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Digital Wallet Adoption Among Slum Dwellers: Exploring Determinants And Impact

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ABSTRACT

Emerging markets experience rising digital wallet adoption because digital transactions show quick expansion. The understanding of adoption factors becomes critical because underserved populations face specific challenges. This research examines the impact of trust combined with social security and perceived ease of use and perceived usefulness on behavioral intention toward digital wallet adoption. This research evaluates behavioral intention effects on adoption together with trust and social security variables and investigates the driving force of perceived ease of use and usefulness for adoption while examining behavioral intention's intermediating role in this process. A quantitative study utilizes structural equation modeling (SEM) to analyze data collected through surveys administered to Bangalore urban slum residents. The study investigates direct, indirect and mediating relationships of core variables in order to develop a robust digital wallet adoption framework. Results indicate that behavioral intention primarily guides digital wallet adoption through the determined influence of trust and social security frameworks. Perceived ease of use along with perceived usefulness show weaker relationships with adoption compared to trust and intention. Digital wallet adoption depends most strongly on trust combined with behavioral intention according to this research so it emphasizes the pressing need to enhance financial transaction safety measures by strengthening digital trust. The research creates important knowledge that can help stakeholders better understand how to boost digital wallet acceptance by at-risk demographic groups.

Keywords: *Digital wallet, slum dwellers, behavioral intension, digital wallet adoption.*

1. INTRODUCTION

The global development of digital payment systems has stimulated a stable change in the financial services industry, providing consumers with more opportunities. Among these inventions, digital wallet has become a significant and convenient way to perform transactions in order to store, transfer money, pay bill and use other financial services. Mobile money has been accepted in urban areas, however, the use of mobile money by slum dwellers represents a research gap. The prospect of gaining access to financial services for the population living in slum areas is still far away because many of these inhabitants have low-income levels, low financial literacy, and often they are deprived of the opportunity to open an account in an officially registered organization. Nevertheless, there are challenges such as illiteracy level, and lack of proper network connected devices; however, the increased usage of smart phones and affordable internet services make it possible to popularize usage of digital wallets in such societies. Unlocking the use of mobile money for these people means that digital wallets could be utilized to reduce the amount of cash being used and to make a real difference in the living standards of the described population. This implies that it is equally important to examine the factors that define digital wallet usage, based on considerations of another critical demographic that requires special attention. Variables like perceived benefits like easy-to-use interface, perceived security, perceived trust, financial competence, and accessibility of technology significantly influence their adoption behavior. However, evaluating the effect of using the digital wallet on financial enfranchisement and economic incidence can provide benefits when directing solutions to policy makers and financial services. The effect of the foregoing on the financial behaviour of the dwellers and the major factors that determine the use of the digital wallet are examined in this study. In doing so, the study intends to offer insights for the design of specific interventions towards a better and more inclusive approach to both financial services and life standards of deprived populations.

1.1 Statement of Problem:

Full of their financial illiteracy, low confidence in the new systems as well as the unavailability of adequate financial facilities, citizens in the slum sections of the developing world are least prepared for digital wallets. Even with the increase of smart phones and internet connection the society is still more dependent on cash. To the authors' knowledge, there is a deficiency of information on the determinants of the digital wallet and its consequences on the financial behaviour and welfare of slum dwellers. This study will seek to fill these gaps by establishing determinants to this study and assessing the impact of the use of the digital wallet system with the view of informing policymakers, consumers and the financial industry on way forward in reducing the use of cash.

1.2 Primary Research Questions:

How do Trust & Social Security, Perceived Usefulness, Perceived Ease of Use impact on Digital Wallet Adoption among slum dwellers?

How the Behviroal Intention brings the mediating effect between Trust & Social Security, Perceived Usefulness, Perceived Ease of Use on Digital Wallet Adoption.

How does the age moderate the relationship between the Trust & Social Security, Perceived Usefulness, Perceived Ease of Use on Digital Wallet Adoption.

