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AI-BASED CREDIT SCORING AND FINANCIAL ACCESS FOR MSMES: EVIDENCE FROM SECONDARY DATA

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ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in economic growth, employment generation, and innovation, particularly in emerging economies. Despite their importance, access to formal credit remains a persistent challenge for MSMEs due to information asymmetry, lack of collateral, and limited credit histories. In recent years, Artificial Intelligence (AI)-based credit scoring models have emerged as a transformative solution to these challenges. This article, based on secondary data from academic literature, industry reports, and policy documents, examines how AI-driven credit scoring enhances financial access for MSMEs. The study highlights the mechanisms, benefits, risks, and policy implications of AI-based credit assessment, concluding that while AI significantly improves credit inclusion, responsible adoption and regulatory oversight are essential to ensure fairness and sustainability.

KEYWORDS: Artificial Intelligence, Credit Scoring, MSMEs, Financial Inclusion, Fintech, Alternative Data

INTRODUCTION

MSMEs constitute the backbone of most economies, accounting for a substantial share of employment and contributing significantly to GDP. In India and other developing countries, MSMEs are central to inclusive growth and regional development. However, limited access to formal finance continues to restrict their growth potential. Traditional credit evaluation methods rely heavily on financial statements, collateral, and historical credit records, which many MSMEs—especially new, informal, or rural enterprises—are unable to provide.

The rapid digitalization of financial services and the rise of fintech have paved the way for AI-based credit scoring models. These models leverage machine learning algorithms and alternative data

sources to assess the creditworthiness of MSMEs more accurately and efficiently. This article reviews existing secondary data to understand the role of AI-based credit scoring in improving financial access for MSMEs.

OBJECTIVES OF THE STUDY

This secondary-data-based study is undertaken with the following specific objectives:

1.To examine the concept and evolution of AI-based credit scoring in the context of MSME financing.
2.To analyze the role of AI-driven credit assessment models in improving financial access for MSMEs.
3.To understand how alternative data sources help reduce information asymmetry in MSME lending.
4.To review the benefits and efficiency gains of AI-based credit scoring for lenders and MSMEs.

RESEARCH METHODOLOGY

This study adopts a **descriptive and analytical research design** based exclusively on **secondary data**. The methodology is designed to synthesize existing knowledge on AI-based credit scoring and its role in enhancing financial access for MSMEs.

Sources of Secondary Data

Secondary data for the study were collected from reliable and authoritative sources, including:

- Peer-reviewed academic journals related to fintech, artificial intelligence, banking, and financial inclusion
- Reports published by international organizations such as the World Bank, OECD, and Basel Committee on Banking Supervision
- Policy documents and publications from regulatory bodies including the Reserve Bank of India (RBI)
- Industry reports from fintech firms, consulting agencies, and MSME-focused financial institutions
- Working papers, conference proceedings, and reputable online databases

SCOPE OF THE STUDY

The scope of the study is limited to understanding the conceptual framework, benefits, and challenges of AI-based credit scoring for MSMEs. As the study relies solely on secondary data, it does not involve primary surveys or econometric modeling.

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Concept of AI-Based Credit Scoring

AI-based credit scoring refers to the use of artificial intelligence techniques—such as machine learning, neural networks, and big data analytics—to evaluate borrowers' credit risk. Unlike traditional scoring models, which depend mainly on structured financial data, AI models incorporate alternative data such as:

- Transaction histories from digital payments
- GST and tax filings
- Bank account cash-flow patterns
- Mobile usage and e-commerce data
- Utility payments and supply-chain information

By analyzing large volumes of real-time data, AI systems can identify complex patterns and predict default risk with greater precision. This makes credit assessment faster, more adaptive, and potentially more inclusive for MSMEs with limited formal documentation.

MSMEs and the Credit Access Gap

Secondary data consistently highlight a significant credit gap in the MSME sector. According to reports by international financial institutions, a large proportion of MSMEs remain either underserved or excluded from formal credit markets. Key reasons identified in the literature include:

- High perceived risk by lenders
- Information asymmetry between MSMEs and financial institutions
- High transaction and monitoring costs
- Dependence on informal sources of finance

AI-based credit scoring addresses these challenges by reducing information gaps and enabling lenders to evaluate MSMEs based on actual business behavior rather than solely on collateral or past credit records.

Role of AI-Based Credit Scoring in Enhancing Financial Access

- **Improved Credit Inclusion**

  Studies indicate that AI-driven models expand credit access to first-time borrowers and thin-file MSMEs. By using alternative data, lenders can extend credit to enterprises previously excluded from the formal system, thereby supporting financial inclusion.

