

# Mohsen Afsharian



## PERSONAL CHARACTERISTICS

Date of Birth: 13 July 1981  
Marital Status: Married, with a son (born in December 2015)  
Citizenship: German

## CORRESPONDING ADDRESS

Address: Technische Universität Braunschweig  
Institut für Controlling und Unternehmensrechnung  
Fallersleber-Tor-Wall 23  
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Website: <https://www.tu-braunschweig.de/controlling>

## RESEARCH INTERESTS

### Fields of Interest

- Frontier-based Incentive Regulation (Primary)
- Production and Service Benchmarking
- Facility Location in Network Design
- Cutting and Packing in Production and Distribution

### Research Areas

- Electricity Sector (Primary)
- Health Sector, Banking, Elevator Industry

### Research Tools

- Data Science Techniques and Data-driven Optimization
- Mathematical Programming and Heuristics Algorithms
- Multi-objective Programming and Multi-Criteria Analysis Tools

## PROFESSIONAL EXPERIENCE

### Current Positions

- *Habilitand* (doing “Habilitation”: A qualification certifying the ability to be “full professor” in Germany),  
Institute of Management Control and Business Accounting, TU Braunschweig, Germany (Univ.-Prof. Dr. Heinz Ahn): 10/2012+
- *Guest Lecturer*,  
- St. Petersburg State University of Economics, Russia: SS2016+

### Past Positions

- *Research Associate*,  
Chair of Management Science, Otto-von-Guericke University Magdeburg, Germany (Univ.-Prof. Dr. Gerhard Wäscher): 04/2011-01/2012 & 05/2012-09/2012
- *Guest Lecturer*,  
Otto-von-Guericke University Magdeburg, Germany: WS2013/14
- *Systems Analyst and Lecturer*,  
Behin-Cara, International Institute of Operations Research, Iran (Univ.-Prof. Dr. Mohammadreza Alirezaee):  
04/2006-07/2010.

## EDUCATION

- **Technische Universität Braunschweig, Germany**  
Habilitation (A qualification certifying the ability to be “full professor”). Business Administration, 10/2012+  
*Theme: Frontier-based Benchmarking Systems for Centrally Managed Multi-Unit Organizations*
- **Otto-von-Guericke University Magdeburg, Germany**  
Ph.D. Business and Economics Sciences (Dr. rer. pol. in German), 10/2010-12/2012
- **Iran University of Science and Technology, Iran**  
Ph.D. Applied Mathematics (Operations Research), 09/2007-12/2010  
M.Sc. Applied Mathematics, 09/2004-11/2006
- **Tarbiat Moallem University, Iran**  
B.Sc. Mathematics, 09/1999-06/2004

## SCHOLARY VISIT

- **2019** (June):  
Prof. Dr. Victor Podinovski (*Chair of Operational Research*), Loughborough University, United Kingdom.
- **2019** (April-May):  
Prof. Dr. Peter Bogetoft (*Department of Economics*), Copenhagen Business School, Denmark.
- **2018** (April-June):  
Prof. Dr. Andrew Johnson (*Department of Industrial and Systems Engineering*), Texas A&M University, US  
Prof. Dr. Robin C. Sickles (*Department of Economics*), Rice University, US.
- **2017** (May-June) and **2015** (October):  
Prof. Dr. Emmanuel Thanassoulis (*Chair of Management Science*), Aston Business School, Aston University, Birmingham, UK.  
Prof. Dr. Ali Emrouznejad (*Chair of Business Analytics*), Aston Business School, Aston University, Birmingham, UK.
- **2019** (February-March), **2018** (September), **2017** (January and March) and **2015** (May):  
Prof. Dr. Ana Lopes (*Chair of Logistics & Operations Management*), School of Economics, Federal University of Minas Gerais, Belo Horizonte, Brazil.
- **2014** (April):  
Prof. Dr. Mohammadreza Alirezaee (*Chair of Operations Research*), Department of Applied Mathematics, Iran University of Science and Technology, Tehran, Iran.
- **2013** (February):  
Prof. Dr. Massud Amini (*Chair of Harmonic Analysis*), Department of Mathematics, Tarbiat Modares University, Tehran, Iran.

