

1. Record Nr.	UNINA9910841321603321
Autore	Basilevsky Alexander
Titolo	Statistical factor analysis and related methods [[electronic resource] ] : theory and applications // Alexander Basilevsky
Pubbl/distr/stampa	New York, : Wiley, c1994
ISBN	1-282-30742-8 9786612307423 0-470-31689-6 0-470-31773-6
Descrizione fisica	1 online resource (770 p.)
Collana	Wiley series in probability and mathematical statistics. Probability and mathematical statistics
Disciplina	519.5 519.5354
Soggetti	Factor analysis Multivariate analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 690-731) and index.
Nota di contenuto	Statistical Factor Analysis and Related Methods; Contents; 1. Preliminaries; 1.1. Introduction; 1.2. Rules for Univariate Distributions; 1.2.1. The Chi-Squared Distribution; 1.2.2. The F Distribution; 1.2.3. The t Distribution; 1.3. Estimation; 1.3.1. Point Estimation: Maximum Likelihood; 1.3.2. The Likelihood Ratio Criterion; 1.4. Notions of Multivariate Distributions; 1.5. Statistics and the Theory of Measurement; 1.5.1. The Algebraic Theory of Measurement; 1.5.2. Admissibile Transformations and the Classification of Scales; 1.5.3. Scale Classification and Meaningful Statistics 1.5.4. Units of Measure and Dimensional Analysis for Ratio Scales 1.6. Statistical Entropy; 1.7. Complex Random Variables; Exercises; 2. Matrixes, Vector Spaces; 2.1. Introduction; 2.2. Linear, Quadratic Forms; 2.3. Multivariate Differentiation; 2.3.1. Derivative Vectors; 2.3.2. Derivative Matrices; 2.4. Gramian Association Matrices; 2.4.1. The inner Product Matrix; 2.4.2. The Cosine Matrix; 2.4.3. The Covariance Matrix; 2.4.4. The Correlation Matrix; 2.5. Transformation of Coordinates; 2.5.1. Orthogonal Rotations; 2.5.2. Oblique Rotations;

2.6. Latent Roots and Vectors of Gramian Matrices  
 2.7. Rotation of Quadratic Forms  
 2.8. Elements of Multivariate Normal Theory; 2.8.1. The Multivariate Normal Distribution; 2.8.2. Sampling from the Multivariate Normal; 2.9. The Kronecker Product; 2.10. Simultaneous Decomposition of Two Gramian Matrices; 2.11. The Complex Multivariate Normal Distribution; 2.11.1. Complex Matrices, Hermitian Forms; 2.11.2. The Complex Multivariate Normal; Exercises;  
 3. The Ordinary Principal Components Model; 3.1. Introduction; 3.2. Principal Components in the Population; 3.3. Isotropic Variation; 3.4. Principal Components in the Sample; 3.4.1. Introduction  
 3.4.2. The General Model  
 3.4.3. The Effect of Mean and Variances on PCs; 3.5. Principal Components and Projections; 3.6. Principal Components by Least Squares; 3.7. Nonlinearity in the Variables; 3.8. Alternative Scaling Criteria; 3.8.1. Introduction; 3.8.2. Standardized Regression Loadings; 3.8.3. Ratio Index Loadings; 3.8.4. Probability Index Loadings; Exercises;  
 4. Statistical Testing of the Ordinary Principal Components Model; 4.1. Introduction; 4.2. Testing Covariance and Correlation Matrices; 4.2.1. Testing for Complete Independence; 4.2.2. Testing Sphericity  
 4.2.3. Other Tests for Covariance Matrices  
 4.3. Testing Principal Components by Maximum Likelihood; 4.3.1. Testing Equality of all Latent Roots; 4.3.2. Testing Subsets of Principal Components; 4.3.3. Testing Residuals; 4.3.4. Testing Individual Principal Components; 4.3.5. Information Criteria of Maximum Likelihood Estimation of the Number of Components; 4.4. Other Methods of Choosing Principal Components; 4.4.1. Estimates Based on Resampling; 4.4.2. Residual Correlations Test; 4.4.3. Informal Rules of Thumb; 4.5. Discarding Redundant Variables; 4.6. Assessing Normality  
 4.6.1. Assessing for Univariate Normality

---

Sommario/riassunto

Statistical Factor Analysis and Related Methods Theory and Applications  
 In bridging the gap between the mathematical and statistical theory of factor analysis, this new work represents the first unified treatment of the theory and practice of factor analysis and latent variable models. It focuses on such areas as:  
 \* The classical principal components model and sample-population inference  
 \* Several extensions and modifications of principal components, including Q and three-mode analysis and principal components in the complex domain  
 \* Maximum likelihood and weighted factor models, fact

---