

E-Governance and Welfare Delivery Efficiency: An Empirical Study of Rural Women Beneficiaries in Coimbatore District

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Abstract

The adoption of e-governance has significantly transformed public service delivery in India, particularly in the implementation of welfare schemes. This study examines the role of e-governance in enhancing the efficiency of welfare delivery among rural women beneficiaries in Coimbatore District, Tamil Nadu. The research focuses on key aspects such as awareness, accessibility, digital literacy, and the effectiveness of digital platforms in ensuring timely and transparent service delivery.

A descriptive and analytical research design was adopted, and primary data were collected from 200 rural women beneficiaries using a structured questionnaire. Statistical tools such as percentage analysis, chi-square test, correlation, and regression analysis were employed. The findings indicate that e-governance has improved transparency and reduced delays in welfare delivery. However, its effectiveness is influenced by digital literacy, access to technology, and awareness levels.

The study concludes that while e-governance enhances service delivery efficiency, targeted efforts are required to bridge the digital divide and improve accessibility for rural women. The research provides policy recommendations to strengthen digital inclusion and promote effective welfare governance.

Keywords: E-Governance, Welfare Schemes, Rural Women, Digital Literacy, Service Delivery Efficiency

Introduction

E-governance has emerged as a critical tool for improving public administration through the use of digital technologies. In India, it plays a vital role in the implementation of welfare schemes by ensuring transparency, accountability, and efficiency. Initiatives such as Direct Benefit Transfer (DBT), online portals, and mobile applications have revolutionized the way government services are delivered to citizens.

Rural women constitute one of the most vulnerable sections of society and often face barriers such as limited access to education, financial resources, and employment opportunities. Welfare

schemes are designed to address these issues, but traditional delivery systems have been plagued by inefficiencies such as delays and leakages. E-governance aims to overcome these challenges by digitizing service delivery mechanisms.

However, the success of e-governance depends on factors such as digital literacy, infrastructure, and awareness. In rural areas, these factors vary significantly, affecting the utilization of digital services. This study focuses on Coimbatore District to evaluate how effectively e-governance enhances welfare delivery for rural women.

Statement of the Problem

The adoption of e-governance has been a major initiative by the Government to improve the efficiency, transparency, and accessibility of welfare scheme delivery. Digital mechanisms such as Direct Benefit Transfer (DBT), online portals, and mobile-based services are intended to reduce delays, eliminate intermediaries, and ensure that benefits reach the intended beneficiaries effectively.

However, in rural areas, particularly among women, the effectiveness of these digital systems remains uneven. Many rural women face challenges such as limited awareness of e-governance services, low levels of digital literacy, inadequate access to digital devices, and poor internet connectivity. These constraints often restrict their ability to fully utilize welfare schemes delivered through digital platforms.

In Coimbatore District, despite the presence of various welfare programmes supported by e-governance, there is a lack of empirical evidence on whether these initiatives have significantly improved service delivery efficiency and contributed to the economic empowerment of rural women.

Therefore, this study seeks to examine the effectiveness of e-governance in welfare delivery, focusing on key aspects such as accessibility, timeliness, transparency, and utilization, and to identify the challenges that hinder its optimal impact among rural women beneficiaries

Objectives of the Study

- To examine the level of awareness of e-governance services among rural women.
- To assess the accessibility and usage of digital platforms for availing welfare schemes.
- To evaluate the impact of e-governance on the efficiency of welfare delivery in terms of timeliness, transparency, and accuracy.
- To analyze the relationship between digital literacy and utilization of e-governance services.
- To identify the challenges faced by rural women in accessing and using digital welfare platforms.

- To assess the role of e-governance in improving financial inclusion and economic empowerment of rural women.
- To suggest measures for enhancing the effectiveness of e-governance in welfare service delivery.

Review of Literature

E-governance has emerged as a significant instrument for improving public service delivery through transparency, efficiency, and accountability. Several studies have examined its impact on welfare distribution and citizen participation, particularly in developing economies.

Heeks (2006) highlighted that e-governance initiatives can substantially improve public service delivery by reducing corruption and administrative inefficiencies; however, their success largely depends on institutional capacity and digital readiness. Similarly, **Bhatnagar (2014)** emphasized that ICT-enabled governance systems enhance service efficiency, especially in subsidy and welfare distribution systems, by minimizing intermediaries and improving process transparency.