1.3 Objectives:

To examine impact of Trust & Social Security, Perceived Usefulness, Perceived Ease of Use on Digital Wallet Adoption among slum dwellers.

To Assess the mediating effect of Behavioral Intention between impact of Trust & Social Security, Perceived Usefulness, Perceived Ease of Use on Digital Wallet Adoption.

To analyze Moderating effect of age impact of Trust & Social Security, Perceived Usefulness, Perceived Ease of Use on Digital Wallet Adoption

2. LITERATURE REVIEW:

This review synthesizes literature on three key aspects: the level of awareness and understanding of digital wallets, the determinants influencing their adoption, and the role of trust and security concerns in digital wallet usage.

Level of Awareness and Understanding of Digital Wallets

Regardless of the drivers that push consumers to use mobile money, there is need to increase awareness and understanding of digital wallets among the users. According to Mahapatra and Sahoo (2021), a major challenge that hinders the use of digital wallet in the slum area is the existence of awareness of these technologies. In their study, they state that often, slum population does not even know about the existence of digital wallets and even if they know about government services and incentives to increase digital literacy, they fail to understand them. Singh & Verma (2021) further affirm this understanding, arguing that even exposure to such systems is problematic because there is poor understanding of the applicability of the digital wallets in undertaking payments or transferring funds. Likewise, in reference to Gupta and Soni (2019) while digital wallets are being introduced by the government, the education programs and financial inclusion initiatives are found to be weak in rural and slum sectors, where people have almost no access to formal financial education. Thus, lack of awareness and understanding results into resistance in adoption mainly because people perceive digital wallets as difficult and un credible. As Rathi (2020) pointed out, there is need for multi-faceted and community level campaigns to â€˜spread the word' on the use keynote features and benefits of the digital wallet systems.

Key Factors Influencing the Adoption of Digital Wallets

This paper will examine the nature and extent of utilisation of digital wallets in the slum communities, with regards to infrastructure, availability and socio-economic factors. According to Khan and Rehman (2020), mobile phones are the most important determinant to the use of digital wallets mainly because Smartphone ownership has raised across the urban slum. However, poor or very poor network connectivity as influenced by the mobile network, and the high cost of data can slow down the use of the digital wallets. Gupta & Soni (2019) also express the same opinion although smartphones are found in the hands of many slum dwellers, they cannot afford the associated mobile data to meaningfully participate in mobile wallet interactions. At the same time, according to Rathi (2020), slum citizens are financially illiterate ones who have no information regarding virtual wallets or digital payments. Chakraborty and Bhattacharyya (2021) note that these communities may not consider digital wallets to be an essential product since they use cash heavily. Furthermore, Mahapatra and Sahoo (2021) also explained that due to the absence of local support facilities like digital Banking Agents and intermediaries, the users of digital wallets in the slums often remain limited.

Impact of Trust and Security Concerns on Digital Wallet Usage

Digital wallet adoption rates in slum communities stay low due to residents' trust and security anxieties when using these services. According to Rathi (2020) trust in digital payment systems represents a major barrier facing slum dwellers. People

from these communities show caution toward online purchases because they are fearful of numerous transaction risks from fraud to identity robbery to monetary losses. Singh and Verma (2021) agree that digital wallets provide ease of use but people lack confidence about digital payment security in areas that lack experience with digital banking. The reluctance to trust online payment systems worsens because slum residents hold uncertainty about obtaining help from customer service representatives when their transactions face complications. Gupta and Soni (2019) demonstrate that poor understanding of digital wallet operations leads individuals to doubt their security because of insufficient knowledge. Many slum dwellers avoid digital wallets because they believe these platforms harbor complexity alongside fraudulent potential as mentioned by Chakraborty and Bhattacharyya (2021). Mahapatra and Sahoo (2021) demonstrate that slum dwellers rely on cash systems because government security guarantees and fraud protection are lacking from digital payment systems.

