

# **The Cost of Cash Study in Bangladesh**

## **A Comparative Analysis of Cash and Digital Payment**



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**Bangladesh Bank**

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## Executive Summary

### Introduction

Bangladesh's payment ecosystem remains predominantly cash-centric, characterized by a deeply entrenched cycle of cash preference that spans across all levels of transactions. This self-reinforcing cycle persists where customers prefer cash because merchants prefer it; merchants prefer it because wholesalers and suppliers deal in cash; and this chain reaction continues throughout the supply and service chains. While the digital payment landscape has evolved significantly over the past decade, with impressive growth in mobile financial services (MFS), electronic fund transfers (EFT), and other digital channels, substantial hurdles remain in breaking cash's dominance.

This study quantifies the comparative economics of cash and digital payment methods in Bangladesh, revealing that the cost of cash to the economy totals approximately BDT 1.7 trillion (USD 14.2 billion) per annum to sustain its cash-based payment infrastructure, equivalent to 3.24% of 2023 GDP and BDT 9,938 (USD 83) per capita.<sup>1</sup> Even after excluding revenue losses attributable to the shadow economy, the annual cost remains around BDT 4,495.73 (USD 37) per person.<sup>2</sup> For context, comparable studies excluding the shadow economy estimate per-capita cash-handling costs of USD 21 in India (2016) and USD 106 in South Africa (2019).<sup>3,4</sup> In contrast, the entire digital-payments ecosystem imposes a fiscal burden of only BDT 59.64 billion (USD 0.5 billion), equivalent to 0.11% of 2023 GDP or BDT 348 (USD 3) per capita.<sup>5</sup> Consequently, cash is 28 times more costly than digital payments on a per-capita basis including the shadow economy and 12 times more costly than digital payments excluding the shadow economy. These findings underscore the substantial economic benefits that could accrue from expediting Bangladesh's transition to electronic payment.

**Table 1: Cost of Cash per capita and Cost of cash as a % of GDP**

| Country                 | Year of study | Cash share of retail | Actual Cost (USD' billion) with shadow economy | Actual Cost (USD' billion) without shadow economy | Cost of cash as % of GDP with shadow economy | Cost of cash as % of GDP without shadow economy | Cost of cash per capita (USD) without shadow economy |
|-------------------------|---------------|----------------------|------------------------------------------------|---------------------------------------------------|----------------------------------------------|-------------------------------------------------|------------------------------------------------------|
| India                   | 2016          | ~80% <sup>6</sup>    | 82.5                                           | 27.5                                              | 4.9%                                         | 1.7%                                            | 21                                                   |
| South Africa            | 2019          | ~73% <sup>7</sup>    | -                                              | 6.3                                               | -                                            | 1.6%                                            | 106                                                  |
| Bangladesh <sup>8</sup> | 2024          | ~75% <sup>9</sup>    | 14.2                                           | 6.4                                               | 3.24%                                        | 1.47%                                           | 37                                                   |

### Key Drivers of Cash Usage in Bangladesh

<sup>1</sup> Genesis Analytics, 2025 Calculation; World Bank GDP Data; World Bank Population Data - Available [here](#)

<sup>2</sup> Ibid

<sup>3</sup> Visa, Accelerating The Growth of Digital Payments in India (2016) Available [\(here\)](#)

<sup>4</sup> Payment Association of South Africa (2019). Available [here](#)

<sup>5</sup> Genesis Analytics, 2025 Calculation

<sup>6</sup> Data for India, 2025 - Available [here](#)

<sup>7</sup> Payment Association of South Africa (2019). Available [here](#)

<sup>8</sup> Genesis Analytics, 2025 Calculation

<sup>9</sup> Payments CMI, 2024 - Available [here](#)

Despite the high economic cost, cash transactions continue to dominate due to several deeply rooted factors:

- **Infrastructure Limitations:** Digital payment infrastructure, though improving, lacks the robustness and penetration required for widespread adoption, particularly in rural areas where network connectivity remains inconsistent.
- **Digital Financial Literacy:** Only 28% of adults in Bangladesh are financially literate, with nearly half of mobile money users unable to operate their accounts independently—significantly lower than comparator countries like Kenya (83%) and India (56%).<sup>10</sup>
- **Security Concerns:** Persistent fears about the security of digital transactions undermine confidence in digital platforms, despite the significant security risks associated with cash handling.
- **Hidden Costs of Cash:** Most stakeholders perceive cash as "free" while viewing digital payments as costly, overlooking the substantial indirect costs of cash handling, transportation, security, and opportunity costs of time spent managing cash.
- **Limited Price Transparency:** Although agents demonstrated high compliance by publicly displaying price lists at 99% of agent outlets, only 4% of financial agents proactively informed customers of transaction fees for digital services. This stands in contrast to 7% in Tanzania and 12% in Uganda<sup>11</sup>, illustrating a critical gap in direct customer communication, creating uncertainty that inhibits digital adoption.
- **Merchant Discount Rates:** Merchants avoid digital payments to escape transaction fees that reduce profit margins, reinforcing cash preference throughout supply chains.

### Distribution of Cash Costs Across the Economy

The cost of cash is unevenly distributed across Bangladesh's economy:

- **Government Revenue Loss:** The largest component is BDT 933 billion (1.77% of 2023 GDP) in foregone tax revenue due to the shadow economy facilitated by untraceable cash transactions.
- **Consumer Costs:** Individuals bear BDT 280 billion (0.53% of 2023 GDP) in costs, including foregone interest on cash holdings, risk of theft or loss, opportunity costs of time spent accessing cash, and direct fees paid to financial service providers and agents.
- **Commercial Bank Costs:** Banks incur BDT 368 billion (0.70% of 2023 GDP) in costs for maintaining extensive physical infrastructure, security, cash handling, and transportation.
- **Retail Micro-Merchants:** Small businesses bear BDT 62 billion (0.12% of 2023 GDP) in costs related to cash management, security risks, and opportunity costs of time spent on cash handling.
- **Microfinance Institutions (MFIs):** MFIs bear BDT 56 billion (0.11% of 2023 GDP) in costs related to cash handling.
- **Other Stakeholders:** The remainder is distributed among the central bank (BDT 4 billion) and FMCG retailers (BDT 0.6 billion).

The breakdown of cost of cash in Bangladesh is summarized in table 2 below.

**Table 2: Bangladesh cost of cash<sup>12</sup>**

| Stakeholder | Total Annual Cost, BDT 'billion | Total Annual Cost, USD' million | % of GDP | Percent of total |
|-------------|---------------------------------|---------------------------------|----------|------------------|
|-------------|---------------------------------|---------------------------------|----------|------------------|

<sup>10</sup> World Bank (2023). World Development Indicators. Available [here](#).

<sup>11</sup> IPA, Measuring the True Cost of Digital Financial Services in Bangladesh (2022) Available [here](#)

<sup>12</sup> Genesis Analytics, 2025 Calculation



|                                                  |                |               |              |        |
|--------------------------------------------------|----------------|---------------|--------------|--------|
| Central Bank                                     | 4              | 36            | 0.01%        | 0.25%  |
| Banks                                            | 368            | 3,059         | 0.70%        | 21.57% |
| Microfinance Institutions                        | 56             | 469           | 0.11%        | 3.31%  |
| FMCG Retailers                                   | 0.6            | 5             | 0.001%       | 0.03%  |
| Retail Micro-Merchants                           | 62             | 513           | 0.12%        | 3.62%  |
| Consumers                                        | 280            | 2,332         | 0.53%        | 16.45% |
| Revenue Losses due to Presence of Shadow Economy | 933            | 7,765         | 1.77%        | 54.76% |
| <b>Total</b>                                     | <b>1,704</b>   | <b>14,180</b> | <b>3.24%</b> |        |
| <b>Total without shadow economy</b>              | <b>770,869</b> | <b>6,414</b>  | <b>1.47%</b> |        |

Our analysis reveals that the true costs of cash are largely hidden from end-users, creating a significant market distortion that artificially sustains cash usage across Bangladesh. The Bangladesh Bank fully subsidizes the costs of currency printing and distribution (BDT 4.3 billion annually), unlike countries such as South Africa where these costs are in part passed to commercial banks. This subsidy, combined with the widespread perception that cash transactions are "free," masks substantial indirect costs. End-users remain largely unaware of the opportunity costs of time spent accessing cash (BDT 122 billion), foregone interest on cash holdings (BDT 64 billion), and security risks (BDT 54 billion).<sup>13</sup> Meanwhile, cash-intensive businesses absorb significant handling expenses but rarely quantify these costs in their financial analysis, with many stakeholders during our research explicitly stating they considered cash handling "free" despite dedicating considerable time and resources to it. The shadow economy enabled by cash transactions further imposes enormous costs on society through lost tax revenue (BDT 933 billion), yet this burden is diffused across the economy rather than directly visible to individual users.<sup>14</sup> In contrast, digital payment fees are immediately apparent to users, creating an illusion that digital payments are more expensive than cash, when the aggregate economic data clearly demonstrates the opposite. This fundamental misalignment between perceived and actual costs significantly distorts payment method choices and reinforces cash dependency throughout the economic system.

## Digital Payment Economics

The estimated annual cost of digital payments in Bangladesh is BDT 59.64 billion, representing 0.11% of GDP. This cost is incurred by various stakeholders including the central bank, originating institutions (issuers), receiving institutions (acquirers), receivers (merchants) and senders as summarized in table 3 below. In contrast, the total annual revenue generated from digital payments amounts to BDT 23 billion, a number that would grow as use cases expand and digital payment usage grows.<sup>15</sup> The per capita cost of digital payments is BDT 348, while the revenue per capita is BDT 135. Overall, digital payment systems in Bangladesh currently have a net cost. Consequently, payment services operate at a loss for providers. The breakdown of cost of and revenue from digital payment in Bangladesh is summarized in table 3 and 4 below.

**Table 3: Cost of digital payment in Bangladesh**

| Value chain participant | Total Annual Cost, BDT' million | Total Annual Cost, USD million | % of GDP | Cost per Capita, BDT | Cost per Capita, USD | Percentage of total |
|-------------------------|---------------------------------|--------------------------------|----------|----------------------|----------------------|---------------------|
|-------------------------|---------------------------------|--------------------------------|----------|----------------------|----------------------|---------------------|

<sup>13</sup> Ibid

<sup>14</sup> Ibid

<sup>15</sup> Ibid

|                                               |               |            |              |                |               |        |
|-----------------------------------------------|---------------|------------|--------------|----------------|---------------|--------|
| Central Bank (Network)                        | 176           | 1          | 0.0003%      | 1              | \$0.01        | 0.3%   |
| Originating Institution (Issuer)              | 13,494        | 112        | 0.03%        | 79             | \$0.65        | 23%    |
| Receiving Institution (acquirer)              | 2,600         | 22         | 0.00%        | 15             | \$0.13        | 4.36%  |
| Receiver (Merchant)                           | 14,194        | 118        | 0.03%        | 83             | \$0.69        | 23.8%  |
| Sender                                        | 18,124        | 151        | 0.03%        | 106            | \$0.88        | 30.39% |
| Digital overhead (Staff and fraud management) | 11,047        | 92         | 0.02%        | 64             | \$0.54        | 18.52% |
| <b>Total</b>                                  | <b>59,636</b> | <b>496</b> | <b>0.11%</b> | <b>347.805</b> | <b>\$2.89</b> |        |

**Table 4: Revenue from digital payment in Bangladesh**

| Value chain participant          | Total Annual Revenue, BDT million | Total Annual Revenue, USD million | % of GDP     | Revenue per Capita, BDT | Revenue per Capita, USD | Percentage of total |
|----------------------------------|-----------------------------------|-----------------------------------|--------------|-------------------------|-------------------------|---------------------|
| Central Bank (Network)           | 3,477                             | 28                                | 0.01%        | 20                      | 0.17                    | 15%                 |
| International Card Schemes       | 959                               | 8                                 | 0.00%        | 6                       | 0.05                    | 4%                  |
| Originating Institution (Issuer) | 15,220                            | 127                               | 0.03%        | 89                      | 0.74                    | 66%                 |
| Receiving Institution (acquirer) | 3,456                             | 29                                | 0.01%        | 206                     | 0.17                    | 15%                 |
| <b>Total</b>                     | <b>23,112</b>                     | <b>192</b>                        | <b>0.04%</b> | <b>134.79.</b>          | <b>1.12</b>             |                     |

Key challenges in the digital ecosystem include:

- **Transaction Limits:** Individual MFS account holders face a daily limit of BDT 50,000 (USD 406) for cash-in, cash-out, and P2P transfers. This individual limit can pose challenges for users engaging in high-value transactions or for small businesses interacting with individual customers.
- **Delayed Settlement:** While delayed settlement timelines (T+1) for card-based transactions are standard practice globally and are necessary for fraud prevention and consumer trust, the T+1 settlement timeline discourages merchant adoption by delaying access to working capital.
- **Interoperability Issues:** Poor participation in national platforms such as the recently suspended Binimoy (IDTP) and continued use of proprietary QR solutions undermine the effectiveness of interoperable payment systems.<sup>16</sup>
- **User Experience Challenges:** Digital transactions are perceived as cumbersome compared to the simplicity of cash, with merchants and consumers citing complexity in transaction processes.

<sup>16</sup> The Daily Star. Available [here](#).