## THIRD-PARTY FUNDED PROJECTS

- Renewal of the project “*DEA-based performance measurement with a centralized view on DMUs*” financed by the German Research Foundation (DFG): 10/2018-09/2020.
- “*DEA-based performance measurement with a centralized view on DMUs*” financed by the German Research Foundation (DFG): 10/2015-09/2018.
- Sponsorship of the “*13<sup>th</sup> International Conference on Data Envelopment Analysis*”, financed by the German Research Foundation (DFG): 8/2015.
- “*Strategic Planning and Balanced Scorecard in Sepah Bank*” financed by the Department of Planning & Research, Sepah Bank, Iran, 11/2008-11/2009.
- “*Strategic Planning and Balanced Scorecard in Tejarat Bank*” financed by the Department of Planning & Research, Tejarat Bank, Iran, 7/2007-7/2008.

## TEACHING EXPERIENCE

### **Technische Universität Braunschweig, Germany**

- *Selected Topics in Business Analytics*, (MSc. Course), WS 2017/18 – 2018/19.
- *Introduction to Business Decision Analysis*, (BSc. Course), SS 2017.
- *Multi-criteria Analysis*, (MSc. Course), WS 2016/17.
- *Benchmarking in Economic Regulation*, (MSc. Seminar), WS 2016/17.
- *Advanced Decision Making*, (MSc. Course), WS 2014/15 – WS 2016/17.
- *Decision Making*, (MSc. Course), SS 2014 – SS 2016.
- *Advanced Performance Analytics*, (MSc. Course), WS 2014/15 – WS 2018/19 (*delivered in German*).
- *Performance Analytics*, (MSc. Course), SS 2014 – SS 2019 (*delivered in German*).
- *Performance Benchmarking and Operations Research*, (MSc. Seminar), SS 2015.
- *Performance Measurement and Control*, (MSc. Seminar), WS 2014/15.
- *Performance Measurement by Data Envelopment Analysis*, (MSc. Seminar), WS 2013/14.

### **Invited by St. Petersburg State University of Economics, Russia**

- *Introduction to Managerial Decision Modeling*, (MSc. Course), SS 2017 – SS 2019.
- *Decision Analysis under Risk*, (MSc. Course), SS 2016.

### **Invited by Otto-von-Guericke University Magdeburg, Germany**

- *Decision Analysis*, (BSc. Course), WS 2013/14.

### **Otto-von-Guericke University Magdeburg, Germany**

- *Production Management and Operations Research*, (BSc. Course: tutorial), SS 2012.
- *Case Studies in Operations Research*, (BSc. Course: team-teaching), SS 2011 and SS 2012.
- *Data Envelopment Analysis*, (MSc. Course), WS 2011/12.

### **Behin-Cara, International Institute of Operations Research, Iran.**

- Special training courses in "*Introduction to Operations Research*", "*Principles and Techniques of Productivity and Efficiency Measurement*" und "*Introduction to Strategy Formulation, Evaluation and Control*", 2006-2010.

## HIGHLIGHTS OF INDUSTRIAL EXPERIENCE

- *Consultant for Review of Regulation Models for Electricity Transmission Operators* in Brazil, including analysis of cost efficiency and the X-factor in collaboration with Efficiency, Sustainability and Productivity Research Center, Federal University of Minas Gerais, Belo Horizonte, Brazil, since 2016.
- *Efficiency and Productivity Measurement Advice* to KONE corporation (division in Germany, headquartered in Hannover), one of the global leaders in the elevator and escalator industry, offering automatic building doors, autowalks and integrated access control systems in more than 60 countries, 2015-2017.
- *Senior Systems Analyst and Developer for Management Software Packages* including "*Intelligent Strategic Management (ISM)*", "*Balanced Scorecard (BSC)*", "*Business Process Management (BPM)*". Behin-Cara, International Institute of Operations Research, Iran, 2006-2010.
- *Senior Analyst in Evaluation and Audit of Strategic Plan as well as Implementation of Balanced Scorecard and Business Process Management* at Esfahan Petrochemical Company (EPC), an Iranian petrochemical company producing aromatic petrochemicals, namely Benzene, Toluene, Xylenes, and Heavy-Aromatics; a project run by Behin-Cara, International Institute of Operations Research, Iran, 2006-2010.
- *Senior Analyst in Developing the Initial Phase of Knowledge Management System and Executive Information System* in National Iranian Oil Company (NIOC); a project run by Behin-Cara, International Institute of Operations Research, Iran, 2009.
- *Project Manager in Implementation of Strategic Planning and Balanced Scorecard* in Sepah Bank, one of the major state-owned banks in Iran with 18625 employees and 1732 branches; a project run by Parda Pazhooh Rahyar, Management Consultancy Company, Iran, 2008-2009.
- *Senior Analyst in Implementation of Strategic Planning and Balanced Scorecard* in Shahid-Tondguyan Petrochemical Company (STPC), an Iranian petrochemical company producing such products as Pure