- **Faster and Cost-Effective Lending**

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AI automates the credit assessment process, significantly reducing loan processing time and operational costs. This efficiency benefits both lenders and MSMEs, particularly for small-ticket and short-term loans.

- **Better Risk Management**
  Machine learning models continuously learn from new data, improving their predictive accuracy over time. Secondary evidence suggests that AI-based scoring can reduce default rates by identifying early warning signals and segmenting borrowers more effectively.
- **Support for Digital and Platform-Based Lending**
  Fintech platforms and digital lenders rely heavily on AI-based credit scoring to serve MSMEs. These platforms integrate credit assessment with digital payment systems, supply chains, and e-commerce platforms, creating an ecosystem-based approach to MSME financing.

Challenges and Risks Identified in Literature

Despite its advantages, secondary studies also point to several challenges associated with AI-based credit scoring:

Data Privacy and Security: Extensive use of alternative data raises concerns about consent, data protection, and misuse of information.

Algorithmic Bias: If training data are biased or incomplete, AI models may unintentionally discriminate against certain groups or regions.

Lack of Transparency: Many AI models operate as "black boxes," making it difficult for borrowers to understand credit decisions.

Regulatory Gaps: Existing financial regulations often lag behind technological innovation, creating uncertainty for lenders and borrowers.

Policy and Regulatory Implications

Secondary data emphasize the need for balanced regulatory frameworks to support responsible AI adoption in MSME lending. Key policy recommendations include:

- Developing guidelines for ethical AI and explainable credit models
- Strengthening data protection and privacy laws
- Encouraging collaboration between banks, fintech firms, and regulators
- Promoting digital literacy among MSMEs to enhance informed participation

Such measures can ensure that AI-based credit scoring contributes to inclusive and sustainable financial development.

Key Findings from Secondary Data Analysis

Based on an extensive review of secondary sources including academic studies, policy reports, and

industry publications, the following key findings emerge:

1. **AI-Based Credit Scoring Significantly Improves MSME Credit Access:** Secondary evidence consistently shows that AI-driven credit models enable lenders to extend credit to MSMEs that are traditionally excluded due to lack of collateral or formal credit history.
2. **Alternative Data Reduces Information Asymmetry:** The use of transaction data, digital payment histories, GST filings, and cash-flow analytics provides a more realistic assessment of MSME financial behavior compared to conventional balance-sheet-based evaluation.
3. **Reduction in Loan Processing Time and Costs:** Studies report that AI-based automated credit assessment shortens loan approval timelines from weeks to hours or days, making small-ticket MSME lending commercially viable.
4. **Improved Risk Prediction and Portfolio Performance:** Machine learning models demonstrate higher predictive accuracy and lower default rates when compared to traditional scoring methods, especially for short-term working capital loans.
5. **Rapid Growth of Fintech-Led MSME Lending:** Secondary data highlight the growing role of fintech platforms and digital lenders that rely heavily on AI-based scoring to serve MSMEs, particularly in emerging markets.
6. **Persistent Concerns Around Bias and Transparency:** Despite the benefits, literature reveals concerns related to algorithmic bias

CONCLUSION

This study examined the role of AI-based credit scoring models in enhancing financial access for micro, small, and medium enterprises (MSMEs) using secondary data from multiple sources. The findings indicate that AI-driven credit scoring significantly improves the accuracy and efficiency of credit assessments compared with traditional heuristic and rule-based systems. Machine learning models effectively leverage alternative data (e.g., transaction histories, digital footprints, psychometric indicators) to predict creditworthiness, thereby reducing information asymmetry and expanding the credit frontier to underserved MSMEs.

Evidence from secondary data shows that AI models lower default rates, shorten decision timelines, and mitigate human bias in credit evaluations. These improvements have facilitated greater formal financial inclusion, particularly in contexts where MSMEs lack collateral or conventional financial records. However, the research also highlights challenges, including data quality issues, algorithmic transparency, ethical concerns, and regulatory gaps that may influence fairness and trust in automated credit decisions.

Overall, the integration of AI-based credit scoring presents a promising approach to democratizing access to finance for MSMEs. Policymakers, fintech practitioners, and financial institutions should collaboratively develop robust frameworks that balance innovation with data governance, ethical transparency, and regulatory compliance. Future research could focus on longitudinal impacts, causal inference through experimental designs, and comparative analyses across regions with differing digital infrastructures.

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