Future of Payments

Cashless future – reality or fiction?

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ABSTRACT

While cash use is steadily declining in favor of digital payments, its societal relevance remains strong. This paradox reflects cash's enduring role as a store of value, symbol of financial autonomy, and trusted medium in times of crisis. Although fewer transactions involve cash, public resistance to its abolition is growing. Declining access and acceptance risk triggering a self-reinforcing downward spiral, raising concerns about inclusion and resilience. Maintaining cash as a public good may require legal and policy measures. The debate over cash's future, therefore, transcends technology, touching on fundamental issues of trust, equity, and systemic stability.

1. Note: This article is partly based on an earlier German version from April 2025.

1. Introduction

The means of payment market is in constant evolution. In the earliest days, transactions were made using natural money such as shells or salt. These were gradually replaced by coins made of gold and silver, which in turn gave way to paper money (Figure 1). In recent decades, paper has been supplemented – and in some cases overtaken – by plastic money in the form of payment cards. Initially, the form of money and the method of payment were inseparable. Over time, however, a decoupling occurred: while physical means of payment are becoming less prevalent, electronic forms of money are on the increase.

History shows that new payment methods – cash included – were always developed with the goal of simplifying the transfer of value. The payment forms that succeeded were those that enhanced the efficiency of economic exchange and reduced transaction costs. This historical trajectory raises a pressing question: is cash on the verge of disappearing?

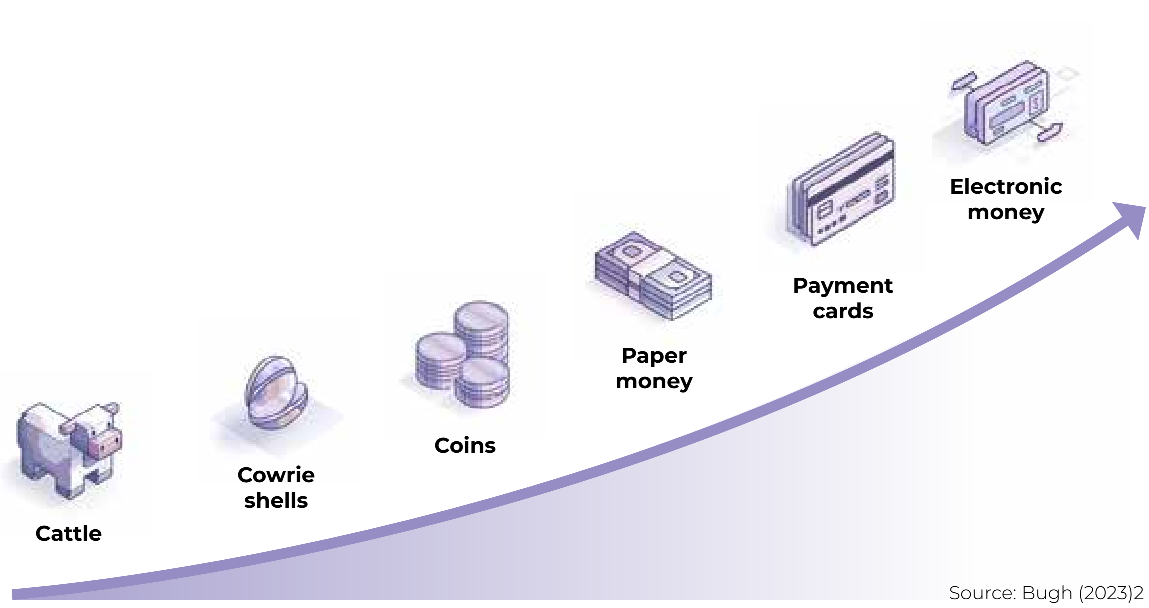
2. The use of cash is declining

In Switzerland, the trend is clear – cash is being used less frequently. Around one in six people no longer carry cash on a regular basis. Payment cards and mobile payment apps, especially Twint (the Swiss mobile payment app), are seeing widespread adoption.[3] The coronavirus pandemic served as a powerful accelerator of this shift. Similar developments are evident across other European countries.

The decline in cash use is driven by both supply and demand factors. On the supply side, there are now more opportunities to pay electronically in places where cash once dominated – such as vending machines, parking meters, and farm stands. At the same time, the growing presence of digital platforms has created new use cases where cash is simply no longer viable.

From the demand perspective, consumers are increasingly opting for digital payment methods because they are fast, convenient, and easy to use. In particular, contactless mobile payments have proven to be more attractive than cash for many daily transactions.

Figure 1: Evolution of means of payment and forms of money



Source: Bugh (2023)2

2. Bugh, J., 2023, "The evolution of the payment method: barter to e-payments," Pathquest, February 8, https://tinyurl.com/bdzkp6mc.
3. swisspaymentmonitor.ch

Yet despite this decline, three paradoxes surrounding cash have emerged. The first paradox is that, even as people use cash less often, the total value of cash in circulation – particularly in Switzerland and the eurozone – reached historic highs in early 2021, relative to GDP. Since interest rates have started to rise again after the coronavirus pandemic, this ratio has begun to fall. Notably, the CHF 1,000 note makes up about half the total value of cash in circulation in Switzerland. Demand for high-denomination notes tends to spike during crises – such as the financial crisis or the coronavirus pandemic – suggesting that they are increasingly used as a store of value rather than as a means of payment.

