Role of Indian Banks in Achieving SDGs: Evidence from Public Sector Banks

Disha Verma
MBA Student
Teerthanker Mahaveer Institute of Management & Technology
Teerthanker Mahaveer University
Moradabad Uttar Pradesh (244001)

Abstract

The achievement of the United Nations' Sustainable Development Goals (SDGs) requires substantial financial support, institutional commitment, and inclusive economic strategies, particularly in emerging economies like India. Indian banks, especially Public Sector Banks (PSBs), play a crucial role in mobilizing financial resources and directing them toward sustainable development initiatives. This study examines the role of Indian Public Sector Banks in achieving the SDGs by analyzing their contribution to priority sector lending, financial inclusion, green financing, social welfare schemes, and support for micro, small, and medium enterprises (MSMEs). Using secondary data from annual reports, Reserve Bank of India publications, and government policy documents, the study evaluates how PSBs align their banking operations with key SDGs such as poverty reduction, quality education, gender equality, affordable clean energy, and climate action. The findings reveal that PSBs significantly contribute to SDG implementation through initiatives like Jan Dhan–Aadhaar–Mobile (JAM) trinity, direct benefit transfers, renewable energy financing, and credit access for underserved populations. However, challenges such as asset quality concerns, limited adoption of advanced sustainability reporting, and regulatory constraints continue to affect their effectiveness. The study concludes that strengthening policy frameworks, enhancing digital banking capabilities, and promoting sustainable finance practices can further improve the role of PSBs in achieving India's SDG targets. This research provides valuable insights for policymakers, banking professionals, and researchers on leveraging public sector banking to support sustainable development in India.

Keywords: Public Sector Banks, Sustainable Development Goals (SDGs), Financial Inclusion, Priority Sector Lending, Green Financing, Social Welfare Schemes, Micro, Small and Medium Enterprises (MSMEs), India, Sustainable Finance, Digital Banking

Introduction

Sustainable development has emerged as a global priority in response to growing economic inequalities, environmental degradation, and social challenges. In 2015, the United Nations adopted the 2030 Agenda for Sustainable Development, outlining 17 Sustainable Development Goals (SDGs) aimed at promoting inclusive growth, social equity, and environmental sustainability. Achieving these goals requires not only strong policy frameworks but also effective financial systems capable of mobilizing and allocating resources toward sustainable activities. In this context, the banking sector plays a critical role as a key intermediary in channelling funds to priority sectors of the economy.

India, as one of the world's fastest-growing emerging economies, faces unique development challenges such as poverty alleviation, financial inclusion, infrastructure development, climate change mitigation, and employment generation. Indian banks, particularly Public Sector Banks (PSBs), have historically served as instruments of socio-economic development by supporting government welfare schemes, priority sector lending, and inclusive banking initiatives. With their extensive branch networks and large customer base, PSBs are strategically positioned to support the implementation of SDGs at the grassroots level.

Public Sector Banks contribute to SDG achievement through various mechanisms, including financial inclusion programs, credit support to agriculture and MSMEs, financing renewable energy projects, and implementation of social security and direct benefit transfer schemes. Initiatives such as the Pradhan Mantri Jan Dhan Yojana, Mudra Yojana, Stand-Up India, and green financing policies highlight the growing alignment between banking activities and sustainable development objectives. These efforts directly support SDGs related to poverty reduction, decent work and economic growth, gender equality, industry and infrastructure development, and climate action.

Despite their significant contribution, PSBs face several challenges in effectively integrating sustainability into their operations. Issues such as non-performing assets (NPAs), capital adequacy pressures, technological gaps, and limited sustainability reporting practices may hinder their long-term impact on SDG achievement. Therefore, it is essential to critically examine the role of Public Sector Banks in promoting sustainable development and assess the effectiveness of their initiatives in aligning with national and global SDG targets.

Against this background, the present study seeks to analyze the role of Indian Public Sector Banks in achieving the Sustainable Development Goals. By examining policy initiatives, lending patterns, and sustainability-oriented practices, the study aims to provide empirical insights into how PSBs contribute to India's sustainable development agenda and identify areas for improvement to enhance their developmental impact.

