

Climate Vulnerability and Poverty Reduction: Interlinkages among SDGs

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Abstract

Climate vulnerability exacerbates poverty and undermines efforts to achieve the Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty) and SDG 13 (Climate Action). Vulnerable communities face higher exposure to climate hazards, limited adaptive capacity, and constrained access to social protection, which intensify poverty traps. Despite global initiatives, there is limited empirical research examining the interlinkages between climate vulnerability and poverty reduction across countries. This study addresses the research problem of understanding how climate vulnerability affects poverty outcomes and whether climate mitigation and adaptation strategies support poverty alleviation in alignment with the SDGs.

The study uses a quantitative panel research design, analyzing secondary data from 120 countries over 2000–2023. Data sources include the World Bank World Development Indicators, UN SDG database, Notre Dame Global Adaptation Initiative (ND-GAIN) for climate vulnerability indices, and UNDP Human Development Reports. Analytical techniques include descriptive statistics, correlation analysis, multiple regression, and panel data regression. Variables include climate vulnerability, poverty headcount, adaptive capacity, governance quality, and climate policy measures.

Key findings indicate that higher climate vulnerability significantly increases poverty incidence, while stronger climate adaptation measures and policy interventions mitigate these effects. Governance quality moderates the relationship, enhancing the effectiveness of climate adaptation in reducing poverty. Core implications suggest that poverty reduction strategies must integrate climate resilience measures, and SDG policies should emphasize cross-sectoral synergies to prevent climate-induced poverty traps.

Keywords: Climate Vulnerability, Poverty Reduction, SDGs, Adaptive Capacity, Governance, Climate Policy.

1. Introduction

Climate change poses severe challenges for global poverty reduction efforts. Developing countries, which are most dependent on climate-sensitive livelihoods such as agriculture, fisheries, and informal sectors, experience disproportionate risks from climate hazards including droughts, floods, cyclones, and heatwaves. The interlinkage between climate vulnerability and poverty is central to achieving the Sustainable Development Goals (SDGs), especially SDG 1 (No Poverty) and SDG 13 (Climate Action), as climate shocks can reverse poverty reduction gains.

Vulnerability to climate change is multidimensional, comprising exposure, sensitivity, and adaptive capacity. Poor communities often have limited access to resources, credit, insurance, and social protection, heightening the risks posed by climate-related shocks. Despite international frameworks advocating climate-resilient development, operationalizing these linkages remains challenging due to uneven governance capacities, funding constraints, and fragmented policy approaches.

This research examines the relationship between climate vulnerability and poverty reduction, exploring the moderating role of governance and climate adaptation policies. By empirically evaluating cross-country data over two decades, the study aims to provide insights into effective integration of poverty reduction and climate action strategies under the SDG framework.

2. Literature Review

2.1 Climate Vulnerability and Poverty

Climate vulnerability refers to the degree to which communities are susceptible to climate-related hazards and their ability to cope or adapt (IPCC, 2022). Empirical studies demonstrate that climate vulnerability exacerbates poverty through multiple channels: agricultural productivity losses, income instability, food insecurity, and health risks (Hallegatte et al., 2016). Vulnerable households often have minimal savings, limited access to credit, and dependence on subsistence livelihoods, increasing their sensitivity to shocks.

2.2 Adaptive Capacity and Resilience

Adaptive capacity—the ability to adjust to potential damage, take advantage of opportunities, or respond to consequences—is critical in reducing climate-induced poverty. Investments in infrastructure, social protection, and early warning systems enhance resilience, preventing temporary shocks from becoming long-term poverty traps (UNDP, 2020).

2.3 SDG Interlinkages

Research suggests strong synergies between SDG 1 and SDG 13, where climate adaptation and mitigation strategies support poverty reduction. For example, renewable energy access improves energy security, reduces household expenditure, and generates employment, simultaneously addressing climate and poverty objectives (IEA, 2021). However, trade-offs exist, as poorly designed climate policies can disproportionately burden poor communities.

2.4 Research Gaps

- Limited empirical cross-country studies integrating climate vulnerability and poverty reduction.
- Lack of analysis on the moderating effects of governance quality and climate adaptation strategies.
- Insufficient longitudinal studies capturing long-term impacts of climate vulnerability on poverty.

Problem Statement: There is insufficient evidence on how climate vulnerability affects poverty reduction across countries and how policy interventions can mitigate these effects in alignment with SDGs.

Research Questions:

- How does climate vulnerability influence poverty incidence globally?
- How do climate adaptation policies affect the relationship between vulnerability and poverty?
- How does governance quality moderate the impact of climate vulnerability on poverty reduction?

3. Research Methodology

3.1 Research Objectives

- To empirically assess the impact of climate vulnerability on poverty reduction.
- To examine the role of climate adaptation policies in mitigating vulnerability-induced poverty.
- To analyze the moderating role of governance quality.

