 102, 113-139
 passim, 164n.
 stochastic, 23n., 26, 28n., 29
 voting strength of political parties,
 110-112
 see also Von Neumann model of
 production; Solow-Samuelson
 theorem
- Monotonicity, 113-117, 119, 122, 124-
 128, 131, 136, 139
- Morishima, M., 115n., 136n.
 Muth, John, 64n.

- Natural science, 1, 107
Near decomposability, see
 Decomposability
Newell, Allen, 64n.
Nikaido, H., 125n.
Nonlinear systems, see Linearity
Nonnegativity, 137, 153
Nonstochastic models, see Models,
 nonstochastic
- Orcutt, Guy H., 5n.
Orthogonality, 76
Other Errors Theorem, limited effect
 of, 48-50
Overidentification, 33, 35
 see also Identification; Underiden-
 tification
- Partition, 16, 17, 92-106, 116
Paths
 balanced growth, 136, 139-142, 145
 feasible, 138, 160
 intertemporally efficient, 114, 136,
 138, 139, 163, 164, 166
 weakly efficient, 142-145
Perturbation method, 83, 84, 86, 87
Precedence, relationship of, 17
Predetermined variables, see
 Variables, predetermined
Predictions, 2, 3, 5, 22, 41
Price change, balanced, see Price
 structure
Price structure, 113-135
Price system, the von Neumann, 148
Prices, 151, 156, 157
Primitivity, 136, 138-140, 148, 150-
 152, 160-165 passim
 von Neumann primitive, 148, 149,
 150, 151, 160, 161, 162
Probability limit, 37, 38, 40-42, 49
Process, balanced growth, 149
Production functions, 113, 114
Production process, 137
Profits, 151, 156, 157
Proximity theorems, 32, 50-61
- Radner, R., 136n., 159, 160, 161n.
Recursiveness, 32, 35, 42, 54n.
 see also Systems, block recursive
Reduced form equations, 39, 42
Redundancy of inefficiently employed
 inputs, 144
Relative Stability Theorem, see
 Furuya and Inada
R-equivalent, 24
Rothenberg, Jerome, 43n.
- R-transformations, 24, 25
Rubin, H., 9n., 23n., 28n., 33n.,
 48n.
- Samuelson, Paul A., 32n., 88, 113n.,
 136n.
Sargan, J. D., 38n., 56n.
S-equivalent (structurally equivalent),
 24
Simon, Herbert A., 5n., 23n., 32, 44,
 62, 92, 93, 94n., 97, 116n.
Simon-Ando theorem, 93-95, 102, 104,
 108-115 passim, 122, 123, 146
Simultaneous equation estimation, see
 Estimation
Social sciences, 1, 4-6, 86, 107, 109
Solow, Robert M., 92n., 113n., 118n.,
 136n.
Solow-Samuelson theorem, 102, 113-
 115, 117-119, 122, 123, 125,
 127-131, 136, 137, 139, 164n.
Stability, 40, 88, 92-106, 128-130,
 136, 137, 140
Stochastic matrix, see Matrices,
 stochastic
Stochastic models, see Models,
 stochastic
S-transformations, 24-26
Stratification, 2
Strotz, R. H., 35n., 44
Structures, causally ordered, 12, 18
 derived, 12, 13
 integrated, 12, 19
 linear, 8-14, 20, 23, 25, 27
 not self-contained, 17, 18
 self-contained, 8-14, 17, 18, 20,
 23, 25, 27, 28
 unintegrated, 19
Subsets, minimal self-contained, 11-
 14
Subsystems, 10, 87, 92, 94, 97, 99,
 100, 124-127, 130, 133, 134,
 146, 157, 159, 161, 163, 164,
 166
 decomposable, 4
 reducible, see Subsystems,
 decomposable
 unrelated, 3, 4
Suits' stationarity theorem, 115, 131
Superadditivity, 137-141, 143-145n.,
 148, 149, 151, 157, 160, 162
 see also Von Neumann superaddi-
 tivity
Systems, block recursive, 34, 42-50,
 54n., 55, 58, 60, 61, 88
 not self-contained, 14-17
 self-contained, 44, 57-59

- Technologies, 136-168
- Theil, H., 32n., 54n., 56n., 87
- Tinbergen, Jan, 22n.
- Triangular matrix, see Matrices, triangular
- Turnpike Theorem, 136, 137, 140, 159, 160
- Underidentification, 32, 33, 35, 51n.
see also Identification; Over-identification
- Uzawa, H., 38n.
- Valavanis, S., 32n.
- Variables, endogenous, 5n., 8, 12-17, 20, 28, 33-39 passim, 43, 45, 46, 51, 55, 59, 60
- exogenous, 5n., 8, 12, 13, 18, 20, 28-30, 33-37, 40, 43-60 passim
- omitted, 42-50
- predetermined, 38
- Vector causality, 44
- Von Neumann proportions, 158, 159, 162-166
- Von Neumann model of production, 3, 102, 114, 116, 136
- Von Neumann ray, 136-168
- Von Neumann superadditivity, 149-151, 156, 157, 160, 162
- Walrasian system, 64
- Weakly efficient path, see Paths, weakly efficient
- Wold, Herman O. A., 22n., 32, 35, 36, 42n., 44, 53, 61
- Yokoyama, Tamotsu, 88