



Full Professor Mehmet Güray ÜNSAL

Ph.D. in Statistics & Operations Research

E-mails: [mgunsal@baskent.edu.tr](mailto:mgunsal@baskent.edu.tr), [mgunsal@gazi.edu.tr](mailto:mgunsal@gazi.edu.tr),  
[mgunsal@gmail.com](mailto:mgunsal@gmail.com)

Address: Onur Street, 44/17 Maltepe, Çankaya 06500  
ANKARA/TURKEY

Mobile: +905525905442 / +905373308508

## Education

- 2010- 2014 **Ph.D.** Gazi University, Institute of Science, Department of Statistics  
Bayesian Priors for Incidence of Inefficiency in Data Envelopment  
Analysis
- 2007-2010 **M.Sc.** Gazi University, Institute of Science, Department of Statistics  
Residual Types in Time Series Analysis and Their Applications
- 2003–2007 **B.Sc.** Gazi University, Faculty of Science, Department of Statistics

## Academic Positions

- 2023- on going **Full Professor** Başkent University, Faculty of Business and  
Administrative Science, Department of Technology and  
Knowledge Management
- 2022- on going **Assoc. Prof. / Full Prof. (Part-time)** Çankaya University, Faculty  
of Business and Administrative Science, Department of  
Management
- 2021- 2023 **Assoc. Prof.** Başkent University, Faculty of Business and  
Administrative Science, Department of Technology and  
Knowledge Management
- 2017- 2021 **Assoc. Prof.** Uşak University, Faculty of Art and Science,  
Department of Statistics
- 2017-2018 **Assoc. Prof. (Part-time)** Izmir University of Economics, Faculty  
of Engineering, Department of Industrial Engineering
- 2015-2017 **Lecturer** Uşak University, Faculty of Art and Science,  
Department of Statistics
- 2010-2015 **Research Assist.** Gazi University, Faculty of Science,  
Department of Statistics

**Published articles in SCI/SCI-Expanded/SSCI indexed journals**

Ünsal, M. G., R. A.Kalemci, İ.Alp, A. O.Dalkılıç, and B.Agan Celik. 2026. “Sustainable Development Solutions Network (SDSN) Reports Between 2018 and 2023: Malmquist Index Analysis for the Performance of OECD Countries.” *Sustainable Development*, 1–16.

PETRIDIS, K., ÜNSAL, M.G., DALKILIÇ, A. O. (2025) Assessing R&D Efficiency in Industry: A Multi-Stage-ARIII Approach for Enhanced Performance Evaluation, *Annals of Operations Research* (in press)

ÜNSAL, M.G., FRIESNER, D., ROSENMAN, R.E., ÖRKÜ, M. (2025) *Estimation of the Incidence of Inefficiency Using Bootstrap and Bayesian Estimators*. *Communications in Statistics: Simulation and Computation* 54(12), 4965–4979.

ÜNSAL, M.G. (2022) *New Bayesian Estimators For Incidence of Inefficiency For the Cases Without Rule of Thumb*. *Journal of Statistical Computation and Simulation*, 92:3, 437-450.

KINACI, H., ÜNSAL, M.G., KASAP, R. (2021) *A Close Look at 2019 Novel Coronavirus (Covid 19) Infections in Turkey via Using Time Series Analysis & Efficiency Analysis*. *Chaos, Solutions & Fractals* 143, 110583.

ÜNSAL, M.G., FRIESNER, D., ROSENMAN, R.E. (2020). *The Curse of Dimensionality, Misclassified DMUs, and Bayesian DEA*. *Communications in Statistics: Simulation and Computation*, DOI: 10.1080/03610918.2020.1740260.

ÖZSOY, V.S., ÜNSAL, M.G., ÖRKÜ, H.H. (2020). *Use of the Heuristic Optimization in the Parameter Estimation of Generalized Gamma Distribution: Comparison of GA, DE, PSO and SA Methods*. *Computational Statistics* Computational Statistics, doi.org/10.1007/s00180-020-00966-4.