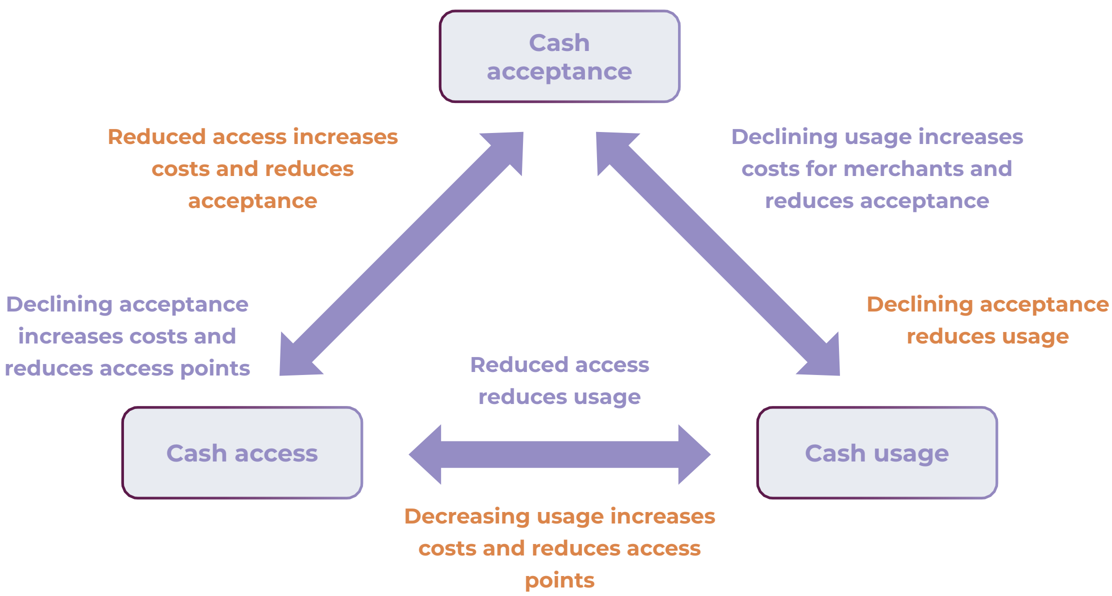
The second paradox is how public opinion has remained resolute in support of cash. Although the use of cash is decreasing, resistance to its abolition is growing. In Switzerland, 70 percent of the population are somewhat or clearly opposed to getting rid of cash, even though most of them are using it less frequently. Emotional attachment, perceived privacy, and other attributes of cash likely contribute to this stance.

The third paradox relates to individual behavior. While cash is used less frequently in daily transactions, people are holding more of it – both in their wallets and at home. Fewer cash withdrawals are being made, but when they do occur, the amounts tend to be larger. This may be linked to a perceived decline in the accessibility of cash withdrawal points such as ATMs and bank branches. Objective analyses for Switzerland confirm this perception.[4]

3. A vicious circle of decline?

These developments raise concerns about the emergence of a self-reinforcing downward spiral. Cash usage, access, and acceptance are interlinked and can influence each other in ways that accelerate the decline of cash (Figure 2). As consumers and businesses use less cash, they withdraw it less often, making ATMs less economically viable. Some ATMs are also being removed due to increased incidents of physical attacks, which drive up insurance and operating costs. For banks, maintaining cash infrastructure is largely a cost factor without the corresponding revenue. Consequently, retailers are more likely to limit or phase out the option of cash payments.

Figure 2: Potential vicious circle in the use of cash



4. Swiss Money Map, "Monitoring Cash Access Points in Switzerland," moneymap.ch.

As consumers encounter more barriers to using cash, they naturally shift further toward digital alternatives – further reducing demand for cash and, by extension, reducing access points like ATMs. A vicious cycle begins. This trend is noticeable in Switzerland and Germany, though a full-scale negative spiral has not yet taken hold. In contrast, countries such as Sweden, the Netherlands, and the U.K. have already experienced strong feedback loops that significantly accelerated the decline of cash's importance.

4. Alternative cash withdrawal points

Alternative options for withdrawing and depositing cash at retail points of sale are best understood as complements to traditional cash access channels, such as ATMs and bank branches. These new forms of access can enhance convenience, but they cannot fully replace established infrastructure. Retail outlets, for instance, often lack the capacity to meet demand for specific banknote denominations, and they are generally not equipped to verify the authenticity of cash or manage its recycling in a secure and systematic way. These functions remain core responsibilities of traditional banks, which continue to play a central role in maintaining the integrity of the cash cycle.

