

LAHORE SCHOOL OF ECONOMICS

RESEARCH 2025-2026

DEPARTMENT OF MATHEMATICS & STATISTICS

RESEARCH OUTPUT

CATEGORY	2025 (Actual)	2026 (On-going)
HEC W Category Journal Articles	26	7
HEC X Category Journal Articles	5	4
HEC Y Category Journal Articles	1	1
ABDC/ABS/ MLA Journal Articles	-	1
Books	1	2
Book Chapters	2	1
National Conference Papers	1	1
International Conference Papers	-	-
Case Studies	-	-
Lahore School Working Papers / International Working Papers	1	1
Artistic productions (catalogued)	6	2
MS Research Projects Supervised	-	-
MPhil Theses supervised (Completed)	-	-
MPhil Theses supervised (On-going)	-	-
PhD Theses supervised (Completed)	-	-
PhD Theses supervised (On-going)	-	-

RESEARCH PUBLICATIONS (ACTUAL & ON-GOING)

Actual 2025 (Author/s, Title of Publication, Journal, Year)

HEC W Category Journal Articles

1. B. Alqurashi and A. Raza, Integrability, Conservation Laws by Variational Analysis and Lump Solitons for (2+1) Fourth-Order Biharmonic Equations with Quantum Field Applications, *Rev. int. métodos numér. cálc. diseño ing.* (2026). Vol. Online First, 59
2. Baloch, S. A., Raza, A., & Moyo, S. (2025). Lie symmetry analysis, rogue waves, periodic waves and various analytical solutions of non-linear diffusion equation with applications: SA Baloch et al. *Nonlinear Dynamics*, 113(23), 32649-32667.
3. Chand, S., & Shabbir, M. (2025). A new robust ridge estimator for linear regression model with non normal, heteroscedastic and autocorrelated errors. *Communications in Statistics-Theory and Methods*, 54(23), 7651-7667.
4. Chaudhry, A., Naz, R. (2025). The closed-form solutions for a model with technology diffusion via Lie symmetries, *Discrete and Continuous Dynamical Systems - S*, 18(4) 1036-1053.
5. Dar, I. S., Chand, S., & Shabbir, M. (2025). An improved ridge-type estimator leveraging weighted least squares and horn's scaling for heteroscedastic regression. *Communications in Statistics-Theory and Methods*, 1-20.
6. F. Abbas, A. Raza, F. Zaman and S. Baloch, Biological Solitons in Biomembranes: Analytical Solutions of a Boussinesq-Type Equation with Amplitude-Dependent Nonlinearity, *Rev. int. métodos numér. cálc. diseño ing.* (2026). Vol. 42, (1), 38
7. I. Beg and I. Eroglu: Enriched rational type contractions in quasi-Banach spaces and modified convex b-metric spaces, *Applied General Topology*, 26(1)(2025), 385-407.
8. I. Beg and I. Eroglu: Fixed point of multivalued maps on bicomplete partially ordered quasi-metric spaces *Discussiones Mathematicae Differential Inclusions, Control and Optimization*, 44(2024), 167-184.
9. I. Beg, I. Eroglu and O. Valero: Fixed points on partially ordered quasi-metric spaces, *Fixed Point Theory*, 25(2) (2024),473-494.
10. I. Beg, M. Abbas and M.W. Asghar: Multi-entropy analysis for mega project contractor selection in q-rung orthopair fuzzy soft set framework, *Computational and Applied Math.*, 44(2025), Article 152.
11. I. Beg: A characterization of the Lipschitz mappings on convex metric spaces, *Proc. Romanian Acad. Sciences*, 26(1)(2025), 21-26.
12. Iuga, I. C., & Jafri, S. R. (2025). Digitalization and future money supply dynamics. *Macroeconomics and Finance in Emerging Market Economies*, 1-22.
13. Iuga, I. C., Jafri, S. R., & Iuga, H. (2025). How happy is healthy enough? Uncovering the happiness threshold for global non-communicable disease prevention. *Frontiers in Medicine*, 12, 1667645.
14. M. Bisht, I. Beg and S. Rawat: A new method to solve matrix game with interval payoffs and its MATLAB Code, *International Game Theory Review*, 26(3) (2024), Article 2450001.
15. Naz, R., Johnpillai, A., Mahomed, F. M., Oname, A. (2025). Closed-form solutions for a reaction-diffusion SIR model with different diffusion coefficients, *Discrete and Continuous Dynamical Systems - S*, 18(4), 870-881.
16. Naz, R., Torrisi, M., Imran, A. (2025). Lie Symmetries and Solutions for a Reaction-Diffusion-Advection SIS Model with Demographic Effects, *SYMMETRY*, 17(1), 3, pages 1-15.