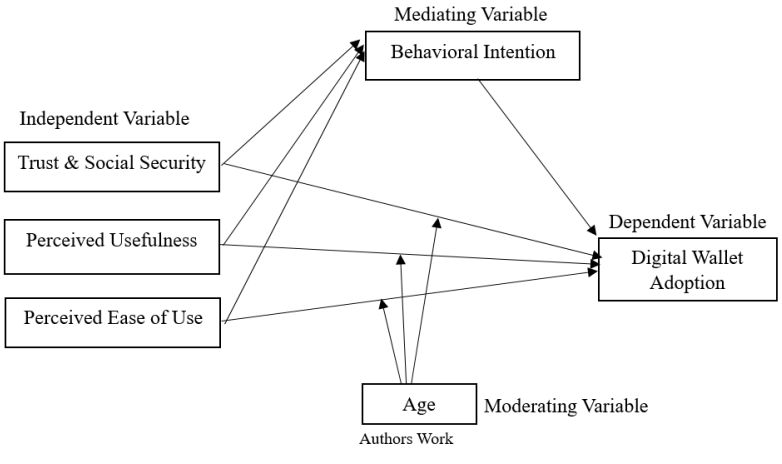
2.1 Research Gap:

Research examining digital wallet adoption remains scarce for the slum dweller population although these residents face special challenges that include limited literacy levels, trust problems and unemployment-based security issues. The existing research primarily examines how users perceive utility and interface simplicity but it neglects the assessment of trust and social security aspects. The existing research units behavioral intention as a middle role in the relationship between PU and EOU while examining how age functions as a moderator but not properly investigates these relations especially within poor economic settings. Digital wallet adoption practices among slum dwellers require a holistic approach since the research reveals important knowledge gaps.

3. METHODOLOGY:

This research uses quantitative methods with descriptive evaluation to explore how trust & social security together with perceived usefulness and perceived ease of use affect digital wallet adoption by slum residents. This research also studies the role of behavioral intention when mediating the results and the impact of age as a moderator through a quantitative approach. The examination targets individuals who live in slums across cities and suburbs who have access to smartphones along with basic digital infrastructure. For obtaining statistically significant representation 146 respondents were selected using random sampling methods. Main research data will be gathered from respondents using structured questionnaire surveys based on a Likert scale ranging from 1 to 5. Measured variables include trust and social security and perceived usefulness and ease of use as well as behavioral intention and digital wallet usage. Data analysis will incorporate secondary information from government reports as well as financial inclusion policies and preexisting studies. This investigation will integrate descriptive statistics for user demographic characteristics alongside usage patterns while utilizing Structural Equation Modeling (SEM) for relationship examinations and Bootstrap Method-oriented mediation tests for behavioral intention respectively and further explores age-based relationships through moderation analysis implementations using regression models with interaction terms. The research design tests direct relationships between trust and social security as well as perceived usefulness and ease of use together with the investigation of moderating and mediating effects through validated survey methods with explicit ethical provisions for participant consent along with privacy protection.

3.1 Proposed Conceptual Model:



Authors Work

3.2 Hypotheses:

H1: There is significant impact of Trust & Social Security, Perceived Usefulness, Perceived Ease of Use on Digital Wallet Adoption.

H2: There is significant Mediating impact of Behavioral Intention between Trust & Social Security, Perceived Usefulness, Perceived Ease of Use on Digital Wallet Adoption.

H3: There is a significant moderating effect of Age between Trust & Social Security, Perceived Usefulness, Perceived Ease

of Use on Digital Wallet Adoption.

4. DATA ANALYSIS, RESULT AND DISCUSSIONS:

4.1 Reliability and Validity Test:

Table 4.1: Reliability and Validity Test.

