IFTIKHAR MUHAMMAD

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RESEARCH INTERESTS

Data Science, Machine Learning & AI in Economics and Finance

- Text mining and natural language processing
- Sentiment analysis
- Large language models
- Machine learning and deep learning methods
- Computer vision
- Predictive modeling and analytics

Energy and Environmental Economics

- Renewable energy valuation and adoption
- Sustainable development and green growth policies
- Data-driven approaches to environmental and energy economics

Econometrics and Statistical Methods

- Dynamic panel data and time series models
- Discrete choice and limited dependent variable models
- Applied econometric modeling and estimation

EDUCATION

University of Verona   Verona, Italy
Ph.D. in Economics and Finance (Expected June 2026)   *Sep 2021 – Present*
Supervisors: Prof. Dr. Marco Minozzo, Prof. Dr. Marco Rospocher

Erciyes University   Kayseri, Türkiye
M.A in Economics   *Sep 2016 - Jul 2018*
Supervisor: Prof. Dr. Recep Ulucak

International Islamic University Islamabad   Islamabad, Pakistan
B.S in Economics and Finance   *Sep 2010 - Jul 2014*
Supervisor: Prof. Dr. Tariq Sultan

RESEARCH E EXPERIENCE

University of Hamburg   Hamburg, Germany
Hub of Computing & Data Science | Visiting Researcher   *Oct 2025 – Feb 2026*
Host Supervisor: Prof. Dr. Chris Biemann
Research: LLM-Derived Firm-Level Sentiment, Stock Return Prediction, and Alpha Generation

University of Ljubljana   Ljubljana, Slovenia
Faculty of Computer and Information Science | Visiting Researcher   *Sep 2024 – Nov 2024*
Host Supervisor: Prof. Dr. Slavko Žitnik
Research: Benchmarking Large Language Models for Target-Based Financial Sentiment Analysis

The Scientific and Technological Research Council of Türkiye (TÜBİTAK)   Kayseri, Türkiye
Abdullah Gül University | Research Assistant   *May 2017 - Apr 2018*
Supervisor: Prof. Dr. Eyüp Doğan
Research: Assessment of Turkish citizen's willingness to pay for green electricity

TEACHING EXPERIENCE

Teaching Assistant   *Sep 2018 – Jul 2021*
Ibn Haldun University, Istanbul, Turkey
Courses: Intermediate Microeconomics, Intermediate Macroeconomics, Advanced Microeconomics
          Advanced Macroeconomics, Econometrics, Calculus, Game Theory
Assisted Professors: Prof. Fuat Erdal, Prof. Rasim Özcan, Prof Şerife Genç Ileri, Prof. Asal Khan

TECHNICAL SKILLS

Programming & Tools: Python, Stata, EViews, SPSS

LANGUAGES

Urdu	*Native*
Pashto	*Native*
English	*Professional Proficiency (C1)*
Turkish	*Professional Proficiency (C1)*
Italian	*Elementary (A2)*
Arabic	*Basic (A1)*
German	*Basic (A1.1)*

HONORS AND GRANTS

Ph.D. Scholarship   *Oct 2021 – Feb 2026*
Four-year scholarship awarded by the Italian Ministry of University and Research

Master's Degree Scholarship   *Sep 2016 - Aug 2018*
Two-Year Scholarship offered by Türkiye Burslari Program of Türkiye

Research Grant   *May 2017 - April 2018*
Project: Analyzing Turkish citizen's willingness to pay for green electricity
Funding Organization: The Scientific and Technological Research Council of Turkey (TÜBİTAK), Türkiye

Gold Medal for Academic Excellence   *Aug 2014*
Awarded for achieving the highest academic standing in BS Economics and Finance program.

CONFERENCES AND WORKSHOPS

Presented: "Investigating the association between international tourism, green technological innovations, and transportation-related CO_2 emissions" – 4th Graduate Conference on Social Sciences, Humanities, and Management, IHU, 2021, Istanbul, Türkiye.

Presented: "Estimating the willingness to pay for renewable energy in Turkey" – 14th International Conference on Business, Economics, and Law (ICBEL-2018), 2018, Istanbul, Türkiye.

Presented: "Reinvestigating the validity of the Environmental Kuznets Curve (EKC) hypothesis in Türkiye" – 1st Uluslararası Sosyoloji ve Ekonomi Kongresi, 2017, Kayseri, Türkiye.

Attended: 4th National Artificial Intelligence Seminar, AITeC, National Centre for Physics, 2025, Islamabad, Pakistan.

Attended: Workshop on "Storytelling from Conflict Zones" – Al Jazeera Media Institute & Islamic Cooperation Youth Forum, 2019, Samsun, Türkiye.

Attended: "International Media Training Camp" – Islamic Cooperation Youth Forum, Ministry of Youth and Sports of Türkiye, 2019, Samsun,Türkiye.

PUBLICATIONS

Muhammad, I., & Rospocher, M. (2025). On Assessing the Performance of LLMs for Target-Level Sentiment Analysis in Financial News Headlines. *Algorithms*, *18*(1), 46. https://doi.org/10.3390/a18010046

Muhammad, I., Rospocher, M., Knez, T., & Žitnik, S. (2025). Benchmarking Large Language Models for Target-Based Financial Sentiment Analysis. In *Proceedings of the Eleventh Italian Conference on Computational Linguistics (CLiC-it 2025), Cagliari, Italy, September 24-26, 2025* (pp. 1-11). CEUR Workshop Proceedings (CEUR-WS. org). https://ceur-ws.org/Vol-4112/73_main_long.pdf

Muhammad, I., Ozcan, R., Jain, V., Sharma, P., & Shabbir, M. S. (2022). Does environmental sustainability affect the renewable energy consumption? Nexus among trade openness, CO2 emissions, income inequality, renewable energy, and economic growth in OECD countries. Environmental Science and Pollution Research, 29(60), 90147-90157. https://doi.org/10.1007/s11356-022-22011-1

Muhammad, I., Shabbir, M. S., Saleem, S., Bilal, K., & Ulucak, R. (2021). Nexus between willingness to pay for renewable energy sources: evidence from Turkey. Environmental Science and Pollution Research, 28(3), 2972-2986. https://doi.org/10.1007/s11356-020-10414-x

Shabbir, M. S., & Muhammad, I. (2019). The dynamic impact of foreign portfolio investment on stock prices in Pakistan. Transnational Corporations Review, 11(2), 166-178. https://doi.org/10.1080/19186444.2019.1616508

Dogan, E., & Muhammad, I. (2019). Willingness to pay for renewable electricity: A contingent valuation study in Turkey. The Electricity Journal, 32(10), 106677. https://doi.org/10.1016/j.tej.2019.106677

REFERENCES

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