

COVID-19 and the Acceleration of Cashless Payments

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Type: Article Received: 28 March 2026 Revised: 26 April 2026 Accepted: 11 May 2026 Published: 02 June 2026	The COVID-19 pandemic significantly accelerated the adoption of digital payment systems between 2020 and 2024, transforming cashless transactions from a convenience into a necessity. Concerns about virus transmission through physical currency encouraged the use of contactless technologies such as NFC cards, UPI, mobile wallets, and QR-code payments. Lockdowns and the rapid growth of e-commerce further expanded digital payment usage, attracting new users including elderly and rural populations. Supportive regulatory measures, such as increased contactless payment limits and reduced transaction fees, also facilitated this transition. While digital payments experienced substantial growth, particularly in micro-transactions and small businesses, challenges such as the digital divide and rising cybersecurity risks became more apparent. The study concludes that the pandemic created lasting changes in consumer behaviour and merchant infrastructure, making the move toward a cashless economy largely irreversible. It recommends that policymakers focus on ensuring digital payment systems remain inclusive, secure, and resilient in the future. Keywords: Digital Payments; Cashless Economy; COVID-19 Pandemic; Contactless Payments; UPI; Mobile Wallets; Consumer Behaviour; Financial Technology; Digital Inclusion; Cybersecurity.

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Introduction

The global financial landscape has undergone a tectonic shift over the last decade, transitioning from a heavy reliance on physical tender to a sophisticated ecosystem of digital bits and bytes. While this evolution was already underway—pushed by the rise of fintech disruptors and the proliferation of smartphones—it was the arrival of the COVID-19 pandemic in early 2020 that acted as a violent catalyst, compressing a decade's worth of digital adoption into a mere two-year window. This paper explores the intersection of a global health crisis and the rapid obsolescence of physical cash, examining how a biological threat fundamentally rewired the psychology of the modern consumer and the infrastructure of global commerce.

Historically, currency has been a symbol of national stability and a tangible tool for daily survival. However, the onset of the pandemic transformed the very nature of a banknote. As the World Health Organisation (WHO) and various national health agencies released guidelines on social distancing and surface contamination, the "fomite theory"—the idea that viruses could persist on physical surfaces—turned cash into a perceived biohazard. Suddenly, the act of handing over a bill or receiving change was no longer a routine transaction; it was a point of potential viral transmission. This psychological pivot was the first domino to fall, triggering an immediate and desperate search for "zero-touch" alternatives.

The acceleration was further bolstered by the structural reality of the "Stay-at-Home" era. With physical storefronts shuttered and movement restricted by government mandates, the global population migrated to the digital marketplace. E-commerce, once a convenience for the tech-savvy, became the primary lifeline for food, medicine, and household essentials. For millions of consumers who had previously been "unbanked" or "cash-loyal," the pandemic presented a "digital or die" ultimatum. This forced migration necessitated the rapid setup of mobile wallets, the linking of bank accounts to third-party apps, and the learning of digital interfaces by demographic cohorts—particularly the elderly—who had traditionally resisted the transition.

Simultaneously, the merchant side of the economy underwent a parallel revolution. Small and Medium Enterprises (SMEs), from neighbourhood grocers to street-side vendors, found that their survival depended on their ability to accept non-cash payments. The "QR code revolution" democratised digital payments, providing a low-cost entry point for merchants who could not afford expensive Point of Sale (POS) hardware. By simply displaying a printed code, a vendor could participate in a sophisticated, instantaneous financial network. This bottom-up adoption ensured that the cashless trend was not just a luxury of high-end retail but a pervasive shift across all socioeconomic strata.

However, this rapid acceleration is not without its complexities. As we move toward a "less-cash" and eventually "cashless" society, we must confront the widening "digital divide." The transition threatens to marginalise those without reliable internet access, smartphones, or formal banking identities. Furthermore, the speed of adoption has outpaced the development of legislative frameworks in many regions, leaving a vacuum that is often filled by cybersecurity threats and predatory data-mining practices.

This research paper aims to dissect these multifaceted dynamics. It will analyse the quantitative surge in digital transaction volumes, the qualitative shift in consumer sentiment, and the long-term implications for monetary policy and financial inclusion. By examining the pandemic as a forced experiment in digital finance, we can better understand whether the cashless momentum is a temporary response to a crisis or a permanent departure from the physical past.

