

A SOCIOLOGICAL ANALYSIS WITH INDIAN AND KARNATAKA PERSPECTIVES

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ABSTRACT

Artificial Intelligence (AI) has become a transformative force in the 21st century, influencing economic production, governance, healthcare, education, and everyday social interaction. While AI promises efficiency, innovation, and economic growth, it also poses significant risks of deepening social inequality. This seminar paper examines how AI interacts with structural inequalities related to class, caste, gender, race, region, and global power hierarchies. Drawing on classical sociological theory, contemporary critical scholarship, and empirical case studies from India and Karnataka, the paper argues that AI is not socially neutral. Rather, it reflects and often amplifies existing power structures embedded in data, institutions, and markets. The study explores economic inequality, algorithmic bias, digital divide, educational disparity, health inequity, and global data colonialism. It further analyzes India's digital governance initiatives, the role of the Unique Identification Authority of India, and Karnataka's AI ecosystem centered in Bengaluru. The paper concludes with policy recommendations for inclusive AI governance aimed at reducing inequality and promoting social justice in the digital age.

KEYWORDS: Artificial Intelligence (AI), Society, Inequality, Digital Age, Employment Decisions, Healthcare, Education, Law, Public Welfare, Global, Policy, Skills, Internet.

Introduction

Technological revolutions have historically reshaped social structures. The Industrial Revolution reorganized labor and capital; the Information Revolution transformed communication and knowledge production. Today, Artificial Intelligence represents the next transformative wave.

Artificial Intelligence (AI) is transforming economies, governance, education, and healthcare. However, AI systems are embedded within existing social structures and may amplify inequalities related to class, caste, gender, and region.¹

AI systems increasingly influence:

- Employment decisions
- Credit approvals
- Healthcare diagnostics
- Educational assessments
- Law enforcement surveillance
- Public welfare distribution

However, technological advancement does

not automatically ensure social progress. As noted by Karl Marx, technological tools often serve dominant economic interests. Similarly, Max Weber warned about rationalized systems producing bureaucratic control. In the AI era, algorithmic systems function as new bureaucratic authorities shaping life chances. This paper critically examines the relationship between AI and social inequality, focusing on both global trends and Indian realities.

Objectives of the Study

- To examine the conceptual relationship between AI and social inequality.
- To analyze theoretical perspectives explaining AI-driven inequality.
- To evaluate economic, educational, and governance impacts of AI.
- To study Indian case examples, including digital governance and fintech.
- To explore Karnataka's AI development and regional disparities.
- To propose inclusive policy recommendations.

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Research Methodology

This seminar paper adopts a qualitative and analytical research methodology based on:

- Secondary data sources (government reports, academic studies, policy documents)
- Theoretical analysis
- Case study approach (India and Karnataka)
- Comparative sociological interpretation

The study is descriptive and critical in nature.

Conceptual Framework

Artificial Intelligence

AI refers to computational systems capable of learning from data, identifying patterns, and making predictions or decisions without explicit programming for every scenario.

Social Inequality

Social inequality refers to unequal distribution of wealth, power, status, and opportunities across social groups. It manifests through:

- Class hierarchy
- Caste system
- Gender disparity
- Racial discrimination
- Rural-urban divide

Digital Divide

The digital divide includes:

- Access gap (devices, internet)
- Skills gap (digital literacy)
- Usage gap (quality of engagement)
- Outcome gap (economic benefits from digital participation)

Urban vs Rural Internet Access in India

Urban internet penetration in India is approximately 67%, while rural access remains around 31%, revealing infrastructural inequality and limited digital participation.

