

Barriers to Cashless Payment Adoption among Millennial Civil Servants in Johor, Malaysia

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ABSTRACT

The global shift toward cashless payment systems has transformed financial transactions. However, millennial civil servants in Johor, Malaysia, face notable barriers to such adoption. This study examines the social, economic, and psychological barriers that hinder the adoption of cashless payment methods among this group. Using a qualitative approach and case study design, with in-depth, semi-structured interviews conducted with six informants, the study highlights three key barriers, i.e., social, economic, and psychological barriers. The social barriers include peer influence, local businesses' preference for cash, syariah compliance issues, concerns about fraud and scams, data privacy concerns, and failed and erroneous transactions. Economic barriers include transaction fees, financial illiteracy, and inconsistent incentives across platforms. Finally, stress caused by poor internet connectivity and system downtime is categorized under the psychological barrier. These issues, rooted in social, economic, and psychological factors, hinder the adoption of cashless payments despite Malaysia's digital economy initiatives outlined in the 2021 Malaysia Digital Economy Blueprint. The study further recommends targeted actions, such as subsidizing SMEs for digital tools, cybersecurity education, syariah-compliant payment options, and peer-led awareness campaigns. These strategies aim to enhance trust and accessibility, enabling the public sector to meet Malaysia's financial inclusion goals. This research enhances understanding of barriers in developing economies and guides policies to promote fair adoption of cashless systems among government employees.

Keywords: Cashless payment, millennials, civil servants, Malaysia, digital economy

INTRODUCTION

The swift shift to cashless payment methods has revolutionized financial transactions worldwide, driven by technological advancements and shifting consumer habits. Cashless options, including mobile applications, contactless cards, digital wallets, and online banking, provide unmatched convenience, efficiency, and security, supporting the global move towards digital economies. Globally, cashless payments have experienced significant growth, with non-cash transactions reaching 1.3 trillion in 2023, mainly fueled by mobile payment

platforms and digital wallets. In Southeast Asia, the use of digital payments has expanded rapidly, although challenges such as cybersecurity threats, digital literacy gaps, and infrastructure issues persist (World Bank, 2023). For public sector workers, additional obstacles include bureaucratic hurdles, limited digital skills training, and dependence on cash-based systems in some areas.

In the Malaysian case, the government's goal to become a high-income digital nation, as outlined in the Malaysia Digital Economy Blueprint (Economic Planning Unit, 2021) has accelerated efforts to promote cashless transactions across various sectors, including public administration. The urban regions have high smartphone ownership rates. However, people in remote areas face challenges, including poor internet connectivity and higher transaction costs, which hinder the adoption of cashless payments (The Central Bank of Malaysia, 2022). Cultural preferences for cash in informal exchanges and concerns about data privacy further complicate the shift to digital payments.

Statement of the Problem

The swift global movement towards cashless payments is evident, with Malaysia actively encouraging digital transactions to realize its vision of a digital economy, as described in the Malaysia Digital Economy Blueprint (Economic Planning Unit, 2021). Despite being technologically familiar, millennials (born 1981-1996) exhibit inconsistent adoption of these systems, particularly among civil servants in the state of Johor, Malaysia. These public sector workers encounter challenges such as poor digital infrastructure in rural areas, a lack of training on payment platforms, and cultural preferences for cash in informal economies (The Central Bank of Malaysia, 2022). Moreover, concerns about cybersecurity and transaction costs also hinder the use of cashless payments, challenging Malaysia's goals for financial inclusion and digital progress (World Bank, 2023).

The slow uptake of cashless payments among millennial Johor civil servants has notable effects on public sector effectiveness and national economic objectives. Research shows that obstacles like fraud and scam issues (Jain et al., 2021; Razaq et al., 2021), data privacy (Al-Qudah et al., 2024; Swanton et al., 2024), syariah compliance issues (Bakri et al., 2023; Muneem et al., 2025; Muhammad et al., 2025), local businesses' preference for cash (Ahmeti & Zeqiri, 2022; Rohanifar et al., 2022) and peer influence (Kanimozhi & Pradeep, 2023; Suprpto, 2020). Overcoming these issues is essential to align the public sector with Malaysia's digital economy plans and to promote fair access to financial technologies.

Research Objective

The study aims to achieve the following objective:

- 1) To explore the barriers to cashless payment adoption among the millennial civil servants in Johor, Malaysia.

Significance of the Research

This study is highly valuable for millennial civil servants in Johor, who face challenges in adopting cashless payments. By examining these obstacles, this study can inform targeted solutions that address them. Such solutions include enhanced cybersecurity education and syariah-compliant payment options, enabling civil servants to confidently incorporate cashless methods into their professional and personal lives, thereby improving their financial efficiency and inclusion.

