

INDEXES

INDEX OF AUTHORS

- Allen, R. G. D., 6n
 Anderson, O., 6n, 7, 11, 12, 13, 14, 16n,
 18, 20, 22n, 24n, 27, 33n, 38n, 39n,
 40, 51, 67, 73, 100, 102n, 105, 117n,
 118n, 119, 120n, 128, 136, 138, 139,
 140, 141, 144, 145, 146, 149n, 150n,
 156
 Bartlett, M. S., 15, 16, 17, 19, 73n
 Bernoulli, 25
 Boole, G., 26n
 Bortkiewicz, L. von, 24n
 Bowley, A. L., 13, 16
 Bratt, E. C., 2n
 Brunt, D., 4n
 Cave, B. M., 11
 Cave, F. E., 10
 Cave-Browne-Cave, F. E., 10n
 Cochran, W. G., 73n, 142n
 Cowles, A., 155n
 Cramér, H., 22n
 Darmois, G., 25n
 Davis, H. T., 17n, 26n, 54n, 51n, 102,
 144n, 145, 146n, 153n 156
 Elderton, E. M., 11, 17, 18
 Evans, G. C., 2n
 Ezekiel, M., 122n, 123n
 Fisher, A., 165n
 Fisher, R. A., 8, 9, 12, 16, 17, 18, 19,
 33n, 38n, 39n, 52n, 55n, 73, 74n, 76,
 92, 95, 124, 126n, 127, 135, 139, 142,
 143, 148, 160, 161, 165n
 Flood, M. M., 156n
 Fréchet, M., 23n
 Frisch, R., 5n, 6n, 18n
 Gosset, W. S., 10
 Gram, 144, 145
 Haberler, G., 3n, 19n
 Hicks, J. R., 2n
 Hooker, R. H., 10, 11
 Hotelling, H., 6n, 20, 73n, 142n
 Jones, H. E., 6n, 155
 Kalecki, M., 5n
 Kendall, M. G., 34n
 Knight, F. H., 2n
 Kolmogoroff, A., 22n
 Koopmans, T., 6n
 Kondratieff, N. D., 3n
 Kuznets, S., 3n, 5
 Laplace, P., 22
 Macaulay, F. R., 100n
 Madow, W. G., 73n, 142n
 March, L., 10, 11
 Marshall, A., 2n, 32
 Mendershausen, H., 20n
 Menger, K., 22n
 Mills, F. C., 2n, 104n
 Mises, R. von, 22, 23, 24, 136n
 Mitchell, W. C., 2n, 3n
 Morgenstern, O., 1n
 Nagel, E., 23n
 Nelson, W. F. C., 26n, 51n, 54n, 153n
 Neyman, J., 33n
 Pearson, K., 11, 17, 18
 Persons, W. M., 11, 12, 16, 17
 Pollaczek-Geiringer, H., 22n, 136n
 Poynting, J. H., 10, 11
 Reichenbach, H., 22n
 Ritchie-Scott, A., 11
 Robbins, L., 19n
 Robinson, G., 100n, 102n, 144n
 Roos, C. F., 2n, 5n, 6n
 Sasuly, M., 18n
 Schelling, H. von, 156n
 Schultz, H., 2n, 6n
 Schumpeter, J. A., 3, 19n
 Sheppard, W. F., 12, 13, 100, 101, 102,
 103, 104, 105, 106, 114, 144, 145, 153
 Sherriff, W. M., 100n, 102
 Slutsky, E., 5n
 Snedecor, G. W., 8, 38n, 73n, 76, 142,
 143, 144, 161n, 165n
 "Student," *see* W. S. Gosset
 Tchebycheff, P. L., 33, 34, 139
 Thiele, T. N., 165n
 Tinbergen, J., 5n
 Tintner, G., 3n, 4n, 6n, 14n, 15n, 38n,
 51n, 70n, 73n, 92n, 124n, 153n, 160n
 Tschuprow, A. A., 4n, 117, 128, 139
 Uspensky, J. V., 24n, 25n, 33n, 136n,
 139n
 Von Szeliski, V., 5
 Wald, A., 6n, 14, 15n, 16, 20, 22n, 136n,
 150

