TAHIA ANAN DHIRA

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EDUCATION

- MSc in Applied Social Data Science (ASDS) (Degree: Distinction) 2023

The London School of Economics and Political Science, London, United Kingdom
Relevant coursework: Social Network Analysis; Quantitative Text Analysis; Applied Machine Learning; Managing and Visualizing Data; Research Design

- MSS in Economics (CGPA: 3.88 / 4.00) 2017

University of Dhaka, Dhaka, Bangladesh

- BSS in Economics (CGPA: 3.94 / 4.00) 2016

University of Dhaka, Dhaka, Bangladesh

RESEARCH INTERESTS

Computational Social Science, Environmental Economics, Economic and Social Networks, Applied Econometrics, Machine Learning for Social Science, Quantitative Text Analysis

RESEARCH MANUSCRIPTS

Rethinking the Income-Emissions Relationship: Evidence from Trade-Embodied CO_2 Emissions Networks *(working paper, 2026)*

- Developed reproducible computational workflows for integrating and processing large-scale international datasets on embodied carbon emissions, trade, and macroeconomic indicators.
- Constructed weighted global trade networks and implemented longitudinal network analyses to characterize the evolution of global embodied carbon trade networks.
- Integrated network analysis and panel econometrics to examine how economic development and network position shape domestic and trade-embodied CO_2 emissions across advanced and developing economies.

Global migration network and the geography of development *(working paper, 2026)*

- Created a longitudinal panel of directed, weighted bilateral migration networks spanning **23 years** to examine global migration dynamics.
- Developed reproducible computational workflows for network construction, visualization, and longitudinal analysis using R.
- Contributed to network model development, core-periphery detection, interpretation of network statistics, and manuscript preparation.

Gendered Cultural Hierarchies in Social Media Audience Discourse: Evidence from Bangladeshi Artists *(working paper, 2026)*

• Developed scalable Python pipelines using the YouTube Data API v3 for automated collection, preprocessing, and analysis of **over 8 million multilingual social media comments**.
• Applied computational text mining and natural language processing techniques, including sentiment analysis (VADER) and structural topic modelling (quanteda/STM), to identify patterns in audience discourse and sentiment across artists, genders, and artistic categories.
• Developed a human-in-the-loop classification workflow for a large-scale YouTube video dataset, using the Gemini API for preliminary classification of artist gender and artistic category from video titles, followed by manual validation and correction of approximately 48,000 videos.
• Built reproducible computational pipelines integrating automated data collection, preprocessing, statistical modelling, visualization, and documentation using Python and R.

Product Reproducibility and International Trade Patterns: Evidence from Cultural Goods ***(****under review, 2026)*
• Constructed computational pipelines for harmonizing, processing, and analyzing large-scale international trade data covering 190 countries.
• Combined structural gravity modelling (PPML) with dynamic network modelling (STERGM) to examine the formation and persistence of international trade relationships.
• Developed reproducible research workflows integrating data processing, statistical modelling, visualization, version control, and documentation using Python, R, and Git.
• Prepared and submitted the manuscript as the corresponding author.

RESEARCH EXPERIENCE

Capstone Project, MS ASDS, LSE | 2023
Formation of friendship network: Analysing assortment of pro-sociality and personality type
• Designed and implemented a behavioural classroom experiment to study homophily and friendship network formation.
• Estimated Exponential Random Graph Models (ERGMs) to identify structural and attribute-based drivers of network formation.
• Examined the role of personality traits, and prosocial behaviour in network formation

Coursework: ST445, MS ASDS, LSE | 2022–2023
Topic-based content and sentiment analysis of COVID-19 vaccine: a study using Reddit
• Contributed to the manuscript preparation and network visualization.

Mental Health of University Students Before and After Online Education
University Grants Commission (UGC)-funded project | 2020–2021
• Contributed to the design and implementation of a longitudinal survey examining changes in university students' mental health before and after the transition to online education.
• Coordinated data collection and contributed to survey-instrument validation and quantitative analysis.

Willingness to Pay for Treating Mental vs. Physical Illness
Bangladesh Medical Research Council (BMRC)-funded project | 2020–2021
• Contributed to the coordination and implementation of a comparative survey for university students and adults.

PUBLICATIONS

Huque, R., **Dhira, T. A.**, et al. (2023). Determinants of client satisfaction with health insurance: Evidence using a mixed-method approach from Bangladesh. *SSM - Health Systems*, *3*. https://doi.org/10.1016/j.ssmmh.2023.100264

Rahman, M. A., **Dhira, T. A.**, et al. (2022). PHQ-9 validation in Bangladesh. *PLOS ONE*. https://doi.org/10.1371/journal.pone.0269634

Dhira, T. A., Rahman, M. A., et al. (2021). GAD-7 validation in Bangladesh. *PLOS ONE*. https://doi.org/10.1371/journal.pone.0261590

Mehareen, J., Rahman, M. A., **Dhira, T. A.**, et al. (2021). Mental health during COVID-19. *Journal of Affective Disorders Reports*. https://doi.org/10.1016/j.jadr.2021.100179

ACADEMIC APPOINTMENTS

Assistant Professor, Department of Economics, University of Dhaka — October 2025 – present

Lecturer, Department of Economics, University of Dhaka — November 2018 – September 2025

- Taught 10 different undergraduate courses in economics.
- Supervised undergraduate dissertations and research projects.
- Trained STATA to the undergraduate and graduate students.
- Developed computational course materials using R, Python, and Stata.

Lecturer, Department of Economics, East West University — March 2018 – October 2018

COMPUTATIONAL & QUANTITATIVE SKILLS

Programming Languages

- Python (pandas, NumPy, NetworkX, Matplotlib),
- R (igraph, statnet, ergm, tergm, stm, networkDynamic, quanteda)**,**
- STATA

Network Analysis

Directed and weighted networks; dynamic networks; centrality; community detection; core-periphery analysis; ERGM; STERGM

Econometrics

Panel econometrics; PCSE; FGLS; PPML/structural gravity; nonlinear and interaction models

Machine Learning & NLP

Applied machine learning; sentiment analysis (VADER**);** structural topic modelling (STM); quantitative text analysis

Research Workflow & Tools

Git/GitHub; Gemini API; reproducible workflows; data processing; visualization; computational debugging and validation; LaTeX

Survey/Data Collection: Qualtrics; YouTube Data API

AWARDS AND SCHOLARSHIP

Commonwealth Master's Scholarship — 2022

Multiple Gold Medals for highest CGPA (BSS & MSS Economics) — 2016, 2017

LANGUAGE

Advanced fluency in English and Bangla