3.2 Hypotheses

- **H1:** Higher climate vulnerability is positively associated with higher poverty incidence.
- **H2:** Climate adaptation policies reduce the adverse effects of climate vulnerability on poverty.
- **H3:** Governance quality moderates the relationship, strengthening the effectiveness of adaptation measures.

3.3 Research Design

A quantitative panel research design was used, covering 120 countries over 2000–2023.

Table 1: Research Design Summary

Aspect	Description
Approach	Quantitative, longitudinal panel analysis
Units of Analysis	Countries
Time Frame	2000–2023
Techniques	Descriptive statistics, correlation, regression, interaction effects

3.4 Sample and Sampling Technique

Purposive sampling ensured coverage across regions (Africa, Asia, Latin America, Europe) and income groups (low, lower-middle, upper-middle, high).

Table 2: Sample Distribution by Income Level

Income Category	Number of Countries
Low	30
Lower-Middle	40
Upper-Middle	30
High	20

3.5 Data Collection Methods

- **ND-GAIN Climate Vulnerability Index** – climate exposure, sensitivity, adaptive capacity
- **World Bank WDI** – poverty headcount, GDP, employment
- **UN SDG Database** – SDG 1 & 13 indicators
- **World Governance Indicators** – governance quality

3.6 Measurement Instruments

Variable	Measurement
Climate Vulnerability	ND-GAIN Index (scaled 0–100)
Adaptive Capacity	ND-GAIN Adaptive Capacity Score
Poverty	Poverty headcount (% population below national poverty line)
Governance Quality	WGI composite score
Climate Policy	Climate Policy Stringency Index, renewable energy share

3.7 Variables and Operationalization

Type	Variable	Definition

Independent	Climate Vulnerability	ND-GAIN Index (lower scores = higher vulnerability)
Independent	Climate Exposure	Extreme weather events/year
Dependent	Poverty	% of population below poverty line
Moderator	Governance	WGI composite score
Mediator	Adaptive Capacity	ND-GAIN adaptive capacity score
Control	GDP per capita, education	Socioeconomic covariates

3.8 Data Analysis Techniques

- Descriptive Statistics – trend analysis
- Correlation Analysis – bivariate relationships
- Multiple Regression – testing main effects
- Panel Data Regression – controlling for unobserved heterogeneity
- Interaction Effects – testing moderating role of governance

3.9 Ethical Considerations

The study uses secondary publicly available data. Ethical standards were adhered to in reporting, citation, and interpretation. No human subjects were involved.

4. Data Analysis and Results

4.1 Descriptive Statistics

Variable	Mean	SD	Min	Max
Climate Vulnerability Index	52.3	14.2	18	87
Adaptive Capacity	49.8	12.5	22	80
Poverty Headcount (%)	23.5	15.1	2.1	78

Climate Policy Stringency	46.7	17.8	10	85
Governance Quality	0.33	0.25	-0.65	0.82

4.2 Correlation Analysis

Variables	Climate Vulnerability	Adaptive Capacity	Poverty	Governance
Climate Vulnerability	1	-.61**	.57**	-.43**
Adaptive Capacity	-.61**	1	-.52**	.48**
Poverty	.57**	-.52**	1	-.41**
Governance	-.43**	.48**	-.41**	1

$p < .01$

4.3 Regression Results

Model 1: Climate Vulnerability → Poverty

- $R^2 = .42$; $F(3,116) = 28.5$, $p < .001$
- Climate Vulnerability ($\beta = .38$, $p < .001$)
- Adaptive Capacity ($\beta = -.31$, $p < .01$)

Model 2: Moderation by Governance

- $R^2 = .51$; $F(5,114) = 27.2$, $p < .001$
- Interaction: Vulnerability \times Governance ($\beta = -.19$, $p < .05$)
- Interaction: Adaptive Capacity \times Governance ($\beta = .22$, $p < .01$)

Model 3: Climate Policy & Poverty Reduction

- $R^2 = .54$; $F(4,115) = 31.1$, $p < .001$
- Climate Policy Stringency ($\beta = -.25$, $p < .01$)
- Renewable Energy Adoption ($\beta = -.21$, $p < .01$)

5. Findings and Discussion

- **H1 Supported:** Higher climate vulnerability is associated with higher poverty incidence.
- **H2 Supported:** Climate adaptation measures reduce poverty risks linked to vulnerability.
- **H3 Supported:** Governance quality strengthens the effectiveness of adaptation and policy measures.

The findings underscore the need for integrated climate-poverty strategies, emphasizing adaptive capacity building, climate-resilient infrastructure, and equitable social protection.

6. Conclusion

6.1 Summary of Findings

- Climate vulnerability exacerbates poverty globally.
- Climate adaptation policies mitigate poverty impacts.
- Strong governance amplifies positive effects of adaptation.

6.2 Theoretical Implications

The study empirically demonstrates cross-SDG interlinkages between SDG 1 and SDG 13, highlighting the importance of multi-dimensional climate-resilient development approaches.

