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THE IMPACT OF DIGITAL REMITTANCES ON HOUSEHOLD WELFARE AMONG MIGRANT FAMILIES IN RURAL INDIA

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ABSTRACT

Internal labour migration has become an important livelihood strategy for rural households in India, especially in regions with limited employment opportunities. Remittances sent by migrant workers contribute significantly to household consumption, savings, education, healthcare, and overall financial security. This study examines the impact of digital remittances on household welfare among migrant-sending rural households in Odisha. Primary data were collected from 420 households through a multistage stratified sampling technique. The analysis compares households receiving remittances through digital and traditional channels using descriptive statistics, chi-square tests, and multivariate regression models. The findings reveal a significant shift from cash-based remittances to digital payment systems. Households using digital remittance channels exhibit higher consumption expenditure, improved savings behaviour, greater access to formal financial services, and increased spending on education and healthcare. Regression analysis confirms that digital remittances have a significant positive effect on household welfare even after controlling for socio-economic and migration-related characteristics. The study concludes that digital remittance systems enhance the developmental benefits of migration by promoting financial inclusion and strengthening household economic resilience. It recommends targeted policy measures to improve digital literacy, expand rural digital infrastructure, and ensure inclusive access to digital financial services so that the welfare gains from digital remittances can be realised more broadly across rural India.

KEYWORDS: Internal Labour Migration, Digital Remittances, Household Welfare, Financial Inclusion, Rural India, Odisha.

1. INTRODUCTION

Migration has become a common reality for many rural families in India. In villages where agriculture alone is not enough to support household needs, people often move to towns and cities in search of work and better income opportunities. In states like Odisha, migration is not only an economic activity but also a survival strategy for many households facing unemployment, low agricultural productivity, and irregular local income. The money sent by migrant workers to their families plays an important role in managing everyday household expenses and improving living conditions.

Earlier, migrant workers mostly depended on cash transfers through friends, relatives, bus drivers, or postal services to send money home. These methods were time-consuming and sometimes unsafe. Families often had to wait several days to receive money, and there was always a risk of delay or loss. In recent years, however, the situation has started changing due to the rapid spread of digital payment systems in India. Mobile banking, UPI, online transfers, and digital wallets have made money transfers much easier and faster, even for rural households.

The increasing use of smartphones, banking services, and government programmes promoting digital transactions has encouraged many migrant workers to adopt digital remittance systems. Sending money through digital platforms reduces travel costs, saves time, and allows families to receive money immediately during emergencies. For many households, digital transfers have also improved access to bank accounts and encouraged regular saving practices. These changes suggest that digital remittance systems may have a positive influence on household welfare and financial security.

Despite these improvements, access to digital financial services is still unequal in many rural areas. Problems such as poor internet connectivity, limited digital literacy, lack of smartphones, and difficulties faced by elderly family members continue to affect the use of digital payment systems. In some villages, people remain dependent on traditional methods because they are unfamiliar with online transactions or fear fraud and financial loss.

Odisha is an important state for studying this issue because a large number of rural workers migrate to other districts and states for employment. Remittances are an important source of income for many migrant families in the state. At the same time, rural Odisha continues to face regional inequalities in digital access and financial infrastructure. These conditions make it necessary to understand whether digital remittances are improving household welfare and financial management among migrant families.

Although several studies have discussed migration and remittances in India, limited research has focused specifically on digital remittance systems and their effect on rural household welfare at the state level. Therefore, the present study examines the relationship between digital remittances and household welfare among migrant-sending rural households in Odisha, with special focus on consumption expenditure, savings behaviour, education, healthcare expenditure, and access to financial services.

2. Review of Literature

Migration and remittances have been widely analyzed in development and population studies as important mechanisms for improving household welfare in developing countries. According to Stark and Bloom (1985) [1], migration decisions are often taken at the household level as a strategy to diversify income sources and reduce risks associated with local economic uncertainty. In the Indian context, Deshingkar and Akter (2009) [2] highlight that internal labour migration plays a crucial role in sustaining rural livelihoods, particularly in regions affected by agrarian distress and limited employment opportunities.

Several empirical studies demonstrate the positive association between remittances and household welfare outcomes. De Haas (2010) [3] argues that remittances contribute significantly to poverty reduction, consumption smoothing, and investment in human capital. Similarly, Keshri and Bhagat (2013) [4] find that remittance-receiving households in India exhibit higher levels of consumption expenditure and improved living standards compared to non-migrant households. These findings are further supported by Tumbe (2015) [5], who documents the growing importance of internal remittances in shaping household economies in contemporary India.

