



An Empirical Analysis of Direct Benefit Transfer (DBT) Efficiency and the Role of Co-operatives in Urban and Rural Districts of Bengaluru”

Dr. N Subbu Krishna Shastry¹, Akshay H M², Arihant,³ MM Saniya Tabassum⁴

¹ Assistant Professor, School of Management, CMR University, Bangalore Karnataka - 560043, Email: subbukrishna.s@cmr.edu.in

² MBA, School of Management, CMR University, Bengaluru, Karnataka, India – 560043, Email: akshay.hm@cmr.edu.in

³ MBA, School of Management, CMR University, Bengaluru, Karnataka, India – 560043, Email: arihant.shinappa@cmr.edu.in

⁴ School of Management, CMR University, Bengaluru, Karnataka, India – 560043, Email: muneer.saniya@cmr.edu.in

ABSTRACT :

The Direct Benefit Transfer (DBT) scheme has emerged as a key public policy instrument in India to enhance transparency, reduce leakages, and ensure timely delivery of welfare benefits to intended beneficiaries. Despite its wide-scale implementation, variations in DBT efficiency continue to persist across regions due to differences in institutional support, digital literacy, and financial inclusion. In this context, co-operative institutions play a significant role in facilitating last-mile connectivity, particularly in rural and semi-urban areas where access to formal banking infrastructure remains uneven.

The present study undertakes an empirical analysis of the efficiency of Direct Benefit Transfer (DBT) mechanisms in the urban and rural districts of Bengaluru, with a specific focus on examining the functional role of co-operatives in strengthening welfare delivery systems. The importance of this study lies in its attempt to assess how co-operatives contribute to improving beneficiary access, reducing transaction delays, enhancing awareness, and addressing operational challenges associated with DBT implementation.

The primary aim of the researcher is to evaluate the level of efficiency of DBT implementation in Bengaluru's urban and rural contexts and to identify the extent to which co-operative institutions influence the effectiveness of DBT in terms of accessibility, reliability, and beneficiary satisfaction. The study further seeks to compare regional disparities and institutional effectiveness between urban and rural districts, thereby providing insights into structural and operational gaps.

Using primary data collected from DBT beneficiaries, co-operative officials, and relevant stakeholders, along with secondary data from government reports and policy documents, the study applies appropriate statistical and analytical tools to derive meaningful conclusions.

The researcher in their research expect to offer valuable policy implications for strengthening the DBT framework through enhanced co-operative participation, improved digital inclusion, and targeted institutional reforms, contributing to more inclusive and efficient welfare governance.

Keywords: Direct Benefit Transfer (DBT), Co-operatives, Welfare Delivery, Financial Inclusion, Urban–Rural Disparities, Bengaluru

Introduction

India's welfare delivery landscape has undergone a significant transformation over the past decade, largely driven by the large-scale adoption of the Direct Benefit Transfer (DBT) scheme. Introduced as a flagship governance reform, DBT was designed to eliminate inefficiencies, reduce intermediary leakages, and ensure that welfare benefits reach the intended beneficiaries directly through their bank accounts. While the initiative has achieved notable success in improving transparency and reducing delays at a national level, its effectiveness varies considerably across different geographic and socio-economic contexts.

Bengaluru, as one of India's most rapidly growing metropolitan regions, presents a unique and complex case for studying DBT implementation. The city and its surrounding rural districts reflect a sharp contrast — urban areas with relatively developed banking infrastructure and digital access on one side, and rural and semi-urban zones where financial literacy and connectivity remain significant challenges on the other. These disparities raise important questions about whether a uniform DBT mechanism can deliver equal outcomes across such diverse settings.

In this context, co-operative institutions emerge as a critical but often underexplored component of the welfare delivery chain. Cooperatives, particularly in rural and semi-urban areas, serve as accessible financial touchpoints for a large section of the population that remains outside the reach of mainstream banking. Their grassroots presence and community trust make them potential facilitators of last-mile DBT delivery — yet their role in determining DBT efficiency has received limited empirical attention.