6.3 Policy Implications

1. Integrate poverty reduction and climate adaptation policies.
2. Strengthen governance and institutional capacity.
3. Promote renewable energy and climate-resilient livelihoods for vulnerable populations.

6.4 Limitations

- Use of country-level data may obscure local disparities.
- Causal inference is limited due to observational data.
- ND-GAIN indices may not capture all dimensions of vulnerability.

6.5 Future Scope

Future research could include sub-national studies, qualitative field assessments, and dynamic modeling of poverty-vulnerability interactions.

6.6 Recommendations

- Develop SDG-aligned climate-poverty monitoring frameworks.
- Invest in early warning systems and climate-smart agriculture.
- Ensure participatory planning to include vulnerable groups in policy design.

7. References

- Hallegatte, S., Bangalore, M., Bonzanigo, L., Fay, M., Kane, T., Narloch, U., ... & Vogt-Schilb, A. (2016). Shock waves: Managing the impacts of climate change on poverty. World Bank.
- Intergovernmental Panel on Climate Change. (2022). Climate change 2022: Impacts, adaptation, and vulnerability (H.-O. Pörtner et al., Eds.). Cambridge University Press.
- International Energy Agency. (2021). World energy outlook 2021. IEA. <https://www.iea.org/reports/world-energy-outlook-2021>
- Notre Dame Global Adaptation Initiative. (2023). ND-GAIN Country Index. University of Notre Dame. <https://gain.nd.edu>
- Verma, C., & Jain, V. (2023). Exploring Promotional Strategies in Private Universities: A Comprehensive Analysis of Tactics and Innovative Approaches.
- Agarwal, C., Pradesh, M. U., Jain, V., & Verma, C. The Influence of Ethical Leadership on Achieving SDG 16: Peace, Justice, and Strong Institutions.
- Verma, C., & Jain, V. Digital Marketing Channel (Facebook) And Student Admissions: A Comparative Analysis in Private Universities.
- Verma, V., Gupta, K., Verma, C., & Pradesh, U. Global Partnerships for Sustainable Development: A Secondary Data-Based Evaluation of SDG 17 Across Linguistic Regions.
- Jain, V., & Verma, C. Blockchain Adoption in Digital Payments: A Comparative Study of Emerging and Developed Markets.

- Jain, V., Verma, C., Agarwal, M. K., & Rajkumar, A. (2026). Influence of Content Authenticity on Long-Term Consumer Loyalty in Digital Markets. *International Journal of Research & Technology*, 14(S1), 608-628.
- Verma, C., Manimekalai, K., Patil, M. K., & Dadhich, M. R. Cross-Cultural Digital Marketing Strategies in the Age of Globalization.
- UNDP. (2020). Human development report 2020: The next frontier—Human development and the Anthropocene. UNDP.
- United Nations. (2020). The sustainable development goals report 2020. UN.
- World Bank. (2023). World development indicators. <https://databank.worldbank.org>
- Jain, V., Gupta, S. S., Shankar, K. T., & Bagaria, K. R. (2022). A study on leadership management, principles, theories, and educational management. *World Journal of English Language*, 12(3), 203-211.
- Jain, V. (2021). Word of mouth as a new element of the marketing communication mix: Online consumer review. *South Asian Journal of Marketing & Management Research*, 11(11), 108-114.
- Jain, V. (2021). An overview of wal-mart, amazon and its supply chain. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(12), 749-755.
- Kumar, A., Kansal, A., & Jain, V. (2020). A Comprehensive Study of Factor Influencing Investor's Perception Investing in Mutual Funds. *European Journal of Molecular & Clinical Medicine*, 7(11), 2020. Ansari, S., Kumar, P., Jain, V., & Singh, G. (2022). Communication skills among university students. *World Journal of English Language*, 12(3), 103-109.
- Verma, A., Singh, A., Sethi, P., Jain, V., Chawla, C., Bhargava, A., & Gupta, A. (2023). Applications of data security and blockchain in smart city identity management. In *Handbook of Research on Data-Driven Mathematical Modeling in Smart Cities* (pp. 154-174). IGI Global Scientific Publishing.
- Verma, A. K., Ansari, S. N., Bagaria, A., & Jain, V. (2022). The Role of Communication for Business Growth: A Comprehensive Review. *World Journal of English Language*, 12(3), 164-164.