## 1 | Introduction

**The Bangladesh economy and payments landscape is poised to enter a phase of digital transformation, with conditions that are increasingly favourable for the widespread adoption of digital payments.** Key enabling factors underpinning this positive environment include the high level of mobile readiness, growing network penetration, and the rapid expansion of digital financial services.<sup>17</sup> Together, these positive enabling environment factors have created a solid foundation for increased digitisation, which has the potential to deliver significant dividends to stakeholders across the Bangladesh economy. These dividends include improved financial inclusion, as digital payments provide underserved populations with greater access to formal financial services, and improved economic efficiency, by reducing the costs and time associated with cash-based transactions.<sup>18</sup>

**To realise these benefits, authorities in Bangladesh have pursued several interventions to support digital payment adoption and transition toward a cashless economy.** The Bangladesh government has set a target of transforming the economy to be fully cashless by 2031.<sup>19</sup> To that end, the government and the Bank of Bangladesh have implemented a series of strategic initiatives to accelerate digital payments adoption. Such initiatives include:

- The development of the **National Digital Payments Roadmap (2022 - 2025)** which outlines a high-level plan to expand the adoption of responsible digital payments by presenting a framework that aims to enhance interoperability, promote financial inclusion, and accelerate the adoption of responsible digital payments across Bangladesh.<sup>20</sup>
- The establishment of the **Regulatory FinTech Facilitation Office (RFFO)** which aims to facilitate digital payments innovation by providing a supportive regulatory environment for testing and scaling new financial technologies.<sup>21</sup>
- The launch of **Binimoy**, an interoperable instant payment system that enables real-time fund transfers between banks, mobile financial service providers, and payment system operators, aiming to replicate the success of other similar payment platforms in the region.<sup>22</sup>
- The implementation of **Bangla QR**, an interoperable QR code standard that enables merchants to accept payments from multiple providers using a single, unified QR code.<sup>23</sup>
- The launch of **TakaPay**, a local currency debit card designed to reduce dependency on international card schemes and conserve foreign exchange reserves while providing a nationally operated payment solution through the national switch.<sup>24</sup>

**While digital payments adoption has grown over recent years, Bangladesh's payments landscape continues to be characterised by a high level of cash usage.** Cash continues to be a ubiquitous payment instrument in Bangladesh - accounting for more than 80% of the volume of transactions in Bangladesh across use cases.<sup>25</sup> This widespread reliance on cash underpins economic activity across various sectors, with cash serving as the

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<sup>17</sup> PCMI (2024). Fintech Landscape in Bangladesh. Available [here](#).

<sup>18</sup> World Bank (2014). The Opportunities of Digitizing Payments. Available [here](#).

<sup>19</sup> Better Than Cash Alliance (2022). National Digital Payments Roadmap. Available [here](#).

<sup>20</sup> Better Than Cash Alliance (2022). National Digital Payments Roadmap. Available [here](#).

<sup>21</sup> Alliance for Financial Inclusion (2020). Digital Financial Services Supervision in Bangladesh. Available [here](#).

<sup>22</sup> Bangladesh Bank (2024). Binimoy Operating Rules. Available [here](#).

<sup>23</sup> Bangladesh Bank (2024). Guidelines for Operating 'Bangla QR' Code Based Payments. Available [here](#).

<sup>24</sup> Anika (2023). What is the TakaPay Card and How Does it Work? Available [here](#).

<sup>25</sup> Better Than Cash Alliance (2022). National Digital Payments Roadmap. Available [here](#).

primary medium for transactions ranging from small-scale consumer purchases to larger transactions.<sup>26</sup> It is particularly entrenched in the informal economy, where it is often favoured over digital payment methods for reasons such as its universal acceptance, ease of use, and minimal infrastructure requirements.<sup>27</sup> This reliance on cash imposes significant costs on the Bangladeshi economy, from infrastructure expenses to economic inefficiencies and broader social costs.

**An analysis of the comparative costs of cash and digital payments across their respective value chains provides valuable insights into the key drivers of cash usage.** Such an analysis may, for example, highlight whether the true costs of cash are fully borne by its end-users or whether subsidies, inefficiencies, or hidden expenses along the cash value chain make it disproportionately attractive relative to digital payment alternatives. For instance, if the costs of cash handling, transportation, and security are heavily subsidised or absorbed by the central bank or financial institutions, this may lower the price of cash for end-users and reinforce its widespread use. Identifying such imbalances in an appropriate comparative framework can therefore inform strategies to ensure that incentives are appropriately aligned across payments value chains and inform ways to foster digital payments adoption.

**With this in mind, this report aims to evaluate the comparative payment economics of cash and various digital payment methods.** In particular, the study aims to support the transition from cash to digital payments by recommending evidence-based policy decisions and interventions. This will be achieved through the completion of the following broad objectives:

- Quantify the costs and benefits of cash payments and the related infrastructure, identifying who bears these costs and any subsidies to the use of cash in Bangladesh.
- Quantify the costs and benefits of digital payments and the related infrastructure, identifying who bears these costs and any cross-subsidies that support the broader digital payments ecosystem.
- Identify areas or activities where costs relative to benefits or other incentives sustain the continued use of cash, and assess the impact of these incentives.
- Propose business model adjustments and/or policy recommendations to align incentives and promote the further adoption of digital payments across the economy.

In order to achieve these objectives, the scope of work was as follows:

- Assess and quantify the direct and indirect costs, risks, revenues, and other benefits of cash transactions along key cash usage value chains.
- Assess and quantify the direct and indirect costs, revenues, and other benefits of digital payments to consumers, merchants, wholesalers, other businesses, banks, fintechs, and MFS providers.
- Illustrate the current payments system economics via diagrams, including who bears costs and any cross-subsidies.
- Develop a comparative cost/revenue framework for cash and digital payments which illustrates the cost-effectiveness and efficiency gains achievable through digital payment adoption.
- Identify incentives for, and barriers to, adoption of digital payments or continued use of cash, paying particular attention to the retail value chains.
- Examine non-priced economic implications and societal costs and/or benefits of cash payments. Compare qualitatively, and where possible quantitatively, to the use of digital payments.

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<sup>26</sup> Better Than Cash Alliance (2022). National Digital Payments Roadmap. Available [here](#).

<sup>27</sup> Better Than Cash Alliance (2022). National Digital Payments Roadmap. Available [here](#).

- Identify changes to regulations, policies, or business models that would improve the balance of costs and benefits and the alignment of incentives in support of the use and acceptance of digital payments.

To carry out this scope of work, the study is structured into several sections of analysis, with the remainder of this report being organised as follows:

- **Section 2: Methodology** - This section outlines the methodology adopted for this study.
- **Section 3: Literature Review on Cost of Cash Research in Other Markets** - This section includes a literature review of any existing cost of cash research or studies in Bangladesh and similar markets.
- **Section 4: State of Play: Bangladesh's Payment Ecosystem** - This section provides a high-level analysis of Bangladesh's payment ecosystem, covering both cash and digital payments.
- **Section 5: Cash and Digital Payments Value Chains** - This section provides an in-depth overview of the key stakeholders and processes that underpin both cash and digital payment ecosystems, highlighting their roles, interactions, and interdependencies.
- **Section 6: Payment System Economics** - This section provides a mapping of current payments system economics, showing who bears what costs and any cross-subsidies. Furthermore, it captures a comparative framework detailing the direct cost, indirect costs and revenue associated with cash and digital payment methods.
- **Section 7: An Estimate of the Cost of Cash** - This section quantifies the direct and indirect cost of cash across the cash value chain.
- **Section 8: An Estimate of the Cost of Digital Payments** - This section quantifies the direct and indirect cost of digital payments across their respective value chains.
- **Section 9: Non-priced Impact of Cash and Digital Transactions** - This section comprises a comparative framework illustrating the economic, social, and environmental impacts of cash and digital transactions.
- **Section 10: Price and Non-Price Incentives Influencing Payment Preferences** - this section outlines the price and non-price incentives for adoption of digital payments and for continued use of cash, across all actors, including but not limited to banks, agents, merchants, wholesalers, other businesses (landlords, schools, manufacturers, etc.) and individuals.

## 2 | Methodology

The findings in this study were obtained using a mixed-methods approach incorporating desktop research, document review, in-depth Key Informant Interviews (KIIs), Focus Group Discussions (FGDs) and direct data requests to financial services stakeholders.

### Desktop research

Desktop research was used to form the foundations of the analysis, and identify knowledge gaps and areas requiring deeper investigation through the primary research component. Key elements of the desktop research activities included:

- A review of payments system data to understand trends in cash and digital payment usage, focusing on transaction volumes, values, and patterns across different channels.
- A review of government initiatives to promote digital payments, including key policies, national strategies, and action plans such as the National Digital Payments Roadmap and the implementation of interoperability standards like Bangla QR.

- An analysis of prior publications that provide insights into the historical evolution of payment systems and the current landscape in Bangladesh.
- An assessment of policy and regulatory documents influencing the payments ecosystem in Bangladesh.
- A scoping of end-user pricing for cash-in and cash-out transactions, and for various digital payment methods.
- A review of resources on cash and digital payment system economics - to evaluate the cost structures, revenue models, and subsidies associated with both payment ecosystems.
- An analysis of global case studies to benchmark international best practices in facilitating a transition from cash to digital payments, with a focus on identifying lessons applicable to the Bangladeshi context.

## Primary Data

The primary research component of this study was undertaken through **Key Informant Interviews (KIIs)** and **Focus Group Discussions (FGDs)**.

### Key Informant Interviews (KIIs)

The KIIs engaged a variety of stakeholders across the cash and payment ecosystems in Bangladesh. A total of 21 stakeholder interviews were undertaken with various groups of stakeholders, as highlighted in the table below.

**Table 6: Number of stakeholders interviewed per stakeholder category**

| Stakeholder category           | Number of stakeholders interviewed |
|--------------------------------|------------------------------------|
| Banks & Financial Institutions | 5                                  |
| Payment service providers      | 2                                  |
| Mobile Financial Services      | 1                                  |
| Microfinance Institutions      | 3                                  |
| E-Commerce                     | 1                                  |
| Government & Regulatory Bodies | 4                                  |
| Cash in Transit (CIT)          | 1                                  |
| Large Retailers                | 1                                  |
| FMCG                           | 1                                  |
| Facebook Commerce              | 1                                  |
| Utility Company                | 1                                  |
| Total                          | <b>21</b>                          |

### Focus Group Discussions (FGDs)

In parallel with the KIIs, a total of five **FGDs**, each consisting of 7 participants, were conducted. The participants in the FGDs included representatives from key end-line stakeholders, such as consumers, merchants, landlords, and agents involved in the cash and digital payment value chain. FGDs were conducted with selected local stakeholders from the list in Table 2.

**Table 7: Number of stakeholders interviewed per stakeholder category**

| Stakeholder category | Description of stakeholder category                                                                                                 | Number of participants | Location of FGD  |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------|
| Consumers            | Individuals who engage in financial transactions to purchase goods or services, or to make payments to friends/family               | 7                      | Dhanmondi, Dhaka |
| Tenants /Landlords   | Individuals involved in the rental markets. Those who pay rent, and those who receive rental payments                               | 7                      | Dhanmondi, Dhaka |
| Merchants            | Business owners or operators who accept payments for goods, and make payments to wholesalers. (Focus on Micro-entrepreneur segment) | 7                      | Dhanmondi, Dhaka |
| Agents               | Those authorised to provide financial services on behalf of a bank, serving as intermediaries between the bank and customers        | 7                      | Dhanmondi, Dhaka |
| Wholesalers          | Entities involved in distributing goods in bulk to retailers or other businesses                                                    | 7                      | Dhanmondi, Dhaka |

### 3 | Literature Review on Cost of Cash Research in Other Markets

For this report, we have chosen India and Kenya as benchmark countries, representing two rapidly developing nations in Asia and Africa, respectively, that have made notable strides toward becoming "cash-lite" economies. We use the term "cash-lite" because, while both countries have made significant advancements in digital payments, cash transactions continue to be prevalent, much like in other digitally advanced nations, including China.

Bangladesh has made considerable progress in its transition to digital payments, driven by the growing adoption of mobile financial services (MFS) such as bKash, Nagad, etc. As of Q3 2024, Bangladesh had over 233 million registered MFS accounts (individuals can open more than one MFS account with different providers) suggesting a steady increase in digital payment usage.<sup>28</sup> However, despite these advancements, Bangladesh still faces challenges in reducing financial exclusion - currently at 49%, the dependency on cash, especially in rural areas where high cost of digital payments, infrastructure gaps (network connectivity), and cultural inertia continue to drive cash dependency.<sup>29</sup> The government is actively working to foster a cashless society through initiatives like Personal Retail Accounts (PRA), the National Digital Payments Roadmap and the introduction of interoperable platforms such as Binimoy, but the widespread adoption of digital payments remains a work in progress.

In contrast, Kenya has achieved significant milestones in becoming a "cash-lite" economy, largely due to the following:

- **Regulatory Approach:** The Central Bank of Kenya adopted an early "test and learn" regulatory stance as mobile money began to emerge within the nation. This flexible regulatory environment fostered innovation, enabling Mpesa to fundamentally reshape the concept of monetary transactions without significant constraints.<sup>30</sup>

<sup>28</sup> Bangladesh Bank. Available [here](#)

<sup>29</sup> Bangladesh Bureau of Statistics, 2022. Available [here](#).

