

TECHNOLOGICAL INNOVATION AND TRADITIONAL PRACTICES IN THE INDIAN ECONOMY

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ABSTRACT

The present study examines the relationship between technological adoption and the performance of traditional economic activities in India. The study is designed around a sample size of 180 respondents representing farmers, artisans, traditional traders, MSME owners and service providers. Primary information is organised around technology adoption, productivity, market access, income and preservation of traditional practices. Two analytical tables are used to examine the relationship between technological adoption and perceived economic performance. An illustrative chi-square analysis indicates a statistically significant association between technology adoption and perceived improvement in economic performance. The findings suggest that technology does not necessarily eliminate traditional practices; rather, it can complement them by improving market access, efficiency, payment systems and customer outreach. However, constraints such as digital literacy, financial limitations, infrastructure gaps and fear of technological displacement remain significant.

Keywords: Technological Innovation, Traditional Practices, Indian Economy, Digitalisation, MSMEs, Agriculture, Artisans, Productivity, Digital Payments.

I. INTRODUCTION

In the twenty-first century, technological innovation has become a major factor influencing the structure and performance of the Indian economy. The organization, production, marketing, financing, and consumption of economic activities are undergoing a revolution in India, which is one of the world's biggest and most rapidly evolving economies. Opportunities for individuals, businesses, and communities have multiplied with the advent of new forms of electronic communication and public infrastructure, such as smartphones, internet connectivity, digital payments, artificial intelligence, automation, e-commerce, and modern agricultural technologies. Additionally, India's agricultural, handicraft, handloom, traditional manufacturing, village industry, local retail, food processing, and indigenous knowledge systems are all still very much alive and well in the country. People in rural and semi-urban regions, in particular, have relied on these traditional occupations for a long time for employment, income, and social security. As a result, one facet of India's economic change is the cohabitation of traditional customs with technology innovation. Local knowledge, hereditary skills, cultural traditions, and community-based production systems are strongly linked to traditional economic activities in India. Soil type, weather patterns, native seed types, water management techniques, and traditional farming practices have all played important

roles in agriculture throughout history. The same is true for Indian handlooms and handicrafts, which rely substantially on knowledge passed down through the generations. A lot of people in India make a living doing traditional crafts including pottery, weaving, embroidery, metalwork, woodworking, jewellery, food processing, and many more. The same holds true for mom-and-pop stores, neighbourhood merchants, and family-run businesses; they all rely on personal connections, market expertise, and trust networks to succeed. While these techniques have stood the test of time, they are now part of an economy that is more defined by fast technology advancements, intense global rivalry, shifting consumer tastes, and the explosion of online marketplaces.

Traditional manufacturers and businesses have seen their potential drastically changed by the advent of new technology. These days, farmers can use their mobile apps to get all sorts of useful information, including weather forecasts, farming tips, and market data. Social media, digital marketing, and e-commerce platforms allow artisans who used to rely on local clients to reach consumers in faraway cities and even worldwide markets. By using mobile apps, small merchants have the ability to receive digital payments, keep electronic records, and connect with consumers. Modern equipment, computerised accounting, internet procurement, and digital marketing may also help small manufacturing firms enhance operational efficiency. As a result, technical progress may serve as a tool to bolster conventional economic pursuits while simultaneously displacing more antiquated practices. Particularly in altering the dynamic between manufacturers and consumers, digitalisation has been a game-changer. In the past, middlemen were crucial to the sales of many small manufacturers and craftspeople. Their negotiating strength and consumer base were both diminished by a lack of knowledge about pricing and faraway markets. Thanks to digital technology's direct access to customers and market data, these constraints may be alleviated to some extent. Opportunities for small businesses to build new business models have been generated by social media platforms, online marketplaces, and digital payment methods. For traditional producers, this is a huge deal since their wares frequently have special cultural, regional, and aesthetic qualities that appeal to customers looking for something a little bit different. Thus, traditional goods may be marketed outside local markets with the assistance of technology, even while the producers can hold on to vital parts of their traditional identity.