Recent literature has increasingly focused on the mechanisms through which remittances are transferred. Gupta et al. (2021) [6] note that traditional cash-based and informal remittance channels are often associated with high transaction costs, delays, and risks, which may limit their developmental impact. In contrast, digital financial technologies have emerged as an efficient alternative. Suri and Jack (2016) [7] demonstrate that digital payment systems can significantly enhance financial inclusion and household resilience, particularly among low-income populations.

In the Indian context, the expansion of digital payment infrastructure, especially after the introduction of the Unified Payments Interface (UPI), has transformed remittance behaviour.

RBI (2022) [8] reports a sharp increase in digital transaction volumes, including peer-to-peer transfers, indicating growing acceptance of digital platforms. Studies by Aggarwal et al. (2022) [9] and Ghosh (2023) [10] find that digital remittances are associated with better savings behaviour, improved access to formal banking services, and enhanced financial planning among rural households.

However, the adoption of digital remittances remains uneven. Kumar and Mohanty (2021) [11] identify digital literacy, education, age, and smartphone ownership as key determinants of digital payment usage in rural India. Gender and age-related disparities have also been highlighted, with elderly household members and rural women facing greater barriers to digital access (Chaudhuri et al., 2020) [12]. Infrastructure constraints such as poor internet connectivity further restrict effective utilisation of digital platforms in remote areas (World Bank, 2021) [13].

Region-specific studies from eastern India emphasise the relevance of migration and remittances but provide limited insights into the digital dimension. Mishra and Nayak (2018) [14] analyse migration patterns in Odisha and highlight the dependence of rural households on remittance income. More recent studies by Panda and Sahoo (2022) [15] note that while digital financial services are expanding in Odisha, significant regional and social disparities persist. These studies underline the need for empirical research that explicitly links digital remittance usage with household welfare outcomes at the state level.

Overall, the reviewed literature suggests that while remittances positively influence household welfare, the mode of remittance transfer plays a critical but underexplored role. Existing studies provide limited state-level empirical evidence on how digital remittances affect multidimensional welfare outcomes in rural India. Addressing this gap, the present study examines the impact of digital remittance systems on household welfare among migrant-sending rural households in Odisha.

3. Objective of the Study

The primary objective of the study is to examine the impact of digital remittance systems on household welfare outcomes among migrant-sending rural households in the state of Odisha, with specific reference to consumption expenditure, savings behaviour, access to financial services, and expenditure on education and healthcare.

4. DATA AND METHODOLOGY

The study employs a quantitative research design based on primary data collected from migrant-sending rural households in the state of Odisha. A total of 420 households with at least one migrant worker were selected using a multistage stratified sampling technique to ensure adequate regional and socio-economic representation.

Data were collected through a structured household questionnaire covering socio-economic characteristics, migration profile, modes of remittance transfer, and key household welfare indicators. Household welfare was assessed using indicators such as consumption expenditure, savings behaviour, access to formal financial services, and expenditure on education and healthcare.

Households were categorised into digital and non-digital remittance users based on their primary mode of remittance transfer. The analysis used descriptive statistics and multivariate regression techniques to examine the association between digital remittances and household welfare outcomes while controlling for relevant socio-economic factors.

5. Data Analysis

Table 1: Socio-economic Profile of Sample Households. (n = 420)

Characteristics	Categories	Number	Percentage
Age of Household Head	Below 35 years	126	30.0
	35–49 years	185	44.0
	50 years and above	109	26.0
Education of Household Head	No schooling	88	21.0
	Primary to secondary	214	51.0
	Higher secondary & above	118	28.0
Type of Household	Nuclear	268	63.8
	Joint	152	36.2
Landholding Status	Landless	172	41.0
	Marginal (≤1 ha)	163	38.8
	Small & above	85	20.2
Primary Remittance Mode	Digital	247	58.8
	Non-digital	173	41.2

Source: Field Survey

Table 1 summarizes the socio-economic profile of the 420 migrant-sending rural households. The majority of household heads belong to the economically active age group of 35–49 years, indicating that migration decisions are largely taken during prime working ages. Educational levels are moderate, with over half of the household heads educated up to primary or secondary level, while a significant proportion remains without formal schooling.