<sup>30</sup> GSMA. Enabling Mobile Money Policies in Kenya Fostering a Digital Financial Revolution. Available [here](#)

- **Private-sector-led infrastructure:** A defining feature of Kenya's journey is that the foundational retail-payments rails—M-Pesa's mobile-money platform, the nationwide agent network and the USSD/SIM-tool-kit interfaces—were financed, built and maintained by private firms (principally Safaricom) rather than by the state. This was an explicit outcome of the Central Bank of Kenya's early "test-and-learn" regulatory stance, which gave non-banks room to pilot and scale mobile money under proportionate supervision. By channelling private capital into core infrastructure while the regulator focused on consumer protection and interoperability standards, Kenya accelerated coverage and innovation at minimal fiscal cost.
- **Government Service Digitalization:** Through the digital platform e-citizen, Kenyan citizens can access and conduct transactions for over 19,250 services from more than 100 Ministries, Counties, Departments, and Agencies.<sup>31</sup> In 2024 alone, this platform generated USD 6 million daily for the state, illustrating the substantial impact of digital government services.<sup>32</sup>
- **Low Resource Environment Technology:** Notably, Kenya's progress was achieved under conditions of limited network connectivity, which compelled fintech companies to develop their technologies for low-resource settings. This led to the widespread use of USSD technology, which works on both feature phones and smartphones, providing essential offline access to digital services.
- **Open Architecture:** Kenya's mobile money ecosystem benefits from an open infrastructure, allowing developers of any size to integrate mobile money solutions into their own applications. This openness has facilitated widespread access to digital payments across various platforms, both digital and offline. Consequently, by 2022<sup>33</sup>, Kenya's mobile payment systems were deeply integrated into daily life, with over 28 million active users and monthly mobile transactions exceeding USD 23 billion (20% of GDP).<sup>34</sup> Daily, this amounted to approximately 42 million transactions, worth about \$730 million (0.6% of GDP). By February 2025, the number of mobile money accounts had reached 85 million. This integration has profoundly impacted the economy, with rural farmers receiving payments for their produce and taxi drivers managing toll and fuel payments seamlessly via mobile money.<sup>35</sup>

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<sup>31</sup> eCitizen Kenya. Available [here](#)

<sup>32</sup> Standard Media 2024. Available [here](#)

<sup>33</sup> Central Bank of Kenya, 2023. Available [here](#)

<sup>34</sup> GDP figure based on World Bank 2022 nominal GDP of ~USD 114 billion.

<sup>35</sup> Safaricom Youtube Channel, 2020. Available [here](#)



Image 1: Kenya e-citizen Portal

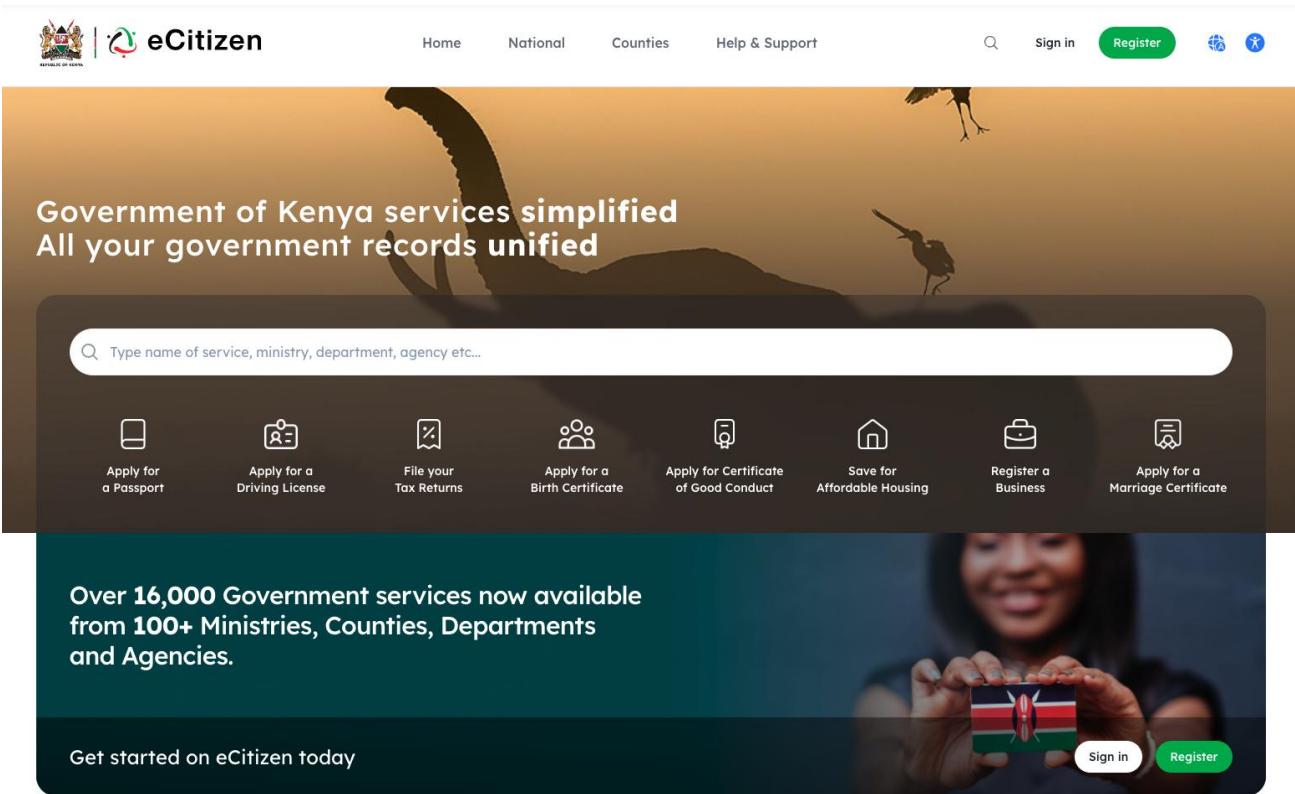
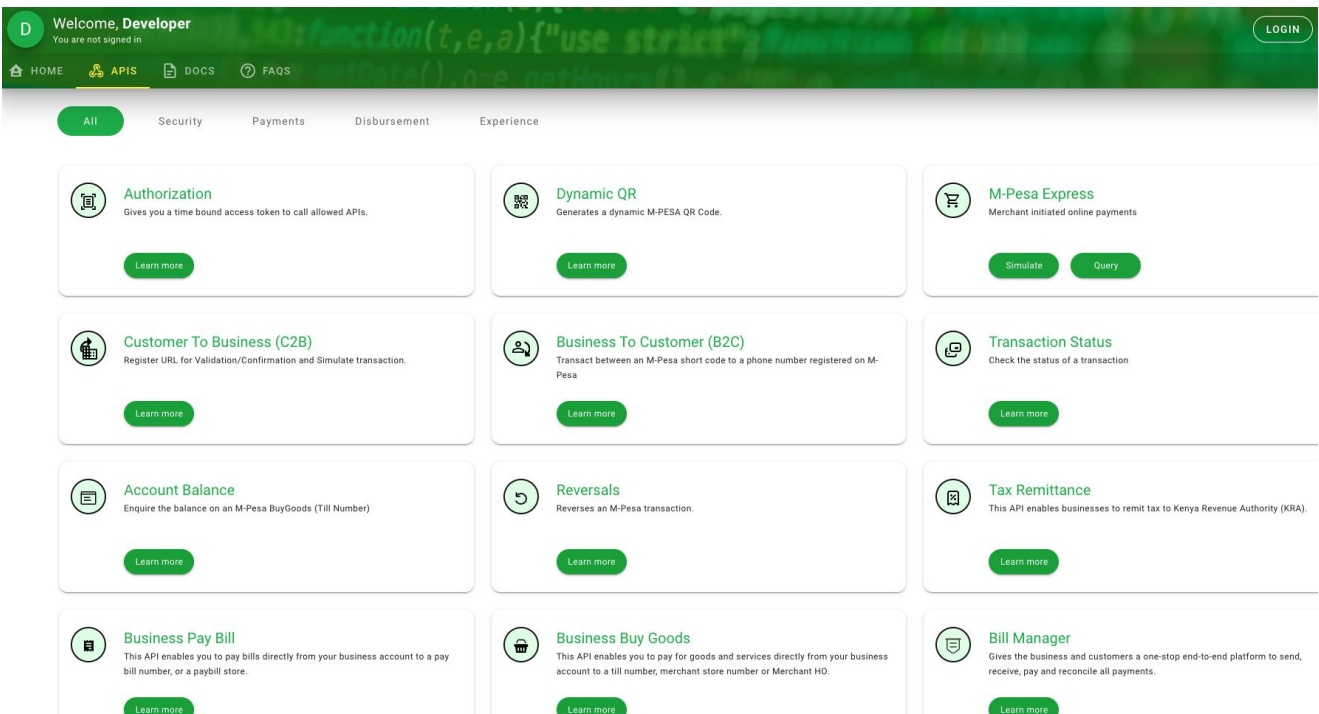


Image 2: Mpesa open infrastructure system



Kenya and India provide two instructive yet contrasting case studies in the development of successful digital payments ecosystems, each characterized by distinct regulatory approaches and infrastructure strategies that yielded extensive adoption but with varying implications for pricing, accessibility, and overall market dynamics.

Kenya adopted a relatively flexible, 'test-and-learn' regulatory approach characterized by a lighter regulatory touch, especially in the early stages of mobile money emergence. This strategy allowed private-sector-led innovation, notably the development of M-Pesa by Safaricom, which quickly became Kenya's dominant payment infrastructure. The Kenyan government did not initially provide extensive public digital payments infrastructure; instead, the ecosystem evolved organically through private-sector initiatives. M-Pesa, operated by a mobile network operator (Safaricom), became the backbone of Kenya's digital payments ecosystem, achieving near-ubiquitous adoption through market-driven solutions.

This approach resulted in competitive pricing and widespread accessibility, particularly through low-resource technologies such as USSD, which catered effectively to both urban and rural populations. However, Kenya's market-driven infrastructure did introduce some fragmentation, requiring subsequent regulatory interventions to address issues such as pricing transparency and interoperability among different payment providers.

India, by contrast, implemented a more restrictive regulatory stance, with the government playing a central role in shaping digital payments. Public sector involvement included significant investment in digital public infrastructure such as the Unified Payments Interface (UPI), Aadhaar-enabled Payment System (AEPS), and related national digital identity frameworks (Aadhaar). India's public investment in digital payment infrastructure facilitated a more unified, interoperable system with a clear and controlled pricing structure, generally keeping consumer-facing transactions free or low-cost to drive adoption. While the restrictive regulatory approach initially constrained private innovation, it also led to a cohesive national standard, enabling wide-scale integration of digital payments across multiple platforms and public services.

However, India's tighter regulatory stance, including mandates on interoperability and market share, sometimes limited the speed of private innovation, and slowed adoption of innovations that were introduced, though ultimately creating a highly robust and inclusive digital payment landscape. For instance, Whatsapp pay was introduced in 2018, got NPCI approval for a limited number of customers in 2020 and only received approval to offer unified payments interface (UPI) services to its entire user base (500 million) in the country, in January 2025.<sup>36</sup>

Both Kenya's market-led and India's government-led models resulted in extensive digital payment adoption, but the strategies produced differences in ecosystem structures and market dynamics. Kenya's approach drove rapid, private-sector innovation and market-led pricing, but with some subsequent challenges around fragmentation and hidden transaction costs initially, which regulators have since had to address. Conversely, India's public-infrastructure-heavy strategy resulted in broader interoperability and price transparency but initially faced challenges around adoption pace and innovation constraints due to more prescriptive regulations.

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<sup>36</sup> Electronic Payment International, 2025. Available [here](#)

**Table 8: Comparative analysis of key levers for digital payment advancement**

| Initiative                                                        | India                                                                                                                                                | Kenya                                                                                                                                                                                                          | Bangladesh                                                                |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Digital Financial Services Regulatory approach                    | Cautious and Restrictive approach                                                                                                                    | 'Test-and-learn' approach                                                                                                                                                                                      | Cautious approach                                                         |
| National digital transformation program                           | Ongoing implementation - most government services can be paid digitally                                                                              | Full implementation - Most government services can be accessed and paid digitally                                                                                                                              | Ongoing implementation: Government service digitalization is in progress. |
| National payment system                                           | Government owned. One major platform (UPI) for retail transactions - multiple products                                                               | Large payments: Government owned<br>Retail Payment: Industry Led (Pesalink). Mpesa only joined Pesalink in 2025 after maintaining its position as the dominant payment system for several years. <sup>37</sup> | Government owned; Multiple retail payment systems (BEFTN, NPSB, Binimoy)  |
| Payment System Participants                                       | Open to Banks Payment Banks, Finance banks, Digital Wallets                                                                                          | Open to Banks, Mobile Money, Telcos, Payment Service Providers                                                                                                                                                 | Open to banks and MFS                                                     |
| Payment system architecture                                       | Open Architecture                                                                                                                                    | Open Architecture                                                                                                                                                                                              | Closed Architecture                                                       |
| Integration with existing digital services (Google Pay, WhatsApp) | Yes                                                                                                                                                  | Yes                                                                                                                                                                                                            | No                                                                        |
| Cost of Transaction                                               | Free for Consumers<br>Low-cost for Merchants<br><br>In part because most payments infrastructure is provided by public sector at low/subsidized cost | P2P - Free if less than 100<br>P2B: Depends on the merchant's plan. Fully free for consumers or Shared fees between consumers and merchants.                                                                   | P2P: Paid service<br>P2B: Free for consumers only                         |

Regardless of the advancement in digital payments seen in both countries, both Kenya and India still face challenges such as digital literacy gaps and rural-urban disparities, underscoring that even in more digitally advanced countries, cash is still in use, albeit less dominantly.