Terephthalic Acid (PTA) and Polyethylene Terephthalate (PET); a project run by Pardeh Pazhooh Rahyar, Management Consultancy Company, Iran, 2008.

- *Project Manager in Implementation of Strategic Planning* in Tejarat Bank, one of the major state-owned banks in Iran with 20638 employees and 1967 branches; a project run by Pardeh Pazhooh Rahyar, Management Consultancy Company, Iran, 2007-2008.

## ORGANIZATIONAL EXPERIENCE

### Editorial Positions

- Associate editor of the journal "*International Journal of Data Analysis Techniques and Strategies*" since 2017.
- Editorial board member of the journal "*International Journal of Information and Decision Sciences*" since 2017.
- Guest editor of "*Special Issue on DEA in the Public Sector*", *Socio-Economic Planning Sciences*, 61 (2018).

### International Conference/Workshop Organization

- Coordinator of the "*Workshop on Benchmarking in Economic Regulation: Theory, Techniques, and Applications of Regulatory Benchmarking and Efficiency Analysis*", TU Braunschweig, Braunschweig, January 21-23, 2019.
- Coordinator of the "*1<sup>st</sup> Workshop on State-of-the-art Benchmarking Methods in Economic Regulation*", TU Braunschweig, Braunschweig, October 13-14, 2016. <http://www.controlling-tubs.de/index.php?id=380>
- Coordinator of the "*13<sup>th</sup> International Conference on Data Envelopment Analysis*", TU Braunschweig, Braunschweig, August 24-27, 2015. <http://deaconference.com/dea2015/home/>
- Coordinator of the "*Workshop on Productivity and Efficiency Analysis*", Institute for Management Studies & Research, affiliated to the Ministry of Energy, Tehran, November 8-9, 2006.
- Coordinator of the "*Workshop on Efficiency Measurement in Banking*", Monetary and Banking Research Academy, affiliated to Central Bank of Iran, Tehran, September 23-24, 2006.

### Other Organizational Experience

- Head of the DFG-research group. Project title: *DEA-based performance measurement with a centralized view on DMUs*, Deutsche Forschungsgemeinschaft/ AH 90/5-1 and AH 90/5-2, since 2015.
- Research advisor and coordinator of the DAAD project entitled: *Methodological and Empirical Contributions to the Transmission Service Operators Costs Regulation*, since 2017.
- Coordinator of the "*Academic Cooperation between Department of Business Sciences, TU Braunschweig, Germany and School of Economics, Federal University of Minas Gerais, Brazil*", since 2017.
- Scientific board member of the "*International Conference on Data Envelopment Analysis*", since 2014.
- Scientific board member of the "*International Conference on Cognitive Analytics Management*", since 2018.
- Senior analyst of operational research-based models in developing the web-based *Data Envelopment Analysis software (DEAOS)*, since 2006. [www.deaos.com](http://www.deaos.com)

## VISITORS HOSTED

- WS2018/19 and WS2017/18 at TU Braunschweig: Prof. Dr. Victor Podinovski, School of Business and Economics, *Loughborough University, United Kingdom*.
- WS2018/19 at TU Braunschweig: Prof. Dr. Peter Bogetoft, Department of Economics, *Copenhagen Business School, Denmark*.
- WS2018/19 at TU Braunschweig: Prof. Dr. Marcelo Costa, School of Economics, *Federal University of Minas Gerais, Brazil*.