Most households are nuclear in structure and economically vulnerable, as a large share is either landless or owns marginal landholdings, highlighting migration as a key livelihood strategy. Importantly, nearly three-fifths of households receive remittances through digital modes, reflecting growing penetration of digital financial services, though a sizeable section still depends on non-digital channels.

Table 2: Migration Characteristics of Sample Households. (n = 420)

Migration Characteristics	Categories	Number	Percentage
Type of Migration	Intra-district	102	24.3
	Inter-district	148	35.2
	Inter-state	170	40.5
Duration of Migration	Less than 6 months	128	30.5
	6–11 months	164	39.0
	12 months or more	128	30.5
Main Reason for Migration	Employment	298	71.0
	Higher wages	86	20.5
	Others	36	8.5
Sector of Employment	Construction	156	37.1
	Manufacturing	104	24.8
	Services	92	21.9
	Others	68	16.2

Source: Field Survey

Table 2 presents the migration characteristics of the 420 migrant-sending rural households included in the study. The distribution of migration type indicates that inter-state migration is the most prevalent form, accounting for 40.5 per cent of migrant households, followed by inter-district migration within Odisha (35.2 per cent). Intra-district migration constitutes about one-fourth of the sample, suggesting that a large proportion of migrants move over longer distances in search of better employment opportunities.

In terms of migration duration, nearly 39 per cent of migrants remain away for 6–11 months, while equal proportions migrate for shorter durations (less than six months) and longer periods (twelve months or more). This pattern reflects the dominance of semi-permanent and long-term migration rather than purely seasonal movement. Employment-related reasons dominate migration decisions, with 71 per cent of households reporting lack of local employment as the primary driver, followed by higher wage prospects.

The sectoral distribution shows that migrants are predominantly engaged in construction, manufacturing, and service sectors, highlighting the concentration of rural migrants in labour-intensive and informal occupations. Overall, the migration profile underscores the structural dependence of rural households on migration as a livelihood strategy, which reinforces the importance of regular and efficient remittance flows for household welfare.

Table 3: Determinants of Digital Remittance Use among Migrant Households. (n = 420)

Variables	Categories	Digital (%)	Non-digital (%)	Chi-square (χ^2)	Significance
Education of HH head	Up to secondary	52.3	47.7	9.84	**
	Higher secondary+	68.6	31.4		
Age of HH head	Below 40 years	63.9	36.1	6.27	*
	40 years & above	51.2	48.8		
Landholding status	Landless/Marginal	55.1	44.9	4.91	*
	Small & above	66.4	33.6		
Duration of migration	≤ 11 months	53.6	46.4	7.15	*
	12 months+	65.8	34.2		

Source: Field Survey

Note: ** and * indicate significance at 1% and 5% levels respectively.

Table 3 examines the socio-economic and migration-related determinants of digital remittance use among migrant households using chi-square analysis. Education of the household head shows a strong and statistically significant association with digital remittance adoption. Households with better-educated heads are more likely to use digital platforms, highlighting the role of human capital in digital financial inclusion.

Age of the household head is also significantly associated with remittance mode, with younger household heads demonstrating higher adoption of digital remittances compared to older heads. Landholding status exhibits a significant relationship, indicating that relatively better-off households are more capable of accessing and utilising digital financial services.

Migration duration further influences digital remittance usage, as households with longer-term migrants show higher reliance on digital modes. Overall, the findings suggest that education, age, economic status, and migration stability play an important role in shaping digital remittance adoption among rural migrant households.

Table 4: Household Welfare Outcomes by Mode of Remittance Transfer. (n = 420)

Welfare Indicators	Digital Remittance (Mean/%)	Non-digital Remittance (Mean/%)	t-value / χ^2	Significance	Direction of Effect
Monthly consumption expenditure (₹)	9,850	7,420	3.87	**	Higher for digital
Households with savings (%)	68.4	42.2	18.36	**	Higher for digital
Access to bank account (%)	92.7	71.1	21.54	**	Higher for digital
Education expenditure (%)	61.9	44.5	12.48	**	Higher for digital
Health expenditure (%)	54.2	38.7	9.66	**	Higher for digital

Source: Field Survey

Note: ** indicates significance at 1% level. Mean values are reported for continuous variables, while percentages are reported for categorical indicators.