This study offers valuable insights for policymakers aiming to advance Malaysia's digital economy, as outlined in the Malaysia Digital Economy Blueprint. Recognizing barriers enables targeted policy development. Furthermore, tackling peer influence through awareness campaigns can help increase acceptance among civil servants, supporting national goals of reducing cash reliance and improving public sector efficiency.

This study makes a significant contribution to future research and the existing body of knowledge by examining how barriers impact the adoption of cashless payments within a specific demographic. It enhances existing theories by integrating contextual factors, such as syariah compliance and peer dynamics, which are

less explored in the context of public sector millennials in developing economies. The results can inform the development of new models that consider the cultural and occupational influences on digital financial adoption, providing a framework for comparative studies across Southeast Asia and other regions facing similar challenges. Overall, this study opens up avenues for further exploration of the issue of cashless payment adoption among civil servants.

LITERATURE REVIEW

Peer Influence

Social influence involves external factors that shape a person's decision to engage with an object (Suprpto, 2020). When social influence is strong, the likelihood of usage increases. People tend to weigh the opinions of trusted individuals, such as friends, family, and relatives, especially if those individuals have experience with cashless mobile payments, using their opinions as a reference. Numerous studies in mobile payment environments have confirmed the significant impact of social influence on behavioral intentions globally, including in India (Kanimozhi & Pradeep, 2023), Malaysia (Wang et al., 2023), Indonesia (Suprpto, 2020), Kosovo (Ahmeti & Zeqiri, 2022) and Bangladesh (Rohanifar et al., 2022). Additionally, analysis of consumer adoption intentions for cashless payments has identified social influence as having a positive effect. However, studies such as Singh and Rana (2017) show otherwise, highlighting that older users tend to have lower trust in digital platforms and prefer tangible money for control and assurance, which further influences their peers.

Local Businesses Prefer Cash

A significant obstacle to the adoption of cashless payments among millennials is the local preference for cash at small and medium-sized enterprises (SMEs), including food stalls, retail outlets, and service providers. Certain regions often have a strong cultural tendency to favor cash transactions, which significantly slows down the shift to digital payments. Many salespeople prefer cash due to trust issues and concerns about the perceived complexity of digital systems (Ahmeti & Zeqiri, 2022; Rohanifar et al., 2022). Moreover, other studies also mention a strong cultural preference for cash transactions in many regions. This habit is deeply ingrained and poses a significant barrier to the adoption of cashless payments (Pertiwi et al., 2021).

Syariah Compliance Issues

Syariah compliance presents a distinct challenge within Malaysia's multicultural environment. Specific digital payment platforms often fail to adhere to Islamic financial principles, including the avoidance of *riba* (interest) and maintaining transparency. The Central Bank of Malaysia (2022) emphasizes the importance of developing inclusive financial systems that cater to diverse religious needs to promote greater adoption. Past research by Bakri et al. (2023), Muneem et al. (2025), and Muhammad et al. (2025) has highlighted that many digital payment options and e-wallets may not fully adhere to syariah principles. For example, issues arise around the permissibility of rewards, cashback, and discounts, which could incorporate elements of *gharar* (uncertainty) or *riba* (interest), both of which are prohibited in Islamic finance.

Fraud and Scam Concerns

Fraud and scams also pose a significant obstacle to the adoption of cashless payments. Fear of financial fraud is a key barrier in Malaysia, especially among public sector workers who value financial security. This issue is exacerbated by the limited availability of cybersecurity education, which makes civil servants reluctant to use digital wallets or online banking. Researchers have also emphasized the significant risk of mobile-based fraud in the Global South, particularly in India (Jain et al., 2021) and Pakistan (Razaq et al., 2021). Jain et al. (2021) further identified the susceptibility of low-income Indian merchants to mobile payment fraud, such as fake payment confirmations and counterfeit QR code stickers.

Data Privacy Concerns

Another concern associated with mobile payment is customer data protection. Data privacy concerns further complicate adoption. Millennials, despite their extensive technological exposure, are cautious about sharing

personal information due to concerns about potential data breaches. The World Bank (2023) notes that privacy concerns are a global barrier to digital payment adoption, particularly in regions with evolving data protection regulations. In Malaysia, the Personal Data Protection Act exists, but awareness and enforcement remain inconsistent, contributing to skepticism.

Furthermore, Moghavvemi et al. (2020) state that merchants must ensure the highest level of security for customer data, as data breaches could harm both merchants and consumers. Al-Qudah et al. (2024) and Swanton et al. (2024) have highlighted concerns about privacy and the potential misuse of personal data as significant barriers to the adoption of cashless payment.