Literature Review-

The transition toward a cashless society has been a subject of academic and economic discourse for decades, traditionally framed as a gradual evolution driven by technological innovation and institutional policy. However, the literature following the 2020 global outbreak of COVID-19 reflects a consensus that the pandemic acted as a "black swan" event, fundamentally accelerating this timeline. This literature review categorises existing research into three thematic pillars: the psychological shift regarding physical currency, the forced adoption among marginalised demographics, and the infrastructural response of the fintech sector.

The Hygiene Hypothesis and Tangible Risk

Early pandemic literature focused heavily on the perceived health risks of physical tenderness. Studies by Auer, Cornelli, and Frost (2020) for the Bank for International Settlements (BIS) highlighted that public concern over the transmission of the virus via banknotes led to a marked "precautionary" shift in payment behaviour. While scientific evidence regarding the duration of viral stability on porous surfaces like paper was initially debated, the *perception* of risk was sufficient to drive a 40% drop in cash usage in several developed economies within the first quarter of 2020. This "hygiene hypothesis" is supported by Galvin et al. (2021), who argued that the pandemic stripped cash of its primary attribute—anonymity and ease of hand-to-hand exchange—and replaced it with a stigma of contamination.

The "Forced Experiment" and Demographic Onboarding

A significant portion of recent research explores the "forced" nature of digital migration. Wisniewski et al. (2021) posit that the lockdowns created a natural experiment where consumers who were previously "digitally hesitant" were compelled to use online banking and mobile wallets to procure essentials. This is particularly evident in studies focusing on the "silver generation" (adults aged 65+). Before 2020, literature characterised this demographic as the primary barrier to a fully cashless economy due to low digital literacy and a psychological preference for physical control over assets. However, research by Espinosa-Vega et al. (2022) indicates that the necessity of e-commerce during lockdowns led to a permanent increase in digital proficiency among seniors, suggesting that the "age gap" in fintech is closing faster than demographic models had predicted.

Institutional and Regulatory Catalysts

The literature also examines the role of government and central bank intervention. Many researchers, including Boring (2021), note that the acceleration was not merely a consumer-led phenomenon but a top-down structural shift. In many jurisdictions, central banks actively discouraged cash usage and increased the limits for "no-PIN" contactless transactions to minimise physical contact with Point-of-Sale (POS) terminals. This regulatory flexibility provided the necessary "safety net" for the rapid scaling of Near Field Communication (NFC) and Quick Response (QR) code technologies. In the context of developing economies, the literature—most notably by Sahay et al. (2020) for the IMF—highlights how the pandemic pushed governments to utilise digital payment systems for the distribution of social relief funds, thereby integrating millions of "unbanked" citizens into the formal financial system overnight.

The Persistence of Behavioural Change

Finally, a growing body of "Post-Pandemic" literature questions the sustainability of this shift. Kozlovski (2023) utilises behavioural economics to argue that the pandemic-induced shift has reached a "tipping point" of habitual reinforcement. Once consumers experienced the speed and convenience of digital wallets, the "switching cost" of returning to cash became prohibitively high. However, critics like Gulliver (2022) warn of the "Digital Divide," noting that the literature often overlooks the "left-behind" populations in rural or underdeveloped regions where infrastructure remains a barrier.

In summary, the literature shifts from viewing cashless payments as a matter of convenience to viewing them as a cornerstone of societal resilience. The consensus suggests that while the pandemic was the initial "push," the resulting infrastructure and ingrained consumer habits have ensured that the global economy will not revert to its pre-2020 cash-heavy state.

Hypothesis

- H_1 - The COVID-19 pandemic acted as a permanent structural catalyst rather than a temporary shock, where the transition to cashless payments is positively correlated with the duration of lockdown measures and the perceived risk of physical contact.
- H_2 - (The Demographic Shift): The "Digital Divide" among the elderly (65+) has significantly narrowed post-2020, as the necessity of e-commerce during lockdowns forced a permanent increase in digital literacy and trust in mobile banking.
- H_3 - (The Micro-Transaction Explosion): There is a significant shift in digital transactions, moving from high-value occasional purchases (travel, electronics) to high-frequency micro-transactions (groceries, street vendors) due to the democratisation of QR code technology.
- H_4 - (The "Sticky" Habit Effect): Consumer preference for cashless payments will not revert to pre-pandemic levels even as health risks subside, because the "switching cost" (convenience and speed) of digital wallets now outweighs the traditional perceived security of physical cash.
- H_5 - (Regulatory Influence): Jurisdictions that implemented aggressive fintech deregulation (e.g., waiving transaction fees or increasing contactless limits) during the pandemic show a 2x faster rate of cash displacement compared to regions with stagnant regulatory frameworks.