	Original sample	Sample mean	Standard deviation	T statistics	P values
Behavioural Intent	0.848	0.845	0.034	25.149	< 0.05
Digital wallet adoption	0.927	0.927	0.012	77.906	< 0.05
Perceived Ease of Use	0.810	0.809	0.026	31.240	< 0.05
Perceived Usefulness	0.459	0.457	0.086	5.341	< 0.05
Trust & Social security	0.472	0.468	0.072	6.557	< 0.05

Sources: *Primary data*

All studied elements positively affect the digital wallet adoption rate for slum residents according to statistical significance ($p < 0.05$). The intention to behave ($T = 25.149$) combined with perceived ease of use ($T = 31.240$) exhibit powerful influencing factors in the study. However, trust and social security ($T = 6.557$) and perceived usefulness ($T = 5.341$) present intermediate influence levels. Analysis results underscore the high consistency of digital wallet adoption through the observation of $T = 77.906$ which indicates its vital role. The research reveals trust combined with usability and intention as essential elements that drive adoption of digital wallets.

4.2 Path Coefficient Analysis – Bootstrapping

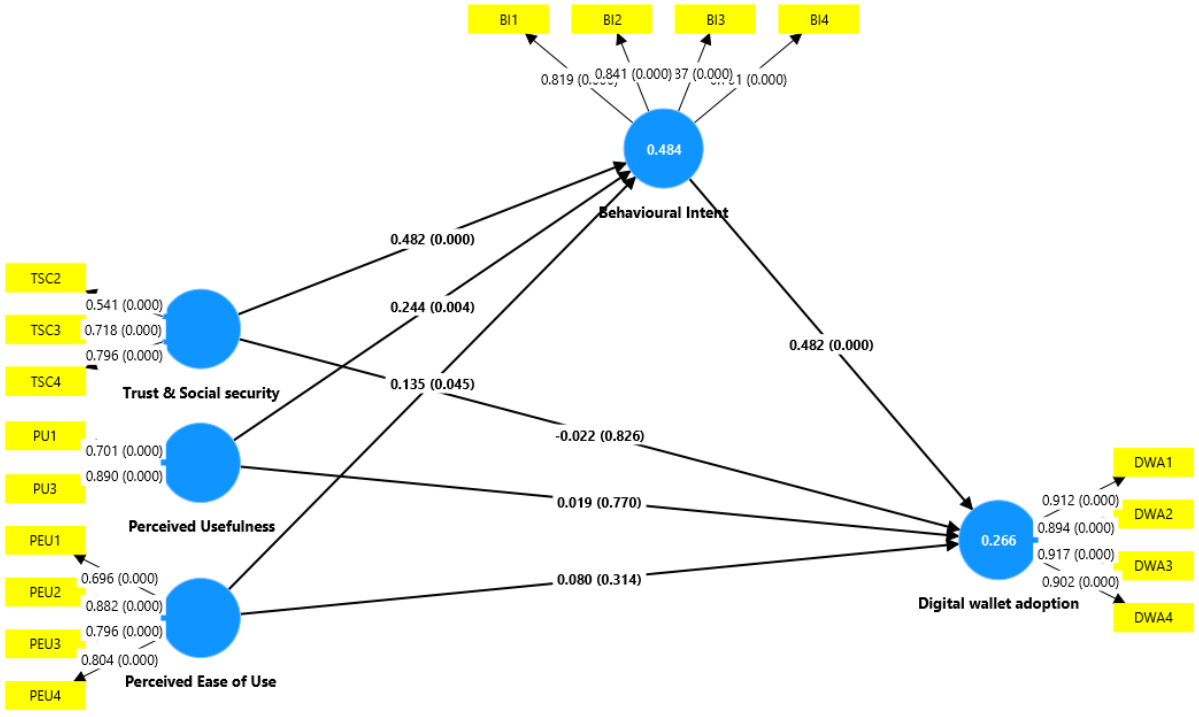


Chart 4.2: Path Coefficient Analysis. Sources: Primary data

Path Coefficient Analysis - Diret Effect:

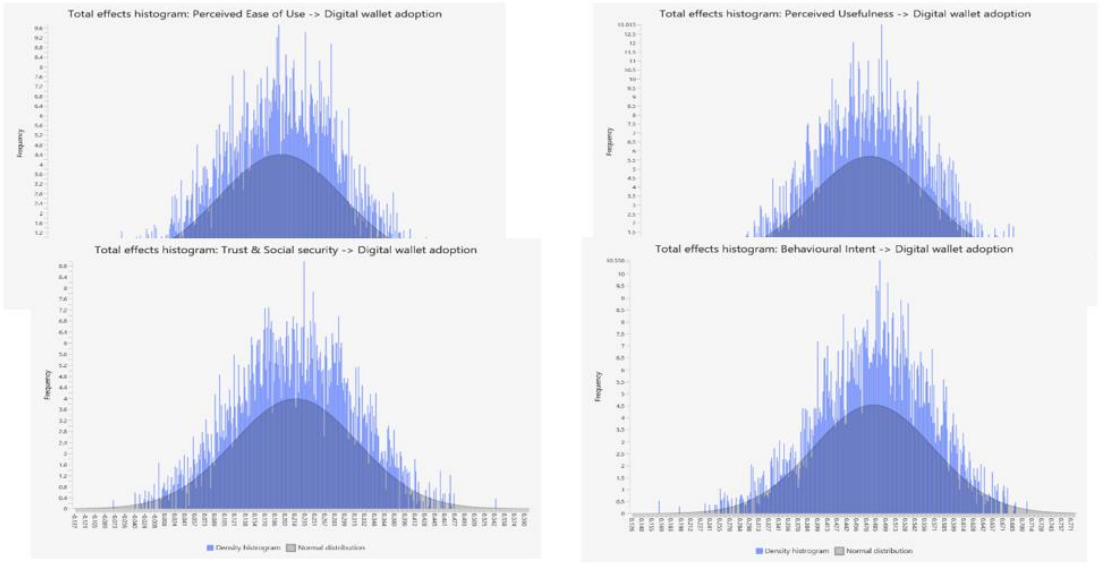
The structural model reveals direct connections between wallet adoption factors with other components influencing adoption rates. Rise in trust-levels coupled with social security within digital transactions directly drives slum dwellers to intend digital wallet usage demonstrated by the path coefficient value 0.244 against p=0.004. Trust alongside social security influences adoption of digital wallets but the relationship remains weak because the path coefficient stands at 0.135 along with a p-value of 0.045. Data indicates trust factors together with security features influence adoption behavior but maintain limited

impact on slum dwellers adopting digital wallets. Research shows that direct effects from perceived usefulness or perceived ease of use fail to demonstrate statistically significant relationships with digital wallet adoption. Results from this study show that perceived usefulness (0.019) and perceived ease of use (0.080) factors weakly impact adoption choices based on their path coefficients and p-values (0.770 and 0.314 respectively). Behavioral intention demonstrates a strong direct relationship to digital wallet adoption through its path coefficient of 0.482 which reaches extreme significance at p = 0.000. The adoption probabilities of digital wallets rise when users show stronger intentions to use them. Behavioral intention emerges as a critical decision factor for digital wallet adoption.

Path Coefficient Analysis - Indiret Effect (Mediating Effect):

The structural model shows that, independent variables combine with behavioral intention as mediating factors to influence digital wallet adoption. The researchers found trust and social security to have a notable 0.117 indirect impact on digital wallet embrace because trust generated behavior change at 0.244 and behavior change influenced adoption at 0.482. The data shows trust alongside social security affects behavioral intention leading to significant adoption of digital wallets though these elements fail to directly boost adoption much. Research findings show that perceived usefulness fails to demonstrate any conventionally meaningful role in driving digital wallet adoption. Users demonstrate minimal adoption inclination for digital wallets when measured through their perceived understanding of usefulness because their behavioral intention falls short of significance (-0.011 using -0.022 and 0.482 calculations). The indirect impact of perceived ease of use on digital wallet adoption through behavioral intention remains weak and statistically insignificant because users receive only 0.038 (0.080 × 0.482) increase in potential adoption through this indirect path. The adoption process depends heavily on trust and social security factors that influence behavioral intention but perceived usefulness and ease of use do not create noticeable indirect effects.