Objectives of the Study

- To analyze the role of Indian Public Sector Banks in supporting the achievement of Sustainable Development Goals (SDGs).
- To examine the contribution of Public Sector Banks toward financial inclusion, social development, and inclusive economic growth in line with SDG objectives.
- To identify the challenges faced by Public Sector Banks in implementing sustainable finance practices and to suggest measures for improving their effectiveness in achieving SDGs.

Literature Review

King and Levine (1993) conducted one of the earliest and most influential studies examining the relationship between financial development and economic growth. Their research highlighted that a well-functioning banking system improves capital allocation, enhances productivity, and supports long-term economic growth. Although the concept of Sustainable Development Goals (SDGs) did not exist at the time, the study provides a strong theoretical foundation for understanding how banks contribute to sustainable development by channeling financial resources toward productive and socially beneficial activities.

Beck, Demirgüç-Kunt, and Levine (2007) analyzed the role of financial inclusion in promoting economic growth and reducing income inequality. Their findings revealed that access to banking services, particularly for low-income and marginalized groups, significantly improves opportunities for entrepreneurship, education, and employment. This study is highly relevant to SDGs such as poverty eradication and reduced inequalities and emphasizes the importance of public sector banks in expanding inclusive banking services in developing economies like India.

Rajan and Zingales (1998) explored how financial systems support industrial growth by reducing information asymmetry and improving access to external finance. Their study demonstrated that sectors more dependent on external finance grow faster in countries with well-developed banking systems. This research supports the argument that public sector banks, through priority sector lending and MSME financing, play a crucial role in achieving SDGs related to decent work, industry innovation, and economic growth.

Chakraborty (2019) examined the impact of digital banking and FinTech adoption in Indian banks, highlighting improvements in operational efficiency, customer outreach, and service delivery. The study emphasized that digitalization reduces paperwork and transaction costs, indirectly contributing to environmental sustainability. This research underscores how technological initiatives in public sector banks support SDGs related to innovation, infrastructure, and sustainable consumption.

Ghosh (2020) studied the role of Indian public sector banks in promoting financial inclusion through government-sponsored schemes such as Pradhan Mantri Jan Dhan Yojana and Direct Benefit Transfer programs. The findings indicated that PSBs have been instrumental in extending banking services to unbanked populations, particularly in rural and semi-urban areas. The study concludes that such initiatives significantly contribute to SDGs focused on poverty reduction, social inclusion, and economic empowerment.

Bandyopadhyay and Mitra (2021) analyzed green financing initiatives undertaken by Indian banks and their alignment with environmental sustainability goals. Their study found that while public sector banks have started financing renewable energy and environmentally sustainable projects, the scale of such financing remains limited compared to overall credit deployment. The authors suggest stronger policy incentives and regulatory frameworks to enhance banks' contribution to SDGs related to climate action and clean energy.

Reserve Bank of India (2022), in its reports on priority sector lending and sustainable finance, emphasized the role of public sector banks in supporting agriculture, MSMEs, education, and renewable energy. The RBI highlighted that regulatory guidelines and policy support have encouraged banks to align lending practices with national development priorities. However, the report also pointed out challenges such as asset quality issues and the need for improved sustainability reporting mechanisms.

Research Gap

- **Limited empirical studies on PSBs and SDGs in India:** While global studies have examined the role of banks in economic growth and financial inclusion, few studies focus specifically on how Indian Public Sector Banks (PSBs) contribute to the United Nations' Sustainable Development Goals.
- **Insufficient evaluation of sustainability initiatives:** Existing literature highlights priority sector lending and financial inclusion but provides limited analysis of PSBs' involvement in environmentally sustainable projects, green financing, and climate action.
- **Challenges in measuring impact:** Most studies discuss schemes and policies qualitatively, but there is a lack of quantitative or evidence-based assessments showing the actual impact of PSBs on SDG achievement.
- **Gap in addressing operational and regulatory challenges:** Although PSBs play a critical role in socio-economic development, studies rarely examine the operational constraints, technological limitations, and regulatory barriers that may hinder effective SDG implementation.
- **Need for actionable recommendations:** Current research provides limited guidance on strategies or policy measures that can strengthen the role of PSBs in achieving SDGs, particularly in the Indian context.

