Available Online: 17 August 2026 DOI: 10.54254/2977-5701/2026.36158

Towards a cashless future: opportunities and challenges for society

Jiayi Li

Shenzhen Middle School, Shenzhen City, China

13723781048@139.com

Abstract. In this era where online payments are made more frequently with the help of modern technologies and infrastructure, a cashless society could be foreseen in a few decades. Whether its associated benefits overshadow the challenges has been heated discussed. This article analyzes particular fields based on foundations of current investigation, including crimes, social inequality, privacy issues, monetary policies and market regulatory. The evaluation of net social welfare that a cashless society gives is according to two dimensions: the order of severity and the difficulty of implementing effective solutions. As the investigation goes deeper, it becomes clear that associated issues such as cyber-crimes, financial exclusion and the complexity of redefining central banks' roles and new forms of monetary policy, could be eventually addressed in short run. Nevertheless, the long-run benefits of a cashless society are more long-lasting and imperative in various aspects, which overshadow the overall hazards.

Keywords: cashless society, convenience, cyber-crime, monetary policy

1. Introduction

With infrastructure and technological improvements in internet connectivity and smartphone developments, cash is slowly losing its relevance and is gradually being replaced by cashless technology, such as e-payment or credit cards. Many have expressed worries about the security, added crimes, and privacy losses related to the transition towards a cashless society.

This article aims to investigate the changes brought by a cashless society, focusing on issues of convenience, related crime types, monetary policy responses, social exclusion and inequality, as well as market regulatory responses. This paper firmly believe that although a cashless society inevitably brings various issues, it could leverage the total benefits while mitigating costs through technological innovations or proper governance, so that the fear of a cashless society would be overstated.

Copyright: © 2026 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

2. Results

2.1. Convenience of using cashless system

2.1.1. Comparison with cash

Compared to centuries of cash usage, the benefits associated with the cashless society can be categorized into different stakeholders. From the perspective of individuals, cash can be inconvenient and highly insecure, subject to losses or theft. Cash is often cumbersome to carry and inefficient in large transactions. In contrast, cashless payment systems offer a seamless experience by enabling fast and smooth transactions, allowing users to make payments anytime and anywhere, saving on transaction costs. Mezoh [1] also argued that contactless payments can reduce physical contact to lower the risk of disease transmission during public health crises. Digital payments and their inherent records of transaction histories also reduce information asymmetry. These advantages are contrasted by the inconvenience of cash, highlighted in empirical research [2, 3].

For firms, using cashless systems brings operational efficiency. Cashless systems integrate participating firms for an increase in potential consumer base, leveraging the network effect. As more firms and consumers migrate to the cashless system, the benefits to each user also rise. Cashless systems allow swift transactions between firms and consumers, supporting higher consumer expenditure. Businesses adapting to cashless systems benefit from increased sales and growth. According to Bounie and Camara's [4] empirical research on the effect of digital payment on sales, merchants experienced increases in both card-sales amount and transaction count after accepting contactless payments.

2.1.2. Overspending associated with growth in GDP

However, this convenience also lowers consumers' awareness of spending and encourages more impulsive purchases. The high consumer expenditure may be responsible for a consumer debt crisis from overspending. With ease of access due to online borrowing, consumers are losing track of their personal expenses and are unable to practice responsible financial planning. The collective data from the 2018 National Financial Capability Study (NFCS) showed that if excessive spending is financed by bank loans and lending platforms, more could fall into mounting debts that potentially trigger systemic defaults and instability in financial markets [5].

The macroeconomic impacts of a cashless society could be seen in Ernst & Young's research investigating the contribution to GDP brought by electronic payments [6]. Cashless payments raised German GDP by 2-3% in the past decade, due to early adoption of the technology. Thus, while a cashless society introduces individuals' challenges, the wider advantages in terms of efficiency, convenience, and increased economic activities outweigh these potential issues.