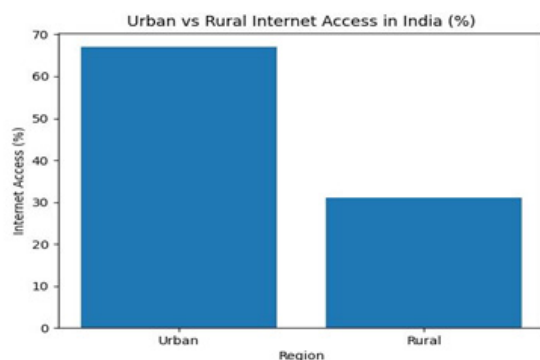


Figure 1: Urban vs Rural Internet Access in India
- Image retained as per original manuscript

AI Workforce Concentration

Bengaluru accounts for nearly 35% of India's AI workforce, demonstrating spatial centralization of technological capital and regional inequality.³

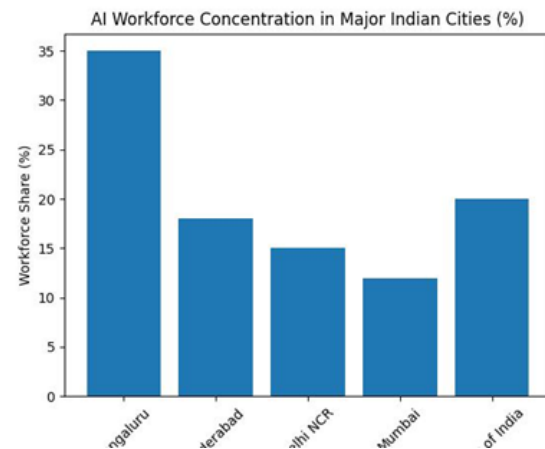


Figure 2: AI Workforce Concentration in Major Indian Cities - Image retained as per original manuscript

Automation and Labor Risk

Low-skill workers face significantly higher automation risk compared to high-skill workers, reinforcing labor market polarization and economic inequality.⁴

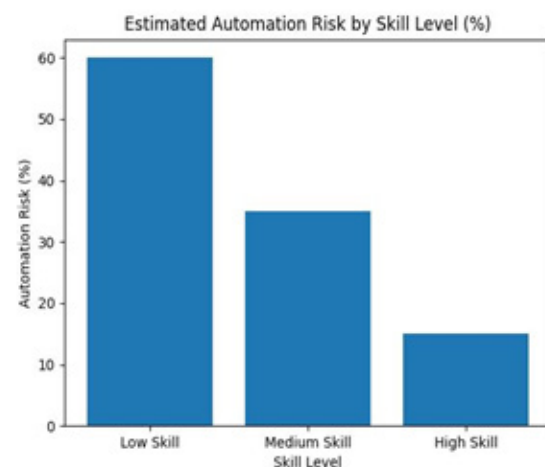


Figure 3: Automation Risk by Skill Level - Image retained as per original manuscript

Theoretical Perspectives on AI and Inequality

Marxist Perspective

Marxist theory views AI as part of capitalist production. Automation increases surplus value while reducing labor dependency. Ownership of AI infrastructure by corporations leads to wealth concentration. Major technology corporations such as Google, Microsoft, and OpenAI control advanced AI systems, reinforcing digital capitalism.

Weberian Rationalization

AI systems represent hyper-rational

bureaucratic systems. Decisions become data-driven but not transparent. Individuals face “algorithmic authority” with limited transparency.

Critical Algorithm Studies

Scholars argue that algorithms embed social biases. Historical discrimination becomes coded into predictive models, leading to automated inequality.

AI and Economic Inequality

Automation and Employment

AI disrupts sectors such as:

- Manufacturing
- Retail
- Transportation
- Customer service

Routine jobs decline while high-skill digital jobs increase, widening income gaps.

Platform Economy

Gig workers operate under algorithmic management systems that determine ratings, pay, and task allocation. Workers lack bargaining power, creating precarious labor conditions.

Wealth Concentration

AI-driven economies produce “winner-takes-all” markets. Tech elites accumulate disproportionate capital, expanding class inequality.