The central bank is also indispensable in this system. It ensures the authenticity of banknotes, removes those unfit for circulation, and issues new, high-quality currency. This "fresh" cash typically enters the economy via the banking sector – distributed as change by retailers or accessed directly by consumers through withdrawals. Without the support of both central banks and commercial banks, the reliability, security, and efficiency of the cash supply chain would be compromised.

5. The unique properties of cash

Cash occupies a unique and enduring position within the monetary system. Unlike digital payment methods, which are based on commercial bank money and thus entail counterparty risk, cash is central bank money – backed by the central bank and free from debtor risk. It represents the foundation of the financial system, offering an unmediated form of payment that is both tangible and widely accepted.

What sets cash apart is not just its physicality but the social, economic, and psychological functions it serves. It enables participation in the financial system without requiring access to digital infrastructure or banking services, thereby promoting inclusion. It also ensures a high level of privacy and anonymity, which many people still value in an increasingly data-driven world. In times of crisis or technical failure, cash remains a reliable fallback, independent of power supplies, internet access, or digital platforms. For many, it also facilitates more conscious spending, offering a clear sense of how much money is being used.

Efforts to develop a retail Central Bank Digital Currency (CBDC) aim to replicate many of these advantages. However, digital money – no matter how sophisticated – cannot fully reproduce the tactile and trust-based qualities of physical cash. Complete anonymity, for instance, is difficult to guarantee in a digital format, and no technology can entirely replicate the sense of control that comes with handling physical money. For this reason, a retail CBDC is likely to serve as a complement to, rather than a replacement for, cash.

6. Future trends in payment method solutions

The future of payment method solutions remains uncertain. However, some key trends are already emerging: First, mobile phones are likely to become the primary interface for payments, integrating all individual payment flows within their own ecosystems (e.g., Alipay and WeChat Pay). Physical payment cards are being phased out in favor of digital versions stored on smartphones or other mobile devices. Payment providers are shifting from offering "payment as a pain" to delivering "payment as a service". The most successful solutions are smooth, easy to use, and embedded within comprehensive ecosystems that deliver high individual value. Optimal analysis of transaction data will be key to delivering these tailored experiences.

Second, payments are likely to increasingly rely on biometric and behavior-based identifiers. Transactions may be authorized using unique features such as voice, eyes, facial recognition, fingerprints, gait, or even digital behavior like browsing patterns. Real-time (instant) payments will become the norm, enabling transfers at any time, from any location.

Third, the payment process could become fully integrated into the purchasing experience, making it essentially invisible – whether during in-app purchases, online shopping, or at unmanned retail outlets. The traditional experience of making a payment will disappear. As a result, the psychological "pain of paying", especially associated with cash, will be reduced. This may lead to increased consumer spending, along with a higher risk of indebtedness.

Fourth, AI agents are poised to take over the entire shopping journey – from product search and selection to automated purchasing and payment processing. Beyond simply completing transactions, these agents can intelligently choose the most suitable payment method by factoring in fees, bonus programs, account balances, and available bank details. By leveraging liquidity forecasts, AI can also optimize the timing of payments and debits such as direct debits or invoice settlements. Unlike human consumers, AI agents operate with pure rationality, always aiming to maximize individual benefit. Trained on billions of real transactions, these agents develop a detailed semantic understanding of personal payment behavior in real time. They can detect patterns and contextual signals, enabling not only automated payment authorization but also significantly reducing fraud risk. Their capacity to process vast amounts of data in real time opens the door to innovative financial services – such as dynamic credit models or context-aware "buy now, pay later" offerings – tailored to the consumer's current payment behavior.

Fifth, the foundation for future payment systems is likely to be blockchain technology, enabling automated transactions through smart contracts. Stablecoins and central bank digital currencies (CBDCs) will become the new standard, while existing cryptocurrencies will mostly serve as collector's items. The dominance of a few global card issuers will diminish, giving central banks a more finely tuned monetary policy toolkit. However, this also paves the way for increased surveillance and data control – turning citizens into transparent individuals and making surveillance capitalism a tangible reality.

7. Conclusion

Despite the ongoing decline in its use as a means of everyday payment, cash remains deeply embedded in society - particularly as a store of value. It is unlikely to disappear in the foreseeable future. Many people continue to hold onto cash, not only out of habit but because of the trust, security, and autonomy it provides. However, this continued relevance will not come without challenges.

If the use of cash continues to decline, questions will arise about how to maintain access and ensure that the infrastructure supporting it remains financially viable. Sustaining cash as a public good may eventually require legal safeguards to preserve its acceptance and availability. In addition, targeted measures – such as optimizing the efficiency of the cash cycle and considering public or subsidized funding – may become necessary to support its continued circulation.

In light of these dynamics, the debate about the future of cash is not merely about convenience or technology. It touches on broader issues of social equity, resilience, and trust in the financial system. As such, decisions about how to manage and maintain access to cash will remain a matter of public interest for years to come.