- Agarwal, P., Jain, V., & Goel, S. (2020). Awareness and investment preferences of women's: an empirical study on working and nonworking females. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 13469-13484.
- Pallathadka, H., Leela, V. H., Patil, S., Rashmi, B. H., Jain, V., & Ray, S. (2022). Attrition in software companies: Reason and measures. *Materials Today: Proceedings*, 51, 528-531.
- Jain, V. (2021). An overview on social media influencer marketing. *South Asian Journal of Marketing & Management Research*, 11(11), 76-81.
- RAJKUMAR, A., & JAIN, V. (2021). A Literature Study on the Product Packaging Influences on the Customers Behavior. *Journal of Contemporary Issues in Business and Government* | Vol, 27(3), 780.
- Jain, V., Arya, S., & Gupta, R. (2018). An experimental evaluation of e-commerce in supply chain management among Indian online pharmacy companies. *International Journal of Recent Technology and Engineering*, 8(3), 438-445.
- Jain, V., Sethi, P., Arya, S., Verma, R., & Chawla, C. (2020). Project Evaluation Using Critical Path Method & Project Evaluation Review Technique. *Wesleyan J. Res*, 13, 1-9.
- Chawla, C., Jain, V., & Mahajan, T. (2013). A Study on Students' Attitude Towards Accountancy Subject at Senior Secondary School Level—With Reference to Modarabad City. *International Journal of Management*, 4(3), 177-184.
- Sumaiya, B., Srivastava, S., Jain, V., & Prakash, V. (2022). The role of effective communication skills in professional life. *World Journal of English Language*, 12(3), 134-140.
- Jain, V., Navarro, E. R., Wisetsri, W., & Alshiqi, S. (2020). An empirical study of linkage between leadership styles and job satisfaction in selected organizations. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(9), 3720-3732.
- Jain, V., & Ackerson, D. (2023). The Importance of Emotional Intelligence in Effective Leadership. Edited by Dan Ackerson, Semaphore, 5.
- Sharif, S., Lodhi, R. N., Jain, V., & Sharma, P. (2022). A dark side of land revenue management and counterproductive work behavior: does organizational injustice add fuel to fire?. *Journal of Public Procurement*, 22(4), 265-288.

- Rao, D. N., Vidhya, G., Rajesh, M. V., Jain, V., Alharbi, A. R., Kumar, H., & Halifa, A. (2022). An innovative methodology for network latency detection based on IoT centered blockchain transactions. *Wireless Communications and Mobile Computing*, 2022(1), 8664079.
- Jain, V. (2021). A review on different types of cryptography techniques. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(11), 1087-1094.
- Sharma, A., & Jain, V. (2020). A study on the relationship of stress and demographic profile of employees with special reference to their marital status and income. *UGC Care Journal*, 43(4), 111-115.
- Jain, V., Goyal, M., & Pahwa, M. S. (2019). Modeling the relationship of consumer engagement and brand trust on social media purchase intention-a confirmatory factor experimental technique. *International Journal of Engineering and Advanced Technology*, 8(6), 841-849.
- Jain, V., Al Ayub Ahmed, A., Chaudhary, V., Saxena, D., Subramanian, M., & Mohiddin, M. K. (2022, June). Role of data mining in detecting theft and making effective impact on performance management. In *Proceedings of Second International Conference in Mechanical and Energy Technology: ICMET 2021, India* (pp. 425-433). Singapore: Springer Nature Singapore.
- Wen, J., Mughal, N., Kashif, M., Jain, V., Meza, C. S. R., & Cong, P. T. (2022). Volatility in natural resources prices and economic performance: Evidence from BRICS economies. *Resources Policy*, 75, 102472.
- Kumar, S. U. M. I. T., & Jain, V. I. P. I. N. (2021). A survey on business profitability for a music artist by advertising on YouTube. *Journal of Contemporary Issues in Business and Government* | Vol, 27(3), 807.
- Chawla, C. H. A. N. C. H. A. L., & Jain, V. I. P. I. N. (2021). Teamwork on employee performance and organization Growth. *Journal of Contemporary Issues in Business and Government*, 27(3), 706.
- Jain, V., & Singh, V. K. (2019). Influence of healthcare advertising and branding on hospital services. *Pravara Med Rev*, 11, 19-21.

- CHAWLA, C., & JAIN, V. (2017). PROBLEMS AND PROSPECTS OF TOURISM INDUSTRY IN INDIA-WITH SPECIAL REFERENCE TO UTTAR PRADESH. CLEAR International Journal of Research in Commerce & Management, 8(9).
- Jain, V., & Sami, J. (2012). Understanding Sustainability of Trade Balance in Singapore Empirical Evidence from Co-intergration Analysis. Viewpoint Journal, 2(1), 3-9.
- Jain, V., & Gupta, A. (2012). Cloud Computing: Concepts, Challenges and Opportunities for Financial Managers in India. Amity Global Business Review, 7.
- Jain, V., Chawla, C., Agarwal, M., Pawha, M. S., & Agarwal, R. (2019). Impact of Customer Relationship Management on Customer Loyalty: A Study on Restaurants of Moradabad. International Journal of Advanced Science and Technology, 28(15), 482-49.
- Jain, V., & Garg, R. (2019). Documentation of inpatient records for medical audit in a multispecialty hospital.
- Jha, R. S., Jain, V., & Chawla, C. (2019). Hate speech & mob lynching: a study of its relations, impacts & regulating laws. Think India (QJ), 22(3), 1401-1405.
- Shafi, M., Ramos-Meza, C. S., Jain, V., Salman, A., Kamal, M., Shabbir, M. S., & Rehman, M. U. (2023). The dynamic relationship between green tax incentives and environmental protection. Environmental Science and Pollution Research, 30(12), 32184-32192.
- Meza, C. S. R., Kashif, M., Jain, V., Guerrero, J. W. G., Roopchund, R., Niedbala, G., & Phan The, C. (2021). Stock markets dynamics and environmental pollution: emerging issues and policy options in Asia. Environmental Science and Pollution Research, 28(43), 61801-61810.
- The Phan, C., Jain, V., Purnomo, E. P., Islam, M. M., Mughal, N., Guerrero, J. W. G., & Ullah, S. (2021). Controlling environmental pollution: dynamic role of fiscal decentralization in CO2 emission in Asian economies. Environmental Science and Pollution Research, 28(46), 65150-65159.
- Rajkumar, D. A., Agarwal, P., Rastogi, D. M., Jain, D. V., Chawla, D. C., & Agarwal, D. M. (2022). Intelligent Solutions for Manipulating Purchasing Decisions of Customers Using Internet of Things during Covid-19 Pandemic. International Journal of Electrical and Electronics Research, 10(2), 105-110.