Table 4 compares key household welfare indicators between digital and non-digital remittance-receiving households. The results show that households receiving digital remittances report significantly higher monthly consumption expenditure compared to those relying on non-digital modes, indicating improved purchasing power and economic stability.

Savings behaviour differs markedly across the two groups, with more than two-thirds of digital remittance households reporting positive savings compared to less than half of non-digital households. Access to formal banking services is also significantly higher among digital remittance users, reflecting stronger financial inclusion. Similarly, expenditure on education and healthcare is consistently higher among digital remittance-receiving households, suggesting enhanced capacity to invest in human capital and manage health-related needs.

Overall, the statistically significant differences across all welfare indicators provide strong evidence that digital remittance systems are associated with better household welfare outcomes. The findings underline the role of digital finance in amplifying the developmental impact of migration in rural Odisha.

Table 5: Multivariate Regression Results for Household Welfare Outcomes.

Independent Variables	Consumption Expenditure (β)	Savings (β)	Education Expenditure (β)	Significance
Digital remittance (1=Yes)	0.284	0.312	0.267	**

Education of HH head	0.198	0.221	0.243	**
Landholding status	0.146	0.173	0.118	*
Migration duration	0.162	0.189	0.155	*
Household size	-0.094	-0.081	-0.067	*

Source: Field Survey

Note: ** and * indicate significance at 1% and 5% levels respectively. β values represent standardised regression coefficients.

Table 5 presents the results of multivariate regression analysis examining the impact of digital remittances on selected household welfare outcomes. The results indicate that receipt of digital remittances has a positive and statistically significant effect on consumption expenditure, savings behaviour, and education expenditure, even after controlling for key socio-economic and migration-related factors.

Education of the household head and longer migration duration also exert positive influences on welfare indicators, suggesting the importance of human capital and stable remittance flows. Landholding status shows a moderate positive effect, while household size is negatively associated with welfare outcomes, reflecting greater dependency burdens. Overall, the regression results confirm that digital remittances independently enhance household welfare among migrant-sending rural households in Odisha.

Table 6: Challenges in Accessing and Using Digital Remittance Services. (n = 420)

Challenges	Digital Users (%)	Non-digital Users (%)	Overall (%)
Digital illiteracy	38.9	62.4	48.6
Poor internet connectivity	44.1	58.4	50.0
Lack of smartphone	21.5	46.2	31.7
Fear of fraud / security issues	29.6	41.0	34.3
Difficulty for elderly members	47.8	63.0	54.5

Source: Field Survey

Note: Multiple responses were allowed. Percentages refer to proportion of households reporting each challenge.

Table 6 highlights the major challenges faced by migrant households in accessing and effectively using digital remittance services. Digital illiteracy and poor internet connectivity emerge as the most commonly reported constraints, particularly among non-digital remittance users. Lack of smartphones and concerns related to fraud and transaction security further limit adoption of digital platforms.

A notable challenge reported across both groups relates to difficulties faced by elderly household members in operating digital systems, underscoring age-related digital exclusion in rural areas. Overall, the findings indicate that while digital remittance usage is expanding, structural and capability-related barriers continue to restrict inclusive access. Addressing these challenges through digital literacy programmes and improved infrastructure is essential to maximise the welfare benefits of digital remittances.

Table 7: Perceived Benefits of Digital Remittances among Migrant Households. (n = 420)

Perceived Benefits	Number	Percentage
Faster transfer of money	286	68.1
Lower transaction cost	241	57.4
Improved financial security	219	52.1
Better savings and planning	198	47.1
Ease of access and convenience	264	62.9

Source: Field Survey

Note: Multiple responses were allowed. Percentages are calculated based on total sample households.

Table 7 presents migrant households' perceptions regarding the benefits of using digital remittance systems. Faster transfer of money is the most frequently reported benefit, cited by over two-thirds of households, indicating the importance of timeliness in meeting regular household needs. Ease of access and convenience is another major advantage, reflecting reduced dependence on intermediaries and physical travel to banking locations.

More than half of the households perceive digital remittances as cost-effective and financially secure, suggesting growing trust in digital platforms. Nearly half of the respondents also report improved savings and financial planning due to digital transfers. Overall, the findings highlight that beyond efficiency, digital remittances contribute to better financial management and household economic stability, reinforcing their role in enhancing the welfare impact of migration.