Automation and Employment (India Context)

The “Automation of the Cognitive” is reshaping India’s demographic dividend. As of 2026, the Chief Economic Advisor (CEA) has termed AI a “stress test of state capacity.”

- **Sectoral Disruptions:** Manufacturing: Investment in “Agentic AI” and physical robotics (humanoid transporters) is projected to double by 2026. This elevates “Smart Manufacturing” but displaces semi-skilled assembly and packaging roles.
- **White-Collar Jobs:** In early 2026, major Indian IT firms like TCS and Fractal Analytics saw significant market fluctuations and layoffs (e.g., TCS restructuring affecting ~12,000 roles) as AI agents began automating legal contract reviews and routine coding.
- **The Income Gap:** While demand for “AI-complementary” roles (data scientists, AI auditors) has grown exponentially, the skill gap prevents displaced routine workers from transitioning, leading to a “K-shaped” recovery where tech elites prosper while middle-income routine roles vanish.

The Platform Economy (Continued)

In 2026, algorithmic management has moved from simple delivery to “Deep Surveillance.”

- **Algorithmic Management:** Gig platforms like Zepto and Zomato use AI to set “near-impossible” delivery targets. Workers face asymmetric information-the algorithm knows their location, speed, and history, but workers have no transparency into how their “ratings” or “pay-per-mile” are calculated.
- **Bargaining Power:** The “distance” created by algorithms prevents traditional labor organizing. In Bengaluru, gig workers are increasingly resorting to “digital activism” to challenge opaque performance scoring.

Algorithmic Bias and Social Discrimination

AI systems trained on biased data may:

- Discriminate in hiring
- Reinforce racial profiling
- Exclude marginalized communities from loans
- Misidentify minority faces

Bias emerges from underrepresentation in datasets and unequal historical structures.

AI and Educational Inequality

AI-based education tools personalize learning but require digital access.

During COVID-19:

- Urban students accessed online AI platforms.
- Rural students lacked devices and connectivity.
- Gender gaps widened due to unequal device access.

Thus, AI-driven education may reproduce privilege. We are witnessing the transition from a “Digital Divide” to an “Intelligence Divide.”

- **The Chasm:** Urban private schools (CBSE/ ICSE) now integrate “Agentic AI” tutors by Class 3. In contrast, rural government schools often lack the stable electricity and high-speed bandwidth required for basic AI tools.
- **Data Invisibility:** AI models learn from interaction. Because rural students have less digital engagement, their linguistic nuances and learning patterns are missing from datasets, making future AI tools even less effective for them-a “Data Underclass.”

AI in Healthcare and Inequality

AI enhances disease detection and predictive analytics. However:

- Rural populations lack advanced AI-based hospitals.
- Data often underrepresents marginalized

communities.

- Cost barriers restrict access.

Healthcare inequality may intensify without inclusive infrastructure.

Gender, Caste, and Intersectional Inequality

In India:

- Women have lower digital participation rates.
- Marginalized caste communities face educational disadvantages.
- Representation in AI workforce remains skewed toward urban elites.

Intersectionality reveals how multiple inequalities overlap in digital spaces.

Intersectional Statistics (2025-2026):

- Caste: ICT skill deprivation is highest among ST (89.49%) and SC (86.62%) groups compared to "Others" (73.71%).
- Gender: National ICT skill levels show a massive gap: Men (22.78%) vs. Women (13.91%).
- Representation: The AI workforce in Bengaluru remains skewed toward urban, upper-caste males, ensuring that the "values" encoded into Indian AI models reflect only a narrow slice of the population.

Global Inequality and Data Colonialism

AI leadership is concentrated in the United States and China. Developing countries provide data but lack technological sovereignty. Countries such as India must balance innovation with digital equity.

Indian Case Studies

Aadhaar and Digital Welfare

The Unique Identification Authority of India administers Aadhaar for biometric authentication.