Failed and Erroneous Transactions

Failed and erroneous transactions often stem from technical issues, such as a poor internet connection or system faults, as well as user errors, including incorrect inputs or misunderstandings of digital interfaces, which have become a barrier in cashless systems. Technical difficulties and complex setup procedures for digital wallets contribute to transaction failures, particularly in semi-urban and rural areas, where digital infrastructure is inconsistent. This results in issues such as incomplete payments or double charges, leading to financial inconvenience and increased reliance on cash. Moreover, concerns about the security of digital platforms, exacerbated by frequent transaction errors, deter users from adopting these methods, as they prioritize reliability in their financial transactions (The Central Bank of Malaysia, 2022).

Transaction Fees

Transaction fees pose a significant obstacle to the adoption of cashless payments, as these fees impact the affordability and perceived value of digital payment methods. In Malaysia, where government initiatives like the Malaysia Digital Economy Blueprint aim to promote a cashless society, transaction charges imposed by mobile apps or card systems often discourage users, especially those with limited disposable income. Many SMEs, with which the public frequently transacts daily, either pass these fees to customers or reject cashless payments altogether to avoid merchant charges, thus reinforcing a preference for cash. High transaction costs and a lack of awareness about fee structures create financial disincentives, especially in rural areas with less developed digital infrastructure (The Central Bank of Malaysia, 2022; Ahmeti & Zeqiri, 2022). This issue reduces trust in cashless systems, as users view them as less cost-effective than cash transactions.

Financial Illiteracy

Limited financial literacy significantly hinders the adoption of cashless payments, affecting the ability to trust and effectively use digital payment systems. Despite being digital natives, many millennials lack the financial knowledge necessary to understand complex platforms, such as mobile apps and contactless cards, leading to transaction errors and hesitation in embracing these systems. Studies have shown that financial illiteracy is associated with lower adoption rates of cashless payment methods (Bilici & Çevik, 2023; Uzonwanne & Ezenekwe, 2017). This knowledge gap hampers Malaysia's goal of establishing a cashless society, as detailed in the Malaysia Digital Economy Blueprint (Economic Planning Unit, 2021).

Inconsistent Incentives Across Platforms

Inconsistent incentives across various cashless payment platforms pose a significant challenge for users, hindering their preference to adopt digital transactions as the world advances toward a digital economy. The increasing number of payment options, including mobile applications, digital wallets, and contactless cards, often feature different promotional offers, cashback schemes, and loyalty programs that vary greatly in accessibility, value, and relevance. Vashista et al. (2019) found that customers appreciated mobile payments for rewards or sign-up bonuses, but they were reluctant to use them on a regular basis. Merchants found mobile payments to be an extra hassle for their businesses. Camera et al. (2016) demonstrated that buyers and sellers struggled to agree on payment methods prior to trading. Sellers were quick to use electronic payments, but buyers were not. Removing fees or adding rewards significantly increased the use of electronic payments. However, although economic benefits were important for buyers, they alone did not fully explain why buyers chose to adopt electronic payments.

Stress

The stress caused by system outages and poor internet connectivity has a significant impact on the adoption of cashless payments. Unreliable digital infrastructure hampers smooth transactions, especially in semi-urban and rural areas (Gaur & Verma, 2023; Murari et al., 2020). Inconsistent internet access often leads to system failures, resulting in delays or unsuccessful transactions that frustrate users. Technical issues, such as app crashes and slow responses, create anxiety for civil servants who rely on digital payments for their daily expenses, prompting them to prefer cash for reliability.

METHODOLOGY

Research Approach and Design

This study employs a qualitative research approach, which is well-suited for exploring and analyzing the barriers regarding cashless payment adoption faced by the informants (Taylor et al., 2016). It provides an in-depth understanding of the issues under study, especially among Johor state civil servants from the millennial generation, regarding their experiences with cashless payment systems. This approach enabled researchers to understand how informants perceived their experiences, the meanings they assigned, and the impact on them. Additionally, a case study design was also employed to gain a deeper understanding of the complex issues that informants face in various situations.

Sample and Sampling Techniques

Purposive sampling, a cornerstone technique in qualitative inquiries, was employed in this study to intentionally select individuals who could provide the most relevant and detailed perspectives on the research problem. Six informants were selected through purposive sampling. These individuals, born between 1981 and 1996 and working in various government departments in Johor, Malaysia, were selected based on their experience with cashless payment systems and to represent both urban and rural areas, providing diverse perspectives. A small sample of six is suitable for qualitative research, allowing for in-depth analysis and detailed data. This sampling method is suitable for the study's context, focusing on a specific demographic within Johor's public sector and utilizing social networks to reach relevant participants, particularly in rural areas where digital infrastructure may be limited (Lim et al., 2023). The small sample size enables an in-depth analysis of individual experiences, aligning with the qualitative focus on depth rather than breadth, and provides a basis for guiding policy efforts to enhance digital financial inclusion in Malaysia's public sector.