ÜNSAL, M.G., NAZMAN, E., (2020) *Investigating the Socio-Economic Ranking of Cities in Turkey by Using Data Envelopment Analysis and Linear Discriminant Analysis*. *Annals of Operations Research*, 294: 281–295.

ÜNSAL, M.G., FRIESNER, D., ROSENMAN, R.E. (2019). *New Posterior Distributions for Incidence of Inefficiency in DEA Scores*. *Communications in Statistics: Theory and Methods*, <https://doi.org/10.1080/03610926.2019.1653920>.

PETRIDIS K., ÜNSAL M. G., DEY P., ÖRKÜ H. H. (2019). *A novel network data envelopment analysis model for performance measurement of Turkish electric distribution companies*. *Energy* Volume 174, 1 May 2019, Pages 985-998.

ÜNSAL, M.G., ÖRKÜ, H.H., (2017) *Ranking decision making units with the integration of multidimensional scaling algorithm into PCA-DEA*. Hacettepe Journal of Mathematics and Statistics, 46 (6): 1187–1197.

ÜNSAL, M.G., ÖRKÜ, H.H., (2016) *A note for weights restriction in the ARIII model based on correlation coefficients*. Applied Mathematical Modelling, Volume 40, Issues 23–24, Pages 10820–10827

ÖRKÜ, H.H., ÜNSAL, M.G., BAL, H., (2015) *A modification of a mixed integer linear programming (MILP) model to avoid the computational complexity*. Annals of Operations Research 235(1):599-623.

ÜNSAL, M.G., KASAP, R., (2014) *Cases of Residual Types in Diagnostic Checking for ARMA Model*. Hacettepe Journal of Mathematics and Statistics 43(3):1-10.

### **Published articles in the other indexes**

ÜNSAL, M.G., ÖZSOY, V.S., ÖRKÜ, H.H. (2025) *Ranking Decision Making Units (DMUs) Using Support Vector Machines (SVM) & Ideal DMU*. Journal of Turkish Operations Management 9(1), 24-35.

KAYA, B. GÖÇEN, S.D., KAYA, G., ÜNSAL, M.G. (2024) *Performance Evaluation of Private Universities in Türkiye* Journal of Gazi University Faculty of Science, 6(1): 1-14.

YILDIRIM M. T., TOPRAK G., ÜNSAL, M.G., (2023) *Evaluation of Turkish Flight Data Between 2002-2022 Period in Terms of Years and Airports*. Journal of Gazi University Faculty of Science, 4(1), 14-23.

DİKBAŞ, Ü., KASAP, R., ÜNSAL, M.G., (2022) *Chaotic Behavior in Exchange Rate*, Journal of Management and Economy, 29(3), 567-581.

ÜNSAL, M.G., KASAP, R., (2020) *Investigating Covid 19 Data for G20, UE and OECD Countries via Using Time Series Analysis & Cluster Analysis*, Journal of Turkish Operations Management. 4 (2), 424-432.

ÜNSAL, M.G., (2013) *Comparing of The Deterministic Simulated Annealing Methods For Quadratic Assignment Problem*. Uludag U. Faculty of Engineering and Architecture Journal, 18 (2) : 37-46.

ÜNSAL, M. G., KASAP, R., (2012) *Residual Types in Time Series and Their Applications*. G. U. Journal of Science, 25 (2):409-416.

NAJJARI, V., ÜNSAL, M. G., (2012) *A Fit Family of Archimedean Copulas for Meteorological Data*. G. U. Journal of Science 25 (2):417-424.

## Attended Conferences

ÜNSAL, M.G., PETRIDIS, K., PAÇACI, B., EMROUZNEJAD, A., OZONUR, D. (2025) *A Network DEA model Based on ARIII to Measure Performance of High Speed Railway Stations*, International Conference on Business Analytics in Practice 2025 (ICBAP 2025), Athens, Greece.