Bangladesh has experienced growth in digital payments in recent years, driven by factors such as increased penetration of mobile financial services and supportive government policies. However, this growth has been slower compared to other countries like India and Kenya despite sharing similar demographics of youthful populations.

<sup>37</sup>Techcabal, 2025. Available [here](#)

A report by the Better Than Cash Alliance and the Aspire to Innovate program suggests that digitising payments in Bangladesh can add up to \$6.2 billion annually to the country's GDP. (1.7% of GDP)<sup>38</sup> Of this, 53 percent will come from digitizing just 30 percent of micro-merchant transactions in the retail sector; 45 percent from digitizing credit disbursements in the agricultural sector; and the remaining from scaling digital wages in the informal ready-made garments (RMG) sector. This highlights the significant economic potential of digital payments in Bangladesh and underscores the importance of understanding the costs and benefits associated with this transition.

Cash transactions involve various costs that are often overlooked. These costs can be categorised into direct and indirect costs. Direct costs include the expenses incurred by the government and financial institutions in printing, storing, transporting, and securing physical currency. Direct costs also include the cost consumers pay to access cash via ATM or agents. Indirect costs encompass the time and resources spent by individuals and businesses on managing cash, such as visiting banks or ATMs, counting and reconciling cash balances, and the risk of theft or loss. These costs can have a significant impact on economic growth and efficiency, as they divert resources that could be used for more productive activities.

In Bangladesh, many perceive the cost of cash to be free, often neglecting the indirect costs associated with cash management and distribution in their evaluation of the costs of cash vs digital payments. This could in part be driving the cash-centric behaviour evident in Bangladesh. Notably, an MFI stakeholder highlighted that "Our cost of cash is free, as all of our staff are employed to do the job anyway". Additionally, FGD participants noted that digital payments incur a cost, and that cash is free, however when asked explicitly about cash management and distribution, were able to draw insights on the indirect costs of cash. This interestingly suggests that a lack of education and visibility about the indirect costs of cash may be inhibiting the digital transformation. A major Facebook-commerce (f-commerce) stakeholder highlighted that the country could benefit from awareness initiatives with consumers and merchants on the indirect costs of cash transactions and the benefits of digital payments.

Visibility over the direct costs of digital payments in Bangladesh could also be driving the inertia to change. A 2022 Innovation for Poverty Alliance (IPA) study compared the price transparency of digital costs in Bangladesh, to Tanzania and Uganda.<sup>39</sup> The study found that only 4% of agents informed customers of transaction fees, compared to 7% in Tanzania and 12% in Uganda.<sup>40</sup> Additionally, it found that for the major payment infrastructure rail, Binimoy, there was a lack of information on off-network transaction fees in the price schedule. The uncertainty and limited transparency in digital payment costs could inhibit digital payments usage.

In Kenya, the Competition Authority of Kenya (CAK) mandated that all financial services providers offering digital services must present full cost information to consumers before they use the service, on the same screen where the transaction occurs.<sup>41</sup> The ruling applies to a wide range of products and providers, including regulated and unregulated providers, setting a standard for better transparency across the digital financial services sector. The action aimed to address issues in hidden fees, as previous research showed that 40% of survey respondents who used M-Pesa thought the service was free when it actually carried hidden costs.

While precise estimates of the cost of cash in Bangladesh are limited from past studies in the country, studies from other countries suggest that these costs can be substantial.

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<sup>38</sup> Better Than Cash Alliance (2022). Available [here](#)

<sup>39</sup> IPA, Measuring the True Cost of Digital Financial Services in Bangladesh (2022) Available [here](#)

<sup>40</sup> Ibid

<sup>41</sup> CGAP, Kenya Ends Hidden Costs for Digital Financial Services (2016) Available [here](#)

**Table 9: Cost of Cash per capita and Cost of cash as a % of GDP**

| Country       | Year of study | Actual Cost (USD' billion) | Cost of cash as % of GDP | Cost of cash per capita (USD) |
|---------------|---------------|----------------------------|--------------------------|-------------------------------|
| India         | 2016          | 27.5                       | 1.7%                     | 21                            |
| South Africa  | 2019          | 6.3                        | 1.6%                     | 106                           |
| United States | 2013          | 200                        | 1.18%                    | 633                           |
| Germany       | 2013          | 8                          | 0.21%                    | 99                            |
| Australia     | 2007/2008     | 8.5                        | 0.8%                     | 400                           |

### 3.1 Cost of Cash in India

India's experience with cash-related costs offers valuable insights into the dynamics of transitioning from a cash-heavy economy to a digital-first payment ecosystem. In 2016, **the cost of cash was estimated at 1.7% of GDP**, borne by households, businesses, banks, and the government.<sup>42</sup> Key drivers include the prevalence of cash-intensive supply chains and the high costs associated with cash handling and transportation.

India's 2016 demonetisation initiative marked a watershed moment, catalysing the adoption of digital payments through initiatives like the Unified Payments Interface (UPI) and the Pradhan Mantri Jan Dhan Yojana (PMJDY).<sup>43</sup> These efforts significantly expanded financial inclusion and promoted digital literacy. However, the transition has been uneven, with rural areas and small merchants still facing challenges in adopting digital payment systems due to limited infrastructure and low trust.

### 3.2 Cost of Cash in South Africa

In South Africa, the cost of cash is substantial, reflecting the dual challenge of a sophisticated financial infrastructure coexisting with high cash reliance in the informal economy. **The annual cash-related expenses in 2019 were estimated at USD 6.3 billion representing 1.6% of GDP**, encompassing direct costs like ATM operations, cash handling, and security measures, alongside indirect costs such as inefficiencies in the informal sector and barriers to financial inclusion.<sup>44</sup>

Despite advancements in digital payment systems, such as the Rapid Payments Programme, cash continues to dominate, accounting for 56% of all payments (transaction volume). However, given the low average value of cash payments (about R208 per transaction), payments made in cash represented only 21% of the value of all payments (transaction value).<sup>45</sup> This is largely due to limited digital penetration in rural and informal sectors, coupled with trust issues and high infrastructure costs. Policymakers face the dual challenge of addressing systemic barriers to digital adoption while maintaining financial inclusivity.

<sup>42</sup> Visa, Accelerating The Growth of Digital Payments in India (2016) Available ([here](#))

<sup>43</sup> IMF, How India's Central Bank Helped Spur a Digital Payments Boom (2022) Available [here](#)

<sup>44</sup> Payment Association of South Africa (2019). Available [here](#)

<sup>45</sup> South African Reserve Bank Payments Study Report (2023). Available [here](#)

Efforts to reduce cash dependency have included regulatory measures to encourage digital payments, financial literacy campaigns, and transitioning the national instant payment system into a digital public ownership.<sup>46</sup> However, concerns about affordability and access remain significant hurdles, particularly for low-income users.

### **3.3 Cost of Cash in Western Economies**

#### **3.3.1 Europe**

Europe presents a mixed landscape in terms of cash usage and its associated costs. While countries like Denmark and Sweden have made significant strides toward cashless societies, others, such as Italy, Portugal and Germany, still exhibit substantial reliance on cash.

A 2014 Bundesbank commissioned study, using a demand-based approach to analyze internal and external costs for various economic actors, estimated that cash and digital payments costs the German economy 2.5% of GDP.<sup>47</sup> This study considered the costs incurred by households, retailers, banks, businesses, and central banks when handling payment instruments.

In these economies debit cards and other digital payment methods have increasingly replaced cash for high-value transactions, driven by regulatory support, consumer demand, and technological advancements. However, certain demographics, such as elderly populations and rural communities, continue to rely heavily on cash, posing challenges for policymakers aiming to phase out cash dependency.

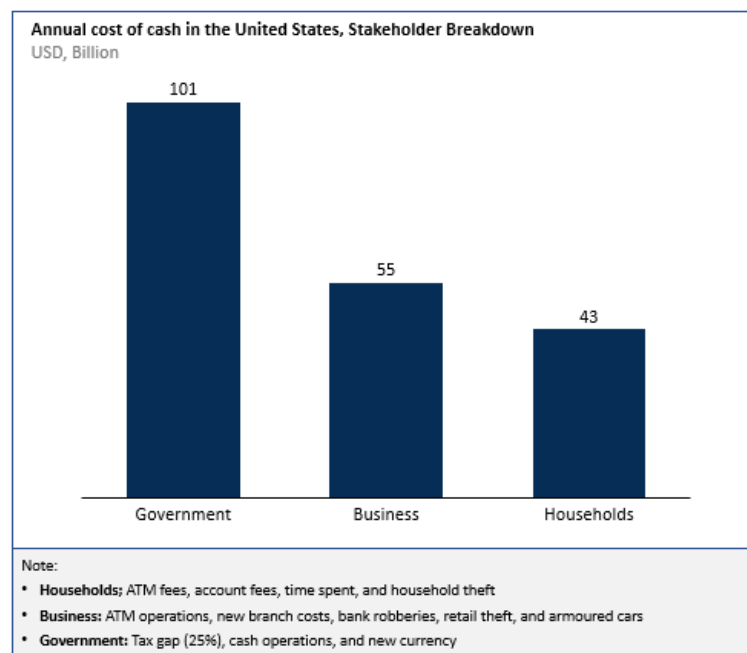
#### **3.3.2 United States of America (USA)**

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<sup>46</sup> BankservAfrica (2024). Available [here](#)

<sup>47</sup> Bundesbank, 2014. Available [here](#)

An outdated study in the United States estimated the cost of cash at \$200 billion annually as of 2013 representing 1.19% of GDP, including expenses related to ATM operations, branch operations, theft, and inefficiencies in cash handling.<sup>48</sup> This figure included: \$55 billion in costs for banks and businesses, \$43 billion for U.S. households, and \$101 billion for the government.<sup>49</sup> Federal Reserve payments-diary data show that cash accounted for **26-40% of all U.S. consumer-payment transactions in 2013.**<sup>50</sup> In other words, **26-40%** of everyday payments generated a nationwide cost burden of about USD 200 billion.



Low-income and unbanked populations disproportionately bear these costs, often relying on expensive services like check cashing and out-of-network ATM withdrawals. Businesses also face significant costs due to cash handling, security measures, and losses from theft.

**In a 2018 study by the IHL Group**, it was found that Cash handling costs for businesses, especially in the retail and hospitality sectors, can range from 4.7% to over 15% of turnover. In contrast, electronic payments cost between \$1.43 and \$4.40 per \$100, and offer fraud protection.<sup>51</sup>

The 2023 NACS State of the Industry Report even found that higher card fee expenditure correlates with higher-performing convenience stores, indicating the potential for increased revenue and profit through digital payments.<sup>52</sup> However, it's important to recognize that the potential for upselling through these transactions may be less significant in low-income markets, where customers might have limited disposable income, impacting the effectiveness of such strategies.

### 3.3.3 Australia

The Reserve Bank of Australia conducted a study in 2007-2008 that found the yearly cost of cash payments by individuals to financial institutions and merchants was at least USD 8.5 billion, which is approximately 0.8% of GDP.<sup>53</sup> Australia exemplifies the paradox of declining cash usage alongside rising costs of maintaining cash infrastructure.

Despite a 46% reduction in ATMs from 3542 to 1916, and a 27% decrease in branches from 967 to 707 over the past five years by the Commonwealth Bank of Australia's (Australia's largest bank); their annual

<sup>48</sup> Institute for Business in the Global Context (2013) Available [here](#)

<sup>49</sup> Ibid

<sup>50</sup> Federal Reserve Bank of Boston, Survey of Consumer Payment Choice (SCPC) 2013 Available [here](#); Diary of Consumer Payment Choice (DCPC) 2012 pilot Available [here](#)

<sup>51</sup> The IHL Group (2018) Available [here](#)

<sup>52</sup> NACS (2023). Available [here](#)

<sup>53</sup> Reserve Bank of Australia, 2014. Available [here](#)



expenditure on cash-related services, including ATM and branch operations, has surged by 50% since 2019, **reaching AUD 410 million in 2023**. The bank managed to offset AUD 60 million of this cost by passing it on to consumers and businesses, resulting in a **net cost of AUD 350 million**.<sup>54</sup>

The rising cost of maintaining cash infrastructure despite declining usage in Australia, stems from a combination of fixed infrastructure expenses, diminished economies of scale, regulatory and security requirements, and a shrinking cash ecosystem. Banks like the Commonwealth Bank of Australia face mounting per-transaction costs as cash withdrawals decline, with fewer ATMs and branches serving reduced cash demand. Meanwhile, pockets of cash dependency, such as rural communities and the elderly, necessitate maintaining costly infrastructure for shrinking user groups.