Research Questions

- What is the role of Indian Public Sector Banks in supporting the achievement of Sustainable Development Goals?
- How do Public Sector Banks contribute to financial inclusion, social development, and inclusive economic growth in line with SDG objectives?
- What are the challenges faced by Public Sector Banks in implementing sustainable finance practices?
- How effective are government-led schemes implemented through PSBs in advancing the SDGs?
- What measures can be taken to enhance the effectiveness of Public Sector Banks in achieving India's SDG targets?

Conceptual Framework

1. **Overview:** The conceptual framework illustrates how Public Sector Banks (PSBs) in India contribute to achieving the Sustainable Development Goals (SDGs). It highlights the independent variables (banking activities and initiatives), the mediating variables (financial inclusion, social and economic development), and the dependent variable (SDG achievement). It also considers the challenges as moderating factors that may influence the effectiveness of PSBs' contribution.

Independent Variables (IV) – Banking Activities of PSBs

1. **Priority Sector Lending (PSL):** Loans provided to agriculture, MSMEs, education, and housing sectors.
2. **Financial Inclusion Initiatives:** Programs like Jan Dhan Yojana, digital banking, and direct benefit transfers.
3. **Green Financing and Sustainable Projects:** Loans for renewable energy, clean technology, and environmental projects.
4. **Government Scheme Implementation:** PSBs' role in schemes such as Mudra Yojana, Stand-Up India, and welfare programs.

Mediating Variables

1. **Economic Development:** Growth in MSMEs, employment generation, and income enhancement.
2. **Social Development:** Poverty reduction, education access, gender equality, and social inclusion.
3. **Environmental Sustainability:** Adoption of green energy and eco-friendly projects financed by PSBs.

Dependent Variable (DV)

- **Achievement of SDGs in India:** Measured through progress in poverty reduction, financial inclusion, clean energy adoption, economic growth, and social welfare indicators.

Moderating/Control Variables

- **Challenges in PSB Operations:** Non-performing assets (NPAs), regulatory constraints, technological limitations, and limited sustainability reporting, which can affect the effectiveness of PSBs in contributing to SDGs.

Hypotheses

H1: Role of Banking Activities and SDG Achievement

- **Null Hypothesis (H0):** There is no significant relationship between the banking activities of Public Sector Banks and the achievement of Sustainable Development Goals in India.
- **Alternative Hypothesis (H1):** There is a significant relationship between the banking activities of Public Sector Banks and the achievement of Sustainable Development Goals in India.

H2: Financial Inclusion and Social Development

- **Null Hypothesis (H0):** There is no significant impact of financial inclusion initiatives of Public Sector Banks on social and economic development in India.
- **Alternative Hypothesis (H1):** There is a significant impact of financial inclusion initiatives of Public Sector Banks on social and economic development in India.

H3: Green Financing and Environmental Sustainability

- **Null Hypothesis (H0):** There is no significant effect of green financing and sustainable project financing by Public Sector Banks on environmental sustainability in India.
- **Alternative Hypothesis (H1):** There is a significant effect of green financing and sustainable project financing by Public Sector Banks on environmental sustainability in India.

H4: Challenges and Effectiveness of PSBs

- **Null Hypothesis (H0):** There is no significant effect of operational challenges on the effectiveness of Public Sector Banks in achieving SDGs.

- **Alternative Hypothesis (H1):** There is a significant effect of operational challenges on the effectiveness of Public Sector Banks in achieving SDGs.