- Benefits: Direct Benefit Transfers, Reduced leakages
- Concerns: Authentication failures, Exclusion from welfare, Digital illiteracy barriers

AI-enabled governance can both empower and exclude.

Financial Technology and Credit Algorithms

AI-based lending evaluates digital footprints.

- Issues: Informal workers excluded, Lack of transparency in credit scoring, Rural populations disadvantaged.

Algorithmic finance risks reinforcing inequality.

AI in Policing

Facial recognition technologies raise concerns about surveillance and minority

targeting. Without strong regulation, AI policing may threaten civil liberties.

Karnataka Perspective

Bengaluru as AI Hub or The "Two Karnatakas"

Bengaluru hosts IT giants such as:

- Infosys
- Wipro
- Tata Consultancy Services

Karnataka's AI policy promotes innovation and startups. As of February 2026, Bengaluru is ranked the 5th best city in the world for AI skilling and top 10 for AI startups. Global giants like Anthropic AI have established headquarters here, fueled by the state's proactive AI policy.

Regional Disparities

While Bengaluru thrives:

- Northern Karnataka districts lag in infrastructure.
- Rural youth lack AI skill exposure.
- Broadband penetration varies widely.

The North-South Divide: While Bengaluru thrives, Northern Karnataka districts lag in broadband penetration and AI infrastructure.

Agriculture and AI

AI tools for crop monitoring benefit large farmers more than smallholders due to cost and device barriers.

- Agriculture: AI crop-monitoring tools (drones, soil sensors) are becoming "paywalled" private products. Large-scale farmers in the South use them to optimize yields, while smallholders in dryland regions remain underserved due to high subscription costs and the English-language barrier (less than 10% speak it fluently).

Ethical and Governance Challenges

Key concerns include:

- Data privacy
- Surveillance capitalism
- Algorithmic transparency
- Accountability mechanisms

Global regulatory efforts such as those by the European Union demonstrate proactive governance.

- The Digital Personal Data Protection (DPDP) Act of 2023 is being criticized in 2026 for its lack of "Algorithmic Fairness" provisions.
- Surveillance Capitalism: The collection of data without "meaningful consent" (often via bundled "Accept All" clicks) enables tech giants

to extract indigenous and communal data-a form of Data Colonialism.

- The Path Forward: Experts advocate for “EU-style regulatory sandboxes” to stress-test algorithms against caste and gender bias before they are deployed in public welfare.

Policy Recommendations

- Universal digital infrastructure expansion
- AI literacy programs in government schools
- Multilingual AI systems (including Kannada)
- Algorithmic audits for bias detection
- Inclusive datasets
- Rural AI innovation hubs in Karnataka
- Strong data protection enforcement

Findings

- AI reinforces existing structural inequalities unless regulated.
- Digital divide is the primary driver of AI-based inequality.
- Karnataka shows a dual reality: global innovation and regional exclusion.
- Inclusive governance determines whether AI reduces or deepens inequality.
- Integration of Statistical Evidence

Digital Divide

1. Urban-rural gap of over 35 percentage points demonstrates infrastructural inequality.
2. Workforce Concentration.
3. AI employment clustering in Bengaluru (35%) shows geographic centralization of technological capital.
4. Automation Risk.
5. Low-skill workers face nearly four times greater automation risk than high-skill workers.
6. Together, these statistics reinforce the thesis that AI amplifies pre-existing social hierarchies unless actively regulated.

Conclusion

Artificial Intelligence represents a defining force of the digital age. However, technology alone does not determine social outcomes - power structures, governance frameworks, and social policy shape its impact. In India and Karnataka, AI development coexists with stark inequality. Bengaluru symbolizes digital prosperity, while rural regions highlight digital marginalization. The challenge is not technological advancement itself, but ensuring equitable access, representation, and governance. AI must be democratized to serve social justice rather than elite concentration. Only

through inclusive policy, ethical design, and social awareness can AI contribute to reducing inequality rather than intensifying it.

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