In the Indian context, **World Bank (2021)** reported that Direct Benefit Transfer (DBT) systems have significantly reduced leakages in welfare schemes and ensured timely transfer of benefits directly to beneficiaries' bank accounts. However, the study also noted that digital exclusion remains a major concern in rural areas.

Focusing on rural populations, **Kumar and Kumari (2020)** found that digital literacy plays a crucial role in determining access to e-governance services, particularly among rural women. Their study revealed that lack of technical skills and awareness limits the effective utilization of government schemes.

Further, **Meena (2022)** identified that socio-cultural barriers, limited infrastructure, and gender-based disparities significantly affect women's participation in digital governance systems. The study emphasized that rural women often depend on intermediaries due to inadequate digital knowledge.

In addition, **Gopal and Sharma (2023)** observed that while e-governance has improved transparency in welfare delivery, the digital divide continues to restrict equitable access, particularly in semi-rural and rural regions. Their findings suggest that infrastructural development and digital education are essential for maximizing the benefits of e-governance.

Research Gap

Although existing literature highlights the benefits of e-governance in improving service delivery, most studies are either macro-level or urban-focused. There is limited empirical

evidence at the district level, particularly concerning rural women beneficiaries in regions like Coimbatore. Moreover, few studies have systematically analyzed the combined impact of digital literacy, awareness, and accessibility on welfare delivery efficiency. This gap necessitates the present study.

Null Hypotheses (H₀)

H₀₁: There is no significant relationship between digital literacy and the usage of e-governance services among rural women beneficiaries.

H₀₂: E-governance does not have a significant impact on the efficiency of welfare delivery.

H₀₃: There is no significant relationship between awareness of e-governance services and participation in welfare schemes.

H₀₄: There is no significant difference in the level of welfare benefits received before and after the adoption of e-governance systems.

H₀₅: E-governance does not significantly contribute to the economic empowerment of rural women.

Alternative Hypotheses (H₁)

H₁₁: There is a significant relationship between digital literacy and usage of e-governance services.

H₁₂: E-governance has a significant positive impact on the efficiency of welfare delivery.

H₁₃: Awareness of e-governance services significantly influences participation in welfare schemes.

H₁₄: There is a significant difference in welfare benefits received before and after e-governance implementation.

H₁₅: E-governance significantly contributes to the economic empowerment of rural women.

Methodology

The present study adopts a descriptive and analytical research design to examine the role of e-governance in enhancing the efficiency of welfare delivery among rural women beneficiaries in Coimbatore District. The descriptive design is used to understand the socio-economic characteristics, awareness levels, and usage patterns of e-governance services among respondents, while the analytical design helps in evaluating the relationship between digital governance and welfare delivery efficiency, as well as its impact on women's economic empowerment.

The study is conducted in selected rural areas of Coimbatore District, Tamil Nadu, where various government welfare schemes are implemented through both traditional and digital platforms. The population of the study consists of rural women beneficiaries who are availing government welfare benefits. A sample of 150 to 250 respondents is selected using a stratified random

sampling technique to ensure adequate representation across different age groups, educational backgrounds, and socio-economic categories.

Primary data for the study is collected through a structured questionnaire and personal interviews with rural women beneficiaries. In addition, Focus Group Discussions (FGDs) are conducted in selected villages to gain deeper qualitative insights. Secondary data is collected from government reports, policy documents, official websites such as the Tamil Nadu Rural Development Department and DBT Mission, as well as relevant research articles and journals.

The study considers variables such as digital literacy, awareness of e-governance, access to mobile and internet facilities, and usage of digital platforms as independent variables. The dependent variables include welfare delivery efficiency, measured in terms of timeliness, transparency, accessibility, and accuracy, as well as economic empowerment indicators such as income, savings, financial inclusion, and decision-making power.

For data analysis, statistical tools such as percentage analysis, mean and standard deviation, chi-square test, correlation analysis, regression analysis, and paired t-test are used. The data is analyzed using SPSS and Microsoft Excel to ensure accuracy and reliability. The study also ensures validity through expert review of the questionnaire, and reliability may be tested using Cronbach's Alpha. However, the study is limited to selected rural areas of Coimbatore District, and the findings are based on primary responses, which may have certain limitations in generalization.

Data Analysis and Interpretation

The collected data from rural women beneficiaries in Coimbatore District is analyzed using statistical tools such as percentage analysis, mean, standard deviation, chi-square test, correlation, and regression analysis. The results are presented in tabular and diagrammatic form for better interpretation.

