

## **ARTIFICIAL INTELLIGENCE AND THE INFORMAL ECONOMY: OPPORTUNITY, DISRUPTION, AND THE PATH TO INCLUSION**

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### **ABSTRACT**

Artificial Intelligence (AI) is increasingly influencing economic systems worldwide, including sectors that traditionally operate outside formal regulation. In India, where a large share of the workforce is engaged in informal employment, the implications of AI adoption are particularly significant. This paper examines how AI-based technologies are reshaping the livelihoods of informal workers such as gig workers, street vendors, domestic workers, and small-scale producers.

While AI introduces advantages such as improved efficiency, accuracy, and access to digital financial services, it also generates challenges including employment instability, digital exclusion, privacy risks, and the need for continuous skill upgradation. The study argues that without inclusive policy interventions, the benefits of AI may bypass vulnerable populations and intensify existing inequalities.

The paper emphasizes the importance of social protection, digital literacy, and regulatory oversight to ensure that AI strengthens rather than undermines worker welfare. It concludes by proposing a framework for responsible AI integration that prioritizes equity, dignity, and sustainable economic growth.

### **INTRODUCTION**

The informal economy consists of economic activities that operate beyond formal institutional frameworks, often lacking job security, regulated wages, and access to social protection. In India, a substantial proportion of the workforce depends on this sector for livelihood, including agricultural labourers, construction workers, street vendors, and domestic workers.

With the rapid advancement of Artificial Intelligence, technological change is no longer confined to formal industries. AI-driven applications are now embedded in everyday processes such as digital payments, logistics management, and platform-based employment. This transition is reshaping how informal workers access jobs, earn income, and interact with markets.

AI presents a dual reality. On one hand, it creates opportunities for small producers and service providers to connect with wider markets through digital platforms. On the other hand, it threatens to replace routine and low-skilled jobs that form the backbone of informal employment. This creates a critical question: will AI act as a tool of empowerment or deepen economic exclusion?

India's demographic profile, characterized by a large working-age population, makes this issue even more urgent. Generating employment opportunities alongside technological progress is a major challenge. If job creation does not keep pace with automation, the economy risks experiencing growth without sufficient employment generation.

In many semi-urban and rural regions, workers increasingly depend on smartphone-based applications for income generation. However, these systems are governed by algorithms that are not transparent to users. This lack of understanding can create dependence and vulnerability. Additionally, the cost of digital access—devices, internet connectivity, and skill acquisition—places an extra burden on already constrained household incomes.

Therefore, the true measure of technological progress should not be limited to business growth or innovation metrics, but should include the stability and security of livelihoods among the most vulnerable sections of society.

### **Objectives**

- To examine how AI influences employment patterns in the informal sector
- To assess whether productivity improvements compensate for job displacement
- To evaluate the importance of digital literacy for informal workers
- To analyze the psychological and social effects of AI-based work systems
- To understand the broader economic implications for India's workforce

### **METHODOLOGY**

This study adopts a descriptive and analytical research design, combining both quantitative and qualitative approaches.

#### **Sample and Population:**

The study focuses on informal workers including gig workers, street vendors, domestic workers, and small-scale producers. A total of 100 respondents were selected.

#### **Sampling Technique:**

A multi-stage stratified random sampling method was used:

- Selection of districts representing different levels of technological exposure
- Classification of workers based on occupation type
- Random selection within each group

#### **Data Collection Methods:**

- Structured questionnaires to gather information on income, work patterns, and digital usage
- Semi-structured interviews to understand personal experiences and psychological impacts
- A digital literacy scale to assess technological familiarity

### **Opportunities Created by Artificial Intelligence**

AI has the potential to improve working conditions and economic outcomes in several ways:

1. **Reduction of Hazardous Work:** Automation can replace dangerous tasks in sectors such as sanitation and small-scale industries, improving worker safety.
2. **Access to Financial Services:** Digital platforms can enable small workers to access credit and financial tools, reducing dependence on informal lenders.

3. **Improved Market Access:** AI-based analytics can help producers make better decisions regarding production and pricing.
4. **Efficiency Gains:** Automation and predictive systems can reduce waste and increase productivity.
5. **Employment Search Support:** Digital platforms can help workers find job opportunities more easily.
6. **Language Accessibility:** AI tools can reduce communication barriers by supporting multiple languages.
7. **Formalization Benefits:** Digital registration can help workers access government schemes and benefits.

## CHALLENGES AND RISKS

Despite its advantages, AI also introduces several concerns:

1. **Income Instability:** Algorithm-driven systems can change wages and work allocation unpredictably.
2. **Job Displacement:** Routine tasks are increasingly automated, reducing demand for low-skilled labour.
3. **Digital Divide:** Limited access to technology and skills creates inequality among workers.
4. **Psychological Stress:** Lack of control over work conditions can lead to anxiety and reduced job satisfaction.
5. **Data Privacy Issues:** Increased reliance on digital platforms raises concerns about personal data security.
6. **High Costs:** Technology adoption requires financial investment that many informal workers cannot afford.
7. **Environmental Impact:** AI infrastructure consumes significant energy and water resources.

## POLICY MEASURES FOR INCLUSIVE AI DEVELOPMENT

To ensure that AI contributes positively to informal livelihoods, a structured policy approach is necessary:

### 1. Strengthening Digital Infrastructure

Affordable and reliable internet access should be expanded, especially in rural areas. Technology interfaces must be designed in regional languages to improve accessibility.

### 2. Expanding Social Protection

Social security systems should be adapted to cover informal workers across different types of employment. Digital systems can help track work history and deliver benefits efficiently.

### 3. Ensuring Accountability

Technology platforms should be required to provide clear explanations for decisions affecting workers, such as wage changes or job allocation. This improves transparency and fairness.

## CONCLUSION AND RECOMMENDATIONS

The expansion of Artificial Intelligence is unavoidable, but its outcomes depend on how it is managed. For a country like India, the goal should be to align technological progress with employment generation and social welfare.

An inclusive approach requires:

1. Improving digital literacy with a focus on data awareness
2. Introducing ethical guidelines for AI deployment
3. Ensuring human oversight in critical decision-making processes

Ultimately, the success of AI should be evaluated not only in terms of innovation but also in terms of its ability to enhance the security, dignity, and well-being of workers. A balanced strategy can ensure that technological advancement supports equitable and sustainable development.

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