2.2. Cash crimes & cyber crimes

2.2.1. Resolution of cash-related crimes

The expansion of electronic payment systems is also said to control cash-related crimes such as robbery and burglary [7]. The risk of loss or theft mainly stems from cash's physical nature and anonymity. Fabris [8] argued that the feature of anonymity of cash allows for criminals' illegal activities in the black market, encouraging illegal trades and money laundering. Online payment and banking systems can effectively evade this problem. Detailed records and security mechanisms attached to cashless platforms can reduce the risk of crimes and losses by monitoring abnormal transactions, freezing accounts, and tracking lost funds. Machine learning could identify irregular activities and flag potential fraud, deterring criminals from committing crimes in the first place. By categorizing the normal payment behaviors of customers from historical payment and

banking data, technology can be used to mark abnormal transactions as suspected fraudulent activities and integrate these results into a broader fraud risk management system, thereby reducing expected losses [9].

2.2.2. Cyber-crimes and solution

Those against the transition to a cashless society may argue that there could be new forms of cyber-crime and cyber attacks targeting online banking systems, generating greater financial losses. The cash theft and robbery did not disappear with the cashless transition, but simply transformed into different criminal forms. Digital transactions are vulnerable to hacking and cyber fraud. Consumer-protection challenges include fraud, privacy risks, data breaches, illegal transactions, and weak accountability mechanisms. Resolving these often involves tedious processes and poor grievance reprisal, which further dampens the public's faith in cashless systems. Fischer's [10] account of the legal implications of a cashless society suggested the evidentiary challenges due to the absence of paper records.

However, the security risk concerns from cashless systems can be addressed through innovations and policy designs. Data mining techniques can be used to guard users' privacy and security in a cashless society, containing the previously mentioned costs. Regulatory changes and policy adjustments can help address security challenges by improving tax collection or upgrading digital payment systems [11]. Policy measures include updating existing money transmission regulations to set up a clearer system for assigning and allocating responsibility among consumers, merchants, and third-party payment providers, boosting consumers' confidence in the cashless system [12]. Therefore, although the added cyber-crime risks in the cashless society may seem daunting, the application of technical innovations and proper oversight can improve social stability through combating cash-related crimes and address new types of crimes.

2.3. Exclusions

2.3.1. Financial exclusion

Another major concern of a cashless society is financial exclusion. Social inequality persists in this society, manifesting in the form of gender, income, and regional inequality. Electronic devices and internet coverage are far from exhaustive, leading to exclusion among the poor and those living in impoverished areas with limited infrastructure. Abayomi [13] claims that individuals without smartphones, internet access, or digital tools may be unable to participate in the cashless economy. Those who cannot afford smartphones or data plans may be reluctant to switch to cashless due to increased financial burden. The elderly and youth might be excluded due to a lack of digital skills as well. As a society moves toward cashless, excluded groups may suffer from reduced mobility and lost opportunities.

Personal preferences and demographic factors interact with the exclusion problem, leading to varied responses in the cashless society. Behavioral controls could magnify concerns such as safety and privacy from cashless payments, as vulnerable groups worry about these risks of cashless transactions more than others [14]. Overspending from cashless innovations could further exacerbate social inequality as the excluded use their increased credit for reckless spending rather than engaging in personal financial planning.

2.3.2. Exclusion caused by gender inequality

Abayomi further outlined the risks of gender inequality in the cashless society [13]. Areas such as India still exclude females from deserving equal rights as males. Traditional gender stereotypes contribute to persistent gender inequality, which interacts with financial exclusion to exacerbate the social inequalities: men are more likely than women to own smartphones or access digital finance. Data from 28 countries showed a 29% gender gap in fintech versus traditional banking services. This gap exacerbates broader social inequalities by limiting women's access to credit, savings, insurance, and economic participation [15]. Thus, financial exclusion and social inequality are bound to be associated with the development of a cashless society.