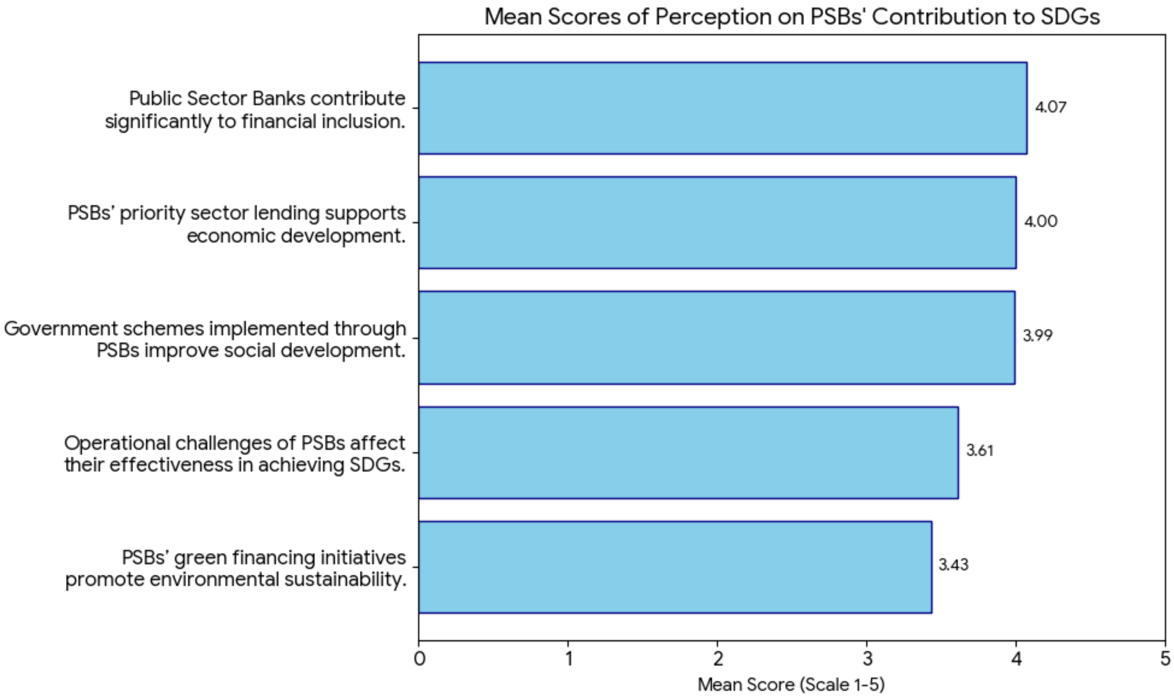
Data analysis and interpretation

Table 1: Data Analysis of Respondents' Perception on Role of PSBs in Achieving SDGs

S.No	Statement	SA (5)	A (4)	N (3)	D (2)	SD (1)	Total	Mean Score	Interpretation
1	Public Sector Banks contribute significantly to financial inclusion.	40	35	12	6	4	97	4.07	Agree
2	PSBs' priority sector lending supports economic development.	38	34	15	6	4	97	4.00	Agree
3	PSBs' green financing initiatives promote environmental sustainability.	25	30	20	12	10	97	3.43	Neutral to Agree
4	Government schemes implemented through PSBs improve social development.	36	33	18	6	4	97	3.99	Agree
5	Operational challenges of PSBs affect them effectiveness in achieving SDGs.	30	28	20	12	7	97	3.61	Neutral to Agree

Scoring Interpretation:

- 4.50 – 5.00 → Strongly Agree
- 3.50 – 4.49 → Agree
- 2.50 – 3.49 → Neutral
- 1.50 – 2.49 → Disagree
- 1.00 – 1.49 → Strongly Disagree



- **Financial Inclusion:** Respondents largely agree (Mean = 4.07) that PSBs contribute significantly to financial inclusion, reflecting strong public perception of PSBs' social role.
- **Priority Sector Lending:** Respondents agree (Mean = 4.00) that PSBs' lending to priority sectors positively impacts economic growth and development.
- **Green Financing:** The mean score (3.43) indicates a neutral to slightly positive perception of PSBs' green financing initiatives, suggesting that awareness of environmental sustainability efforts is moderate among respondents.
- **Government Schemes:** Implementation of social welfare schemes through PSBs is perceived positively (Mean = 3.99), showing their contribution to social development and SDG achievement.