The snowball sampling technique was also employed to identify additional informants, where initial participants recommended colleagues who had faced similar experiences (Creswell, 2013). The total number of informants was determined and finalized using the saturation principle, which states that once the data were collected, no new themes or sub-themes were added to the existing data (Taylor et al., 2016).

Table I Demographic Profile of the Informants

Informants' Demography	Adam	Balqis	Chakra	Dollah	Emy	Fujani
Gender	Male	Female	Female	Male	Female	Female
Age	29	33	29	34	44	39
Place of residence	Batu Pahat, Johor	Johor Bahru, Johor	Johor Bahru, Johor	Batu Pahat, Johor	Muar, Johor	Segamat, Johor
Ethnic group	Malay	Malay	Malay	Malay	Malay	Indian
Religion	Islam	Islam	Islam	Islam	Islam	Hinduism

Marital status	Married	Married	Single	Married	Married	Married
Level of education	Malaysian Certificate of Education	Malaysian Certificate of Education	Bachelor's degree	Bachelor's degree	Malaysian Higher School Certificate	Master's degree
Current occupation	Clerk	Auditor	Clerk	Officer	Chief clerk	Clerk
Years of service	8 years	9 years	10 months	9 years 5 months	24 years	13 years
Sector	Government	Government	Government	Government	Government	Government
Range of income per month	MYR4,850 and below	MYR4,850 and below	MYR4,850 and below	MYR4,850 - MYR 10,970	MYR4,850 and below	MYR4,850 and below

Table I presents the demographic profile of the six informants in this study, highlighting their diverse backgrounds in terms of gender, age, place of residence, ethnicity, religion, marital status, education level, occupation, years of service, occupational sector, and monthly income range. The sample includes four women (Balqis, Chakra, Emy, and Fujani) and two men (Adam and Dollah), all aged between 29 and 44 years as of 2025. Geographically, Adam and Dollah are initially from Batu Pahat, Johor, while Balqis and Chakra reside in Johor Bahru. Emy and Fujani live in Muar and Segamat districts, respectively. All the informants are Malays and Muslims, except Fujani, who is an Indian and Hindu. Their educational backgrounds vary, with Adam and Balqis holding the Malaysian Certificate of Education, Emy having a Malaysian Higher School Certificate, Chakra and Dollah possessing bachelor's degrees, and Fujani having a master's degree. Professionally, they work in various fields, i.e., Adam, Chakra, and Fujani as clerks, Balqis as an auditor, Emy as a chief clerk, and Dollah as an officer. Their years of service range from 24 years for Emy, followed by Fujani with 13 years, Dollah with 9 years and 5 months, Balqis with 9 years, Adam with 8 years, and Chakra with 10 months of experience. All of them are employed in the public sector, working under the Johor state government. Regarding their monthly income, five informants (Adam, Balqis, Chakra, Emy, and Fujani) earn between MYR4,851 and below (working-class group), while Dollah's income ranges from MYR4,850 to MYR10,970 (middle-class group).

Data Collection Procedure

Based on their available time, the informants could choose the location, date, and time of the interviews. Although they were civil servants, the interviews typically took place in relaxed settings, such as comfortable lounge areas. This helped create a welcoming atmosphere for open conversation. Before each interview, the researchers provided the informants with an information sheet and informed consent form to ensure that all informants understood the nature, objectives, and scope of the research. This also helped them prepare some topics for discussion. They were assured that all information collected would be kept confidential and used solely for academic purposes, and that they could withdraw their consent at any time.

The interview protocol focused on the barriers faced by millennial Johor state civil servants in using the cashless payment method. It included both closed-ended and open-ended questions. Demographic details, such as gender, age, place of residence, ethnicity, religion, education level, occupation, years of service, occupational sector, and monthly income range, were primarily gathered through closed-ended questions. The open-ended questions aimed to gather information that addressed this study's objective, specifically the barriers faced by the informants when using the cashless payment method. During the interviews, audio recorders captured key details shared by the participants, with their permission, which was obtained from all. The interviews were conducted in English and the informants' native languages to encourage open storytelling and effective data collection. Most interviews lasted about one hour on average.

Data Analysis

After completing data collection, the researchers transcribed all raw audio recordings into written transcripts in a verbatim manner. NVivo 15 software was then employed to code these transcripts. To clarify the issues being investigated, thematic analysis was applied to systematically analyze the data until key themes emerged (Creswell, 2013). The coding system proved highly effective in categorizing and connecting themes, allowing the researchers to interpret the data and better understand the barriers faced by the informants regarding the cashless payment method.