- WS2016/17 at TU Braunschweig: Prof. Dr. Ali Emrouznejad, Operations and Information Management Group, Aston Business School, *Aston University, United Kingdom*.
- WS2015/16 at TU Braunschweig: Prof. Dr. Emmanuel Thanassoulis, Operations and Information Management Group, Aston Business School, *Aston University, United Kingdom*.
- WS2014/15, WS2015/16 and WS2017/18 at TU Braunschweig: Prof. Dr. Ana Lopes, School of Economics, *Federal University of Minas Gerais, Brazil*.
- WS2012/13 at University of Magdeburg: Prof. Dr. Massud Amini, Department of Mathematics, *Tarbiat Modares University, Iran*.

## JOURNALS REFEREED FOR

- Annals of Operations Research
- Asia Pacific Management Review
- Benchmarking: An International Journal
- Central European Review of Economics and Management
- Computers & Operations Research
- Data Envelopment Analysis Journal
- Economic Modelling
- Energy Economics
- European Journal of Operations Research (*Outstanding peer reviewer, 2017*)
- International Journal of Production Research
- International Journal of Systems Science
- Journal of Business Economics
- Journal of Productivity Analysis
- Journal of the Operational Research Society
- Measurement: Journal of the International Measurement Confederation
- Omega: The International Journal of Management Science
- Operational Research: An International Journal
- OR Spectrum
- Socio-Economic Planning Sciences

## RESEARCH PUBLICATIONS

### *Forthcoming:*

- Afsharian, M. A Metafrontier-based Yardstick Competition Mechanism for Incentivising Units in Centrally Managed Multi-Group Organisations. *Annals of Operations Research* (<https://doi.org/10.1007/s10479-019-03201-6>).

### *Published in 2019:*

- Afsharian, M., Ahn, H., Harms, S. G. Performance Comparison of Management Groups under Centralised Management. *European Journal of Operational Research*. 278 (2019) 845-854.
- Afsharian, M., Ahn, H., Thanassoulis, E. A Frontier-based System of Incentives for Units in Organisations with Varying Degrees of Decentralisation. *European Journal of Operational Research*. 275(2019) 224-237.
- Afsharian, M. Ahn, H., Lopes, A., Vilela, B. Pitfalls in Estimating the X-factor: The Case of Energy Transmission Regulation in Brazil. *Socio-Economic Planning Sciences*. 65 (2019) 1-9.

### *Published in 2018:*

- Afsharian, M., Ahn, H., Harms, S. G. An Alternative Meta-Frontier Malmquist Index for Measuring Productivity Over Time. *IMA Journal of Management Mathematics*. 29 (2018) 377-392.
- Afsharian, M., Podinovski V.V. A Linear Programming Approach to Efficiency Evaluation in Nonconvex Metatechnologies. *European Journal of Operational Research*. 268 (2018) 268-280.
- Ahn, H., Afsharian, M., Emrouznejad, A., Banker, R. (Eds). Recent developments on the use of DEA in the Public Sector. *Socio-Economic Planning Sciences*. 61 (2018) 1-3.

**Published in 2017:**

- Afsharian, M. Metafrontier Efficiency Analysis with Convex and Non-convex Metatechnologies by Stochastic Nonparametric Envelopment of Data. *Economics Letters*. 160 (2017) 1-3.
- Boloori, F., Afsharian, M. Consistent Proportional Trade-offs in Data Envelopment Analysis. *Computers & Industrial Engineering*. 113 (2017) 445-458.
- Afsharian, M., Ahn, H. Multi-period Productivity Measurement under Centralized Management with an Empirical Illustration to German Saving Banks. *OR Spectrum*. 39 (2017) 881-911.
- Afsharian, M., Ahn, H., Thanassoulis, E. A DEA-based Incentives System for Centrally Managed Multi-Unit Organisations. *European Journal of Operational Research*. 259 (2017) 587-598.

**Published in 2016:**

- Emrouznejad, A., Banker, R., Ahn, H., Afsharian, M. Data Envelopment Analysis and its Applications – *Proceedings of the 13th International Conference of DEA*, 24.-27.08.2015, Braunschweig. (2016), (Eds).
- Afsharian, M., Ahn, H., Neumann, L. Generalized DEA: An Approach for Supporting Input/Output Factor Determination in DEA. *Benchmarking: An International Journal*. 23 (2016) 1892-1909.
- Boloori, F., Afsharian, M., Pourmahmud, J. Equivalent Multiplier and Envelopment DEA Models for Measuring Efficiency under General Network Structures. *Measurement*. 80 (2016) 259-269.