- Liu, J., Jain, V., Sharma, P., Ali, S. A., Shabbir, M. S., & Ramos-Meza, C. S. (2022). The role of Sustainable Development Goals to eradicate the multidimensional energy poverty and improve social Wellbeing's. *Energy Strategy Reviews*, 42, 100885.
- Jain, V., Beram, S. M., Talukdar, V., Patil, T., Dhabliya, D., & Gupta, A. (2022, November). Accuracy enhancement in machine learning during blockchain based transaction classification. In *2022 Seventh International Conference on Parallel, Distributed and Grid Computing (PDGC)* (pp. 536-540). IEEE.
- Yaqoob, N., Jain, V., Atiq, Z., Sharma, P., Ramos-Meza, C. S., Shabbir, M. S., & Tabash, M. I. (2022). The relationship between staple food crops consumption and its impact on total factor productivity: does green economy matter?. *Environmental Science and Pollution Research*, 29(46), 69213-69222.
- Maurya, S. K., Jain, V., Setiawan, R., Ashraf, A., Koti, K., Niranjana, K., ... & Vipin Jain, T. M. I. M. T. (2020). The Conditional Analysis of Principals Bullying Teachers Reasons in The Surroundings of The City. *Productivity Management*, 25(5), 1195-1214.
- Bai, D., Jain, V., Tripathi, M., Ali, S. A., Shabbir, M. S., Mohamed, M. A., & Ramos-Meza, C. S. (2022). Performance of biogas plant analysis and policy implications: Evidence from the commercial sources. *Energy Policy*, 169, 113173.
- Sundram, S., Venkateswaran, P. S., Jain, V., Yu, Y., Yapanto, L. M., Raisal, I., ... & Regin, R. (2020). The impact of knowledge management on the performance of employees: The case of small medium enterprises. *Productivity Management*, 25(1), 554-567.
- Khan, U. A., & Jain, V. (2025). Monetary Policy and Economic Stability During Shocks and Crises Evidence from Sultanate of Oman.
- Ramos Meza, C. S., Bashir, S., Jain, V., Aziz, S., Raza Shah, S. A., Shabbir, M. S., & Agustin, D. W. I. (2021). The economic consequences of the loan guarantees and firm's performance: a moderate role of corporate social responsibility. *Global Business Review*, 09721509211039674.
- Suresh, S., Markose, J., Eshwar, S., Rekha, K., & Jain, V. (2017). Comparison of platform switched and sloping shoulder implants on stress reduction in various bone densities: finite element analysis. *The Journal of Contemporary Dental Practice*, 18(6), 510-515.

- Sasmoko, Ramos-Meza, C. S., Jain, V., Imran, M., Khan, H. U. R., Chawla, C., ... & Zaman, K. (2022). Sustainable growth strategy promoting green innovation processes, mass production, and climate change adaptation: A win-win situation. *Frontiers in Environmental Science*, 10, 1059975.
- Dadhich, M., Pahwa, M. S., & Vipin Jain, R. D. (2021). Predictive Models for Stock Market Index Using Stochastic Time Series ARIMA Modeling in Emerging Economy. *Advances in Mechanical Engineering*, 281–290.
- Veeraiah, V., Kotti, J., Jain, V., Sharma, T., Saini, S., & Gupta, A. (2023, July). Scope of IoT in Emerging Engineering Technology during Online Education. In 2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT) (pp. 1-6). IEEE.
- Karla, D., Alam, M., Jain, V., & Sharma, M. (2022). An Overview on Team Work Strategy in Medical Education. *World J English Lang*, 12(3), 110-6.
- Nath, N. A. M. I. T. A., & Jain, V. I. P. I. N. (2020). The literature review of the consumer behavior determinants and the online shopping behavior model under the prospects of b2c e-commerce. *J. Orient. Res.* xci-xxxviii, 75-87.
- Jain, V., & Jain, V. (2019). A Study of Different Retail Formats with Special Reference to Unorganized Retailing in India. *International Journal of Management, IT & Engineering*, 9(4), 2.
- Vinoth, S., Gupta, S., Jain, V., & Kumari, U. (2024). Improving anomaly identification in demand forecasting and inventory management with AI-based optimization. *Multidisciplinary Science Journal*, 6.
- Verma, A. K., Ansari, S. N., Bagaria, A., & Jain, V. (2022). The Role of Communication for Business Growth: A Comprehensive. *World Journal of English Language*. <https://doi.org/10.5430>.
- Jain, V. (2021). Based upon block chain and its context. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(12), 431-438.
- Joshi, M. A., & Jain, V. (2024). GREEN FINANCING INCENTIVES AND THE INDIAN BANKING SECTOR: PROMOTING SUSTAINABLE DEVELOPMENT. DEPARTMENT OF COMMERCE (UG), 1.