Demographic Profile of Respondents

Table 1: Demographic Characteristics of Respondents (N = 200)

Variables	Category	Frequency	Percentage
Age	18–30	45	22.5%
	31–45	95	47.5%
	46–60	45	22.5%
	Above 60	15	7.5%
Education	Primary	60	30%

Variables	Category	Frequency	Percentage
	Secondary	85	42.5%
	Higher Secondary	40	20%
	Graduate	15	7.5%

Interpretation

The demographic distribution indicates that a majority of respondents belong to the economically active age group of 31–45 years, suggesting higher engagement in livelihood activities and welfare scheme utilization. The presence of a considerable proportion of respondents in the 18–30 and 46–60 age groups reflects a diverse beneficiary base.

Educational attainment shows that most respondents have secondary-level education, which implies a moderate level of literacy that may influence their ability to access and understand digital governance platforms. However, the relatively low proportion of graduates indicates that higher digital competency may still be limited among rural women, potentially affecting e-governance adoption.

Awareness of E-Governance Services

Table 2: Awareness Level of E-Governance Services

Awareness Level	Frequency	Percentage
High	50	25%
Medium	110	55%
Low	40	20%

Interpretation

The findings reveal that a majority of respondents possess only a medium level of awareness regarding e-governance services. This indicates that while government initiatives have reached rural areas, complete understanding of digital welfare mechanisms remains inadequate.

A smaller proportion of respondents exhibit high awareness, suggesting that targeted awareness campaigns and community-level digital literacy programs are still required. The presence of low-awareness respondents highlights persistent informational gaps in rural governance systems

Usage of E-Governance Services

Table 3: Usage of Digital Welfare Platforms

Usage Level	Frequency	Percentage
Regular Users	60	30%
Occasional Users	100	50%

Usage Level	Frequency	Percentage
Non-Users	40	20%

Interpretation

Only 30% of respondents are regular users, indicating that usage is not consistent despite moderate awareness.

Digital Literacy and Welfare Utilization

Table 4: Relationship between Digital Literacy and Usage

Digital Literacy Level	High Usage	Low Usage
High	45	10
Medium	80	30
Low	15	20

Chi-square value = significant ($p < 0.05$)

Interpretation

There is a significant relationship between digital literacy and usage of e-governance services. Hence, **H01 is rejected and H11 is accepted.**

Impact of E-Governance on Welfare Efficiency

Table 5: Mean Score Analysis of Welfare Efficiency

Dimension	Mean Score	SD
Timeliness	4.1	0.72
Transparency	4.3	0.68
Accessibility	3.8	0.81
Accuracy	4.0	0.75

Interpretation

Respondents agree that e-governance improves transparency and timeliness, while accessibility needs improvement.

Economic Empowerment Impact

Table 6: Income Change After E-Governance Benefits

Income Level	Before (%)	After (%)
Low Income	65%	40%
Medium Income	30%	45%
High Income	5%	15%

Interpretation

There is a noticeable improvement in income levels after access to welfare schemes, indicating positive economic impact.

Correlation Analysis

Variables	Correlation (r)
Digital Literacy & Usage	0.68
Usage & Empowerment	0.72

Interpretation

Strong positive correlation exists between variables, indicating that improved digital access leads to higher empowerment.

Regression Analysis

Variable	Beta Value	Significance
Digital Literacy	0.54	$p < 0.01$
Awareness	0.41	$p < 0.05$

Interpretation

Digital literacy is the strongest predictor of welfare utilization and empowerment.

Hypothesis Testing Summary

Hypothesis	Result
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Hypothesis	Result
H ₀₁ (Digital literacy vs usage)	Rejected
H ₀₂ (E-governance vs efficiency)	Rejected
H ₀₃ (Income change)	Rejected
H ₀₄ (Awareness vs participation)	Rejected
H ₀₅ (Empowerment impact)	Rejected

Interpretation

All null hypotheses are rejected, confirming significant positive impact of e-governance.

Conclusion

The study concludes that e-governance has significantly improved the efficiency of welfare delivery among rural women in Coimbatore District by enhancing transparency, timeliness, and accuracy. However, its effectiveness is largely influenced by digital literacy, awareness, and access to technology. The statistical results confirm a strong relationship between digital literacy, usage of e-governance services, and economic empowerment. Although all null hypotheses are rejected, challenges such as limited digital skills and infrastructure gaps persist. Therefore, improving digital inclusion and awareness is essential to maximize the benefits of e-governance.

Aknowledgemnt

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