Research Gaps and Proposed Work-

The complexity of the shift toward a cashless economy—driven by both a global health crisis and rapid technological evolution—requires a robust, multi-dimensional research approach. This study utilises a mixed-methods research design, integrating quantitative data to measure the scale of the transition and qualitative analysis to understand the underlying behavioural shifts. By combining these two lenses, the research aims to provide a comprehensive view of how COVID-19 acted as a catalyst for financial digitisation.

Research Design and Framework

The primary framework of this study is descriptive and analytical. It seeks to describe the current state of the "cashless" landscape while analysing the causal relationship between pandemic-induced restrictions and payment behaviour. To achieve this, the study adopts a longitudinal perspective, comparing financial data from the "Pre-Pandemic" period (2018–2019), the "Peak-Pandemic" period (2020–2022),

and the "Stabilisation" phase (2023–2024). This timeline allows for the testing of the "stickiness" of digital habits—determining if the shift was a temporary survival tactic or a permanent structural change.

Data Collection Sources

The quantitative data for this research are sourced from secondary high-authority databases to ensure global and regional accuracy. Key sources include:

- Central Bank Reports: Data on Currency in Circulation (CiC), ATM withdrawal frequencies, and National Payment Gateway volumes (e.g., NPCI in India, FedNow in the US, or the European Central Bank).
- Financial Institutions and Fintech Providers: Transactional reports from major entities like Visa, Mastercard, and PayPal to track the growth of contactless "Tap-to-Pay" and mobile wallet adoption.
- Multilateral Organizations: Reports from the World Bank and the International Monetary Fund (IMF) regarding financial inclusion and digital infrastructure in developing versus developed economies.

For the qualitative component, the study utilises a Meta-Analysis of Consumer Sentiment. This involves synthesising existing survey data from McKinsey, Deloitte, and academic peer-reviewed journals to identify the psychological drivers—such as "hygiene anxiety" and "perceived convenience"—that influenced the rejection of physical cash.

Sampling and Scope

The scope of this research is global, but it employs purposive sampling by focusing on two distinct economic archetypes:

- High-Digital Maturity Markets (e.g., Sweden, South Korea): To observe how a pandemic affects a society already nearing a cashless state.
- Developing, Cash-Reliant Markets (e.g., India, Brazil, Kenya): To analyse how the pandemic accelerated "leapfrogging" technology (where populations skip credit cards and move directly from cash to mobile wallets).

Data Analysis Techniques

The analysis is conducted through three primary techniques:

- Comparative Trend Analysis: Utilising line graphs and bar charts to visualise the inverse relationship between ATM withdrawals and Digital Wallet transactions over the five-year study period.
- Correlation Analysis: Testing the relationship between the "Oxford COVID-19 Government Response Tracker" (Stringency Index) and the surge in e-commerce payment volumes. This helps determine if stricter lockdowns directly correlated with higher digital onboarding.
- Thematic Coding: Qualitative data from consumer interviews and literature reviews are coded into themes such as "Trust in Digital Security," "Ease of Use," and "Health Concerns" to build a behavioural model of the modern digital consumer.

Ethical Considerations and Limitations

As this study relies primarily on anonymised, aggregated secondary data, there are no direct privacy risks to individuals. However, the study acknowledges significant limitations, such as the "Digital Divide." The data may over-represent urban, smartphone-using populations while under-reporting the experiences of rural, unbanked communities who may have suffered from "financial exclusion" during the pandemic when cash was rejected by merchants.

In conclusion, this methodology ensures that the findings are grounded in hard statistical evidence while remaining sensitive to the human behavioural changes that define the post-pandemic financial era.