**Published in 2015:**

- Afsharian, M., Ahn, H. The Overall Malmquist Index: A New Approach for Measuring Productivity Changes Over Time. *Annals of Operations Research*. 226 (2015) 1-27.
- Afsharian, M., Ahn, H., Alirezaee, M. R. Developing Selective Proportionality on the FDH Models: New Insight on the Proportionality Axiom. *International Journal of Information and Decision Sciences*. 7 (2015) 99-114.
- Afsharian, M., Kryvko, A., Reichling, P. Efficiency and its Impact on the Performance of European Commercial Banks. *International Journal of Operations and Quantitative Management*. 21 (2015) 241-263.

**Published in 2014:**

- Afsharian, M., Niknejad, A., Wäscher, G. A Heuristic, Dynamic Programming-based Approach for a Two-Dimensional Cutting Problem with Defects. *OR Spectrum*. 36 (2014) 971-999.
- Afsharian, M., Ahn, H. The Luenberger Indicator and Directions of Measurement: A Bottoms-up Approach with an Empirical Illustration to German Saving Banks. *International Journal of Production Research*. 52 (2014) 6216-6233.
- Afsharian, M., Ahn, H., Vazquez Novoa, N. Behavioral Performance Evaluation. *Encyclopedia of Business Analytics and Optimization*. IGI Global, Hershey. (2014) 251-264.

**Published in 2012-13:**

- Afsharian, M. The Two-dimensional, Rectangular, Guillotineable-layout Cutting Problem with Defects. (Operations Research), *Shaker Verlag*, Aachen. (2013).
- Afsharian, M., Reichling, P., Alirezaee, M. R. The Master Malmquist Index Measurement Using DEA-based Weighted Average Efficiency. *International Journal of Data Analysis Techniques and Strategies*. 4 (2012), 21-42.

**Published in 2010-11:**

- Alirezaee, M. R., Afsharian, M. Measuring the Effect of the Rules and Regulations on Global Malmquist Index. *International Journal of Operational Research and Information System*. 2 (2011) 64-78.
- Alirezaee, M. R., Afsharian, M. Improving Discrimination of DEA Models in Multiple Time Periods Evaluation. *International Transaction in Operational Research*. 17 (2010) 667-679.

**Published in 2007-09:**

- Alirezaee, M. R., Afsharian, M. Model Improvement for Computational Difficulties of DEA Technique in the Presence of Special DMUs. *Applied Mathematics and Computation*. 186 (2007) 1600-1611.

- Alirezaee, M. R., Afsharian, M. A Complete Ranking of DMUs Using Restrictions in DEA Models. *Applied Mathematics and Computation*. 189 (2007) 1550-1559.

## CONFERENCE PRESENTATIONS

### ***Delivered in 2019:***

- Pitfalls in Estimating the Efficiency Scores in Frontier-based Regulation: The Case of Electricity Transmission in Brazil, *16th European Workshop on Efficiency and Productivity Analysis, London, UK*. (June 2019).

### ***Delivered in 2018:***

- A Clustering-based System of Incentives for Units in Organisations with Varying Degrees of Decentralisation, *Herbsttagung der Wissenschaftlichen Kommission für Produktionswirtschaft, Braunschweig, Germany*. (November 2018).
- A Frontier-based Facility Location Problem with a Centralized Control Mechanism, *OR 2018: International Conference on Operations Research, Brussels, Belgium*. (September 2018),
- A System of Incentives for Units in Multi-Group Organisations, *North American Productivity Workshop X, Miami, US*. (June 2018).
- Pitfalls in Estimating the X-factor: The Case of Energy Transmission Regulation in Brazil, *DEA40: International Conference on Data Envelopment Analysis, Birmingham, UK*. (April 2018).

### ***Delivered in 2017:***

- On the Efficiency Evaluation in Nonconvex Metatechnologies by Stochastic Nonparametric Envelopment of Data, *Workshop on Efficiency and Productivity Analysis, Aston Business School, Birmingham, UK*. (June 2017).
- A DEA-based Performance Comparison of Management Groups under Centralized Management, *15th International Conference on DEA, Prague, Czech Republic*. (June 2017).
- A DEA-based Incentive Mechanism under Central Management, *15th European Workshop on Efficiency and Productivity Analysis, London, UK*. (June 2017).