This study aims to fill that gap by empirically examining the efficiency of DBT mechanisms across urban and rural districts of Bengaluru, with a focused inquiry into how co-operative institutions influence beneficiary access, transaction reliability, and overall satisfaction. By drawing on primary data from DBT beneficiaries, cooperative officials, and relevant stakeholders, alongside secondary sources, this research seeks to provide a grounded,

evidence-based understanding of the structural and operational factors that shape DBT performance. The findings are expected to offer actionable insights for policymakers working toward a more inclusive and equitable welfare governance framework

Review of Literature

Direct Benefit Transfer Origin and Policy Rationale in India

The Direct Benefit Transfer scheme was conceived by the Government of India as a structural response to long-standing inefficiencies in welfare disbursement, particularly leakages, duplication, and delays caused by multiple layers of intermediaries. By linking Aadhaar-based identity verification with beneficiary bank accounts, the scheme sought to establish a more direct and accountable channel for transferring entitlements. Muralidharan, Niehaus, and Sukhtankar (2016) evaluated the impact of biometrically authenticated payments infrastructure on beneficiaries of employment and pension programs in the Indian state of Andhra Pradesh

through a large-scale experiment covering 157 subdistricts and 19 million people. Their study found that the new system delivered a faster, more predictable, and less corrupt payments process without adversely affecting program access, with time savings to beneficiaries alone equal to the cost of the intervention. This finding is significant for the present research, as it provides empirical grounding for treating timeliness and reliability as measurable indicators of DBT efficiency, rather than relying purely on anecdotal assessments of scheme performance.

Welfare Delivery Within India's Broader Development Context

While technology-driven reforms address the mechanics of payment delivery, the effectiveness of any welfare scheme must also be understood against the wider socio-economic conditions it operates within. Dreze and Sen (2013) present an analysis of deprivations and inequalities in Indian society and the possibility of change through democratic practice. They observe that despite India's strong economic growth performance, a detailed and objective discussion of issues plaguing the social sector reveals a dismal state of affairs for a large majority of citizens. This perspective is useful for the present study, as it reinforces the argument that economic growth alone does not guarantee improved welfare outcomes institutional intermediaries such as co-operative societies may play a meaningful role in closing this gap by improving last-mile access to benefits.

Direct Benefit Transfer and Financial Inclusion in Karnataka

A study of direct relevance to the present research is that of Saini, Hussain, and Zeeshan (2024), who surveyed 1,620 beneficiary households of Karnataka's Anna Bhagya Scheme across rural and urban areas in six districts, including Bengaluru and Bengaluru Rural. Their findings revealed that around 43 per cent of rural respondents and 33 per cent of urban respondents opened their first bank accounts after the introduction of the direct benefit transfer scheme, pointing to a tangible link between DBT rollout and improved banking penetration. The study also found that an increase in DBT amounts led to a substantial rise in household consumption, with the primary use of funds being the purchase of grains in both rural and urban areas. Interestingly, the research identified behavioral differences between the two groups, including variation in household savings patterns between rural and urban respondents and a preference split between cash and in-kind benefits, with a higher share of rural respondents favoring cash transfers. Because this study draws on the same districts examined in the present research, it offers a useful empirical reference point for comparing urban-rural disparities in DBT outcomes

Research Gap

The literature reviewed above demonstrates that biometric, technology-enabled payment systems can meaningfully improve the speed and reliability of welfare transfers (Muralidharan, Niehaus & Sukhtankar, 2016), that India's broader developmental challenges call for stronger delivery mechanisms at the grassroots level (Dreze & Sen, 2013), and that DBT implementation in Karnataka, while generally beneficial, produces differing outcomes across urban and rural populations (Saini, Hussain & Zeeshan, 2024). However, none of these studies specifically examine the role of co-operative institutions as facilitators within this delivery chain. The present study addresses this gap by empirically assessing how co-operative participation influences DBT efficiency and beneficiary satisfaction across the urban and rural districts of Bengaluru.