- Whittaker, E. T., 100n, 102n, 144n
Wilks, S. S., 33n, 73n, 136n, 137n, 139n,
142n
Winkler, W., 2n, 24n
Wishart, F., 73n
Wiśniewski, J., 3n
Wold, H., 5, 17n, 100n, 128, 149n, 156,
157n
Working, H., 5n, 20
Yates, F., 76n, 124, 135, 148n, 160, 161n
Yule, G. U., 10, 11, 12, 13, 16, 17, 20,
34n, 156
Zaycoff, R., 14, 15n, 20, 33n, 38n, 41n,
51, 52n, 56n, 67, 105n, 107n, 136, 139,
141, 146, 150n, 161, 165n

INDEX OF SUBJECTS

- Accuracy, *see* Differences, accuracy
 American wheat-flour prices, *see* Differences, American wheat-flour prices
 Analysis, Flexibility, *see* Time series, flexibility of analysis
- Classical definition, *see* Probability, classical definition
 Coefficient, *see* Determination, coefficient of; Random variability, coefficient of; Sheppard smoothing formulae, reduction of coefficient of random variability
 Collective, 23-24
 Computations, 133-135
 Correlation, 117-129, 146-149
 by selection of differences, 124-127
 difference analysis, 117-124
 random elements, 122, 149
 selected differences, 148
 stability of product moments, 147-148
 see also Differences, stability of correlation coefficients of selected differences; Serial correlation
 Correlograms, 157-158
 Criticism, *see* Variate difference method, criticism
- Derived statistical series, standard errors, 153-154
 Determination, coefficient of, 122
 Differences, 25-31, 137
 accuracy, 16
 American wheat-flour prices, 35-38
 approximate standard error ratio for stability of variances, 69-71
 elimination of mathematical expectations, 32-33
 exponentials, 28
 hyperbolae, 28-29
 limits for ratios of sums of squares of selected differences, 77-99, 144
 polynomials, 27-28
 random series, 31
 smooth series, 31
 squares of numbers, 26-27
 stability of correlation coefficients of selected differences, 124-127
 stability of product moments, 118-122
 stability of variances, 67-72
 standard error of the difference between the variances, 51-66, 140-141
 standard error ratio for stability of variances, 67-69, 142
 test of significance for stability of variances, 73-99
 trigonometric functions, 30-31
 variances, 32-50, 138
 variances corrected for seasonal, 150-151
 variances of selected differences, 143
 see also Correlation, difference analysis; Seasonal, difference analysis; Time series, differences
 Distribution, 24-25
 see also Normal distribution
 Dynamics, 1-2
- Economic causes, *see* Time series, economic causes
 Economic errors, types, 4-5
 Errors,
 alternating errors, *see* Time series, alternating errors
 economic errors, types, *see* Economic errors, types
 time series and errors, *see* Time series, errors
 Exponentials, *see* Differences, exponentials
- F* test (G. W. Snedecor), 76
 Fiducial limits, 33-34
 Frequency definition, *see* Probability, frequency definition
- Gram polynomials, 102
 see also, Sheppard smoothing formulae, Gram polynomials
- History, *see* Variate difference method, history
 Hyperbolae, *see* Differences, hyperbolae
- Kurtosis, 52-66, 140
- Level of significance, 34
 Line of common relationship, 6
 Linear relationships, *see* Mathematical expectations, linear relationships
 Literature, *see* Variate difference method, literature
- Mathematical expectations, 25, 136-137
 linear relationships, 127-129
 relationships between, 148-149
 see also Differences, elimination of mathematical expectation; Time series, mathematical expectation
 Mathematical notes, 136-149
 Moments, 137