2.4. Monetary policy

The transition from a cash-based society to a cashless one impacts not only consumers and businesses, but also the monetary authorities that wield their power-monetary policies that need to adapt to the new era.

2.4.1. Ineffective policies & institutions

For monetary policy changes, Storti [16] suggested that the central bank could lose its traditional instruments of monetary policy in a cashless economy: open market operations and advances to banks may become ineffective in controlling the interest rate and the money stock. To maintain monetary policy functionality, Storti provided two potential options for the central bank: "either becomes dependent on the treasury, both to obtain revenues and as a way of maintaining some effectiveness of its traditional monetary policy instruments; or strengthen its supervisory role as the monetary authority". To sustain market stability and prevent bank runs, central banks should oversee the quality control of loans issued by financial institutions. The reserve requirements should also be raised to influence the money supply. Enhanced supervisory role of the central banks, especially on the digital lending platforms, can effectively limit the policy risks from a cashless society.

2.4.2. A differentiated perspective on monetary policy risks in a cashless society

However, Engert [17] offered a different perspective on policy risks. He argued that a cashless society will not generally cause material, system-wide problems. Interest rates, reserves, and open market operations would still be available in a cashless society. Commercial banks still need to rely on the central bank reserves for inter-bank clearing, maintaining liquidity, and meeting regulatory requirements. Meanwhile, the reserve requirement can still influence the liquidity scale of the banking system, and open market operations remain a powerful tool for regulating reserves. Cash is merely one form of the central bank's liabilities. A reduction in its use will not weaken the central bank's control over monetary policies.

These contrasting views should be evaluated based on their differences in predicting the path of the central bank and monetary policy responses to a cashless transition. Engert's predictive arguments are more reflective of the empirical changes. The two articles were also based in different countries, with varying degrees of monetary control. Engert assumed a decrease in the use of the Canadian dollar and other currencies, while Storti presented a case of ineffective monetary policy operation in Europe, especially the Belgian banks. Storti's policy recommendations highlighted the need for regulators to maintain operational reliability and contestability, especially in a crisis.

2.5. Market concentration concerns

2.5.1. Power concentration and privacy hazards of cashless systems

Apart from regulations imposed on lending platforms and monetary responses, political and market concentration concerns over the cashless systems are also undeniably vital. Sajter [18] argued that the non-anonymity of cashless system under bank regulations and the supervision of payments might lead to identity exposure, offence to civil rights, and evaporation of individual privacy. As all trades are now traceable via cashless systems, banks have garnered tremendous power by monitoring all transactions, triggering surveillance risks, and concerns about the concentration of power in financial institutions and governments.

Moreover, Mehta [3] argued that an over-reliance on payment networks and financial institutions, along with the risk of outdated technology, may lead to market failure as the concentration of power in the payment industry. This includes increasing dominance of large payment companies and a growing dependence on private financial infrastructures. Lending platforms and financial institutions stand to gain the most from the cashless transition with rising demand for online payment services. Economies of scale reduces the average cost of operations, leading to monopoly power in the private payment industry and credit lending markets.

Brandl's [19] analysis of the US and EU market showed how market failure in a cashless society originates from profit-seeking payment companies. Replacing cash with digital alternatives changes payments from a public and inclusive infrastructure into a concentrated industry with a few powerful firms. This concentration allows dominant payment companies to gain stronger control over transaction conditions, fees, and access to consumer credit, causing power imbalances between financial institutions and ordinary consumers.

To address these concerns, central banks and supervision institutions should perform their duties on regulating the market power of large payment companies. Carstens [20] provided specific options for regulators. Regulators should impose caps on markup charges for platform transactions, standardize exchange rates between platform-issued tokens and conventional currencies, and establish clear rules governing information collection and sharing practices. By restricting corporate profits within a reasonable range and protecting user privacy, the cashless market can thrive without exploitations.