References for This Section.

- Dreze, J., & Sen, A. (2013). *An uncertain glory: India and its contradictions*. Princeton University Press.
- Muralidharan, K., Niehaus, P., & Sukhtankar, S. (2016). Building state capacity: Evidence from biometric smartcards in India. *American Economic Review*, 106(10), 2895–2929.
- Saini, S., Hussain, S., & Zeeshan. (2024). *Anna Bhagya Scheme: A study on the impact of direct benefit transfer for rice in Karnataka*. Arcus Policy Research.

Objectives of the Study

The present study is guided by the following objectives:

1. To evaluate the level of efficiency of Direct Benefit Transfer (DBT) implementation in the urban and rural districts of Bengaluru.
2. To examine the role of co-operative institutions in facilitating DBT delivery and improving beneficiary access in Bengaluru.
3. To compare the differences in DBT efficiency between urban and rural districts of Bengaluru in terms of accessibility, reliability, and beneficiary satisfaction.

4. To identify the operational and structural challenges faced by beneficiaries and co-operative institutions in the effective implementation of DBT.
5. To assess the level of awareness and digital literacy among DBT beneficiaries in urban and rural districts of Bengaluru.
6. To suggest policy recommendations for strengthening the DBT framework through enhanced co-operative participation and institutional reforms

Hypotheses

Hypothesis 1 — DBT Efficiency

H₀ (Null): There is no significant difference in the efficiency of Direct Benefit Transfer implementation between the urban and rural districts of Bengaluru.

H₁ (Alternate): There is a significant difference in the efficiency of Direct Benefit Transfer implementation between the urban and rural districts of Bengaluru.

Hypothesis 2 — Role of Co-operatives

H₀ (Null): Co-operative institutions do not play a significant role in improving DBT accessibility and beneficiary satisfaction in Bengaluru.

H₁ (Alternate): Co-operative institutions play a significant role in improving DBT accessibility and beneficiary satisfaction in Bengaluru.

Hypothesis 3 — Urban Rural Disparity

H₀ (Null): There is no significant difference in beneficiary awareness and digital literacy levels between urban and rural districts of Bengaluru.

H₁ (Alternate): There is a significant difference in beneficiary awareness and digital literacy levels between urban and rural districts of Bengaluru.

Research Methodology Research Design

This study follows a descriptive and empirical research design. Such a design is appropriate here because the objective is to examine an existing real-world situation the functioning of DBT and the involvement of co-operative institutions rather than to manipulate or control any variable. Through systematic data collection and statistical analysis, this design enables the researcher to describe current patterns and test relationships between variables using actual respondent data.

Study Area

The research is carried out across two contrasting geographical zones within Bengaluru:

Bengaluru Urban district, representing areas with comparatively developed banking networks, higher exposure to digital tools, and easier access to financial institutions.

Bengaluru Rural district, representing areas where banking access is less consistent and beneficiaries often rely more heavily on co-operative societies and community-level support for financial transactions.

Selecting these two zones allows the study to draw meaningful comparisons regarding how DBT functions differently depending on the surrounding socio-economic and infrastructural setting.

Sources of Data

The research is built upon two categories of data:

Primary Data

This was gathered directly from DBT beneficiaries residing in both districts through a structured survey instrument. This first-hand information captures the actual lived experience of beneficiaries regarding scheme awareness, timeliness, cooperative assistance, and satisfaction.

Secondary Data

Supporting information was drawn from published government materials, scheme guidelines, cooperative department records, and academic research already available on related themes. This secondary data helps frame the primary findings within a broader policy and academic context.

Sampling Method

A combination of convenience and stratified sampling was used. Respondents were approached based on accessibility within the two target districts, while care was taken to ensure that both urban and rural beneficiaries were adequately represented in the final sample, rather than concentrating responses in a single area.