4.3 Path Coeffiecient Histogram Analysis:



Graph 4.3: Path Coefficeint Histogram Sources: Primary data

The distributions in histograms indicate the combined effect of Perceived Ease of Use, Perceived Usefulness, Trust and social Security and Behavioral Intent and Digital Wallet Adoption follows an approximate normal pattern. These factors demonstrate reliable and stable effects on adoption in the central area of the distribution since distribution density remains high throughout that region. Digital wallets become adopted at a steady rate when their usability improves and usefulness increases within user opinions.

4.4 R – Square Value Testing with confidence Interval:

Table 4.4: R – Square Value Testing with confidence Interval.

	Original sample	Sample mean	Standard deviation	T statistics	P values	Bias	2.5%	97.5%
Behavioural Intent	0.484	0.506	0.062	7.852	< 0.05	0.022	0.350	0.587
Digital wallet adoption	0.266	0.284	0.067	3.948	< 0.05	0.018	0.135	0.386

Sources: *Primary data*

Statistical analysis shows Behavioral Intent alongside Digital Wallet Adoption to have positive significant connections. The initial sample data for Behavioral Intent revealed 0.484 as the coefficient value while the mean reached 0.506 and standard deviation amounted to 0.062. The powerful positive relationship between digital wallet adoption and behavioral intent becomes clear through the t-statistic value of 7.852 and the significant p-value < 0.05. The corresponding 95% confidence interval stretches from 0.350 to 0.587. The original sample coefficient and standard deviation with the sample mean of Digital Wallet Adoption measure 0.266 and 0.284 and 0.067 for its standard deviation. A t-statistic value of 3.948 reveals statistical significance along with a p-value lower than 0.05. The confidence interval assessed these values at 95% showing behavioral intent positively affects digital wallet adoption between 0.135 and 0.386. Analyses show digital wallet adoption variables produce robust statistical effects while their confidence intervals prove zero is outside their range indicating their vital significance for wallet adoption engagement.

4.5 R – Square Adjusted Value with Confidence Interval:

Table: 4.5 R – Square Adjusted Value with Confidence Interval.

	Original sample	Sample mean	Standard deviation	T statistics	P values	Bias	2.5%	97.5%
Behavioural Intent	0.472	0.495	0.063	7.499	< 0.05	0.023	0.335	0.578
Digital wallet adoption	0.244	0.263	0.069	3.517	< 0.05	0.019	0.109	0.368

Sources: *Primary data*

The study shows a strong positive relationship between Behavioral Intent and Digital Wallet Adoption. Specifically the Behavioral Intent measurement yielded sample results that showcase a coefficient value of 0.472 with average readings at 0.495 and participant variation showing a standard deviation of 0.063. Both statistical significance and strength of the relationship are confirmed by a t-statistic value of 7.499 and p-value < 0.05. This relationship demonstrates a positive influence on digital wallet adoption by revealing a 95% confidence interval from 0.335 to 0.578. The data demonstrates Digital Wallet Adoption displays a 0.244 original sample coefficient with 0.263 average and 0.069 standard deviation. Behavioral intent positively affects adoption based on a t-statistic of 3.517 while remaining highly significant with a p-value below .05 which leads to a 95% confidence interval of 0.109 to 0.368. These two variables demonstrate strong statistically important positive relations to digital wallet adoption in the model results.

4.6 Latent Variable Correlation Analysis:

Table 4.6: Latent Variable Correlation Analysis.