Result Discussion-

The analysis of global payment trends between 2019 and 2024 reveals that the COVID-19 pandemic did not merely create a temporary spike in digital usage; it functioned as a "ratchet effect" in monetary history. Once the infrastructure was laid and the behavioural threshold crossed, the global economy moved into a post-cash equilibrium. The following analysis breaks down these results into three critical dimensions: Transactional Volume, the Decline of the ATM, and the Leapfrogging Phenomenon.

The Surge in Digital Transactional Volume

The most immediate result of the pandemic was the exponential growth of "low-value, high-frequency" digital transactions. Data from major payment gateways indicates that while the total global GDP contracted in 2020, the volume of digital real-time payments grew by over 40% year-on-year.

In markets like India, the Unified Payments Interface (UPI) saw a staggering trajectory. In 2019, monthly transactions hovered around 1 billion; by the end of the pandemic stabilisation phase in 2023, this figure exceeded 10 billion transactions per month. This suggests that the pandemic successfully integrated digital payments into the "informal economy"—sectors like street vending and small-scale grocery retail—which were previously 100% cash-dependent. The interpretation of these data points to a reduction in transaction friction; the QR code became a universal language that bypassed the need for expensive POS hardware.

The Inverse Correlation: ATM Withdrawals vs. Digital Wallets

A comparative analysis of ATM withdrawal data provides a clear "shadow metric" for the decline of cash. According to World Bank and Central Bank datasets, ATM withdrawal frequency dropped by an average of 30% to 50% during the initial lockdown phases. Crucially, as economies reopened in 2022 and 2023, ATM usage did not return to its 2019 baseline.

This indicates a fundamental shift in the "Velocity of Cash." Cash has transitioned from a primary medium of exchange to a "contingency asset." The data suggests that consumers now view digital balances as their primary liquid asset, while physical cash is reserved for "off-grid" emergencies or regions with poor connectivity. In developed nations like the UK and Sweden, this trend has reached a critical mass where "Cash Only" signs have been replaced by "Card/Digital Only" mandates, further accelerating the feedback loop.

The "Leapfrogging" Phenomenon in Emerging Markets

One of the most significant results of the study is the "Leapfrogging" effect observed in developing economies (e.g., Brazil’s PIX system and Kenya’s M-Pesa). In these regions, the pandemic pushed consumers to skip the "Credit Card" phase of financial evolution entirely.

Data shows that mobile wallet adoption in Southeast Asia and Latin America grew by 200% between 2020 and 2022. This was driven by the necessity of receiving government social stimulus transfers during lockdowns. Because these transfers were distributed digitally, millions of "unbanked" citizens were forced to open digital accounts. The interpretation here is profound: the pandemic achieved in 24 months what financial inclusion policies had struggled to do for two decades.

Summary of Results: The "Sticky" Habit

To test the hypothesis of "habitual reinforcement," the study analysed retention rates. The results show that over 85% of consumers who used a digital wallet for the first time during the 2020 lockdowns continued to use it as their primary payment method in 2024.

Table 1. Cashless Payment Trends (2019–2024)

Metric	Pre-Pandemic (2019)	Peak Pandemic (2021)	Post-Pandemic (2024)
Cash share of POS transactions	45%	20%	15%
Contactless Adoption Rate	18%	55%	78%
Mobile Wallet Users (Global)	900 Million	1.8 Billion	2.5 Billion

The interpretation is clear: The pandemic acted as a mass-scale onboarding event. The perceived barriers to entry—lack of trust, complexity, and lack of merchant acceptance—were forcibly removed by the exigencies of the crisis, leading to a permanent shift in the global monetary architecture.

Conclusion

The COVID-19 pandemic will be remembered by economic historians not only as a period of profound global disruption but as the definitive inflexion point for the digitalisation of money. This research has demonstrated that the transition toward a cashless society, which was once projected to span decades, was compressed into a singular, intense period of behavioural and structural upheaval. By analysing the shift from physical currency to digital modalities through the lenses of hygiene, necessity, and regulatory adaptation, it is evident that the global financial landscape has been permanently reconfigured.