ÜNSAL, M.G., DALKILIÇ, A.O. (2025) *Measurement of Higher Education Performance of European Countries Using R&D Indicators*. Management International Conference (MIC 2025), Zadar, Croatia.

BAYER, C., KALEMCİ, R. A., ÜNSAL, M.G. (2024) *Sustainable Development Goals and Higher Education: Times Higher Education World University Rankings*. Turkish Academy of Management Annual Meeting (TAOM 2024), İstanbul, Türkiye.

ÜNSAL, M.G. (2024) *The Use of Statistics and Optimization Techniques in Artificial Intelligence and Machine Learning: Example Health Applications*, Izmir Universities Platform Artificial Intelligence in Health Symposium, İzmir, Türkiye.

ÜNSAL M.G., ÖZONUR, D., KASAP, R. (2020) *Predicting Obesity Data By Ridge Regression via Using Machine Learning Approach*. 1st National Congress of Multidisciplinary Studies in Health Sciences, İstanbul, Turkey.

TAŞCIOĞLU T., ÜNSAL M.G. (2018). *Investigating Efficiency of Major Airports in Turkey Using Data Envelopment Analysis*. 12th International Conference on Challenges in Industrial Engineering and Operations Management, Ankara, Turkey.

ÜNSAL, M.G. (2016) *Comparison of Bayesian and Monte Carlo Estimators for Incidence of Inefficiency in Data Envelopment Analysis*, 28th European Conference on Operations Research, Poznan, Poland.

ÜNSAL, M.G. (2015) *Academic Performance Measurement of Turkish Universities*, International Research Congress in Social Science Saraybosna, Bosna Hersek.

ÜNSAL M.G., ORKCU, H.H., BAL H., KASAP, R., (2013) *Incidence of Inefficiency and Bayesian Approaches*, 11. International Conference on Data Envelopment Analysis Samsun; TÜRKİYE

ÜNSAL M.G., ORKCU, H.H., BAL H., (2013) *Alternative Approach for Data Envelopment Analysis Cross Efficiency Evaluation*, 11. International Conference on Data Envelopment Analysis Samsun, TÜRKİYE

BAL H., ÜNSAL M. G., (2012) *Data Envelopment Analysis Type Linear and Goal Programming Models For Measuring Energy Efficiency Performance of OECD Countries*, 10. International Conference on Data Envelopment Analysis, Natal, Brazil.

ÜNSAL M. G., BAL H., ORKCU H. H., (2012) *A New Approach to Cross Efficiency Evaluation Based on MILP Model and Measurement of Energy Efficiency*, 10. International Conference on Data Envelopment Analysis, Natal, Brazil.

ÜNSAL, M. G., KASAP, R., (2012) *A Simulation Study For Comparing of Conditional and Normalized Residuals in Diagnostic Checking*, 25. European Conference on OR (Recent Advances in Statistics Session), Vilnius, Lithuania.

BAL H., ORKCU H. H., ÜNSAL M. G., (2011) *Efficiency Analysis of Public and Private Turkish Banks Based on DEA and Malmquist Index*, 12. International Congress on Econometrics, Operations Research and Statistics, Denizli, Turkey.

BAL H., ORKCU H. H., ÜNSAL M. G., (2011) *An Analysis Of Technical Efficiency And Productivity Changes in Turkish Airports Using the Malmquist Index*, International Congress on Knowledge, Economy and Management, Sarejevo, Bosnia Herzigovina.

BAL H., ORKCU H. H., ÜNSAL M. G., (2011) *The Energy and Electricity Efficiency Evaluation Of Balkan Countries Using Data Envelopment Analysis*, International Congress on Knowledge, Economy and Management, Sarejevo, Bosnia Herzigovina.