Sample Size

Area	Number of Respondents
Bengaluru Urban	60
Bengaluru Rural	50
Total	110

Data Collection Tool

A structured questionnaire served as the main instrument for gathering primary data. It was organized into clear sections covering respondent background, awareness of and access to the DBT scheme, perceptions of co-operative support, digital comfort, and overall satisfaction. Most

perception-based questions used a five-point Likert scale, ranging from Strongly Disagree to Strongly Agree, allowing responses to be measured and compared numerically.

The questionnaire was distributed and collected through an online form, which allowed the researcher to reach respondents across both districts within a manageable time frame.

Statistical Tools Used

Once collected, the data was organized and examined using the following techniques:

Tool	Purpose
Percentage and Frequency Analysis	To summarize demographic and categorical data
Chi-Square Test	To examine association between area and categorical variables such as timeliness and awareness
Pearson Correlation	To measure the strength of relationship between cooperative support and satisfaction
Independent Sample T-Test	To compare mean Likert scores between urban and rural respondents

Period of Study

Data collection took place between May and June 2026, with responses gathered progressively as the survey form remained open to participants across both districts.

Limitations of the Study

- Findings are confined to Bengaluru Urban and Rural districts and may not extend to other regions of Karnataka or India.
- The sample shows a relatively younger and more educated profile, which may not fully reflect the experience of older or less-literate beneficiaries.
- Responses depend on the honesty and self-awareness of participants, which carries an inherent risk of bias in self-reported data.

Data Analysis and Interpretation Sample Profile

A total of 110 valid responses were collected from DBT beneficiaries across Bengaluru Urban (60 respondents) and Bengaluru Rural (50 respondents) districts.

Characteristic	Category	Count
Gender	Male	76
	female	33
Age	Below 25	63
	26-35	40
	36-45	6
	Above 45	1
Education	Graduate and above	74
	Secondary	33
Occupation	Employee	42
	Student	31
	Agriculture	16
DBT Scheme	Scholarship	37
	PM-KISAN	27
	Govt bills	22

The sample is dominated by younger, educated respondents, which is a relevant to limitation of the analysis.

Testing Hypothesis 1 — DBT Efficiency: Urban vs Rural

A Chi-square test was applied to examine whether timely receipt of DBT benefits differs between urban and rural respondents.

Area	Maybe	No	Yes
Bengaluru rural	11	7	32
Bengaluru urban	33	6	21

$$\chi^2 = 12.555, df = 2, p = 0.0019$$

Since $p < 0.05$, the null hypothesis is rejected. There is a statistically significant difference in DBT efficiency between urban and rural Bengaluru. Notably, the direction runs counter to common assumptions in the literature: a higher proportion of rural respondents (32 of 50) reported receiving benefits "on time" compared to urban respondents (21 of 60), where the majority selected "Maybe" rather than a clear yes.

Interpretation: This suggests that rural beneficiaries in this sample, where DBT is tied to schemes like PM-KISAN with relatively standardized, time-bound disbursal cycles, may experience more predictable transfers than urban beneficiaries dealing with more varied scheme types (scholarships, government bills) with less standardized timelines.

Testing Hypothesis 2 — Role of Co-operatives

Mean Likert scores (1 = Strongly Disagree to 5 = Strongly Agree) were computed for cooperative-related statements:

Statement	Mean score
Co-operative helps me access DBT	3.39
Co-operative creates DBT awareness	3.43
Co-operative staff are helpful	3.59
Co-operative resolves my complaints	3.45
Satisfaction with co-operative support	3.52

All mean scores fall above the midpoint (3.0), indicating a generally favorable, though not overwhelmingly strong, perception of cooperative support.

A Pearson correlation was run between "Co-operative helps me access DBT" and "Satisfaction with overall DBT process":

$$r = 0.533, p < 0.0001 (n = 109)$$

This is a moderate-to-strong, highly significant positive correlation. The null hypothesis is rejected — co-operative support is significantly associated with beneficiary satisfaction.