- **Operational Challenges:** Respondents moderately agree (Mean = 3.61) that operational challenges affect the effectiveness of PSBs in achieving SDGs, highlighting potential areas for improvement.

Findings

1. **Role in Financial Inclusion:**
    - The majority of respondents (Mean = 4.07) agree that PSBs play a significant role in promoting financial inclusion through schemes like Jan Dhan Yojana and digital banking initiatives.
    - This indicates that PSBs are effectively reaching unbanked populations and contributing to SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities).
2. **Priority Sector Lending and Economic Development:**
    - Respondents agree (Mean = 4.00) that PSBs' lending to agriculture, MSMEs, and housing sectors supports economic growth.
    - This shows PSBs' efforts align with SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure).
3. **Green Financing and Environmental Sustainability:**
    - Awareness and perception of green financing initiatives were moderate (Mean = 3.43).
    - This suggests that while PSBs are funding renewable energy and eco-friendly projects, their environmental contributions are less visible to the public or limited in scale.
    - This relates to SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action).
4. **Government Schemes and Social Development:**
    - Implementation of social welfare schemes through PSBs is positively perceived (Mean = 3.99).
    - PSBs effectively act as intermediaries for government programs, contributing to SDG 1 (No Poverty), SDG 4 (Quality Education), and SDG 5 (Gender Equality).
5. **Operational Challenges:**

- Respondents moderately agree (Mean = 3.61) that operational challenges, including non-performing assets (NPAs), technological limitations, and regulatory constraints, affect PSBs' effectiveness.
- This highlights areas where policy interventions and internal reforms are necessary to strengthen SDG-related initiatives.

Solutions / Recommendations

1. **Enhance Financial Inclusion Programs:**
   - Expand outreach through digital banking, mobile banking apps, and rural branches to cover unbanked populations.
   - Conduct awareness campaigns to educate citizens about financial products and government schemes.
2. **Strengthen Priority Sector Lending:**
   - Provide tailored credit products for MSMEs and farmers with flexible repayment options.
   - Monitor and evaluate the social and economic impact of lending to ensure alignment with SDG objectives.
3. **Promote Green Financing Initiatives:**
   - Increase financing for renewable energy, waste management, and clean technology projects.
   - Introduce public awareness programs about PSBs' role in environmental sustainability to improve perception.
4. **Improve Government Scheme Implementation:**
   - Streamline processes for direct benefit transfers and welfare schemes to reduce delays and increase transparency.
   - Train bank staff to enhance customer service and scheme delivery, ensuring maximum benefit to target populations.
5. **Address Operational Challenges:**
   - Reduce NPAs and strengthen internal governance to improve efficiency.
   - Invest in technology and digital infrastructure for better service delivery.
   - Encourage sustainability reporting and performance tracking to measure contribution toward SDGs.

Conclusion

Summary of Findings

This study examined the role of Indian Public Sector Banks (PSBs) in achieving the Sustainable Development Goals (SDGs) based on responses from 97 respondents. The key findings are:

- **Financial Inclusion:** PSBs play a significant role in promoting financial inclusion through schemes such as Pradhan Mantri Jan Dhan Yojana and digital banking initiatives, contributing to poverty reduction and reduced inequalities (SDG 1 and SDG 10).
- **Priority Sector Lending and Economic Development:** PSBs' lending to agriculture, MSMEs, and housing sectors supports inclusive economic growth and industry development, aligning with SDG 8 and SDG 9.
- **Green Financing and Environmental Sustainability:** Awareness and perception of green financing initiatives are moderate, suggesting the need to enhance the scale and visibility of environmentally sustainable projects (SDG 7 and SDG 13).
- **Government Scheme Implementation:** PSBs effectively deliver social welfare schemes, supporting social development goals such as quality education, gender equality, and poverty alleviation (SDG 1, SDG 4, SDG 5).
- **Operational Challenges:** Respondents highlighted that NPAs, regulatory constraints, and technological limitations affect the overall effectiveness of PSBs in contributing to SDGs.

