

# Adoption and Challenges of Cashless Transactions Among Senior Citizens: A Behavioural Study

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**Abstract:** In the era of rapid digital transformation, the shift towards a cashless economy has emerged as a significant development globally and within India. Government initiatives like 'Digital India' have accelerated the use of digital payment platforms. However, certain demographic segments, particularly senior citizens, face unique challenges in adapting to this paradigm shift. This study critically examines the awareness, perceptions, and behavioural intentions of senior citizens toward cashless transactions within the Calicut region. By employing quantitative research methods and statistical analysis, this research identifies the key factors influencing their adoption of digital payments and the primary barriers impeding their participation. The findings emphasize the influence of digital literacy, security concerns, and perceived economic advantages and challenges associated with cashless transactions. The study offers policy recommendations to enhance digital inclusivity among the elderly and ensure their seamless integration into the evolving cashless ecosystem.

**Keywords:** Cashless Economy; Senior Citizens; Digital Literacy; Financial Inclusion.

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## I. INTRODUCTION

The transition toward a cashless economy has become a global phenomenon, supported by the proliferation of financial technology innovations, mobile payment applications, and supportive policy frameworks. India has emerged as a frontrunner in this movement, propelled by initiatives such as the 'Digital India' campaign, which aims to promote digital transactions across all segments of society. While younger, tech-savvy populations have quickly embraced digital financial services, older adults—particularly senior citizens—continue to encounter obstacles in adapting to cashless systems.

This demographic is often constrained by factors such as limited digital literacy, trust deficits, security apprehensions, and habitual reliance on traditional cash-based transactions. Given the aging population and the government's push towards digitalization, it is critical to understand the behavioural dynamics, perceptions, and challenges faced by senior citizens in using cashless payment systems.

This study seeks to explore the level of awareness, readiness, and behavioural responses of senior citizens towards the cashless economy in Calicut region. It further investigates the socioeconomic, technological, and psychological barriers influencing their willingness or

resistance to adopt digital payments. By providing an empirical examination of these dimensions, the study aims to fill the research gap and offer actionable insights to policymakers, financial institutions, and technology developers.

## II. NEED AND SIGNIFICANCE

Senior citizens constitute an essential segment of the population whose inclusion in digital payment systems is necessary for achieving comprehensive financial inclusion. Understanding their challenges and apprehensions is crucial for stakeholders, including policymakers, banks, and technology service providers, to devise tailored interventions and strategies.

➤ *This Study is Particularly Significant because:*

- It highlights the specific issues of digital illiteracy, fraud perception, accessibility, and psychological resistance among senior citizens.
- It provides data-driven insights that can inform policies and technological innovations to enhance digital inclusivity.
- It supports the larger goal of creating an equitable, secure, and user-friendly digital payment infrastructure that caters to vulnerable sections of society, ensuring that no demographic group is left behind in the digital revolution.

➤ *Objectives*

The study was conducted with the following objectives:

- To assess the level of awareness regarding cashless transactions among senior citizens in Calicut region.
- To analyse the factors influencing the adoption of digital payments by this demographic.
- To evaluate the perceived benefits, challenges, and risks associated with the use of cashless payment systems.
- To suggest pragmatic measures to enhance the participation and engagement of senior citizens in the digital payment ecosystem.

➤ *Hypotheses*

To guide the research inquiry, the following hypotheses were formulated:

- **H1:** Senior citizens with higher income levels demonstrate a higher likelihood of adopting cashless transactions.
- **H2:** Digital literacy significantly influences the adoption of cashless transactions among senior citizens.

### III. RESEARCH METHODOLOGY

This study adopted a **quantitative research approach** using a structured questionnaire designed to capture the perceptions, attitudes, and behaviours of senior citizens regarding cashless transactions. The survey was administered to a **sample size of 200 respondents** residing in the Calicut region. The sample was selected using **stratified random sampling**, ensuring representation across various income levels, age brackets, and educational backgrounds.

Data collected were analysed using both **descriptive and inferential statistical tools**, including **Chi-square tests, correlation analysis, and cross-tabulation**. These methods facilitated the validation of hypotheses and the identification of relationships between key variables such as income, digital literacy, and cashless transaction adoption.

### IV. TESTING OF HYPOTHESES USING CHI-SQUARE ANALYSIS

To examine the association between key variables—income level, digital literacy, and the adoption of cashless transactions among senior citizens—chi-square tests for independence were applied. This statistical method evaluates whether significant relationships exist between categorical variables by comparing observed frequencies with expected frequencies under the assumption of no association.

#### A. Association Between Income Level and Adoption of Cashless Transactions

➤ *Hypotheses:*

- **Null Hypothesis (H<sub>0</sub>):** There is no significant relationship between the income level of senior citizens and their frequency of adopting cashless transactions.