	Original sample	Sample mean	Standard deviation	T statistics	P values
Digital wallet adoption <-> Behavioural Intent	0.510	0.513	0.067	7.615	< 0.05
Perceived Ease of Use <-> Behavioural Intent	0.420	0.425	0.082	5.105	< 0.05
Perceived Ease of Use <-> Digital wallet adoption	0.275	0.279	0.066	4.198	< 0.05
Perceived Usefulness <-> Behavioural Intent	0.468	0.477	0.080	5.873	< 0.05
Perceived Usefulness <-> Digital wallet adoption	0.252	0.257	0.065	3.844	< 0.05
Perceived Usefulness <-> Perceived Ease of Use	0.195	0.204	0.092	2.116	< 0.05
Trust & Social security <-> Behavioural Intent	0.649	0.656	0.049	13.256	< 0.05
Trust & Social security <-> Digital wallet adoption	0.338	0.346	0.067	5.071	< 0.05
Trust & Social security <-> Perceived Ease of Use	0.492	0.491	0.075	6.559	< 0.05
Trust & Social security <-> Perceived Usefulness	0.409	0.413	0.068	6.006	< 0.05

Sources: *Primary data*

Analysis reveals strong positive connections between every studied variable. The analysis shows Digital wallet adoption and Behavioral Intent share 51% predictive value through a 7.615 t-statistic. The evaluation of user experience from customers leads to higher Behavioral Intent scores (0.420, t = 5.105) as well as Digital wallet adoption (0.275, t = 4.198). Behavioral

Intent shows significant relationship with Perceived Usefulness at a level of 0.468 with t = 5.873. Tests confirm a positive relationship exists between Perceived Usefulness and Perceived Ease of Use (0.195, t = 2.116). Behavioral Intent receives 0.649 (t = 13.256) significant reinforcement from Trust & Social Security which in turn UzbekistanGenerated a 0.492 (t = 6.559) impact on Perceived Ease of Use and a 0.409 (t = 6.006) influence on Perceived Usefulness while contributing 0.338 (t = 5.071) to Digital wallet adoption. The relationships between all elements (p-value < 0.05) show digital wallet adoption depends critically on trust features combined with ease of use and useful functionality for digital consumers.

