ACADEMIA DE STUDII ECONOMICE DIN BUCUREŞTI
FACULTATEA DE CIBERNETICĂ, STATISTICĂ ŞI INFORMATICĂ ECONOMICĂ
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Department of Statistics and Econometrics

DISCIPLINES FOR POSITION NO. 22, PROFESSOR

Statistics in Commerce, Tourism and Services, Econometrics

1. STATISTICS IN COMMERCE, TOURISM AND SERVICES

1.1. Central tendency measures for univariate data series.

Definition, typology, positional averages examples. The case of binary variables.

1.2. Measures of variation

Simple and synthetic measures of variation; measures of skewness

Measures of variation for bivariate data series; Analysis of variance - ANOVA

1.3. The statistical survey

Definition, stages, basic concepts; sampling procedures; Checking representativity; estimation; calculation of the sample size; Normal distribution; Central limit theorem; calculation and interpretation of z values; point estimate and confidence interval of the mean for the binary variable.

1.4. Hypotheses testing

1.5. Concepts, steps, calculation and interpretation. Testing the population mean and variance

1.6. Correlation and regression analysis.

Correlation analysis (parametric and non-parametric). Simple linear regression analysis.

1.7. Time series.

Descriptive indicators for time series; Time series components; Trend analysis.

1.8. Index numbers

Construction of elementary and aggregated index number. Weighting systems

2. ECONOMETRICS

2.1. Simple regression model

Defining simple regression model and parameter estimation; Testing parameters parameter estimator and estimate; properties of estimators; significance testing parameters estimation intervals for the parameters; Validation of regression model; Analysis of variance – ANOVA; Testing the correlation coefficient; Testing normality of errors; predicting variable explained: point and confidence interval; examples of models used in Commerce, Tourism or Services

2.2. The multiple regression

The presentation and parameter estimation writing using an example model; assumptions; parameter estimation. Statistical tests, selecting the best model of nonlinear regression model; properties of estimators, significance testing and confidence intervals; test the validity of the model choice of regression model

2.3. Regression model assumptions and verification

Homoscedasticity analysis (causes, consequences of the heteroscedasticity; presence of errors, statistical tests, correction)

Autocorrelation analysis errors (causes, consequences presence of autocorrelation errors, statistical tests, correction)

Multicollinearity analysis (causes, consequences of multicollinearity, statistical tests, correction)

References

1. Andrei, T., Bourbonais, R, Econometrie, Ed. Economică, Bucureşti, 2008
2. Andrei, T., Statistică și econometrie, Ed. Economică, București, 2004
3. Ţiţan, E., Statistică. Teorie şi aplicații în sectorul terțiar, Ed. METEOR PRESS, București, 2012, România
4. Voineagu, V., Ţiţan, E., Ţerban, R., Ghiţă, S., Todose, D., Boboc, C., Pele, D., Teorie şi practică econometrică, Ed. METEOR PRESS, Bucureşti, 2007