## 4 | State of Play: Bangladesh's Payment Ecosystem

### 4.1 Contextual Overview

**Bangladesh is a lower-middle-income country with a large and youthful population.**<sup>55</sup> Bangladesh is the eighth most populated country in the world, with an estimated population of 172 million in 2023.<sup>56</sup> The country's economy is shaped by key sectors - including the industrial sector, agriculture, and services. The ready-made garments (RMG) industry is particularly significant, driving much of the country's industrial output and exports.<sup>57</sup>

**Bangladesh's economy is characterised by a large informal sector.** In 2021, the informal sector contributed an estimated 43% of the country's Gross Domestic Product (GDP) - reflecting its significant role in the output of Bangladesh's economy.<sup>58</sup> The informal sector also provides employment for the majority of the population - accounting for 85% of total employment in 2022.<sup>59</sup> Women are disproportionately represented in informal jobs, with 96% of employed women engaged in informal work.<sup>60</sup>

**Access to financial accounts in Bangladesh has improved over the past decade, but still faces challenges.** According to the World Bank Findex, 53% of the population own a bank account and/or mobile financial services.<sup>61</sup> This level of account ownership still lags behind successful transitioning economies like Kenya at 79% and India at 78%.<sup>62</sup>

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<sup>54</sup> Commonwealth Bank of Australia (2024) Available [here](#)

<sup>55</sup> World Bank (2024). Bangladesh Overview. Available [here](#).

<sup>56</sup>

<sup>57</sup> International Organisation of Employers (2023). Bangladesh Policy Review. Available [here](#).

<sup>58</sup> Rashid & Maharaj (2022). Employment in the Informal Economy. Available [here](#).

<sup>59</sup> International Organisation of Employers (2023). Bangladesh Policy Review. Available [here](#).

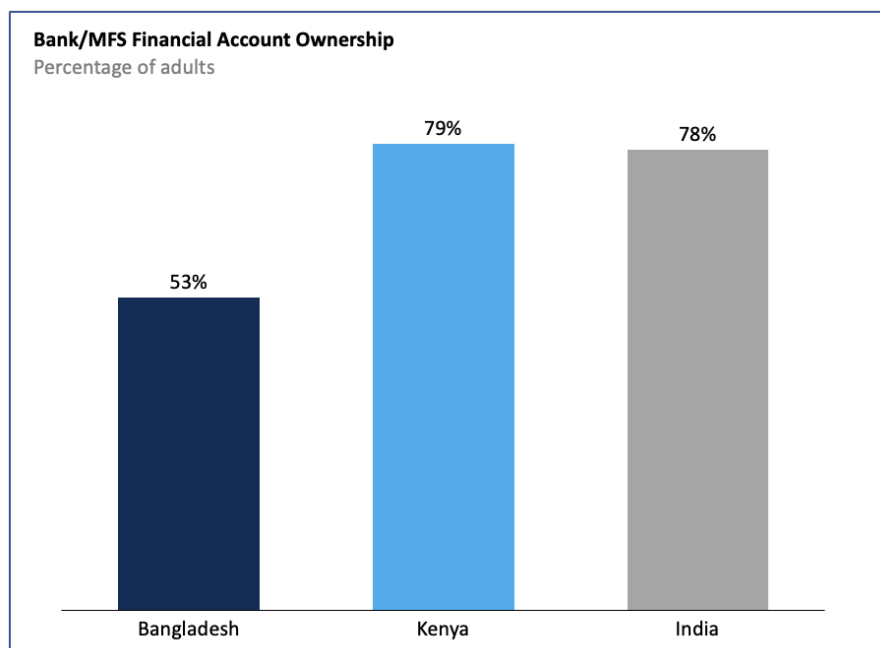
<sup>60</sup> International Labour Organization (2024). Formalization Key to Shared Prosperity with Workers in Bangladesh's Informal Sector. Available [here](#).

<sup>61</sup> World Bank Findex (2021). Available [here](#).

<sup>62</sup> World Bank Findex (2021). Available [here](#).

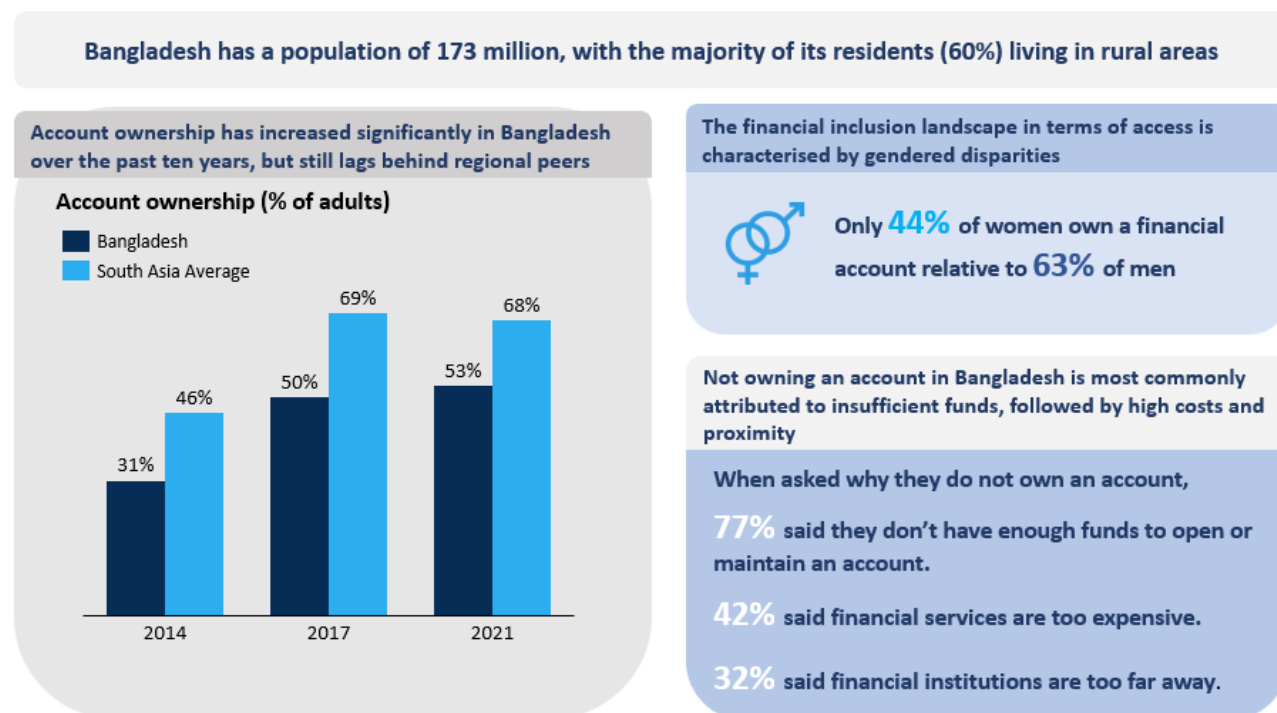


Figure 1: Access to Financial Account (Bank Account/MFS)



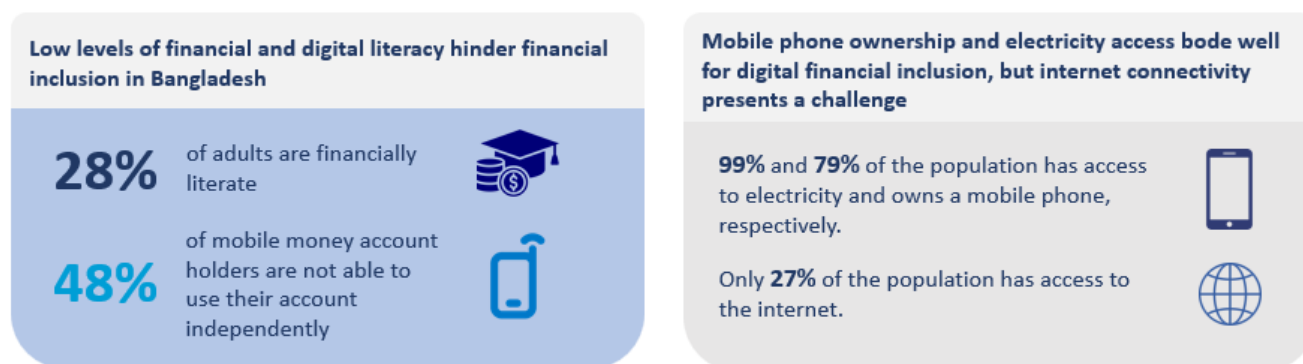
**Socio-economic factors further shape financial inclusion realities.** The most commonly cited reasons for not owning a financial account are insufficient funds, perceived high costs, and the geographic proximity to financial institutions. Furthermore, low levels of financial and digital literacy exacerbate these challenges. Specifically, only 28% of adults in Bangladesh are financially literate according to the most recent estimates.<sup>63</sup> Digital financial literacy is also relatively low, with nearly half of mobile money users unable to operate their accounts independently, compared to higher levels in Kenya (83%) and India (56%).<sup>64</sup>

Figure 2: Key financial access and inclusion indicators in Bangladesh



<sup>63</sup> World Bank Findex 2021. Available [here](#)

<sup>64</sup> World Bank Findex 2021. Available [here](#)



## 4.2 State of Play: Cash

### 4.2.1 Cash in Circulation

**The demand for cash is often gauged using cash in circulation, which captures the total cash actively held by the public.**<sup>65</sup> As such, trends in cash in circulation in Bangladesh provide valuable insights into the economy's reliance on cash for transactions and other purposes, as shown below.

**Cash in circulation has steadily increased over recent years, reflecting the economy's growth and enduring reliance on cash.** As illustrated in Figure 3 below, the total volume of banknotes in circulation grew at a Compound Annual Growth Rate (CAGR) of 10.9% - reaching over 8.6 billion banknotes in 2023.<sup>66</sup> This growth rate outstripping the nominal GDP growth, which averaged 6.2% per annum during the same period, underscores a distinct trend: the demand for cash is predominantly propelled by economic activity and expansion rather than demographic factors, which have shown a modest growth rate of around 1% per annum..<sup>67</sup> This trend indicates that despite advancements in digital payment solutions, cash remains a critical component of economic transactions.

**The denomination mix in circulation has also evolved, reflecting shifts in transaction patterns and cash management practices.** Higher-denomination banknotes, such as the 500 and 1000 Taka notes, have seen a growth in their share of total cash in circulation, comprising 42% of all banknotes in 2023 compared to 35% in 2019. This shift aligns with rising inflation during the same period which averaged around 6.9% annually, likely driving greater reliance on higher denominations to accommodate rising prices.<sup>68</sup> As such, smaller denominations - including 10 and 20 Taka notes - have seen a proportional decline.<sup>69</sup>

<sup>65</sup> World Bank Findex 2021. Available [here](#)

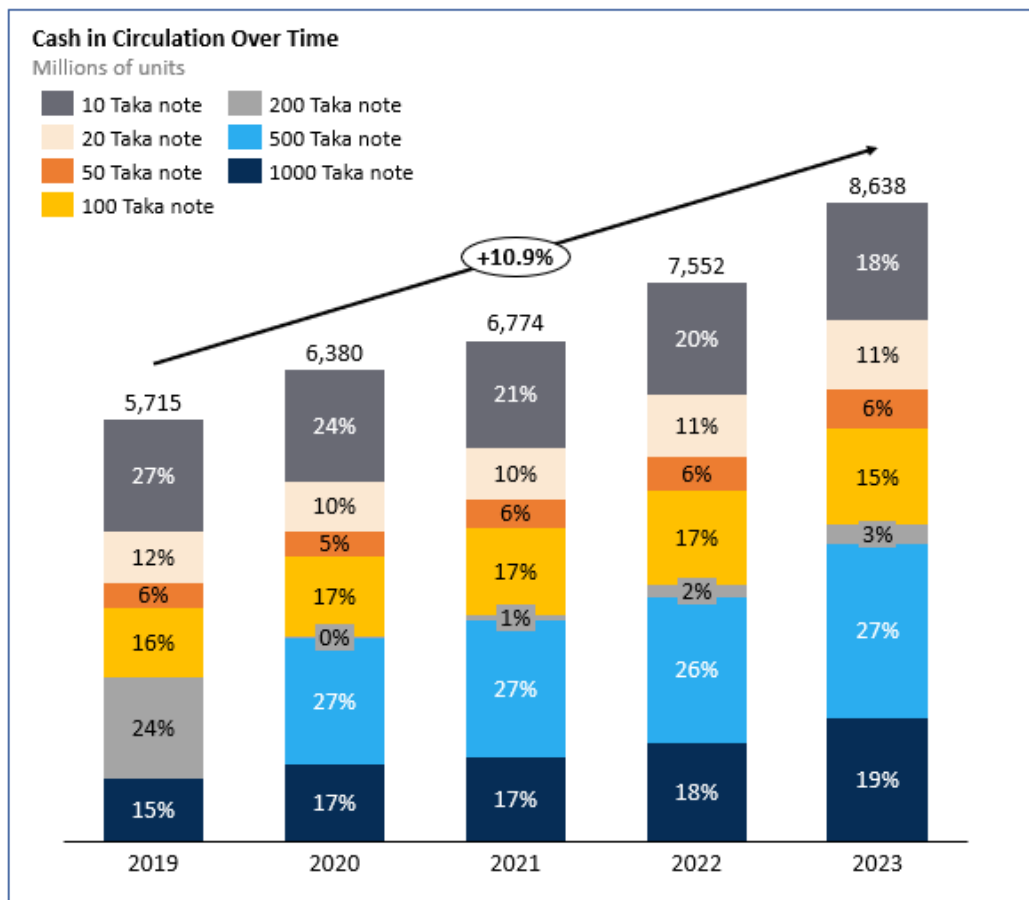
<sup>66</sup> Bangladesh Bank (2024). Annual Report (2022 - 2023). Available [here](#).