RESEARCH FINDINGS AND DISCUSSION

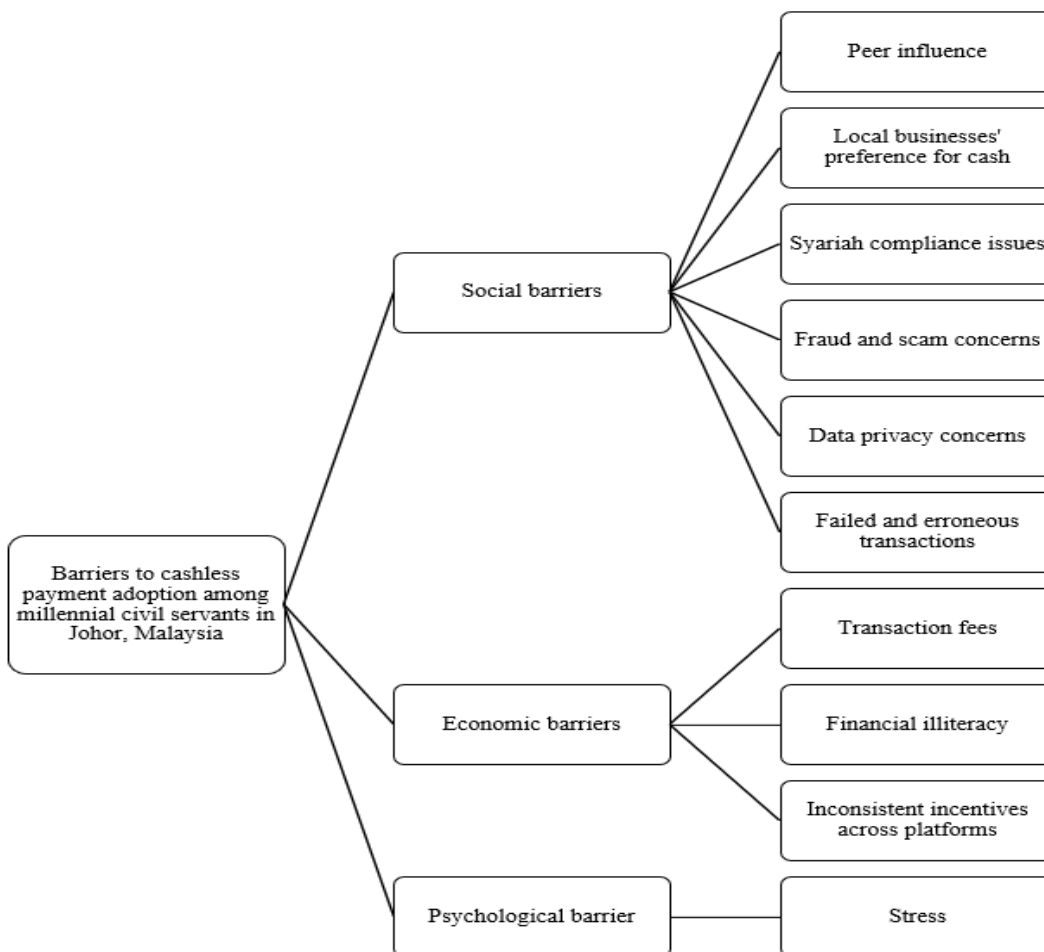


Fig. 1 Barriers to cashless payment adoption among Johor millennial civil servants

Based on Figure 1, this study identified three critical themes related to the barriers to cashless payment adoption among millennial civil servants in Johor, Malaysia. The three themes, social, economic, and psychological barriers, are intricately tied to foundational adoption frameworks, notably the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Diffusion of Innovations (DOI) theory, thereby fortifying the study's theoretical underpinnings. The sub-themes under social barriers include peer influence, local businesses' preference for cash, syariah compliance issues, concerns about fraud and scams, data privacy concerns, and failed and erroneous transactions, which resonate with UTAUT's social influence construct and DOI's compatibility attribute. Here, intergenerational frictions and entrenched cultural norms erode the perceived alignment of digital tools with users' lived realities. Economic barriers, including transaction fees, financial illiteracy, and inconsistent incentives across platforms, erode UTAUT's performance expectancy alongside DOI's relative advantage, casting cashless systems as less viable than traditional alternatives. Finally, the psychological barrier, characterized by stress arising from erratic internet connectivity and recurrent system downtimes, heightens the effort expectancy in UTAUT while amplifying the perceived complexity within DOI frameworks, as users grapple with unreliable digital interfaces that undermine seamless transaction execution.

Social Barriers

The findings reveal that peer influence, local businesses' preference for cash, syariah compliance issues, concerns about fraud and scams, data privacy concerns, and failed and erroneous transactions are substantial social barriers to the adoption of cashless payments among the informants. The following paragraphs will discuss those issues in detail.