### ***Delivered in 2016:***

- Modeling Different Degrees of Centralization in the Context of Incentivizing Operation Units: A DEA-based Approach, *28th EURO Conference, Poznan, Poland*. (July 2016).
- A DEA-based Incentives System under Varying Degrees of Centralization, *North American Productivity Workshop IX, Quebec City, Canada*. (June 2016).
- A DEA-based Incentives System for Centrally Managed Multi-Unit Organisations, *14th International Conference on DEA, Wuhan, China*. (May 2016).

### ***Delivered in 2015:***

- Luenberger Productivity Indicator and its Decomposed Components in the Presence of a Change in the Direction of Measurement, *13th International Conference on DEA, Braunschweig, Germany*. (August 2015).
- Managerial Efficiency under Centralized Management – An Incentive-based Approach with an Empirical Illustration to a German Retail Bank, *27th EURO Conference, Glasgow, UK*. (July 2015).
- Managerial Efficiency under Centralized Management: A Dynamic Approach with an Empirical Illustration to German Saving Banks, *14th European Workshop on Efficiency and Productivity Analysis, Helsinki, Finland*. (June 2015).

### ***Delivered in 2014:***

- Luenberger Indicator and Directions of Measurement: A Bottoms-up Approach with an Empirical Illustration to German Saving Banks, *International Conference on Operations Research, Aachen, Germany*. (September 2014),
- The Overall Malmquist Index: A New Approach for Measuring Productivity Changes Over Time, *20th IFORS Conference, Barcelona, Spain*. (July 2014).

### ***Delivered in 2013:***

- Managerial Efficiency in a Centralized Framework: A DEA Controlling Approach with an Empirical Illustration to German Savings Banks. *12th International Conference on Data Envelopment Analysis, Kuala Lumpur, Malaysia.* (July 2013).
- On the Aggregation of the Benchmark Technologies in the Global Form of the Malmquist Productivity Index. *International Conference on Operations Research (by the German and the Dutch OR Societies), Rotterdam, the Netherlands.* (September 2013).
- Measuring the Impact of Evaluation Directions on the Performance of Units: A DEA-based Management Control Approach. *EURO-INFORMS Joint International Conference on Operational Research, Rome, Italy.* (July 2013).

### ***Delivered in 2011-12:***

- Exact Solution to the Two-Dimensional, Rectangular, Guillotineable-Layout Cutting Problem with Defects: A Dynamic Programming Approach. *EURO Summer Institute on Cutting and Packing, Porto, Portugal.* (July 2012).
- A New Malmquist-type Index for Measuring Productivity Changes over Time. *9th International Conference on Data Envelopment Analysis, Thessaloniki, Greece.* (August 2011).
- The Two-Dimensional, Rectangular, Guillotineable-Layout Cutting Problem with a Single Defect: A Dynamic Programming Approach. *Workshop, Bodensee, Germany.* (April 2011).

### ***Delivered in 2009-10:***

- Expanded Global Malmquist Index. *8th International Conference on Data Envelopment Analysis, Beirut, Lebanon.* (July 2010).
- The Nonconvex Global Malmquist Index. *3rd International Conference of Iranian Operations Research Society, Tehran, Iran,* (May 2010).
- Developing Selective Proportionality on Free Disposal Hall Models. *2nd International Conference of Iranian Operations Research Society, Babolsar, Iran,* (May 2009).

### ***Delivered in 2007:***

- An Efficiency Improvement Approach in Data Envelopment Analysis (DEA). *1st International Conference of Iranian Operations Research Society, Kish, Iran,* (January 2007).
- The Critical Successful Factors of Productivity Growth in the Offshore Oil Production Sector. *5th Industrial Engineering Conference, Tehran, Iran.* (March 2007).

## **LANGUAGE SKILLS**

- German (Highly Proficient)
- English (Highly Proficient)
- Persian (Native Speaker)

## **EXTRACURRICULAR ACTIVITIES**

- Playing the piano
- Physical fitness training