<sup>67</sup> World Bank (2023). World Development Indicators. Available [here](#).

<sup>68</sup> World Bank (2023). World Development Indicators. Available [here](#).

<sup>69</sup> Bangladesh Bank (2024). Annual Report (2022 - 2023). Available [here](#).

Figure 3: Trends in cash circulation by denomination (2019 - 2023)<sup>70</sup>



#### 4.2.2 Access to Cash

**In terms of the number of access points, MFS agents dominate.** There were over 1.7 million MFS agents operating across Bangladesh in 2023, translating to about 1,339 agents per 100,000 adults.<sup>71</sup> By comparison, Kenya has approximately 928 agents per 100,000 adults - highlighting Bangladesh's relatively high density of agents relative to its adult population.<sup>72</sup> Moreover, a large number of MFS agents in Bangladesh are situated in rural areas - highlighting their importance in extending access to financial services for underserved communities.

**Table 10: Overview of cash access channels in Bangladesh<sup>73</sup>**

| Channel       | Number (2023) | Per 100,000 adults (2023) | CAGR ('19 - '23) | Urban (abs / %) | Rural (abs / %) |
|---------------|---------------|---------------------------|------------------|-----------------|-----------------|
| MFS Agents    | 1,724,515     | 1,339                     | + 12%            | 888,544 / 52%   | 835,971 / 48%   |
| Bank Agents   | 15,757        | 12                        | +19%             | 2,515 / 16%     | 13,242 / 84%    |
| ATMs          | 13,436        | 10                        | +5%              | 9,466 / 70%     | 3,970 / 30%     |
| Bank Branches | 11,284        | 9                         | +1%              | 5,987 / 53%     | 5,297 / 47%     |

<sup>70</sup> Bangladesh Bank (2024). Annual Report (2022 - 2023). Available [here](#).

<sup>71</sup> Bangladesh Bank (2023). Digital Financial Inclusion Statistics. Available [here](#).

<sup>72</sup> Central Bank of Kenya (2024). Mobile Payments Statistics. Available [here](#).

<sup>73</sup> Bangladesh Bank (2023). Digital Financial Inclusion Statistics. Available [here](#).

|                                |       |     |       |             |             |
|--------------------------------|-------|-----|-------|-------------|-------------|
| Cash Recycling Machines (CRMs) | 4,035 | 3   | +100% | 2,963 / 73% | 1,072 / 27% |
| Cash Deposit Machines (CDMs)   | 263   | 0.2 | -34%  | 238 / 90%   | 25 / 10%    |

**Bank agents, although much smaller in scale, play an important role and have experienced a growth in their network.** In 2023 there were 15,757 bank agents in Bangladesh, translating to approximately 12 agents per 100,000 adults. The geographic distribution of bank agents suggests that banks utilise their agent networks to reach underserved areas where it may not be commercially feasible to have branches or other bank infrastructure - as around 84% of bank agents are located in rural areas.

**Bank branches have grown at a modest rate since 2019, indicating a shift toward alternative channels to provide cash services to customers.** In 2023, there were 11,284 bank branches across Bangladesh, equating to about 9 branches per 100,000 adults. While branches remain important to the cash ecosystem, their CAGR of just 1% since 2019 has been modest compared to the expansion of other cash access channels.

**ATMs/CRM/CDM remain a key cash access channel, with the network of CRMs rapidly growing.** The number of ATMs in 2023 was 13,436 in 2023, equivalent to about 10 ATMs per 100,000 adults. The ATM/CRM/CDM network has grown modestly at a rate of 5% per annum since 2019, reflecting their continued importance in providing cash-out services to the public in Bangladesh. However, banks are increasingly adopting CRMs due to their ability to accept deposits and recycle cash for subsequent withdrawals, a feature which significantly lowers the operational burden and costs associated with frequent cash replenishment.<sup>74</sup> CDMs, meanwhile, are gradually being phased out by banks in Bangladesh - declining by around 34% per annum since 2019.<sup>75</sup>

#### Focus Box: Ratio of ATMs to Branches in Bangladesh compared to Kenya

Comparing the banking infrastructure across Bangladesh, Kenya, reveals variations in the density and distribution of bank branches and ATMs (ATM/CRM/CDM). Bangladesh has a notable distribution with 11,284 bank branches and 17,734 ATMs, translating to a higher ATM to branch ratio of 1.57 (for every bank branch in Bangladesh, there are approximately 1.57 ATMs), which underscores a robust network of electronic banking services relative to its branch network. This contrasts with Kenya, which has far fewer of both branches (1,511) and ATMs (2,291), indicating a more modest development in banking infrastructure. The ratio in Kenya, however, remains similarly high at 1.52, suggesting a strategic focus on enhancing ATM accessibility.

### 4.3 State of Play: Digital Payments

**Bangladesh's payment ecosystem has transformed significantly over the past decade,** evolving from a predominantly cash-based system to an increasingly digitised framework. The Bangladesh Bank has introduced various systems that enhance efficiency and financial inclusion.<sup>76</sup> The payment landscape and its

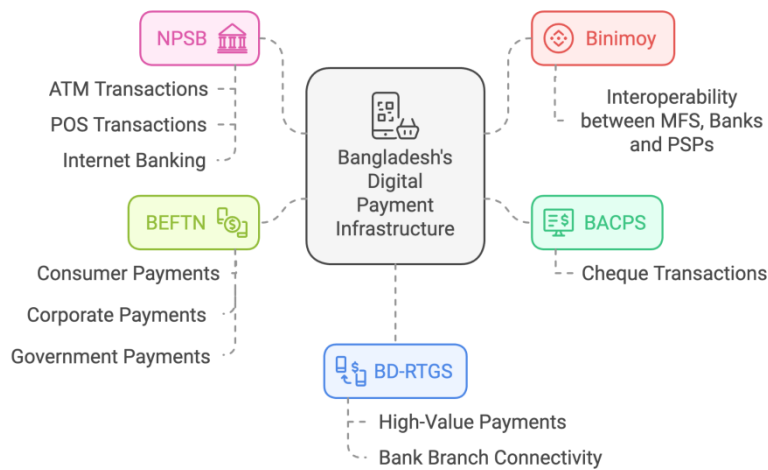
<sup>74</sup> The Daily Star (2024). Why Are CRMs Replacing ATMs in Bangladesh. Available [here](#).

<sup>75</sup> The Daily Star (2024). Banks Phasing Out ATMs as Focus Shifts to Both Deposit and Withdrawal. Available [here](#).

<sup>76</sup> Bangladesh Bank. Available [here](#).

systems are largely regulated by the Payment and Settlement System Act 2024, which establishes the overarching legal framework for payments, and specific operational rules for each payment system.

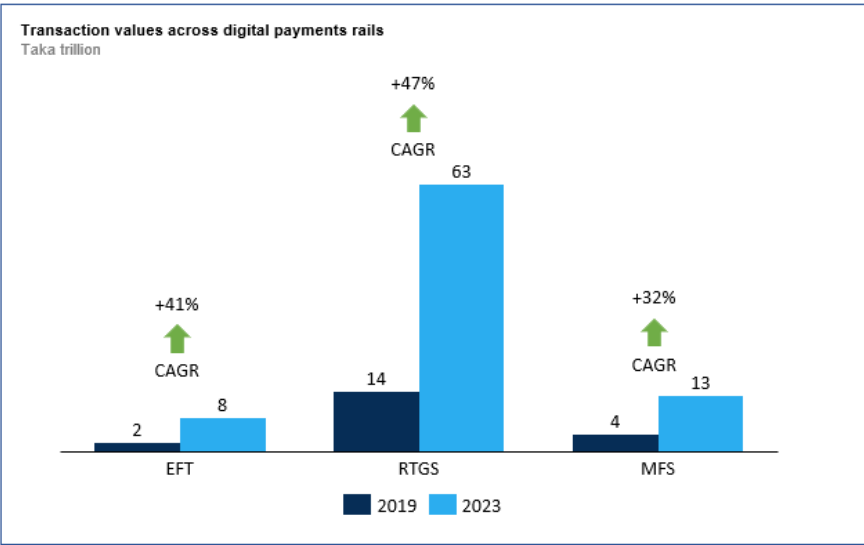
Figure 4: Bangladesh Digital Payment Infrastructure



4.3.1 Digital payments trends

Globally, there has been a marked increase in digital payment adoption, driven by technological innovations and the pursuit of more efficient transaction methods. In South Asia, countries progressively embrace digital payments to enhance financial inclusion and economic growth. Bangladesh is no exception; as the country’s payment infrastructure has expanded and evolved, the country has witnessed a substantial shift towards digital payments, primarily propelled by innovation, demographic and economic factors, the proliferation of mobile financial services, and government policy and initiatives.

Figure 5: EFT, RTGS, and MFS transaction value (Taka ‘trillion)<sup>77</sup>

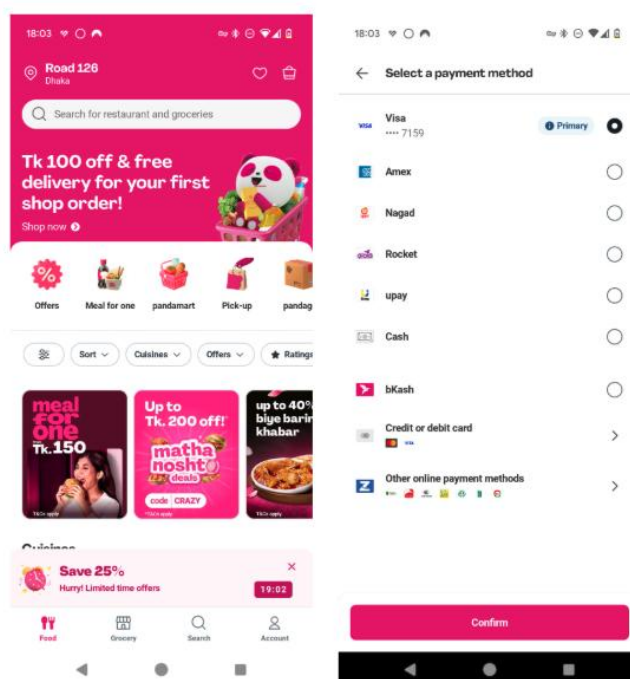


<sup>77</sup> Bangladesh Bank (2024). National Payment Switch Comparative Summary Statement. Available [here](#).

**EFT** saw a dramatic rise, increasing from a transaction value of BDT 2 trillion in 2019 to BDT 8 trillion in 2023, which marks a +41% CAGR. This substantial increase underscores a broad adoption of EFT for routine financial transactions, likely driven by its convenience and efficiency in processing everyday payments.

**RTGS** experienced a more substantial absolute growth, surging from a transaction value of BDT 14 trillion in 2019 to BDT 63 trillion in 2023—a CAGR of 47%. This growth highlights its critical role in managing large-value transactions critical for institutional financial operations, reflecting trust and dependability in the system’s security and immediate fund transfer capabilities. The significant growth in RTGS might be attributed to its crucial role in business and institutional banking, which require high-value and immediate fund transfers. Business representatives in KIIs noted the efficiency and security of RTGS as pivotal for operational liquidity.

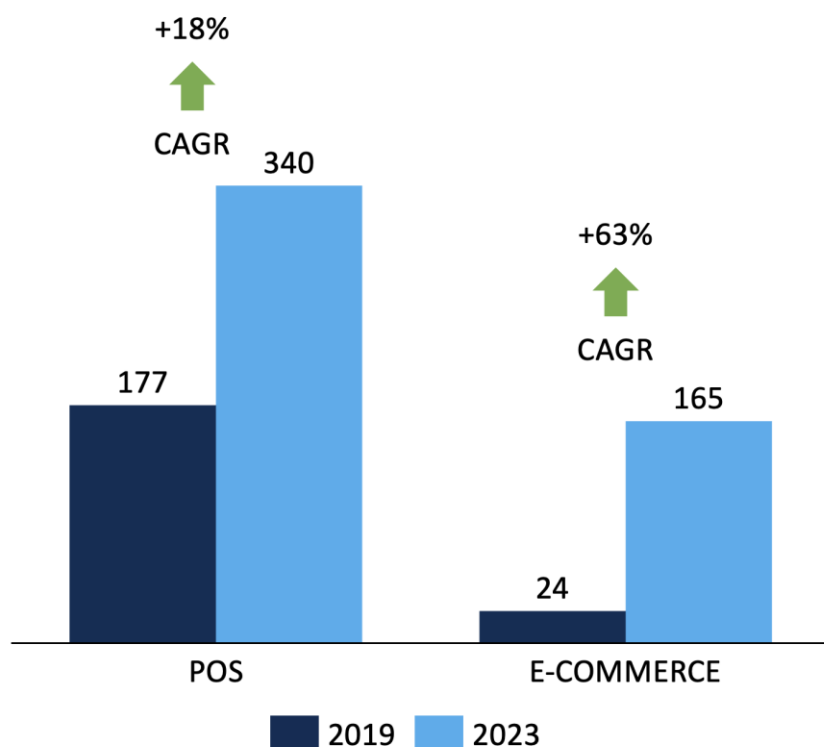
**MFS** demonstrated a remarkable growth, escalating from transaction value of BDT 4 trillion to BDT 13 trillion, showing a CAGR +32%. This surge is indicative of the widespread consumer adoption of mobile-based platforms for financial transactions, fuelled by the accessibility of services (streamlined KYC requirements including Bangladesh ID and phone number; digital onboarding; USSD capability and mobile app), user-friendly features like budgeting, direct integration of MFS payment options into everyday digital services like Foodpanda, and prolific marketing by MFS providers. As of Q3 2024, Bangladesh had over 233 million registered MFS accounts amounting over 135% of the population but individuals can open more than one MFS account with different providers. 56% of these accounts belong to rural users, highlighting the role of MFS in promoting financial inclusion.<sup>78</sup>



The data above reflects significant growth in Bangladesh’s national payment system rails across EFT, RTGS and MFS, indicating an evolving shift towards digital transactions. Similar trends have been observed for POS, Bangla QR and E-Commerce.