BAL H., ÜNSAL M. G., (2011) *Integrating of Multidimensional Scaling Algorithm into PCA-DEA and Energy Efficiency Evaluation of OECD Countries*, 9. International Conference on Data Envelopment Analysis, Thesaloniki, Greece.

ÜNSAL M. G., ORKCU H. H., BAL H., (2011) *Benchmarking Of OECD Countries By Using Different Energy Efficiency Measurement Approaches*, 10. International Conference on Sustainable Energy Technology, İstanbul, Turkey.

ÜNSAL, M.G., KASAP, R., (2010) *Analysis of the Matrices Used For Computing of Residuals Types For ARMA(1,1) Model*, 19. Statistical Research Symposium, TUIK, Ankara, Turkey.

### **Technical Computer Skills**

R, Python, MATLAB, SPSS, Eviews, C/C++, Visual Basic

### **Projects and Scholarships**

TÜBİTAK 1001 Project	August 2010-August 2011
TÜBİTAK BİDEB 2214-A	April 2014-July 2014
TÜBİTAK BİDEB 2224-A	August 2012
Gazi University Scientific Research Project	September 2012-September 2013

## **Referred Journals**

European Journal of Operational Research (SCI)  
Annals of Operations Research (SCI)  
Journal of Applied Statistics (SCI)  
Energy (SCI)  
Fuzzy Optimization and Decision Making (SCI)  
Neural Computing and Applications (SCI-Expanded)  
Journal of Medical Systems (SCI-Expanded)  
International Journal of Energy Sector Management  
Gazi University Journal of Science  
Dokuz Eylul University Journal of Science and Engineering  
RAIRO - Operations Research (SCI-Expanded)  
Iranian Journal of Science and Technology - Transactions A (SCI-Expanded)  
Engineering Science and Technology, an International Journal  
Cumhuriyet Science Journal  
Sains Malaysiana (SCI-Expanded)  
Iranian Journal of Management Studies  
Socio-Economic Planning Science (SSCI)  
Natural Hazards (SCI-Expanded)  
Journal of Polytechnic  
Journal of Institute of Social Science – Kafkas University  
International Journal of Health Management and Strategies  
SIGMA- Yıldız Technical University  
OR Spectrum (SCI-Expanded)  
Journal of Turkish Operations Management  
Expert System with Applications (SCI)  
Turkish Journal of Range and Forage Science  
Cyprus Journal of Medical Sciences

Health Economics Review (SSCI)

Journal of Gazi University Faculty of Engineering and Architecture (SCI-Expanded)

Utilities Policy (SSCI)

Cost Effectiveness and Resource Allocation (SSCI)

Journal of Forecasting (SCI)

### **Workshops and Seminars**

Aston University, Operations Research and Information Management Group, *Bayesian Estimators for Incidence of Inefficiency* (May 2014)

ELDER, Electricity Distribution Services Association (Elektrik Dağıtım Hizmetleri Derneği), *Productivity and Efficiency Measurement of Electricity Distribution Companies* (April 2015)

Katip Çelebi University, Faculty of Tourism, *Applied Statistical Methods with SPSS* (April 2016)

İzmir University of Economics, Faculty of Science, Department of Mathematics, *A Performance Measurement Method: Data Envelopment Analysis with EMS* (August, 2016)

Uşak University, Lifelong Learning Centre, *Qualitative Research Methods and Statistics* (May 2018)

Katip Çelebi University, Faculty of Tourism, *Applied Statistical Methods with SPSS* (June 2018)

Başkent University, *A Performance Measurement Method: Data Envelopment Analysis* (October 2021)

### **Books/Book Chapters**

Rabia Arzu Kalemci, Mehmet Güray Ünsal, *Post-Pandemic Effects on the Realization of Sustainable Development Goals (SDGs) for the OECD Countries*, Chapter in *Diplomacy, Society and the COVID-19 Challenge (Politics of Pandemics)*, 2023, Routledge, 1st edition, ISBN: 978-1032455631