One factor that has altered India's economic policies is the proliferation of digital payment methods. Everyday business transactions now routinely include digital platform and mobile phone payments. Digital payments provide many benefits, including accessibility, transaction records, and the chance for small firms and informal economic activity to be a part of the official financial system. There are a number of government, financial, insurance, and banking services that digital technology may make more accessible. Technological instruments are becoming more integrated into commercial and social activities as a result of India's digital public infrastructure development. But not everyone has immediate access to digitalization's advantages. People and businesses may have varying degrees of success in embracing and capitalising on new technology depending on factors such as their level of digital literacy, level of education, income, availability of smartphones, internet connection, and financial resources.

II. REVIEW OF LITERATURE

Lartey, Solomon. (2024). Factors contributing to India's booming economy include the country's abundance of natural resources, its relatively young population, and the increasing use of technology in daily life. Nominal gross domestic output ranks India's economy fifth highest across all development

indices. The widespread use of technology developments for both production needs and automation in many industrial sectors was predicted to boost India's GDP to over 3 trillion US dollars in 2021-22. Technological progress is believed to have been the bedrock of every important population's economic growth and development, both in the past and the future. All signs point to blockchain, AI, data analytics, robots, and the IoT as the most promising areas for technological development at the moment. The technical landscape of countries is expected to undergo radical alterations due to several underlying variables. The predicted global economic, social, and political climates will be shifted as a result of this. Nations also face challenges such as pandemics, natural disasters, resource loss, economic downturns, wars, inequality, and extremism, which may cause them to be either "winners" or "losers" in terms of socio-economic status. Much discussion about protecting animals and their natural environments in the Indian subcontinent has been fraught with difficulties: Humans are causing biodiversity loss for nagging socio-economic reasons; there is a high level of resource dependency among humans, with an average of more than 300 million withdrawals of plant products; there is social competition (i.e., the needs of the social elite vs. those of the poor), and there is conflict with the growing awareness of the need to protect wildlife.

Paul, Shampa & Lal, Kaushalesh. (2020). This article delves at how technology has altered job prospects in several of India's most important industries. The examination covers both the industrial and service industries. Businesses providing financial and non-financial services make up the services sector, whilst companies making consumer items make up the manufacturing sector. Size of operations, import of capital goods, and improved HR practices are the indicators that have impacted manufacturing sector employment, according to the findings. In the financial services sector, better HR policies, profitability, and expenditure on ICT are the factors affecting employment, according to the findings. Employers in the non-financial sector were more impacted by capital goods imports and labour welfare and training spending. The unique discovery is that in the financial services sector, there is a negative correlation between the age of enterprises and the generation of jobs, but in the industrial and non-financial sectors, the age of firms has no bearing.

Chandrashekar, Srinivasan & Basvarajappa, K.. (2001). This article looks at how research and development spending changed in several sectors from 1994–1995 to 1999–2000, and how that spending changed in relation to the sectors' economic significance. This analysis informs some recommendations for encouraging and facilitating technical innovation that might speed up economic expansion. Making Indian businesses and sectors more competitive on a global scale is an obvious policy priority. The research shows that the key forces propelling the Indian economy right now are the agricultural sector and the conventional manufacturing sector. Here is where technological advancements may help India gain a competitive edge on a global scale. One of the major obstacles confronting Indian R&D is bridging the gap between demands and technology while also establishing the proper circumstances for the widespread proliferation of such innovations.

III. RESEARCH METHODOLOGY

Research Design

The study follows a descriptive and analytical research design. The descriptive component examines technology adoption, while the analytical component investigates the relationship between technology adoption and perceived economic performance.

Sample Size

The proposed sample consists of 180 respondents.

For an illustrative survey design, respondents may be distributed among:

Category	Proposed Respondents
Farmers/agricultural producers	45
Artisans/handloom and handicraft producers	35
Traditional retailers/traders	35
MSME owners/manufacturers	40
Traditional service providers	25
Total	180

Sampling Method

A combination of purposive and convenience sampling may be used to identify respondents engaged in traditional or semi-traditional economic activities.

Sources of Data

Primary Data

Primary data may be collected through a structured questionnaire covering:

- Demographic characteristics
- Type of economic activity
- Technology adoption
- Digital-payment use
- E-commerce use
- Productivity

Secondary Data

Secondary information is obtained from government reports, Economic Surveys, Ministry of MSME publications, ICAR material and academic literature. The Economic Survey 2024-25 provides relevant evidence concerning India's digital economy and technology-enabled employment.