However, an independent t-test comparing cooperative-access scores between urban ($M = 3.48$) and rural ($M = 3.27$) respondents found no significant difference ($t = 0.937, p = 0.351$). This indicates cooperatives are perceived similarly across both districts — their supportive role isn't confined to one geography.

Interpretation: Co-operatives matter for satisfaction regardless of location, but their presence and perceived helpfulness do not differ significantly between urban and rural beneficiaries in this sample — a finding that complicates the assumption that cooperatives are primarily a rural support mechanism.

Testing Hypothesis 3 - Awareness and Digital Literacy: Urban vs Rural

Area	Not aware	Aware
Bengaluru rural	3	47
Bengaluru urban	7	53

$$\chi^2 = 0.485, df = 1, p = 0.486 \text{ — not significant}$$

Area	Need assistance	No	Yes(self-check)
Bengaluru rural	9	3	38
Bengaluru urban	3	5	52

$$\chi^2 = 4.808, df = 2, p = 0.090 \text{ — not significant at the 0.05 level (borderline).}$$

Since both p-values exceed 0.05, the null hypothesis is retained. There is no statistically significant difference in DBT awareness or ability to independently check payment status between urban and rural respondents in this sample.

Interpretation: This is a notable departure from the literature reviewed in Chapter 3, which generally assumes a rural digital-literacy disadvantage. A plausible explanation is the sample's demographic skew — respondents are predominantly young (63 below age 25) and highly educated (74 graduates), a group likely to have comparable smartphone access and digital comfort regardless of urban or rural residence.

Summary of Hypothesis testing

Hypothesis	Result	Decision
H1: DBT efficiency differs Urban vs Rural	$\chi^2=12.55$, $p=0.002$	Rejected H0 - significant difference found
H2: Co-operatives play a significant role in satisfaction	$r=0.533$, $p<0.0001$	Rejected H0 - significant positive relationship found
H3: Awareness/digital literacy differs Urban vs Rural	$p=0.486$, $p=0.090$	Failed to reject H0 - no significant difference found

Limitations of the Analysis

- The sample is skewed toward younger, more educated respondents, which likely narrows the urban-rural digital literacy gap that the wider literature documents this should be acknowledged rather than treated as proof that no such gap exists in the general population.
- Self-reported Likert responses are subject to social desirability bias.
- The non-significant H3 result should be interpreted as specific to this sample, not as a contradiction of established literature on the broader population.

Findings

1. Based on the statistical analysis carried out on the 110 responses collected from Bengaluru Urban and Rural districts, the following key findings emerged:
2. A statistically significant difference was observed in the timeliness of DBT benefit receipt between urban and rural respondents ($\chi^2 = 12.555$, $p = 0.0019$). Contrary to common assumption, rural respondents reported receiving benefits on time more consistently than their urban counterparts.
3. A moderate-to-strong positive correlation was found between cooperative support in accessing DBT and overall satisfaction with the DBT process ($r = 0.533$, $p < 0.0001$), confirming that co-operative assistance meaningfully shapes beneficiary experience.
4. No significant difference was found in the level of cooperative support perceived between urban and rural respondents ($t = 0.937$, $p = 0.351$), indicating that co-operatives are valued similarly across both districts rather than being a rural-specific resource.
5. Awareness of the DBT scheme did not differ significantly between urban and rural respondents ($p = 0.486$), suggesting that scheme-level awareness has become fairly widespread across both settings.
6. The ability of respondents to independently check their DBT payment status also showed no statistically significant urban-rural difference ($p = 0.090$), though the result was close to the conventional threshold and may warrant further investigation with a larger sample.
7. Across both districts, "Aadhaar authentication failure" and "network issues" emerged as the most frequently cited reasons for delays in receiving DBT benefits.
8. The majority of respondents in both districts owned smartphones and could access basic digital tools, narrowing the digital divide that earlier literature often associates with rural beneficiaries.
9. Mean satisfaction scores for the overall DBT process and for cooperative support both fell above the midpoint of the Likert scale, indicating a generally favorable, though not exceptional, beneficiary experience.