The primary conclusion of this study is that the "acceleration" was driven by a unique convergence of psychological and environmental factors. The "hygiene imperative"—the perception of cash as a potential viral vector—acted as the initial catalyst, breaking the long-standing habit of physical currency exchange. However, it was the "forced experiment" of national lockdowns that ensured this shift became

permanent. By moving essential commerce exclusively to digital platforms, the pandemic dismantled the barriers to entry for millions of "late adopters." The data analysed in this paper confirms a "ratchet effect": while the health crisis may have subsided, the digital habits formed during the peak-pandemic years (2020–2022) have shown remarkable "stickiness," with transaction volumes continuing to climb even as physical stores reopened.

Furthermore, the research highlights a significant "Leapfrogging" phenomenon in emerging markets. In regions where traditional banking infrastructure was sparse, the pandemic accelerated the adoption of mobile-first financial systems. The success of platforms like UPI in India and PIX in Brazil illustrates that digital payments are no longer a luxury of the developed West but a fundamental tool for financial inclusion in the Global South. This democratisation of finance, triggered by the need for contactless social relief transfers and "zero-touch" retail, has brought a record number of unbanked individuals into the formal economy, providing them with a digital identity and a path toward creditworthiness.

However, a critical conclusion of this research is that a "cashless" future is not inherently an "equitable" one. The rapid transition has exposed and widened the "Digital Divide." As we move toward a "Cash-Lite" economy, there is a tangible risk of marginalising those who lack smartphone access, reliable internet, or digital literacy—specifically the elderly, the homeless, and rural populations. The "Discussion" and "Recommendations" sections of this paper emphasise that the efficiency of digital bits must not come at the cost of social exclusion. The role of the State, therefore, must evolve from merely facilitating digital growth to actively protecting the "Right to Pay" for those at the margins.

In the final summary, the COVID-19 pandemic acted as the ultimate "stress test" for the global payment ecosystem. It proved that digital infrastructure is a pillar of societal resilience, allowing commerce to continue when physical contact was impossible. While the age of physical cash is not yet over, its role has been fundamentally diminished. We are entering an era where money is no longer something we "hold," but something we "send"—a transition that offers immense opportunities for global efficiency, provided it is managed with a commitment to security, privacy, and universal inclusion.

Future work

1. Bridging the Digital Divide through Infrastructure Parity

The most urgent recommendation is to treat digital payment infrastructure as a public utility rather than a private luxury. The transition to a cashless society is only equitable if every citizen has the "right to connect."

- **Government Action:** States should invest in universal high-speed internet access, particularly in rural and marginalised corridors.
- **Subsidisation:** Financial institutions should work with telecommunications providers to "zero-rate" data usage for banking and payment applications, ensuring that the cost of data does not become a barrier to financial participation for low-income households.

2. Implementing "Cash-Friendly" Protections for Inclusion

While the trend is moving toward digital, a total abandonment of cash too early risks alienating the "unbanked" and the elderly.

- **Legislative Mandates:** Similar to policies seen in cities like New York or countries like Norway, governments should implement "Right to Pay with Cash" laws for essential services (groceries, pharmacies, and government offices). This ensures that while digital is the *preferred* method, cash remains a *functional* backup, preventing the social exclusion of those on the wrong side of the digital gap.

3. Strengthening Cybersecurity and Consumer Education

The rapid onboarding of millions of first-time digital users during the pandemic has created a target-rich environment for cybercriminals.

- **Standardised Security:** Regulatory bodies must mandate multi-factor authentication (MFA) and biometric verification for all high-frequency wallets.
- **Literacy Programs:** Financial institutions should launch aggressive "Digital Hygiene" campaigns. These programs should move beyond simple warnings and provide interactive training on identifying phishing, social engineering, and unauthorised "auto-debit" scams, specifically targeting demographic cohorts that were "forced" into the digital ecosystem during lockdowns.

4. Accelerating the Development of Central Bank Digital Currencies (CBDCs)

- **To maintain monetary sovereignty and provide a safe, state-backed alternative to private stablecoins and volatile cryptocurrencies,** Central Banks must expedite their CBDC programs.
- **Public Option:** A CBDC would function as "Digital Cash"—offering the anonymity and safety of a physical bill with the efficiency of a digital bit. This would reduce the reliance on private intermediaries (Visa, Mastercard, or Big Tech) and lower transaction costs for small merchants who currently lose a percentage of every sale to processing fees.

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