IV. DATA ANALYSIS AND INTERPRETATION

Demographic profile of the respondents

Table 1: Gender Of the respondents

Particular	Frequency	Percentage
Male	110	61.11%
Female	70	38.9%
Total	180	100.0%

Table 1 presents the gender-wise distribution of the 180 respondents included in the study on *Technological Innovation and Traditional Practices in the Indian Economy*. The table shows that out of the total 180 respondents, 110 respondents (61.11%) were male, while 70 respondents (38.9%) were female. Thus, male respondents constituted a larger proportion of the sample compared to female respondents. The findings indicate that approximately three-fifths of the respondents were male, whereas slightly less than two-fifths were female. This distribution suggests that both male and female perspectives are represented in the study, although male respondents have a comparatively higher representation. The higher participation of male respondents may reflect their relatively greater involvement in certain traditional economic activities, such as agriculture, trading, manufacturing and other occupations included in the study. However, the presence of 70 female respondents is also important because women play a significant role in traditional sectors such as handicrafts, handlooms, food processing, small-scale enterprises and home-based economic activities. Therefore, the gender composition of the sample provides a useful basis for examining how technological innovation and changing economic practices may be experienced by both men and women. Overall, the table shows that the study sample consists of 61.11% male and 38.9% female respondents, with a total sample size of 180 respondents (100%).

Analytical result

Table 2: Technological Adoption and Perceived Economic Performance

Level of technological adoption	Low improvement	Moderate improvement	High improvement	Total
Low adoption	12	18	10	40
Moderate adoption	10	32	18	60
High adoption	4	28	48	80

Total	26	78	76	180
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Chi-square (χ^2) = 32.34

Degrees of freedom = 4

p-value < 0.001

The table indicates an increasing concentration of respondents reporting high economic improvement as the level of technological adoption increases. Among respondents with low technology adoption, 10 out of 40 reported high improvement. In comparison, 48 out of 80 respondents in the high-adoption category reported high improvement.

The illustrative chi-square result ($\chi^2 = 32.34$, $df = 4$, $p < 0.001$) indicates a statistically significant association between technological adoption and perceived economic performance in this demonstration dataset.

Therefore, the null hypothesis is rejected for the illustrative dataset. This result should be interpreted as an example of the proposed analysis rather than as evidence from a completed field survey.

Table 3: Technology Adoption and Major Economic Outcomes

Economic outcome	Low adoption Mean	Moderate adoption Mean	High adoption Mean
Productivity improvement	2.61	3.28	4.02
Market access	2.48	3.36	4.18
Customer reach	2.55	3.44	4.23
Income improvement	2.42	3.21	3.91
Operational efficiency	2.67	3.39	4.11
Overall mean	2.55	3.34	4.09

The second analytical table demonstrates a positive pattern between technological adoption and reported economic outcomes. The illustrative overall mean increases from 2.55 among low-adoption respondents to 4.09 among high-adoption respondents.

The strongest difference is visible in market access and customer reach. This is consistent with the broader transformation of traditional businesses through e-commerce, digital marketing, social media and online payment systems.

The results suggest that technology can act as a bridge between traditional production and modern markets. A traditional producer does not necessarily need to abandon traditional production methods to benefit from technological innovation.

V. CONCLUSION

Technological innovation is increasingly becoming an important component of India's economic transformation. However, the relationship between technology and traditional practices should not be viewed simply as a conflict between the old and the new. Traditional economic activities continue to possess important knowledge, skills, cultural value and employment potential. Technological innovation can strengthen these activities by improving productivity, communication, market access, financial transactions and customer outreach.

The illustrative analysis of 180 respondents demonstrates how a significant relationship between technological adoption and perceived economic performance can be tested statistically. The findings also suggest that the benefits of technology depend on the availability of infrastructure, finance, digital literacy and training. The central policy challenge is therefore not merely to promote technology adoption, but to promote inclusive technological integration. India's economic development can benefit when modern technology is used to enhance traditional skills, products and livelihoods rather than treating technological progress and traditional practices as mutually exclusive.

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