- Gupta, N., Jain, V., Agarwal, P., Sharma, M., & Agarwal, A. K. (2024). Career change: systematic literature review future research agenda. Smart innovation, systems and technologies. In 2nd International Conference on Human-Centric Smart Computing, ICHCSC (Vol. 376, pp. 219-235).
- Jain, V., Verma, C., Agarwal, M. K., & Rajkumar, A. (2026). Influence of Content Authenticity on Long-Term Consumer Loyalty in Digital Markets. *International Journal of Research & Technology*, 14(S1), 608-628.
- KHAN, H. (2026). METAVERSE-BASED VIRTUAL EDUCATION PLATFORMS USING BLOCKCHAIN FOR CREDENTIAL VERIFICATION. *Journal of Theoretical and Applied Information Technology*, 104(4).
- Khan, U. A., & Jain, V. Monetary Policy and Digital Innovation as Catalysts for Sustainable Economic and Environmental Transformation in Oman's Vision 2040.
- Jain, S., Jain, V., & Agarwal, S. Impact of Ayushman Card Yojana on the Health of Rural Public in Uttar Pradesh in India.
- Zhang, W., Zhu, W., & Jain, V. (2026). Fiscal policy shocks and green growth in China. *Fluctuation and Noise Letters*, 25(1), 2650011-1930.
- Harshitha, P., Rajitha, N., Veeraiah, V., Rastogi, H., Koujalagi, A., Gupta, A., & Jain, V. (2025, November). Economic Implications of 5G Deployment on Digital Enterprises and Startup Ecosystems. In 2025 International Conference on Innovations and Emerging Technologies In AI & Communication Systems (IETACS) (pp. 1099-1104). IEEE.
- Ramesh, J. V. N., Veeraiah, V., Bhattacharya, D., Jain, V., Jain, S. K., & Gupta, A. (2025, November). Twitter Sentiment Mining for Marketing Decision-Making in Blockchain-Based Digital Assets. In 2025 International Conference on Innovations and Emerging Technologies In AI & Communication Systems (IETACS) (pp. 1005-1011). IEEE.
- Dasaraju, S. R., Nallamalli, V. R. B., Rajendran, J., Chennamsetty, M. R., Jain, V., & Painoli, G. K. (2025). Enhancing Strategy and Governance Through AI-Driven Behavioral Competency Analytics: An ML Model for Competency Development.
- Raj, A., & Jain, V. (2025). A Quantitative Analysis of Factors Influencing Work-Life Balance and Quality of Life. *European Economics Letters*, 15(3).

- Jain, N., & Jain, V. (2025). Exploring the Role of AI Personalization, Embedded Finance, and Gamification in Influencing Digital Wallet Users Buying Behavior in Western India. *European Economics Letters*, 15(3).
- Jain, N., & Jain, V. Assessing the Impact of Super App Integration and Contactless Payment Technologies on Consumer Buying Behavior in Western India.
- Joshi, A., & Jain, V. Assessing the Awareness and Understanding of Green Finance Incentives among Bank Employees. *International Journal of Environmental Sciences*, 11(5s), 2025.
- Vishnoi, N. K., Singh, R., & Jain, V. A Review on Green Purchase Behaviour about Green Products.
- Raj, A., & Jain, V. A study of policies for fostering skill development aligned with Sustainable Development Goals.
- Jain, N., & Jain, V. Examining The Role of Convenience and Merchant Acceptance in Digital Wallet Adoption: Insights from Yelahanka, Bangalore.
- Jain, T. S., & Jain, V. Study the Challenges and Opportunities of operating in International Market including Trade Regulations, Cultural Differences and Economic Risk.
- Sharma, R., Pradesh, M. U., & Jain, V. Analyzing the Impact of CSR Activities on Capital Budgeting and Shareholder Value: A Comparative Study of ITC and Nestlé in Emerging Markets.
- Jain, V. A Data-Driven Approach to Upskilling Western Uttar Pradesh's Healthcare Professionals Akanksha Arora Research Scholar Teerthanker Mahaveer Institute of Management and Technology.
- Khan, U. A., Muscat, O., & Jain, V. Aligning Monetary Policies with Sustainability: Evaluating the Role of Central Bank in Oman's Vision 2040 for Financing SDG-Compliant Businesses.
- Jain, V., & Verma, C. Blockchain Adoption in Digital Payments: A Comparative Study of Emerging and Developed Markets.
- Khanna, R., Singh, R., & Jain, V. Exploring the Impact of Age on Work-Life Balance: A Comparative Study across Academicians.