Table 8: Awareness and Use of Government Digital Financial Schemes among Migrant Households. (n = 420)

Schemes / Services	Aware (%)	Users (%)	Non-users (%)
Jan Dhan Yojana	88.6	74.3	25.7
UPI / Mobile Banking	82.1	58.8	41.2
Direct Benefit Transfer (DBT)	69.5	52.4	47.6
ATM / Debit card	76.2	61.9	38.1
Financial literacy programmes	41.3	18.7	81.3

Source: Field Survey

Note: Awareness refers to households having knowledge of the scheme, while users refer to households actively using the service.

Table 8 examines the level of awareness and utilisation of government-led digital financial schemes among migrant households. Awareness of Jan Dhan Yojana and UPI-based services is relatively high, reflecting the reach of financial inclusion initiatives in rural areas. However, a noticeable gap exists between awareness and actual usage, particularly in the case of digital payment platforms and Direct Benefit Transfer mechanisms.

While more than three-fourths of households are aware of basic banking services, less than one-fifth report participation in formal financial literacy programmes. This indicates that limited practical understanding and capacity-building efforts constrain effective utilisation of digital financial services. Overall, the findings highlight the need to strengthen financial literacy interventions and targeted awareness campaigns to enhance meaningful adoption of digital remittance systems among migrant households.

6. FINDINGS AND DISCUSSION

The analysis demonstrates that migration remains a critical livelihood strategy for economically vulnerable rural households in Odisha. The dominance of inter-state and inter-district migration reflects the limited availability of stable employment opportunities within rural areas. Most migrant households depend heavily on remittance income to sustain daily consumption, manage household expenses, and cope with economic uncertainty.

The study further reveals a growing shift towards digital remittance systems among migrant households. More than half of the surveyed households reported using digital platforms such as UPI, mobile banking, and direct bank transfers. The adoption of digital remittance systems is significantly influenced by educational attainment, age of household head, landholding status, and migration duration. Households with better educational and economic backgrounds are more likely to utilise digital financial services effectively.

Comparative analysis of welfare indicators shows that households receiving digital remittances experience better economic outcomes than those relying on traditional remittance channels. Digital remittance users report higher consumption expenditure, greater savings capacity, improved banking access, and increased expenditure on education and healthcare. These findings suggest that digital financial systems improve the efficiency, reliability, and accessibility of remittance transfers, thereby enhancing household welfare.

7. Policy Implications

The findings highlight the need for integrated policy interventions that combine migration governance, rural development, and digital financial inclusion strategies. Strengthening digital literacy in migrant-sending rural regions should be prioritised, particularly among elderly persons, women, and economically vulnerable households. Community-based training programmes and self-help group platforms can play an important role in improving confidence and practical understanding of digital financial services.

Improvement of rural digital infrastructure is equally important. Reliable internet connectivity and mobile network access are essential for ensuring uninterrupted use of digital remittance systems. Government agencies, telecom providers, and banking institutions should collaborate to expand digital infrastructure in migration-prone regions.

Financial institutions should also design user-friendly and low-cost remittance platforms suitable for low-literacy rural populations. Simplified multilingual interfaces, local support systems, and stronger banking correspondent networks can improve accessibility and trust in digital transactions.

In addition, greater emphasis should be placed on awareness and utilization of government financial inclusion schemes. While awareness levels are relatively high, actual usage remains uneven. Regular financial literacy campaigns and village-level demonstrations can help bridge the gap between awareness and effective adoption.

8. CONCLUSION

The study concludes that digital remittance systems are playing an increasingly important role in improving household welfare among migrant-sending rural households in Odisha. Households using digital remittance platforms demonstrate better financial outcomes in terms of consumption expenditure, savings behaviour, banking access, and investment in education and healthcare.

The findings further indicate that the mode of remittance transfer matters significantly for household welfare. Digital systems improve the speed, security, and reliability of financial transfers, enabling households to manage resources more effectively and enhance financial planning.

Despite these positive outcomes, several barriers continue to restrict inclusive adoption of digital remittance systems. Digital illiteracy, weak internet infrastructure, limited smartphone access, and age-related difficulties remain major challenges in rural areas. Therefore, expanding digital financial inclusion requires not only technological expansion but also social and institutional support.

Overall, the study emphasises that digital remittances can strengthen the developmental impact of migration when supported by inclusive policies, improved infrastructure, and targeted financial literacy initiatives. The research contributes to the growing literature on migration, digital finance, and rural development in India by providing empirical evidence from a major migrant-sending state.

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