1) *Peer influence*: The findings indicate that generational differences have a vital impact on the adoption of cashless payment technology. One informant, Emy (pseudonym), aged 44, shared the following:

"Most of my colleagues who are millennials use QR Pay during lunch, so I just follow because it feels easier and faster. However, my senior officers still prefer to pay with cash, saying it feels safer and more reliable. Sometimes this becomes a challenge for me, because when I am with younger colleagues, I feel encouraged to use cashless, but when I deal with seniors, I have to switch back to cash to fit in. It feels like I am caught between two different practices at the workplace."

The findings indicate that peer influence played a vital role in the adoption of cashless payments. This aligns with the studies done by Kanimozhi and Pradeep (2023), Wang et al. (2023), Suprpto (2020), Ahmeti and Zeqiri (2022) and Rohanifar et al. (2022). Besides that, the informants also shared that senior staff tend to prioritize familiarity and security, making them more resistant to change. A study by Singh and Rana (2020) also highlighted that older users tend to have lower trust in digital platforms and prefer tangible money for control and assurance. In Johor, this generational divide suggests that peer influence among millennials can accelerate the adoption of cashless transactions. Still, the reluctance of senior staff slows the normalization of these transactions in government workplaces. This situation highlights a generational gap in the adoption of cashless payments. Millennials tend to quickly embrace digital methods, while older staff members are more comfortable with physical currency.

2) *Local businesses' preference for cash*: The findings indicate that cultural and business traditions have a substantial impact on payment behavior. In Johor, such persistence slows down the shift toward a fully cashless ecosystem. In relation to this, an informant called Emy (pseudonym), a 44-year-old civil servant, articulated as follows:

"In my area, most of the local shops and food stalls still prefer cash. When I try to use an e-wallet, some shopkeepers will tell me straight away that they only accept cash. This becomes a challenge because I have already grown accustomed to paying by QR at larger outlets, but when I am in smaller shops or at the night market, I have no choice but to carry cash. It feels inconvenient to juggle between two systems, and sometimes I end up bringing more cash just in case the cashless option is not available."

The findings are consistent with the studies conducted by Ahmeti and Zeqiri (2022), Rohanifar et al. (2022), and Pertiwi et al. (2021), which stated that the preference for cash is due to trust issues and concerns about the perceived complexity of digital systems, posing a significant barrier to the adoption of cashless payments.

3) *Syariah compliance issues*: Informants pointed out that the absence of syariah-compliant options acts as a barrier, especially for Muslim civil servants. This indicates that religious assurance is crucial for the adoption of financial technology. Among the informants, uncertainties about compliance hinder their readiness to fully adopt cashless systems. This is reflected in the narratives of Dollah (pseudonym), a 34-year-old civil servant, who said as follows:

"Sometimes I wonder whether all these e-wallet platforms are truly syariah-compliant. Not every application clearly explains whether it avoids elements like riba (interest) or hidden charges. As a Muslim, this makes me cautious because I do not want my daily transactions to fall into doubtful practices. It is a barrier for me, because even though cashless payment is convenient, I still feel uneasy using it without proper assurance from religious authorities or certification."

The findings clearly show that the informants questioned whether some cashless platforms meet syariah standards. The lack of explicit certification or guidance leads to hesitation among Muslim users. This aligns

with the studies conducted by Bakri et al. (2023), Muneem et al. (2025), and Muhammad et al. (2025), who highlighted that many digital payment options and e-wallets may not fully adhere to syariah principles. Thus, syariah compliance issues became a barrier to the usage of cashless payments among the informants.

4) *Fraud and scam concerns*: The findings underscore that concerns about fraud and scams continue to be an important barrier to the adoption of digital payments. About this, Balqis (pseudonym), a 34-year-old civil servant, stated:

“Sometimes I get scam messages asking for OTP codes. That makes me very cautious. I am worried that using e-wallets might expose my personal data.”

Informants expressed concerns about the risks of fraud, scams, phishing, and unauthorized transactions, which reduced their preference for digital payments. This finding is consistent with recent studies, such as those by Tan and Lee (2024), Jain et al. (2021) and Razaq et al. (2021), which note that the fear of fraud, scams, and data breaches reduces users’ willingness to rely on e-wallets and online banking.

5) *Data privacy concerns*: The informants expressed unease about the amount of personal information required when registering for cashless payment platforms, such as their identification card numbers, phone numbers, and bank account details. The lack of transparency regarding how this data is stored and who can access it created fear of potential data leaks or misuse. As a result, some informants reported limiting their use of e-wallets despite acknowledging their convenience. Fujani (a pseudonym), a 39-year-old civil servant, explained it as follows:

“I always feel uneasy about how much personal information these apps are collecting. When I register for an e-wallet, I have to give my identification card number, phone number, and sometimes even link my bank account. I am unsure how securely this data is stored or who has access to it. It makes me worry that my private details could be leaked or misused. Because of this, I feel hesitant to use cashless payments too often, even though they are convenient.”