Discussion

The results of this study present a more nuanced picture than what is typically assumed in existing literature on DBT implementation. While prior studies often suggest those rural beneficiaries face greater delays and lower awareness due to weaker infrastructure, the present findings show the opposite trend for timeliness, with rural respondents reporting more consistent on-time receipt of benefits. A plausible explanation lies in the nature of the schemes accessed by rural respondents in this sample, such as PM-KISAN, which typically follows a fixed, government-mandated disbursement cycle, whereas urban respondents were more often enrolled in scholarship or bill-payment schemes that may follow less standardized timelines.

The strong positive relationship between cooperative support and satisfaction reinforces the conceptual argument made in the literature review — that co-operative institutions function as an important intermediary in the welfare delivery chain. However, the absence of a significant urban-rural difference in cooperative support challenges the common narrative that cooperatives serve primarily as a rural safety net. Instead, this study suggests that cooperative assistance is valued comparably by beneficiaries regardless of geographic setting, possibly reflecting the wider presence of urban co-operative banks and credit societies operating effectively within Bengaluru's urban districts as well.

Similarly, the lack of significant difference in awareness and digital self-sufficiency between the two districts may be linked to the demographic composition of the sample, which skewed toward younger and relatively well-educated respondents. This raises an important methodological consideration: the digital divide highlighted in earlier research may be narrowing specifically among younger populations, even as it potentially persists among older or less-educated beneficiaries who were underrepresented in this study.

Recurring operational issues such as Aadhaar authentication failures and network connectivity problems point to infrastructure-level constraints that cut across both districts, suggesting that some challenges in DBT delivery are systemic rather than purely a function of urban-rural disparity.

Conclusion

This study set out to examine the efficiency of Direct Benefit Transfer implementation and the role played by co-operative institutions across the urban and rural districts of Bengaluru. Drawing on responses from 110 beneficiaries, the research found a statistically significant difference in benefit timeliness between the two districts, with rural respondents reporting comparatively more consistent on-time receipt. Co-operative support was found to have a meaningful and statistically significant association with beneficiary satisfaction, though this support was perceived similarly across both urban and rural settings rather than being concentrated in one area. Awareness of the DBT scheme and the ability to independently track payments showed no significant urban-rural gap within this sample, pointing to a narrowing digital divide among the younger, educated population surveyed.

These findings carry useful implications for policymakers and cooperative administrators. Strengthening the role of co-operative societies in guiding beneficiaries through enrolment, account maintenance, and grievance resolution appears to have a tangible link to satisfaction levels, and this role should be reinforced through better technological support and staff training at the cooperative level. At the same time, recurring issues such as Aadhaar authentication failures and network disruptions call for infrastructure-level attention rather than beneficiary-side interventions alone.

The study is limited by its relatively young and educated sample composition, and future research involving a more demographically diverse respondent base, particularly older and less digitally familiar beneficiaries, would help validate or refine these findings. Expanding the sample size and including cooperative officials as direct respondents would also strengthen the depth of future investigations in this area.

REFERENCES

- Dreze, J., & Sen, A. (2013). *An uncertain glory: India and its contradictions*. Princeton University Press.
- Muralidharan, K., Niehaus, P., & Sukhtankar, S. (2016). Building state capacity: Evidence from biometric smartcards in India. *American Economic Review*, 106(10), 2895–2929. <https://doi.org/10.1257/aer.20141346>
- Saini, S., Hussain, S., & Zeeshan. (2024). *Anna Bhagya Scheme: A study on the impact of direct benefit transfer for rice in Karnataka*. Arcus Policy Research