Our expertise

Since 2007 StatisticalAdvisor consultants have provided statistical assistance to students and researchers in the following fields:

1. Economics and Marketing
2. Finance and Risk Management
3. Psychology and Social Sciences
4. Business intelligence, data mining and machine learning
5. Medicine and Life Science

A limited sample of past project follows, along with the list of statistical approach we used. Details are limited due to confidentiality reasons.

Analysis of university courses evaluations by attending students

Topic: we analyzed the key variable affecting the overall and topic - specific preferences of a pool of university students towards their attended courses.

Statistical techniques: Logistic regression for ordinal data, CHAID trees.

Product placement analysis in plot

Topic: we analyzed which variables affect the overall appreciation of Quentin Tarantino's Kill Bill movie and products recall.
Statistical techniques: Binomial regression.

Wine marketing

Topic: we used binary classification techniques and association rules to analyze the purchase patterns of a wine shop.
Statistical techniques: binary clustering, association rules.

Hospital patients efficacy

Topic: we have analyzed a questionnaire measuring overall satisfaction and related sub dimensions of hospital patients.
Statistical techniques: exploratory factorial analysis, ANOVA and classification trees.

Determinants of CEO salaries

Topic: a panel containing variables regarding industry, firm size, CEO demographics was provided. We fit a panel regression model to explain the determinants of CEO salaries.
Statistical techniques: panel data regression.

Products sales forecast

Topic: we analyzed time series regarding the sales of five goods sold by the same company. We build short term forecast models.
Statistical techniques: Holt-Winters methods, ARIMA.

Brand groups dimension

Topic: we have analyzed a questionnaire reporting questions regarding several dimension of customers' brand loyalty and awareness. The aim of the analysis was to test causal relationships among these variables

Statistical techniques: structural equation modelling and classification trees (CHAID).

MTPL Insurance Pricing

Topic: pricing MTLP covers

Statistical techniques: we used log-linear models (Poisson and Gamma regressions) to estimate the frequency, severity and pure premium of Motor Third Party Liability insurance, given policyholder demographics, past claim history, vehicle characteristics and other relevant variables.

Counterparty risk assessment

Topic: Monte Carlo Analysis of counter-party default risk
Statistical techniques: we used Monte Carlo simulations to generate the distribution of loss due to rated and unrated counter-parties' default in order to estimate a fictional company's Capital At Risk for Solvency Purpose.

Catastrophe Bond Pricing

Topic: Understand how to price a CAT Bond
Statistical techniques: we used distribution fitting techniques to model a fictional portfolio's ceded losses and linear regression to model the relationship between bonds' coupon and expected loss.

Analysis of the effect of specific educational techniques

Topic: we analyzed the statistical significance of a specific educational program on people affected by cognitive deficit. We compared tests results between the test sample and the control sample.

Statistical techniques: Factorial analysis, scale reliability and paired sample t-tests.

Key dimension of sport competition attitude

Topic: given a mesuring attitude toward sport and competition, we have applied factorial analysis, confirmatory factorial analysis and item reliability in order to find the key factors underlying attitude toward sport and competition.
Statistical techniques: Standard inferential analysis, structural equation modelling and factor analysis.

Self estimate study

Topic: given a questionnaire on self esteem scales, we measured Cronbach α reliability statistics and we used a confirmatory factorial analysis to validate the questionnaire.
Statistical techniques: Reliability and factor analysis.

Educational community educators attitude questionnaire

Topic: we have analyzed a questionnaire regarding attitudes and behavioral traits of health professionals working in mental care support institutes. We have investigated which demographic variables affects character traits significantly.
Statistical techniques: Standard inferential analysis, confirmatory factor analysis and CHAID tree.

Demographic determinants on extra - marital relationships

Topic: we have analyzed a data set reporting the number of extra - marital relationships along with demographic variables. The aim of the analysis was to investigate which factors mostly affect the outcome.

Statistical techniques: Poisson count regression.

Local validation of an international anxiety psychometric test

Topic: we have validated the Italian version of an international questionnaire that aims to measure anxiety using news scales.
Statistical techniques: exploratory and confirmatory factorial analysis, ANOVA and Cronbach reliability analysis.

University students lapse probability

Topic: we analyzed which variables affects first - year undergraduate students abandons, in order to built a scoring model to identify students at risk.
Statistical techniques: Logistic regression, SVM, classification trees and Naive Bayes classifiers.

Spam mail statistics classification

Topic: we have applied various classifiers to the famous machine learning repository spam database in order to obtain the most performing predictive model.

Statistical techniques: Logistic regression, SVM, classification trees and Naive Bayes classifiers.

Italian firms credit risk analysis

Topic: we have compared the performance of different predictive models in order to assess default probability in a sample of Italian firms.

Statistical techniques: linear discriminant analysis, CHAID, Deep Learning, XGBoost and GBM.

Relationship between weight gain and bipolar disorder

Topic: we have applied standard inferential statistics techniques in order to study the relationship between bipolar disorder and weight variation.

Statistical techniques: χ^2 test, ANOVA and T test.

Lactate distribution in young horses

Topic: We applied repeated measures ANOVA to measure the efficacy of experimental treatments on the lactate distribution on young horses.
Statistical techniques: repeated measures ANOVA and T test.

Prostate cancer data set analysis

Topic: We applied logistic regression and survival analysis to assess the risk factor affecting prostate cancer risk and survival.
Statistical techniques: cox proportional hazard, Weibull and Logistic regression, binomial GLM.

Leukemia determinants

Topic: We applied standard survival analysis, trees of survival models and other machine learning trees to assess leukemia evolution.

Statistical techniques: cox proportional hazard, Weibull and Logistic regression, boosted survival analysis.

Rainfall prediction in Southern Italy

Topic: We applied geostatistical techniques in order to assess the distribution of rainfall through the territory of southern Italy regions.
Statistical techniques: spatial moving average, kriging.