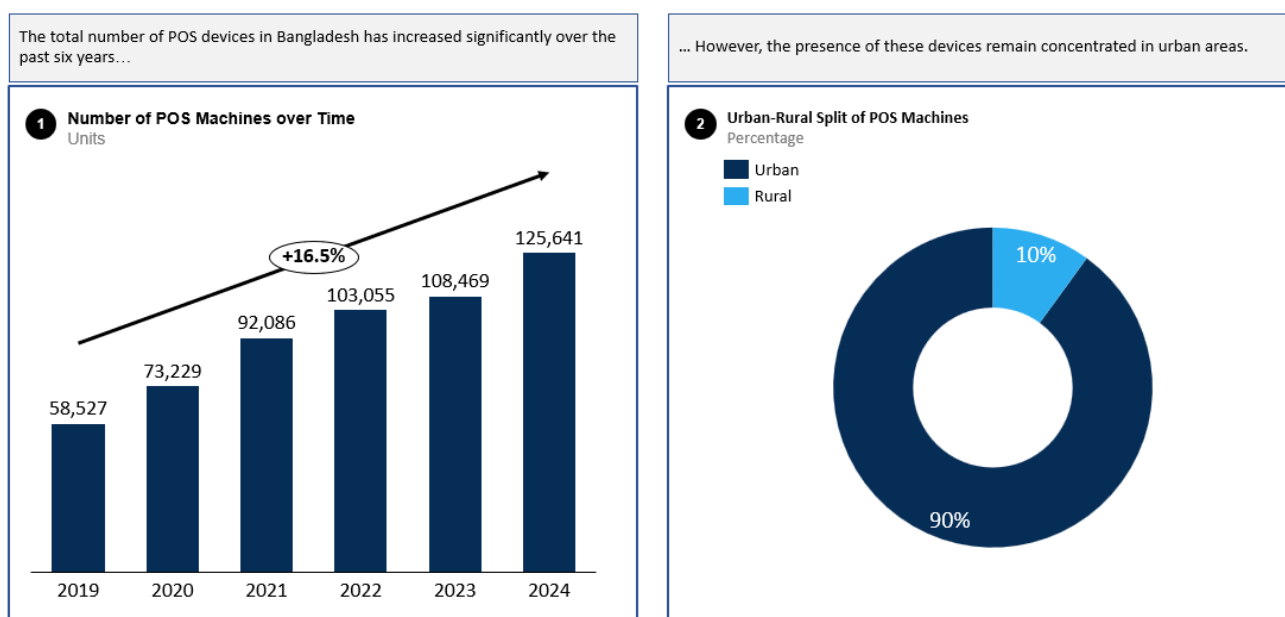
<sup>78</sup> Bangladesh Bank (2023). Financial Inclusion and Digital Financial Statistics. Available [here](#).

Figure 6: POS, and E-commerce transaction value (Taka ‘billion)’<sup>79</sup>



**POS** transaction value grew from BDT 177 billion in 2019 to BDT 340 billion in 2023, marking a CAGR 18% increase. The increase is in part due to the increasing adoption of cashless payments among consumers for everyday transactions, and the expansion of POS infrastructure across both urban and rural retail environments.

Figure 7: POS Machines<sup>80</sup>



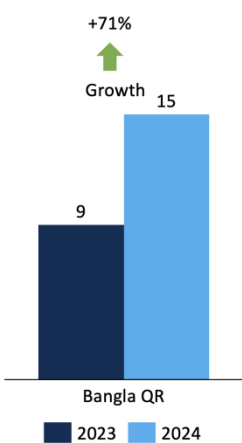
<sup>79</sup> Bangladesh Bank (2024). National Payment Switch Comparative Summary Statement. Available [here](#).

<sup>80</sup> Bangladesh Bank - e-Banking and e-Commerce Statistics Unit - Available [here](#)

By 2024, the total number of POS devices surged to 125,641 from just 58,257 in 2019, demonstrating a remarkable expansion in digital payment infrastructure.<sup>81</sup> This expansion is predominantly seen in urban areas where the number of devices increased to 113,103, accounting for a vast majority (90%) of the total. In contrast, rural areas saw a more modest increase, with 12,538 (10%) devices by 2024.<sup>82</sup> This urban-rural disparity underscores a significant concentration of digital merchant services in urban centers, in part due to higher commercial activity and better infrastructure, while highlighting the ongoing need to enhance digital access in rural regions to achieve broader financial inclusion.

**Bangla QR** transactions experienced a significant surge, rising from BDT 8.7 billion in 2023 to BDT 14.9 billion (+71%) in 2024<sup>83</sup>, reflecting a robust growth trajectory. This expansion is driven by a combination of government and central bank efforts to encourage interoperable QR code systems, a growing consumer preference for contactless payments, particularly emphasized during the COVID-19 pandemic, retailers’ adoption due to lower transaction costs compared to traditional card payments, and supportive regulations like the Personal Retail Account (PRA). The PRA, a specialized business account, enables micro and small businesses in the retail and facebook commerce sectors to accept payments with relaxed KYC requirements. There are 860,000 PRA merchants as of January 2025.<sup>84</sup>

Figure 8: Bangla QR transaction value (Taka ‘billion)<sup>85</sup>

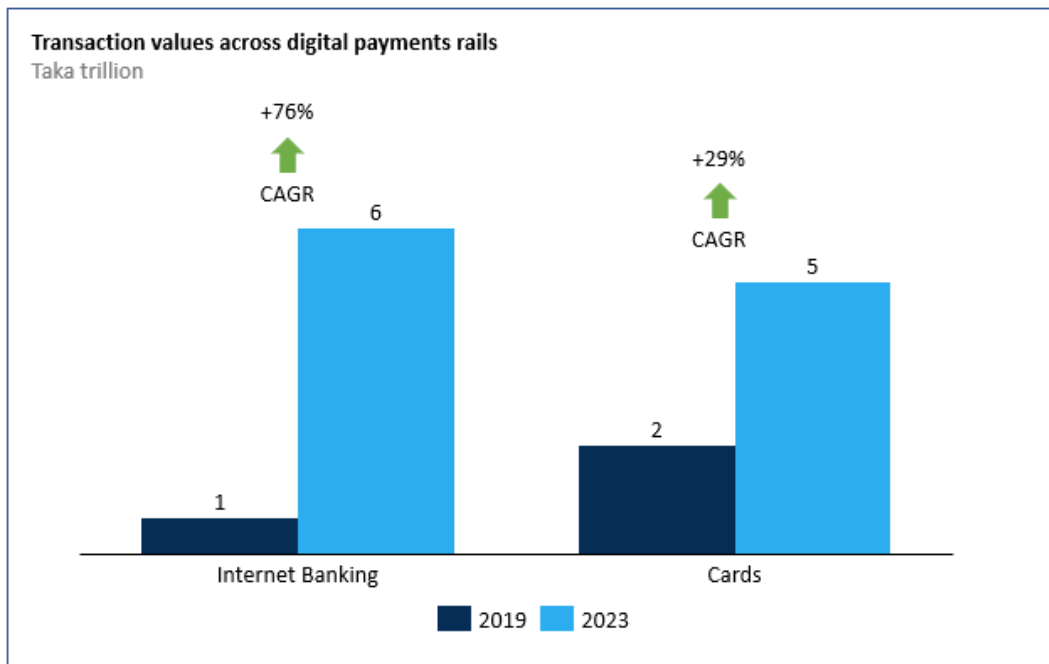


**E-commerce** transactions exploded from BDT 24 billion in 2019 to BDT 165 billion taka in 2023, a staggering +602% growth. The reasons for the growth can be in part attributed to the surge in online shopping driven by increased internet penetration and smartphone usage; consumer behaviour shifts during the pandemic, leading to more people shopping online, the emergence and growth of gig economy platforms like Foodpanda, Bolt, Uber etc and improved logistics and payment infrastructure facilitating more reliable online transactions.

<sup>81</sup> Ibid  
<sup>82</sup> Ibid  
<sup>83</sup> Genesis Analytics Calculation based on the CAGR for the period of January to July 2024.  
<sup>84</sup> Bangladesh Bank, 2025 - Available [here](#)  
<sup>85</sup> Bangladesh Bank (2024). National Payment Switch Comparative Summary Statement. Available [here](#).



Figure 9: Internet Banking and Card transaction value (Taka ‘Trillion)<sup>86</sup>



**Internet banking** transaction value saw an impressive CAGR +76% increase, growing from BDT 659 billion in 2019 to BDT 6 trillion in 2023. This is in part due to continuous improvements in security protocols for online transactions that have increased consumer confidence in internet banking. Various initiatives by Bangladesh Bank and other financial institutions to promote digital banking, including awareness campaigns and easier online account management tools, have further supported this trend.

**Card** transaction values have also surged, with a CAGR of +29%, rising from BDT 2 trillion in 2019 to BDT 5 trillion in 2023. The significant growth in e-commerce has naturally spurred an increase in card usage for online purchases; and the government's introduction of a national card scheme/network, TakaPay card in 2023, has likely played a substantial role in boosting card transactions.<sup>87</sup> Domestic card schemes are typically cheaper for issuers, acquirers, cardholders, and merchants compared to the global card schemes.<sup>88</sup>



**Table 11: Summary - Trends in digital payment methods in Bangladesh**

| Channel          | Transaction Volume (2023) | Transaction Volume CAGR ('19 - '23) | Transaction Value (2023) | Transaction Value CAGR ('19 - '23) |
|------------------|---------------------------|-------------------------------------|--------------------------|------------------------------------|
| Card             | 554 million               | +21%                                | 5 trillion               | +29%                               |
| EFT              | 240 million               | +61%                                | 8 trillion               | +41%                               |
| Internet banking | 97 million                | 61%                                 | 6 trillion               | +76%                               |

<sup>86</sup> Bangladesh Bank (2024). National Payment Switch Comparative Summary Statement. Available [here](#).

<sup>87</sup> Daily Sun, 2023. Available [here](#)

<sup>88</sup> Primer. Available [here](#)

|           |             |      |             |      |
|-----------|-------------|------|-------------|------|
| POS       | 66 million  | +20% | 340 billion | +18% |
| Ecommerce | 54 million  | 35%  | 165 billion | +63% |
| RTGS      | 10 million  | +53% | 63 trillion | +47% |
| Bangla QR | 2.2 million | N/A  | 8.7 billion | N/A  |

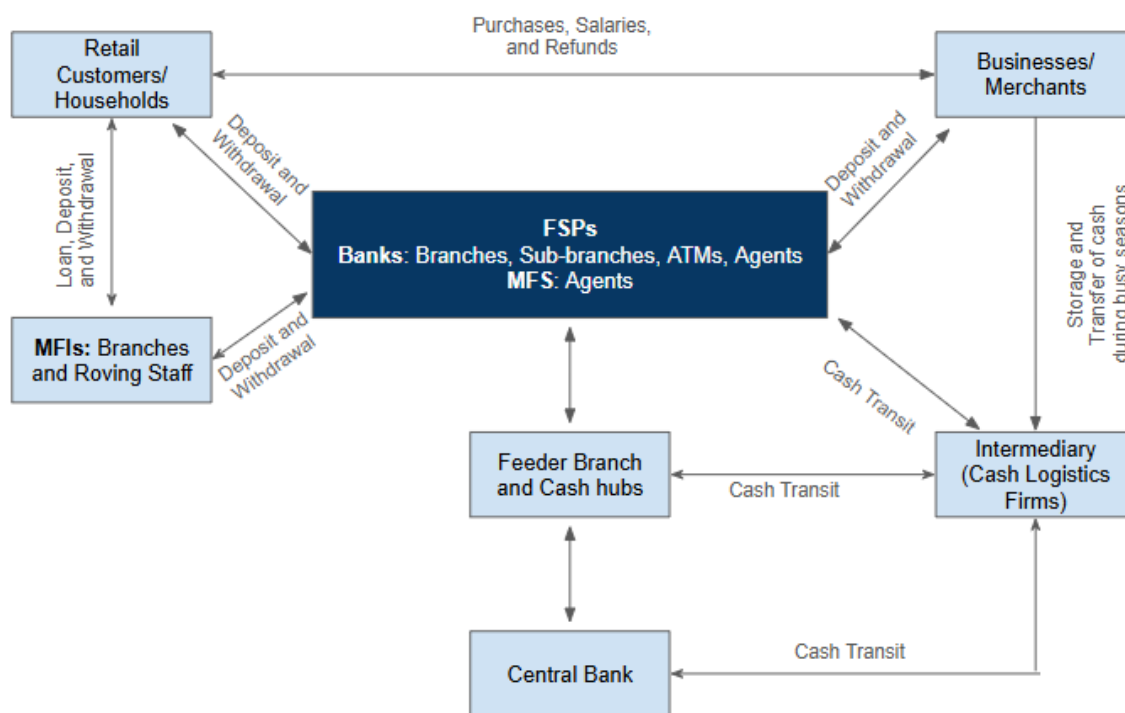
In Bangladesh's digital payments landscape, MFS (Mobile Financial Services) is emerging as a game changer, with 6.2 billion transactions and a transaction value of 13 trillion in 2023, growing at a solid 24% and 32% CAGR, respectively. This trend suggests that Bangladesh is leaning towards the Kenya case where mobile money catalysed the development of its digital payment ecosystem. While RTGS leads in transaction value, handling BDT 63 trillion, and Internet Banking shows impressive growth at 76% CAGR in transaction value, MFS is redefining financial inclusion by bringing digital payments to a broader population. Its steady growth reflects a shift towards more accessible, mobile-driven financial services, playing a crucial role in expanding payment options and financial access across Bangladesh. E-commerce and EFT also show rapid growth, but MFS stands out as the most transformative method for driving financial participation in the digital economy.