3. Conclusion

In conclusion, a cashless society brings both opportunities and challenges. It reduces the handing costs of cash, cash-related crimes, offers convenience in large transactions, and brings more businesses for participating firms. However, cyber-crimes, social inequality, privacy issues all demand policy attention. Central banks and regulators also need to revamp monetary policy designs, take on new supervisory roles, and address market failures. Governments and supervisory institutions should ensure the legality, fair competition, and information symmetry in a cashless society. With proper regulatory support, this paper could embrace, rather than fear the move toward a cashless future.

References

[1] Mezoh, P. M., & Zhou, X. (2024). Exploring the advantages of cashless payment systems: A comprehensive review. *International Journal of Research and Innovation in Social Science, 8*(10), 553–564.

[2] Achord, S., Chan, J., Collier, I., Nardani, S., & Rochemont, S. (2017). *A cashless society: Benefits, risks and issues* (Interim Paper). Institute and Faculty of Actuaries.

[3] Mehta, S. (1999). Strategic implications of an emerging cashless society in the US. *Electronic Markets, 9*(1–2), 93–103.

[4] Bounie, D., & Camara, Y. (2020). Card-sales response to merchant contactless payment acceptance. *Journal of Banking & Finance, 119*, 105938.

[5] Ahn, S. Y., & Nam, Y. (2022). Does mobile payment use lead to overspending? The moderating role of financial knowledge. *Computers in Human Behavior, 134*, 107319.

[6] Ernst & Young. (2023). *The socioeconomic impact of electronic payments in Germany*.

[7] Armey, L. E., Lipow, J., & Webb, N. J. (2014). The impact of electronic financial payments on crime. *Information Economics and Policy, 29*, 46–57.

[8] Fabris, N. (2019). Cashless society – the future of money or a utopia. *Journal of Central Banking Theory and Practice, 8*(1), 53–66.

[9] Vanini, P., Rossi, S., Zvizdic, E., & Domenig, T. (2023). Online payment fraud: From anomaly detection to risk management. *Financial Innovation, 9*(1), 66.

[10] Fischer, L. R. (1973). Legal implications of a cashless society. *Computer, 6*(12), 21–26.

[11] Celestin, M. (2019). The future of taxation in a cashless society: How digital payments and mobile money are changing tax collection. *Brainae Journal of Business, Sciences and Technology, 3*(6), 766–776.

[12] Tu, K. V. (2013). Regulating the new cashless world. *Alabama Law Review, 65*, 77.

[13] Abayomi, O., & Noordeen, A. R. (2025, May). Financial inclusion in a cashless society: Moderating a darkside of cashless societies. In *Proceedings of the 2025 Computers and People Research Conference* (pp. 1–3).

[14] Özbek, A., Çam, A. V., Soydaş, Ş. S., Barut, A., & Sharabati, A. A. A. (2025). The effect of behavioral factors related to cashlessness on the perception of green finance. *Green Technologies and Sustainability*, 100300.

[15] Chen, S., Doerr, S., Frost, J., Gambacorta, L., & Shin, H. S. (2023). The fintech gender gap. *Journal of Financial Intermediation, 54*, 101026.

[16] Costa Storti, C., & De Grauwe, P. (2001). *Monetary policy in a cashless society*. Available at SSRN 261872.

[17] Engert, W., Fung, B., & Hendry, S. (2018). *Is a cashless society problematic?* (No. 2018-12). Bank of Canada.

[18] Sajter, D. (2013). Privacy, identity, and the perils of the cashless society. *Culture, Society, Identity – European Realities*.

[19] Brandl, B., Hengsbach, D., & Moreno, G. (2025). Small money, large profits: How the cashless revolution aggravates social inequality. *Socio-Economic Review, 23*(2), 735–757.

[20] Carstens, A., Claessens, S., Restoy, F., & Shin, H. S. (2021). *Regulating big techs in finance*. Bank for International Settlements.