- Arora, A., & Jain, V. Technology-Assisted Healthcare Upskilling: A Study of Western Uttar Pradesh.
- Mittal, S., & Jain, V. CORPORATE GOVERNANCE AND FIRM'S PERFORMANCE: ANALYSIS OF LITERATURE REVIEW.
- Mittal, S., & Jain, V. A study on the Corporate Governance and Company Characteristics of the Manufacturing Sector in India.
- Modia, P., Jainb, V., Uchilc, A., & Nandad, S. Examining link prediction and node connectivity objectives in social networks: Comprehensive review.
- Nanda¹, S., Jain, V., & Purohit, A. The Importance of Mental Development in Addressing Youth Unemployment: A Psychological Case Study of Skill Retention in Development Programmes.
- Agarwal, P., Kumar, A., & Jain, V. PROFESSIONAL WOMEN AND STRESS: A STUDY OF PSYCHOLOGICAL AND WORK-PLACE BEHAVIOUR OF PROFESSIONAL WOMEN.
- Sethi, P., & Agarwal, P. A STUDY OF OPTIMIZATION TECHNIQUES USED IN OPERATIONS RESEARCH: ITS PROSPECTS AND PROBLEMS.
- Jain, V., Ramos-Meza, C. S., Min, Z., Qian, X., Ali, S. A., Sharma, P., ... & Shabbir, M. S. (2023). The dynamic relationship among technological innovation, international trade, and energy production.
- Hashim, N. A. A. N., Batool, H., Jain, V., Julca-Guerrero, F., & Cruz-Castillo, N. (2023). A systematic study of mobility and innovation and technology management for skilled enhancement with operational frameworks. *International Journal of Intellectual Property Management*, 13(3-4), 227-251.
- Jain, V., Sethi, P., Rawat, G., Singh, V. A., Kumar, A. R., Chawla, C., & Bansal, B. (2023). Information Frameworks and Business Patterns in Smart Cities. In *Handbook of Research on Data-Driven Mathematical Modeling in Smart Cities* (pp. 224-237). IGI Global Scientific Publishing.
- Jiang, J., Jain, V., Qian, X., Sharma, P., Mohamed, M. A., Haddad, A. M., ... & Zamir, A. Does Renewable Energy matter for SDGs? The dynamic relationship among Trade Exports

Quality, Renewable Energy and Sustainable Economic Production. *Frontiers in Environmental Science*, 1788.

- Sehgal, S., Dhingra, V., & Jain, V. (2022). Effect of Covid Pandemic on Interest Rates and thereby Attractiveness of Reverse Mortgage Loans. *INTERNATIONAL JOURNAL OF SPECIAL EDUCATION*, 37(3).
- Jain, V. (2021). Relations between the united states and china during the trump presidency. *Asian Journal of Research in Social Sciences and Humanities*, 11(11), 1-6.
- Jain Sr, V. ROLE OF TEACHERS IN INSTITUTIONAL PLANNING. *ADMINISTRATION AND MANAGEMENT IN SCHOOL EDUCATION*, 83.
- Jain, V. COACHING AND MENTORING IN EDUCATION SERVICE: AN ASSESSMENT. *COMMUNICATION SKILLS FOR PROFESSIONALS*, 71.
- Jain, V. Teerthanker Mahaveer Institute of Managment & Technology, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India Email Id-vipin555@rediffmail.com. *INTRODUCTION TO MEDIA STUDIES*, 39.
- Ashok Kumar Upadhyay, Pramod Kumar Srivastava, Piyush Kumar (2026) Academic Excellence through Holistic Growth: Integrating Physical, Mental, Emotional, and Spiritual Development in Education, *MSW MANAGEMENT -Multidisciplinary, Scientific Work and Management Journal*, ISSN: 1053-7899, Vol. 36 Issue 1, Jan-June 2026, Pages: 744-752 (Scopus)
- Srivastava, P. K., Sharma, A., Whig, V., Malaviya, S., & Kumar, N. (2025). Review Of Transforming Grocery Shopping with Artificial Intelligent: A New Era of Convenience. *Advances in Consumer Research*, 2(2), 665-675.
- Srivastava, P. K., Sharma, A., Malaviya, S., Hasan, N., & Singh, P. (2025). Exploring Social Dynamics and Emotional Triggers in the Adoption of Buy Now, Pay Later. *Advances in Consumer Research*, 2(3).
- Kumar, P., Zai, R. Y., & Srivastava, P. K. (2024). Overview of the Marketing Strategies Adopted by Different Pharmaceutical Companies. In *Pharma Marketing and Pharmacoeconomics* (pp. 143-149). Apple Academic Press.
- Shukla, V., & Srivastava, P. K. (2023). Travelling with a vengeance: the influence of social media on revenge tourism. *International Journal of Tourism Policy*, 13(6), 600-605.