17. Naz, R., Wang, G., Irum, S. (2025). The closed-form solutions of a diffusive Susceptible-Infectious-Susceptible epidemic model, *Journal of Applied Analysis and Computation*, 15 (1), 574-586.
18. Raza, A., Alhussein, A. A. M., & Hamid, K. A. (2026). Analysis of Reaction-Diffusion Systems: Painlevé Properties and Conservation Laws of the Convective Fisher–Kolmogorov Equations. *Symmetry*, 18(2), 377.
19. Shabbir, M., Chand, S., & Dar, I. S. (2025). Bagging-based heteroscedasticity-adjusted ridge estimators in the linear regression model. *Kuwait Journal of Science*, 52(3), 100412.
20. Shabbir, M., Chand, S., & Dar, I. S. (2025). Heteroscedastic-adjusted standard error based estimation of ridge parameter in the linear regression model. *Communications in Statistics-Theory and Methods*, 54(23), 7412-7426.
21. Shabbir, M., Chand, S., & Wajid, R. A. (2025). Hybrid method for river inflow prediction: an integration of Hampel filter, decomposition techniques, and support vector machine. *Applied Water Science*, 15(12), 1-16.
22. Shabbir, M., Chand, S., Iqbal, F., & Kisi, O. (2025). Novel Hybrid Approach for River Inflow Modeling: Case Study of the Indus River Basin, Pakistan. *Journal of Hydrologic Engineering*, 30(3), 04025006.
23. Shah, S. A. A., Zaman, Q., Wasim, D., Allohibi, J., Alharbi, A. A., & Shabbir, M. (2025). Optimal model for predicting highest runs chase outcomes in T-20 international cricket using modern classification algorithms. *Alexandria Engineering Journal*, 114, 588-598.
24. Wasim, D., Khan, S. A., Suhail, M., & Shabbir, M. (2025). New penalized M-estimators in robust ridge regression: real life applications using sports and tobacco data. *Communications in Statistics-Simulation and Computation*, 54(6), 1746-1765.
25. Wasim, D., Suhail, M., Khan, S. A., Shabbir, M., Awwad, F. A., Ismail, E. A., ... & Ali, A. (2025). Quantile-based robust Kibria–Lukman estimator for linear regression model to combat multicollinearity and outliers: Real life applications using T20 cricket sports and anthropometric data. *Kuwait Journal of Science*, 52(1), 100336.
26. Zaman, Q., Wasim, D., Nawaz, S., & Shabbir, M. (2025). Modified robust ridge M-estimators to improve linear regression performance under multicollinearity and outliers. *Journal of Statistical Computation and Simulation*, 1-23.

HEC X Category Journal Articles

1. Haider, R. ., Nauman, S. ., Zahid, S. ., & Tariq, A. . (2025). Green Marketing and Sustainability: The Role of Brand Value and Authenticity in Consumer Choice. *ACADEMIA International Journal for Social Sciences*, 4(4), 5083-5110.
2. I. Beg: Extreme points of convex compact sets on quasi-metric spaces, *J. Nonlinear Sci. Appl.* 18(2025), 193-197.
3. I. Beg: Separating hyperplane theorems in convex metric space, *J. Nonlinear Sci. Appl.* 18(2025), 29-32.
4. Naz, R., Ozer, A.C., Kanwal, N. (2025). Dynamical analysis of a growth model interacting with natural resources and innovation, *Afrika Matematika* 36 (4), 174, pages 1-22.
5. Raza, A., Kara, A. H., & Moyo, S. (2025). Applications of Multi-reduction and Multi-soliton Analysis of $(2+ 1)$ Zakharov-Kuznetsov (ZK) Equation. *East European Journal of Physics*, (2), 84-101.

HEC Y Category Journal Articles

1. Kalsoom, Z. & Aziz, B. Rat Race: An application of Nudge Theory, *GCU Economic Journal*, 2025

Books

1. Ali, A. N. "Raag Rass" (draft submitted)

Book Chapters

1. I. Beg. Book chapter; Interval-valued intuitionistic hesitant uncertain linguistic set and Choquet integral based TOPSIS method to MCGDM problems, Book Chapter in Decision Making and Decision Support in the Information and AI Era - Dedicated to Academician Florin Gheorghe Filip (Edited by Valentina Emilia Balas, Gintautas Dzemyda, Smaranda Belciug and Janusz Kacprzyk) Studies in Systems, Decision and Control, book series 534. Publisher Springer 2024 (co-authors D.K. Joshi and S. Kumar)
2. I. Beg. Cubic Analytic Hierarchy Process with application in decision making. Book Chapter in Decision Making under Uncertainty via Optimization, Modelling and Analysis. (Edited by Laxminarayan Sahoo, Tapan Senapati and Ronald R. Yager) Studies in Systems, Decision and Control, book series 558 . Publisher Springer 2025 (co-authors M. Gulistan and M. Asif).

National Conference Papers

1. Shabbir, M. (2025). A New Approach for the Estimation of ridge parameter in linear regression model with heteroscedastic errors. In 20th on Recent Advances in Mathematical Methods, Models and Applications Lahore School of Economics.