The findings indicate that data privacy concerns pose a remarkable barrier to the adoption of cashless payments. The informants are cautious about how payment providers collect and utilize their data. Recent studies stated that a fear of data misuse reduces user trust and discourages the frequent use of digital financial services. For instance, Al-Qudah et al. (2024) and Swanton et al. (2024) have highlighted concerns about privacy and the potential misuse of personal data as significant barriers to the adoption of cashless payment.

6) *Failed and erroneous transactions*: Past negative experiences, such as incorrect transfers or delayed refunds, influence the informants’ preference for using cashless payment. They become more cautious or reluctant to use cashless payments after such incidents. Fujani (pseudonym), a 39-year-old civil servant, shared her experience as follows:

“I once transferred money to the wrong number, and it took almost a week to get it back. Since then, I do not fully trust online transfers.”

This finding illustrates how negative past experiences shape the informants’ perceptions of the reliability of digital payments. Millennials, despite being adept with technology, face unique difficulties with mistaken transactions stemming from lower financial literacy and the intangible nature of digital payments, which can obscure spending details (The Central Bank of Malaysia, 2022). In the public sector, Johor civil servants often handle routine transactions within bureaucratic systems, where errors like incorrect payments or failed authentications caused by device incompatibilities are common. These issues often arise from poorly designed app interfaces or inadequate user training, thereby increasing the risk of financial loss. The rise of cashless payments during the COVID-19 pandemic further highlighted these vulnerabilities, as millennials struggled with unfamiliar platforms, leading to mistaken transactions. Overcoming these problems calls for better user education and more reliable digital systems to foster trust and facilitate smooth adoption among this crucial workforce.

Economic Barriers

The findings reveal that transaction fees, financial illiteracy, and inconsistent incentives across platforms are vital economic barriers to the adoption of cashless payments among the informants. The following paragraphs will discuss those issues in detail.

1) *Transaction fees*: Informants observed that extra transaction fees decrease their incentive to use cashless payments. Small but frequent charges can lead to dissatisfaction, especially when compared to free cash transactions. Emy (a pseudonym), a 44-year-old who has experienced this situation, shared the following narratives:

"Sometimes when I pay bills or renew my license online, there is an extra MYR1 or MYR2 service charge. It may seem like a small amount, but when accumulated over many transactions, it becomes a substantial burden. I feel like I am being penalized for using cashless methods, whereas if I pay in cash at the counter, I do not incur an extra charge. This makes me think twice before choosing online payments, because in the end, cash feels cheaper."

For millennial civil servants, who often have fixed government salaries, transaction fees exacerbate financial worries, especially alongside challenges such as fraud risks and low digital literacy. They are more sensitive to extra costs due to economic strain, viewing even small fees as a barrier to using digital wallets or contactless cards. The complicated fee structures, which are often not clearly explained by financial institutions, contribute to the confusion, as users struggle to understand hidden charges or fluctuating rates. While the COVID-19 pandemic increased the use of digital payments, it also highlighted the burden of transaction fees, particularly for frequent small transactions common among civil servants. These findings align with past literature, such as The Central Bank of Malaysia (2022) and Ahmeti and Zeqiri (2022), which highlighted that hidden or additional charges deter people from using digital finance systems.

2) *Financial illiteracy*: Informants highlighted challenges in tracking and controlling digital spending. The convenience of cashless payments sometimes leads to overspending. One of the informants, Dollah (pseudonym), aged 34 years old, narrated the following:

"When I use e-wallets, I sometimes do not realize how much I have already spent because it feels so easy just to scan and pay. By the end of the month, I am shocked at how high my expenses are. Honestly, I do not really know how to track or manage my spending properly using these applications. This becomes a challenge for me because, without proper financial knowledge, I feel like cashless payments make me lose control of my budget compared to using physical cash."

Despite the informants' tech-savviness, they often struggle to evaluate the risks and benefits of cashless payments. This can lead to financial mismanagement or avoidance of digital platforms. Poor financial education can lead to issues such as overspending, as digital transactions lack the tangible nature of cash, making it harder to monitor spending effectively. For the informants, this problem is exacerbated by work pressures and limited access to specialized financial literacy programs, thereby leading to poor budgeting habits. The findings align with studies done by Bilici & Çevik (2023) and Uzonwanne and Ezenekwe (2017), who found that financial illiteracy is associated with lower adoption rates of cashless payment methods.

3) *Inconsistent incentives across platforms*: The informants highlighted that incentives, such as cashback and discounts, vary between platforms, which affects user engagement. When rewards are not available, their willingness to use cashless payments decreases. Fujani (pseudonym), one of the informants, described the barriers caused by these inconsistent incentives as follows:

"At first, I was very excited to use e-wallets because of the cashback and discounts. For example, I could save a few ringgits every time I bought groceries. However, the problem is that these promotions are not consistent. Sometimes they stop without notice, or they only apply to specific platforms. When there are no rewards, I do not feel motivated to use cashless methods. In the end, I return to paying with cash because, at least, it is

straightforward and predictable.”