4.7 Moderating Effect Anaysis:

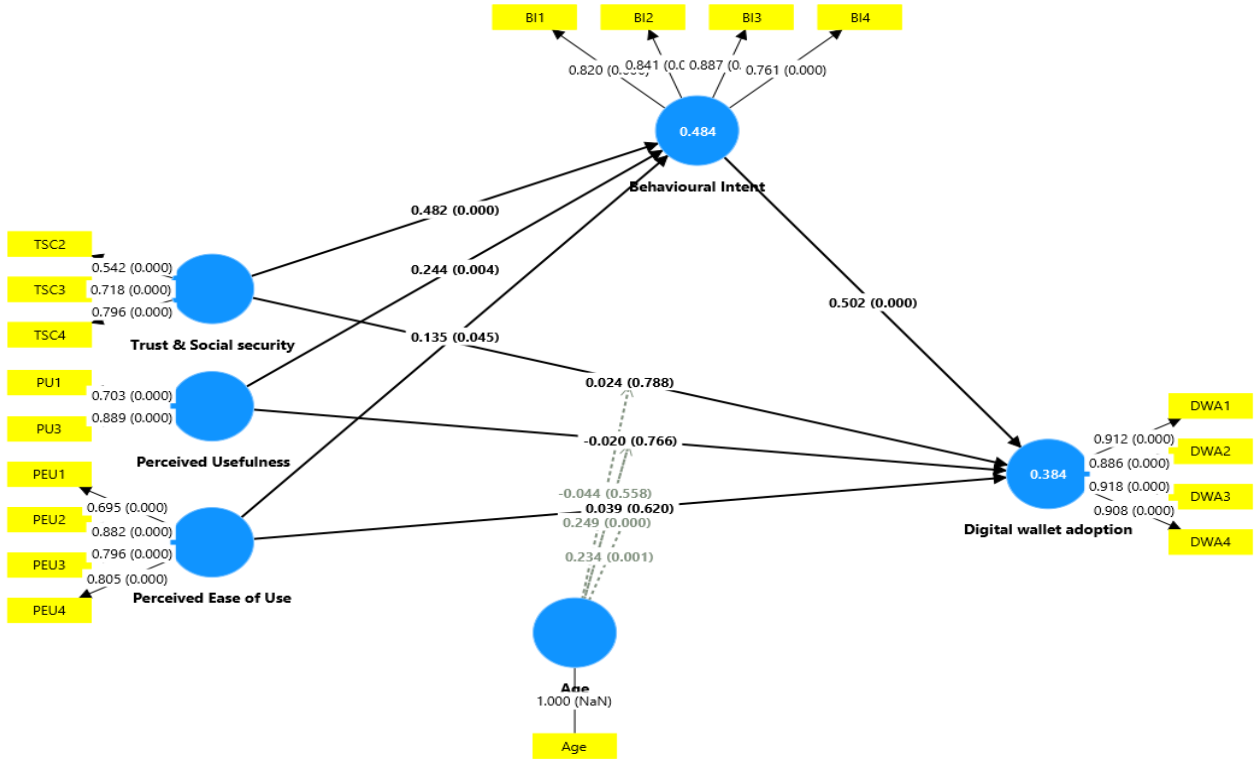


Chart 4.7: Moderating Effect Analysis. Source: Primary data

Age influences perceived usefulness and ease of use to moderate detailed analysis of digital wallet adoption patterns. Results show Age has a significant impact on Perceived Usefulness (0.249, p = 0.007) as well as Perceived Ease of Use (0.234, p = 0.001) because people across different age groups assess these features differently for digital wallet adoption. Subsequent analysis indicates Age does not affect Behavioural Intent significantly as well as Digital Wallet Adoption because both measurements produced insignificant results at 0.788 for p = -0.020 and p = -0.766. The results indicate no statistically significant contribution of moderation to Trust & Social Security measurements. Evidence shows that Age impacts perceptions of digital wallet systems regarding usefulness and ease of use yet fails to determine either adoption intentions or ultimate adoption choices.

5. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS:

5.1 Findings:

Analysis reveals trust and social security prove crucial for both behavioral intention and digital wallet adoption yet they affect intention more than adoption directly. The behavior intention factor remains the main driver of digital wallet adoption although perceived usefulness and ease of use fail to demonstrate meaningful direct or indirect connections. These two variables serve as positive influences for behavioral intention. Trust and security establish adoption pathways via behavioral intentions rather than creating direct pathways toward adoption. Research shows age acts as a modifier in perceptions of usefulness and ease of use yet it fails to change behavioral intent or adoption levels.

5.2 Conclusions:

Trust and security play a critical role in fostering behavioral intention, which in turn strongly drives digital wallet adoption among slum dwellers. While perceived usefulness and ease of use contribute to shaping behavioral intention, they do not directly impact adoption decisions. Behavioral intention remains the strongest predictor of digital wallet adoption. The findings also suggest that while age influences perceptions, it does not directly affect the adoption process. Digital wallet adoption follows a structured pathway where trust, security, and behavioral intent are primary determinants.

5.3 Recommendations:

To enhance digital wallet adoption, the financial service providers should focus on improving trust and security in digital transactions through awareness campaigns and fraud prevention mechanisms. Efforts should also be made to strengthen behavioral intent by highlighting the convenience and benefits of digital wallets. Additionally, targeted interventions can be designed for different age groups to address varying perceptions of ease of use and usefulness. Future research can explore other potential moderating factors, such as digital literacy and socioeconomic conditions, to gain deeper insights into digital wallet adoption.

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