Lahore School Working Papers / International Working Papers

1. Jafri, S. R. & Naz, N., Contextual and compositional determinants of anti-immigrant attitudes: A cross-national analysis using World Values Survey Data (Lahore school working paper)

Artistic productions (catalogued)

1. Ali, A. N. All Pakistan Music Conference, Lahore (APMC), Dhurpad performance October 2025.
2. Ali, A. N. Contributory performing artist in Exhibit of artist Imran Ahmed 2nd Annual Conference on "Media Ecologies in Pakistan – AI, Digital Technology, and Analog Practices Today" on the 19th and 20th of November 2025.
3. Ali, A. N. Designed and recorded with Ustad Parvez Paras (Visiting Scholar Musicology) a series of 12 lectures on Classical Music at the studio of Lahore School of Economics in June, 2025
4. Ali, A. N. Invited as guest and performer to program at Alhamra, Mall Rd for program 'Raagiyan de Rang' in December 2025.
5. Ali, A. N. Invited as senior music practitioner in Gurmani Center, LUMS in September 2025.
6. Ali, A. N. Invited to give seminar on the folk and classical renderings of the epic Heer at the Pacifica Graduate Institute in Santa Barbara, USA on August 1st 2025.

Actual/On-going 2026 (Author/s, Title of Publication, Journal, Year)

HEC W Category Journal Articles

1. Chaudhry, A., Naz, R. The closed-form solutions for a three-compartment model with technology diffusion
2. Cheviakov, A., Naz, R. Nonlocally Related Systems, Nonlocal Point Symmetries, Nonlocal Conservation Laws for a Nonlinear System

3. I. Beg, T. Ermis, O. Gelisgen and M. Abbas: Applications of asymptotic fixed point theorems in A-metric spaces to integral equations, *J. Function Spaces*, 2025(2025), Art ID 1727696, 12 pages.
4. I. Eroglu and I Beg: Asymmetric regularity in quasi-metric spaces with application to fixed point of set valued maps, *Computational and Applied Math.*, 45 (2026) Article 115.
5. Naz, R., Johnpillai, A., & Mahomed, F. M. Conservation laws and closed-form solutions for an Epidemic model.
6. Wasim, D., Suhail, M., Kibria, B. G., Shabbir, M., & Nawaz, S. (2026). Performance of some robust improved Kibria-Lukman M-estimators for linear regression model in presence of multicollinearity and outliers. *Communications in Statistics-Simulation and Computation*, 1-21.
7. Wasim, D., Zaman, Q., Ali, M., Shabbir, M., & Golam Kibria, B. M. (2026). Development and evaluation of new two-parameter ridge estimators for handling multicollinearity: simulation and applications. *Journal of Statistical Computation and Simulation*, 1-16.

HEC X Category Journal Articles

1. Ann Tariq, Sadia Arshad, Saadia Nauman, Gul e Saher Shami, & Maryam Shakeel. (2026). Exploring The Role of E-Commerce on Sme's Marketing Performance through Ai Integration. *`, 5(01)*, 1525–1538.
2. B. Khan, T. Rashid and I. Beg: Proper Edge Coloring of Direct Product of Path and Star Fuzzy Graphs, *Decision Making and Analysis.*, (accepted)
3. I. Beg, A. Mahmood and M. Abbas: Magnitude of a neutrosophic number with application in multi criteria decision methods, *Neutrosophic Sets Systems.* (accepted)
4. I. Beg, S. Gupta, A. Ghosh and D. K. Joshi: Novel Russell's approximation method for transportation problem under hesitant bi-fuzzy environment, *Decision Making and Analysis.*, 4(1)(2026), 1-9.

HEC Y Category Journal Articles

1. Kalsoom, Z. & Arif, R. The Impact of Migration on Early Marriage in Punjab, Pakistan, *Pakistan Development Review*, 2026

ABDC/ABS/MLA Journal Articles

1. Zaman, Q., Wasim, D., Kibria, B. G., Shabbir, M., & Ullah, N. (2026). Mitigating multicollinearity in ridge regression: a comparative study of quantile-based two parameter weighted KL-estimators. *Research in Statistics*, 4(1), 2610197.

Books

1. Ali, A. N. "Raag Rass" (submitted for composing)
2. Ali, A. N. "The Tradition of Todi"(ongoing translation)

Book Chapters

1. I. Beg. Graded TOPSIS and Graded ELECTRE-I under Intuitionistic Fuzzy N-Soft Model, Book Chapter in *Intuitionistic and q-rung Orthopair Fuzzy Sets and Their Applications*. CRC Publisher 2027 (co authors N. Mustafa and T. Rashid) (accepted)

National Conference Papers

1. Ali, A. N. "The Fibonacci numbers in South Asian rhythms" (ongoing)

Lahore School Working Papers / International Working Papers

1. Iuga, I. C., & Jafri, S. R. Role of AI in European Finance: Productivity Gains, ICT Security Risk and Cloud Dependent Non-linearities (EU-27 Evidence) (International Working Paper)

Artistic productions (catalogued)

1. Ali, A. N. Invited to perform and present seminars on classical music at forums in 2026; will update this list as these events take place.
2. Ali, A. N. Performance at LLF (Lahore Literary Festival) February 2026, in the production “Rajni”.