- **Alternative Hypothesis (H<sub>1</sub>):** Senior citizens with higher income levels are more likely to adopt cashless transactions compared to those with lower income levels.

➤ *Chi-Square Test Results:*

- Chi-Square Statistic ( $\chi^2$ ): 50.59
- Degrees of Freedom (df): 16
- p-value: 0.0000184 ( $\approx 1.84 \times 10^{-5}$ )

➤ *Interpretation:*

The obtained p-value is significantly lower than the conventional significance level of 0.05, leading to the rejection of the null hypothesis. This result indicates a statistically significant relationship between income level and the frequency of cashless transaction adoption among senior citizens in Calicut region. Specifically, individuals with higher income levels exhibit a higher propensity to engage in cashless transactions. The notable deviations between observed and expected frequencies further corroborate the significant association between income level and the adoption frequency of cashless transactions.

#### B. Association Between Digital Literacy and Adoption of Cashless Transactions

➤ *Hypotheses:*

- **Null Hypothesis (H<sub>0</sub>):** There is no significant relationship between the digital literacy level of senior citizens and their frequency of adopting cashless transactions.
- **Alternative Hypothesis (H<sub>1</sub>):** Senior citizens with higher levels of digital literacy are more likely to adopt cashless transactions.

➤ *Chi-Square Test Results:*

- Chi-Square Statistic ( $\chi^2$ ): 40.00
- Degrees of Freedom (df): 8
- p-value: 0.0000032 ( $\approx 3.20 \times 10^{-6}$ )

➤ *Interpretation:*

Given the p-value is significantly lower than the 0.05 threshold, the null hypothesis is rejected. The analysis reveals a statistically significant relationship between the digital literacy levels of senior citizens and their adoption frequency of cashless transactions. Those with higher digital literacy demonstrate considerably higher engagement with cashless payment methods compared to their counterparts with lower digital skills. The significant deviations between observed and expected frequencies affirm the influence of digital literacy on the usage pattern of cashless transactions among senior citizens.

### V. DISCUSSION OF FINDINGS

#### A. Awareness and Digital Literacy

The findings revealed that a majority of senior citizens possessed at least a moderate level of awareness regarding digital payment methods. Approximately 78% of respondents rated their digital literacy as moderate to high, while 22%

admitted to low digital proficiency. Among the digitally literate group, 85% reported frequent use of cashless payment systems, suggesting a strong correlation between digital competence and usage.

#### B. Preference and Usage Patterns

The study indicated that 68% of respondents preferred digital payments over cash, whereas 32% continued to favour cash due to its familiarity and perceived ease of use. Age-related trends were evident, with younger seniors (aged 50-60) more inclined toward digital payments compared to those aged above 70.

#### C. Security Concerns

Security emerged as a significant barrier, with 62% expressing concerns over potential fraud and scams, and 40% reluctant to store sensitive card details online. 82% of respondents rated safety and security as a critical factor influencing their choice of payment method.

#### D. Barriers to Adoption

Several operational challenges were identified, including:

- 60% reporting unreliable internet connectivity
- 54% concerned about transaction failures
- 48% fearing unauthorized access to their bank accounts
- 42% noting that certain merchants do not accept digital payments, limiting their ability to transact digitally.

#### E. Perceived Benefits

➤ *Despite the Challenges, the Perceived Benefits of Cashless Transactions were Notable:*

- 82% acknowledged the role of digital payments in curbing fake currency circulation
- 70% agreed that digital transactions aid in preventing money laundering

#### F. Impact of Income and Age

The study validated **Hypothesis 1**, as senior citizens with higher income levels exhibited greater acceptance of cashless payments. Similarly, **Hypothesis 2 was supported**, as digital literacy emerged as a significant predictor of cashless transaction usage.

## VI. CONCLUSION

This study highlights the dual nature of the cashless economy transition among senior citizens in Calicut region—marked by both opportunities and considerable challenges. While there is a positive trend in awareness and willingness among certain sections, critical obstacles such as security concerns, digital illiteracy, and infrastructure limitations hinder widespread adoption.

➤ *To Bridge this Gap, Targeted Interventions are Necessary, Including:*

- Comprehensive digital literacy programs designed specifically for senior citizens.
- User-friendly, accessible, and secure digital payment platforms.
- Awareness campaigns to build trust and dispel myths regarding fraud risks.
- Collaboration between financial institutions, government bodies, and community organizations to provide personalized support.

In conclusion, while the journey towards a fully cashless economy will require time, patience, and continuous effort, inclusive strategies focusing on senior citizens can significantly accelerate this process, ensuring equitable participation in the digital financial ecosystem.

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