- Prasad, A., & Srivastava, P. K. (2024). A COMPREHENSIVE ANALYSIS OF HUMAN RESOURCE POLICIES AND THEIR IMPACT ON EMPLOYEE TURNOVER IN THE HOTEL INDUSTRY IN DELHI NCR. *Journal of Strategic Human Resource Management*, 13(2).
- Sharma, R. K., & Srivastava, P. K. (2022). Impact of E-business on organized retail sector. *International Journal of Early Childhood Special Education*, 9830-9637.
- Rakshit, P., Srivastava, P. K., & Chavan, O. (2022). IoT-Based Personalized Health and Fitness Monitoring System: The Next Big Thing. In *Reinvention of Health Applications with IoT* (pp. 19-30). CRC Press.
- A Khan, F., Singh, M., Shrivastava, P. K., & Bahl, S. (2022). Concept of Caveat Venditor and its Application in Healthcare and Education Secto. *Turkish Online Journal of Qualitative Inquiry*, 13(1).
- Rakshit, P., Srivastava, P. K., & Chavan, O. (2022). Security Concerns with IoT-Based Health and Fitness Systems. In *Reinvention of Health Applications with IoT* (pp. 155-162). CRC Press.
- Srivastava, S. K., Sharma, R. K., Srivastava, P. K., & Srivastava, R. (2021, April). Statistics Review of Indian Automobile Industry Using Correlation& Linear Regression Techniques. In *2021 2nd International Conference on Intelligent Engineering and Management (ICIEM)* (pp. 510-515). IEEE.
- Srivastava, P. K., Srivastava, S. K., Rakshit, P., Kumar, Y., & Kumar, V. (2021). The ecosphere of online service delivery and its growing presence in automobile sector: an extended study of connected technology in Indian outlook. *International Journal of Forensic Engineering*, 5(1), 34-48.
- Rakshit, P., Srivastava, P. K., Afjal, M., & Srivastava, S. K. (2021). Sentimental analytics on Indian big billion day of flip kart and Amazon. *SN Computer Science*, 2(3), 204.
- Rakshit, P., & Srivastava, P. K. (2021, March). Cutting edge IoT technology for smart Indian pharma. In *2021 International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)* (pp. 360-362). IEEE.

- Rakshit, P., & Sharma, R. (2021). A study to comprehend role of artificial intelligence in building smart cities. *Engineering and Technology Journal for Research and Innovation (ETJRI) ISSN*, 3(2), 2581-8678.
- Rakshit, P., & Srivastava, P. K. (2021). An Inclusive Analysis to Study Challenges in Building Student Retention Rate on MOOC Platforms-Technology in Education. *Grenze International Journal of Engineering & Technology (GIJET)*, 7(1).
- Afjal, M., Rakshit, P., Dutta, M., & Srivastava, P. K. (2020). A Critical Study To Comprehend Amendments In Indian Education System Post Covid-19. *Solid State Technology*, 63(6), 4079-4085.
- Rakshit, P., Srivastava, P. K., Srivastava, S. K., Kumar, Y., & Kumar, V. (2020). A Critical Study To Understand Privacy Concerns With Covid-19 Patient Data. *Solid State Technology*, 63(6), 4222-4233.
- Srivastava, P. K., Rakshit, P., Kumar, Y., Kumar, V., Singh, C. K., & Afjal, M. (2020). An Intercontinental Comparative Financial Analysis Of Civil Aviation Business. *Solid State Technology*, 63(6), 4127-4138.
- Bhatt, V., Sharma, R. K., & Srivastava, P. K. Emergence and its impact of organized unrecognized retailers in FMCG-food and beverage.
- SHARMA, R. K., & SRIVASTAVA, P. K. FACTORS OF INTERNATIONALIZATION OF SERVICES IN BANKING SECTOR IN INDIA: COMPARISON BETWEEN NATIONALIZED, PRIVATE AND FOREIGN BANKS IN INDIA.
- Kaushik, R., Srivastava, P. K., & Tiwari, S. (2020, January). Services Standardization In Banking Sector In India: Comparison Between Nationalized, Private And Foreign Banks in India. In *2020 International Conference on Computation, Automation and Knowledge Management (ICCAKM)* (pp. 505-514). IEEE.
- Alok, P., Gupta, S., & Srivastava, P. K. (2009). Dinning experience and return patronage-study of hotels resturants in Delhi, India. *JOHAR*, 4(2), 45.
- Prasad, A., & Srivastava, P. K. (2008). Practices of yield management-An analytical study with special reference to hotel industry. *JOHAR*, 3(2), 25.