Mehmet Güray Ünsal, *Data Envelopment Analysis and Application of CCR Model with Matlab Programming Language*, Chapter in *Advanced Data Analysis with Different Package Programs and Programming Languages*, Nobel Publishing, Chapter Pages: 133 -169, ISBN: 978-625-371-011-8,

## **Working Papers**

Mehmet Güray Ünsal, Daniel Friesner and Robert Rosenman, “*Bayesian DEA, The Curse of Dimensionality and Misclassified DMUs*”, Working Paper Series, WP 2017-6, April 2017, Washington State University, School of Economic Sciences

## **Awards**

- Scientific Publication Award (Gazi University-2014)
- Publication Encouragement Award (TÜBİTAK-2014)
- Publication Encouragement Award (TÜBİTAK-2015)
- Publication Encouragement Award (TÜBİTAK-2016)
- Publication Encouragement Award (TÜBİTAK-2017)
- Publication Encouragement Award (TÜBİTAK-2019)
- Publication Encouragement Award (TÜBİTAK-2020)
- Publication Encouragement Award (TÜBİTAK-2021)
- Scientific Publication Award (Başkent University-2022)

## **Supervised Graduate Thesis**

*Estimation of electric consumption of the firms operating in different sectors with machine learning algorithms*, Mert Ensari, Başkent University, Institute of Social Sciences, M.Sc. Thesis, in English, January 2023.

## **Taught Courses**

- BUST 245- Statistics I (English- Course in B.Sc. Programme)
- BUST 252- Quantitative Business Analysis (English- Course in B.Sc. Programme)
- MATH 240- Probability and Statistics For Engineers (English- Course in B.Sc. Programme)
- STAT 503-Probability Theory (English- Course in M.Sc. Programme)
- STAT 602- Probability and Statistics for Business (English- Course in Ph.D. Programme)
- IE-590- Advanced Topics in Industrial Engineering and Operations Research (English- Ph.D. Programme)

MAN 205- Operations Research I (English- Course in B.Sc. Programme)

MAN 316- Operations Research II (English- Course in B.Sc. Programme)

INTT 320- Operations Research for International Trade and Finance (English- Course in B.Sc. Programme)

MAN 519- Quantitative Analyses for Business Decisions (English- Course in M.Sc. Programme)

TBY 439- Machine Learning (Turkish- Course in B.Sc. Programme)

TBY 378- Data Analytics (Turkish- Course in B.Sc. Programme)

TBY 377- Data Science (Turkish- Course in B.Sc. Programme)

TBY 456- Forecasting Methods (Turkish- Course in B.Sc. Programme)

TBY 414- Data Mining with Applications (Turkish- Course in B.Sc. Programme)

BAN 205- Probability and Statistics (Turkish- Course in B.Sc. Programme)

MUH 417- Operations Research (Turkish- Course in B.Sc. Programme)

TBY 441- Operations Research and Optimization Applications (Turkish- Course in B.Sc. Programme)

FBE 100 - Research Methods (Turkish- Course in M.Sc and Ph.D. Programmes)

TBY 526 – Artificial Intelligence (Turkish- Course in M.Sc Programme)

### **Administrative Background**

2024- Till now Vice Head (Chair) of the department, Başkent University, Faculty of Administrative Sciences, Department of Technology and Information Management

2021-Till now Internship Coordinator for Undergraduate Students, Başkent University, Faculty of Administrative Sciences, Department of Technology and Information Management

2018-2020 Head (Chair) of the department, Department of Statistics, Faculty of Science, Uşak University

2008-2010 Erasmus Coordinator of Institute of Natural Science, Uşak University

## **Academic and Research Interests**

Operations Research (Linear Programming (LP), MILP, Data Envelopment Analysis, Malmquist Index, Heuristic Optimization)

Time Series Analysis (Box-Jenkins Models, Multivariate Time Series Modelling)

Multivariate Statistical Analysis

Data Science, Machine Learning