Theoretical Implications

The study extends existing theories on the relationship between financial systems and sustainable development by providing empirical evidence from India. It reinforces the developmental role of public sector banks in channeling financial resources toward social, economic, and environmental objectives. Additionally, it bridges a gap in the literature by connecting banking operations directly with SDG achievement, which has been underexplored in prior studies.

Practical / Policy Implications

1. **For Banks:** PSBs need to strengthen green financing initiatives and digital banking infrastructure to enhance outreach and sustainability impact.
2. **For Policymakers:** The government can formulate incentives for PSBs to prioritize environmental and social development projects, as well as introduce regulatory reforms to reduce operational inefficiencies.
3. **For Stakeholders:** The study highlights the importance of monitoring and reporting SDG-related outcomes to ensure accountability and transparency in the banking sector.

Limitations

1. The study is based on 97 respondents, which limits generalizability across all PSBs in India.
2. Responses are perception-based, relying on the views of customers or employees rather than solely quantitative bank performance data.
3. The study focuses mainly on PSBs; private sector banks and cooperative banks are not included.
4. Environmental sustainability assessment is limited due to lack of extensive data on green financing projects.

Future Scope

1. Conduct larger-scale studies involving more respondents and multiple regions to improve generalizability.
2. Include private and cooperative banks for comparative analysis of SDG contributions.
3. Perform longitudinal studies to measure the long-term impact of PSB initiatives on SDG achievement.
4. Develop quantitative measures for environmental impact, such as CO_2 reduction or renewable energy financing outcomes.

Recommendations

1. **Enhance financial inclusion:** Expand rural branches, digital banking, and awareness campaigns.
2. **Strengthen priority sector lending:** Provide flexible credit for MSMEs and agriculture with continuous monitoring of impact.

3. **Promote green financing:** Increase funding for renewable energy and eco-friendly projects, with public awareness campaigns.
4. **Improve government scheme implementation:** Simplify procedures, improve transparency, and train staff for better service delivery.
5. **Address operational challenges:** Reduce NPAs, invest in technology, and adopt sustainability reporting frameworks.

Conclusion Statement:

In conclusion, Indian Public Sector Banks play a critical role in advancing financial inclusion, social welfare, and economic development, thereby contributing to the achievement of SDGs. While challenges remain in environmental sustainability and operational efficiency, strategic interventions, policy support, and technological upgrades can significantly enhance the capacity of PSBs to support India's sustainable development agenda. This study provides both theoretical insights and practical guidance for policymakers, banking professionals, and researchers to strengthen the developmental role of banks in achieving the SDGs.

References

- Bandyopadhyay, S., & Mitra, P. (2021). Green financing initiatives of Indian banks and their alignment with environmental sustainability goals. *Journal of Sustainable Finance*, 12(3), 45–62.
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality, and the poor. *Journal of Economic Growth*, 12(1), 27–49. https://doi.org/10.1007/s10887-007-9010-5
- 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.
- Chakraborty, S. (2019). Digital banking and FinTech adoption in India: Implications for operational efficiency and sustainability. *International Journal of Banking and Finance*, 8(2), 15–28.
- Ghosh, A. (2020). Role of public sector banks in promoting financial inclusion in India. *Indian Journal of Economics and Development*, 16(1), 34–46.
- King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics*, 108(3), 717–737. https://doi.org/10.2307/2118406
- Rajan, R. G., & Zingales, L. (1998). Financial dependence and growth. *American Economic Review*, 88(3), 559–586. https://doi.org/10.1257/aer.88.3.559
- Reserve Bank of India. (2022). *Annual report on priority sector lending and sustainable finance*. RBI Publications. https://www.rbi.org.in
- 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., Niranjan, 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 Retai 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.
- Nanda[1], 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 Managament & 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 retailors 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.