- fourth, 51-52
 product, *see* Product moments
- Normal distribution, 34, 139
 Normality, *see* Random element, normality
- Periodic oscillations, *see* Variate difference method, periodic oscillations
- Polynomials, *see* Differences, polynomials
- Probability, 22-24, 136
 classical definition, 22
 frequency definition, 22-24
- Product moments, 118-119
see also Correlation, stability of product moments; Differences, stability of product moments
- Random element,
 normality, 165-166
 variability through time, 161-164
see also Correlation, random elements; Time series, random element
- Random series, *see* Differences, random series
- Random variability,
 Random variable, 24, 136
 coefficient of, 100
 coefficient of, reduction by Sheppard smoothing formulae, 107-116
see also Sheppard smoothing formulae, reduction of coefficient of random variability
- Random variance,
 reduction by Sheppard smoothing formulae, 106-107
see also Sheppard smoothing formulae, reduction of random variance
- Random variation, reduction by Sheppard smoothing formulae, 100-116
- Reduction by Sheppard smoothing formulae, *see* Random variability, coefficient of, reduction by Sheppard smoothing formulae
- Reduction of random variance, *see* Sheppard smoothing formulae, reduction of random variance
- Reversals, *see* Sequences and reversals
- Seasonal, difference analysis, 150-152
- Selected, *see* Correlation, selected differences: Differences, limits for ratios of sums of squares of selected differences; Differences, stability of correlation coefficients of selected differences
- Selection, 74-76, 142-143
see also Correlation, by selection of differences
- Sequences and reversals, 155-156
- Serial correlation, 156-160
 test of significance, 159-160
 variances of difference series, 156
see also Variate difference method, serial correlation
- Sheppard smoothing formulae, 100-116, 144-145
 applied to American wheat-flour prices, 111-112
 Gram polynomials, 145-146
 reduction of coefficient of random variability, 145
 reduction of random variance, 145
 weights, 101-105
see also Random variability, coefficient of, reduction by Sheppard smoothing formulae; Random variance, reduction by Sheppard smoothing formulae; Random variation, reduction by Sheppard smoothing formulae
- Significance, tests of, *see* Tests of significance
- Smooth series, *see* Differences, smooth series; Time series, smooth
- Squares of numbers, *see* Differences, squares of numbers
- Stability, *see* Differences, approximate standard error ratio for stability of variances; Differences, standard error ratio for stability of variances; Differences, test of significance for stability of variances
- Standard error of the difference between the variances, *see* Differences, standard error of the difference between the variances
- Standard errors, *see* Derived statistical series, standard errors; Differences, standard error of the difference between the variances
- Sums, limits for ratios of sums of squares of selected differences, *see* Differences, limits for ratios of sums of squares of selected
- Tchebycheff's inequality, 33-34, 139
- Tests of significance, 33-34, 139
see also Differences, test of significance for stability of variances; *F* test (G. W. Snedecor); Serial correlation, test of significance; *z* test (R. A. Fisher)
- Time series, 1-5
 alternating errors, 5
 components, 2-3
 differences, 37-38
 economic causes, 5
 errors, 4-5
 flexibility of analysis, 3, 18-19
 mathematical expectation, 6, 32, 138
 random element, 6, 32, 138
 separation of smooth and random

- components, 6-7
- smooth 7
- Trigonometric functions, *see* Differences, trigonometric functions
- Variability through time, *see* Random element, variability through time
- Variances, *see* Differences; Differences, approximate standard error ratio for stability of variances; Differences, stability of variances; Differences, standard error of the difference between the variances; Differences, standard error ratio for stability of variances; Differences, test of significance for stability of variances; Differences, variances; Differences, variances corrected for seasonal; Differences, variances of selected; Serial correlation, variances of difference series
- Variate difference method, 6-9
 - Bowley, A. L., 16
 - criticism, 16-21
 - Fisher, R. A., 18-19
 - history, 10-15
 - literature, 10-15
 - periodic oscillations, 20-21
 - Persons, W. M., 16-17
 - serial correlation, 16-19, 156, 160
 - Wald, A., 20-21
 - Yule, G. U., 20-21
- Weights, *see* Sheppard smoothing formulae weights
- Wheat, *see* Sheppard smoothing formulae, applied to American wheat-flour prices; Differences, American wheat-flour prices
- z test (R. A. Fisher), 76