This suggests that economic incentives have a substantial impact on user behaviour. This finding is consistent with the studies conducted by Vashista et al. (2019) and Camera et al. (2016), who stated that regular financial rewards encourage more frequent use of digital payments, and vice versa.

Psychological Barrier

The findings reveal that stress due to poor internet connectivity and system downtime is a significant psychological barrier to the adoption of cashless payments among the informants. The following paragraphs will discuss those issues in detail.

1) *Stress:* Informants reported stressful experiences when poor internet connectivity or system downtime caused delays in completing transactions. This creates stress, especially in public settings. In relation to this issue, one of the informants, Adam (pseudonym), aged 29 years old, narrated as follows:

“Sometimes when I want to pay using QR, the system suddenly hangs, or the internet is too slow. It is very stressful, especially when there is a long queue behind me, and I have to fumble for cash as a backup. Once, my payment did not go through, but the money was still deducted, and I had to call customer service to sort it out. Situations like this make me feel anxious, because I cannot rely 100% on cashless payments when the network or system is not stable.”

The informants, who are millennials, are generally familiar with digital technologies and experience increased stress from system outages and poor internet coverage, as they expect quick, hassle-free transactions. Studies such as Gaur and Verma (2023) and Murari et al. (2020) show that frequent disruptions erode confidence in cashless platforms, particularly when users encounter issues like transaction timeouts or are unable to access payment apps during critical moments, such as shopping locally or processing payroll. In Johor, rural areas often have weaker internet signals, which disproportionately affects civil servants outside urban centres like Johor Bahru.

CONCLUSION

The study on cashless payment adoption among millennial Johor civil servants uncovers a range of barriers, including peer influence, local businesses' preference for cash, syariah compliance issues, concerns about fraud and scam, data privacy concerns, and failed and erroneous transactions, transaction fees, financial illiteracy, inconsistent incentives across platforms, and stress due to poor internet connectivity and system downtime. These barriers vitally impede the shift toward a cashless system, despite Malaysia's strategic move toward a digital economy, as detailed in the Malaysia Digital Economy Blueprint. Although millennials are proficient with technology, their willingness to adopt digital payments is limited by social, economic, and psychological factors. The results emphasize the importance of targeted efforts to bridge the gap between policy goals and real-world conditions, enabling public sector workers to support Malaysia's goal of a cashless society actively. Furthermore, with a localized perspective, it emphasizes Shariah issues, particularly concerns about riba and gharar, as central to the country's Islamic financial landscape (Muhammad et al., 2025). It enhances the UTAUT and DOI frameworks by incorporating occupational challenges and religious sensitivities to promote equitable advancement and stimulate further research across Southeast Asia.

Limitation

This study has notable limitations that should be acknowledged. Its emphasis on millennial civil servants in Johor limits the applicability of the findings to other regions or demographics in Malaysia, where socioeconomic and infrastructural conditions may vary. The use of qualitative methods, while offering in-depth insights, limits the ability to measure the extent to which the identified barriers are widespread across a larger population. Moreover, the study did not consider the viewpoints of other stakeholders, such as financial institutions or technology providers, which could provide a more comprehensive view of the cashless payment ecosystem. Future research should incorporate quantitative methods and encompass a broader geographic area

to validate the results and establish a comprehensive framework for addressing cashless payment issues in various settings.

RECOMMENDATION

To tackle the identified barriers, several recommendations are suggested. Policymakers should first encourage SMEs in Johor to adopt cashless payment methods by providing subsidies for digital tools, such as QR code scanners and affordable card readers, thereby reducing their dependence on cash. Besides that, policymakers ought to cultivate public-private partnerships with fintech entities, exemplified by the PayNet-MOF Cashless Boleh program, which has propelled eWallet transactions beyond 138 million through fee subsidies.

Next, implementing comprehensive cybersecurity education for civil servants can help lessen fears of fraud and data breaches, building trust in digital systems. Additionally, creating and promoting syariah-compliant payment options can address religious concerns, especially for Muslim employees, aligning with Malaysia's cultural diversity. These initiatives, reflected in Thailand's push for mobile payments (Changchit et al., 2024) and Indonesia's inclusive fintech reforms (Wibowo et al., 2025), aim to boost financial inclusion and align with Malaysia's Digital Economy Blueprint throughout Southeast Asia. Lastly, targeted awareness campaigns that utilise peer networks can help shift social norms and promote the adoption of cashless payments through community efforts. These strategies can improve digital financial inclusion and support Malaysia's broader economic objectives.

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