## 5 | Cash and Digital Payments Value Chain

### 5.1 Cash Value Chain

In general, the cash ecosystem comprises two broad components: the supply-side and the demand-side. The supply-side involves the processes, infrastructure and institutions required to ensure the availability, quality, and security of cash. This includes forecasting, production, distribution, fitness testing, and the eventual destruction of unfit banknotes. The demand-side, on the other hand, refers to the circulation and use of cash within the economy by people, businesses and government - including the channels through which cash is obtained.<sup>89</sup>

Figure 10: Cash Value Chain



At the core of the cash value chain above, the central bank plays a pivotal role in printing, issuing and distributing cash to feeder branches and cash hubs through cash-in-transit services. The feeder branches or cash hubs then supply cash to the banks across its channels (ATM, branch etc), which act as the primary interface for end users (households and businesses) to deposit, withdraw, or transact cash.

FSPs, such as banks, MFS and MFIs provide cash to retail customers and businesses in the form of cash withdrawals or loans. Businesses and merchants interact directly with households for cash transactions tied to purchases, salaries, and refunds. Meanwhile, households interact with FSPs to access cash for daily transactions, including paying for goods, services, or repaying loans provided by MFIs.

The cash logistics firms, acting as intermediaries, ensure the secure transportation and storage of cash throughout the system, especially during peak retail seasons, reinforcing the integrity of the cash ecosystem.

<sup>89</sup> IMF (2023). Measurement and Use of Cash by Half the World's Population. Available [here](#).

Ultimately, the sustainability of this cash value chain depends on the seamless collaboration between these entities and the efficient management of cash transit and infrastructure costs.

**The following sections will examine the supply and demand sides of the cash value chain, separately.** First, the supply-side processes that ensure cash moves from production to circulation and back through fitness testing and destruction will be discussed. Second, the demand-side will be analysed, focusing on how individuals and businesses access and use cash. Finally, the supply and demand aspects will be consolidated into a single value chain to provide a comprehensive understanding of the cash ecosystem.

### 5.1.1 Supply-Side Analysis

**Cash in Bangladesh is provided to the public through a supply chain comprising several processes and involving multiple entities.** This includes the introduction of new cash into the economy and the recirculation of cash deemed re-issuable. In what follows, this process is described in detail.

**The cash cycle in Bangladesh is initiated when the Bangladesh Bank forecasts and orders cash based on the country's economic needs.**<sup>90</sup> The Currency Management Department at the Bangladesh Bank conducts demand forecasting to determine the quantity of banknotes required annually.<sup>91</sup> This forecast informs the production order sent to the Security Printing Corporation (Bangladesh) Ltd (SPCBL) on an annual basis. As a fully owned subsidiary of the Bangladesh Bank, the SPCBL is responsible for producing cash, ensuring adequate supply to meet the nation's cash demand.<sup>92</sup>

**Thereafter, the SPCBL commences with the production process to fulfil the currency demands submitted by the Currency Management Department.** Following the receipt of the nation's annual cash requirements, the SPCBL begins the process of procuring the necessary raw materials through a competitive bidding process.<sup>93</sup> Once the materials are obtained, the production phase is initiated under strict supervision, adhering to internal controls and protocols designed to maintain the security and accuracy of the currency. Banknotes are printed, verified, and organised into packets of 100 notes, with 10 packets bundled together. These bundles are securely boxed and stored in SPCBL's high-security vaults, ready for subsequent distribution across the cash supply chain.<sup>94</sup>

**Following this, the wholesale phase of the cash cycle begins.** The Bangladesh Bank then coordinates the secure transportation of newly printed banknotes from the SPCBL to its central bank facilities or its designated offices and the Sonali Bank locations where they don't have an office.<sup>95</sup>

**Following requests from FSPs and large retailers, cash is collected from the central bank's facilities, and transported to their internal feeder branches and cash hubs.** These facilities act as hubs for further distribution. They store and prepare the cash, ensuring it meets quality standards and is sorted into appropriate denominations. This cash is then distributed via internal or outsourced cash-in-transit services to individual branches, ATMs, large retailers, and other cash access points to meet customer demand.

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<sup>90</sup> Note that the role of coins is not explicitly considered in the first phases of the cash cycle - as Bangladesh historically only issues coins on an intermittent basis and outsources their production to foreign entities.

<sup>91</sup> Shawon (2022). The Making of Taka. Available [here](#).

<sup>92</sup> Ibid

<sup>93</sup> Ibid

<sup>94</sup> Ibid

<sup>95</sup> Ibid

### **Banknotes returned after circulation are processed to determine their fitness for re-issuance or destruction.**

After circulating through the economy, banknotes are deposited by financial institutions at the Bangladesh Bank, where they are initially stored in the Bank's guarantee vaults.<sup>96</sup> These banknotes are subsequently transferred to the examination hall, where they are counted and assessed for fitness. Notes deemed "re-issuable" are moved to the exchange vault for redistribution to the banks, while those categorised as "non-re-issuable" are prepared for destruction. Unfit notes are destroyed securely, either through auto-sorting machines that shred the notes or by incineration in designated furnaces.<sup>97</sup>

#### **5.1.2 Demand-Side Analysis**

**Once cash has been distributed into circulation through the supply chain, it becomes accessible to the public and businesses for day-to-day transactions.** This stage, which focuses on how cash is accessed and used within the economy, is considered the demand-side of the cash ecosystem.

**Cash access and deposit services in Bangladesh are facilitated through various channels,** some enabling withdrawals, deposits, or both. The key channels are as follows:

- **Bank branches** - Bank branches are the primary physical locations operated by licensed banks, providing cash-in and cash-out facilities to individuals and businesses in Bangladesh. These facilities are exclusively available to the bank's own customers, as inter-branch transactions between different banks are not supported in Bangladesh.
- **Sub branches:** In December 2018, the central bank allowed banks to operate "sub-branches", in order to expand banking access to underserved areas.<sup>98</sup> Sub branches in Bangladesh are small, low-cost business centers operated by banks to provide limited banking services in areas where full-fledged branches may not be feasible, acting as an intermediary between main branches and customers.<sup>99</sup>
- **Bank agents** - Bank agents are intermediaries authorised by banks to extend basic financial services such as cash withdrawals and deposits to their customers under an agency agreement.<sup>100</sup> The Bangladesh Bank introduced agent banking in 2013 as a strategic initiative to promote financial inclusion, particularly targeting underserved rural areas where traditional banking infrastructure is limited.<sup>101</sup> Although regulations allow agents to have agency agreements with multiple banks, each agent is only allowed to represent one bank per outlet, ensuring that services provided at a specific location are exclusively tied to a single bank.<sup>102</sup> As such, the agent banking network is not interoperable in Bangladesh.<sup>103,104</sup> As of June 2024, 31 banks in Bangladesh manage agent networks.<sup>105</sup>
- **MFS agents** - MFS agents are entities authorised to facilitate financial transactions such as cash-in and cash-out services on behalf of MFS providers under an agency agreement.<sup>106</sup> These agents can be individuals operating in specific geographical areas or retail outlets such as shops, kiosks, or other

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<sup>96</sup> Billah & Prince (2023). What Happens When the Taka Note Ends its Journey. Available [here](#).

<sup>97</sup> Billah & Prince (2023). What Happens When the Taka Note Ends its Journey. Available [here](#).

<sup>98</sup> DhakaTribune (2020). How sub-branches are helping banks cut costs in times of austerity. Available [here](#).

<sup>99</sup> Rahaman (2021). Sub-branches adding new horizons to banking services. Available [here](#).

<sup>100</sup> Bangladesh Bank (2024). Agent Banking Statistics. Available [here](#).

<sup>101</sup> LightCastle Partners (2020). Agent Banking: Spearheading Financial Inclusion in Bangladesh. Available [here](#).

<sup>102</sup> Bangladesh Bank. Guidelines on Agent Banking for the Banks. Available [here](#).

<sup>103</sup> Bangladesh Bank. Guidelines on Agent Banking for the Banks. Available [here](#).

<sup>104</sup> LightCastle Partners (2020). Agent Banking: Spearheading Financial Inclusion in Bangladesh. Available [here](#).

<sup>105</sup> Bangladesh Bank (2024). Agent Banking Statistics. Available [here](#).

<sup>106</sup> Bangladesh Bank (2022). Bangladesh Mobile Financial Services Regulations. Available [here](#).

service points with customer-facing operations.<sup>107</sup> Notably, an agent can represent multiple MFS providers simultaneously, provided that agreements ensure clear separation of transactions for each provider to prevent co-mingling of e-money.<sup>108</sup> As such, a single agent can offer cash-in and cash-out services on behalf of multiple MFS providers.<sup>109</sup>

- **Automated Teller Machines (ATMs)** - ATMs are self-service electronic banking terminals that allows authorised users to perform basic financial transactions such as withdraw cash from their accounts and access other services such as acceptance of deposits.<sup>110</sup> In Bangladesh, ATMs are primarily used as cash-out channels, with interoperability enabled through the National Payment Switch Bangladesh (NPSB) connecting 53 banks.<sup>111</sup> MFS account holders are also able to withdraw cash from select ATMs, through means such as entering an OTP generated on their mobile phones or entering their account number.<sup>112,113</sup> This is however based on bilateral agreements between MFS providers and banks. ATM infrastructure is largely provided by banks, although non-bank Payment System Operators (PSOs) such as Q-Cash also play a role by managing shared ATM networks.<sup>114</sup>
- **Cash Recycling Machines (CRMs)** - CRMs are advanced self-service banking terminals that allow users to deposit and withdraw cash, with the unique capability to recycle deposited cash for subsequent withdrawals by other customers.<sup>115</sup> This recycling capability reduces the need for frequent cash replenishment as is the case with ATMs.<sup>116</sup> As such, CRMs are particularly advantageous in areas with high cash demand, as they enhance efficiency and reduce operational costs for banks by minimising cash-handling expenses.<sup>117</sup> Much of the core functionality from the perspective of the public remains the same as with ATMs, including their interoperability and availability to both bank and some MFS customers.<sup>118</sup>
- **Cash Deposit Machines (CDMs)** - CDMs are self-service banking terminals designed exclusively for cash deposits, enabling users to securely deposit money directly into their bank accounts. Unlike CRMs, CDMs do not facilitate cash withdrawals, focusing solely on deposit functionality.<sup>119</sup>

### Self-Reinforcing Cash Cycle in Bangladesh Retail Supply Chain

The preference for cash along the retail supply chain in Bangladesh reveals a self-reinforcing cycle that ultimately discourages digital payment adoption. Wholesalers prefer cash payments from merchants due to several factors: immediate liquidity for restocking inventory, avoidance of taxation through undocumented transactions, and elimination of cash-out fees that would be incurred when converting digital payments back

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<sup>107</sup> Bangladesh Bank (2022). Bangladesh Mobile Financial Services Regulations. Available [here](#).

<sup>108</sup> Bangladesh Bank (2022). Bangladesh Mobile Financial Services Regulations. Available [here](#).

<sup>109</sup> Bangladesh Bank (2022). Bangladesh Mobile Financial Services Regulations. Available [here](#).

<sup>110</sup> Bank of International Settlements (2003). A Glossary of Terms Used in Payment and Settlement Systems. Available [here](#).

<sup>111</sup> Bank of Bangladesh (2024). Payment and Settlement Systems. Available [here](#).

<sup>112</sup> Rocket (2024). ATM Withdrawal. Available [here](#).

<sup>113</sup> bKash (2024). Cash Out From ATM. Available [here](#).

<sup>114</sup> IT Consultants (2021). Q-Cash. Available [here](#).

<sup>115</sup> The Daily Star (2024). Why Are CRMs Replacing ATMs in Bangladesh. Available [here](#).

<sup>116</sup> Ibid

<sup>117</sup> Ibid

<sup>118</sup> Ibid

<sup>119</sup> The Daily Star (2024). Rise of Cash Recycling Machines. Available [here](#).

to cash for their own upstream suppliers. This creates a significant downstream pressure on merchants who must maintain substantial cash reserves to pay their wholesalers.

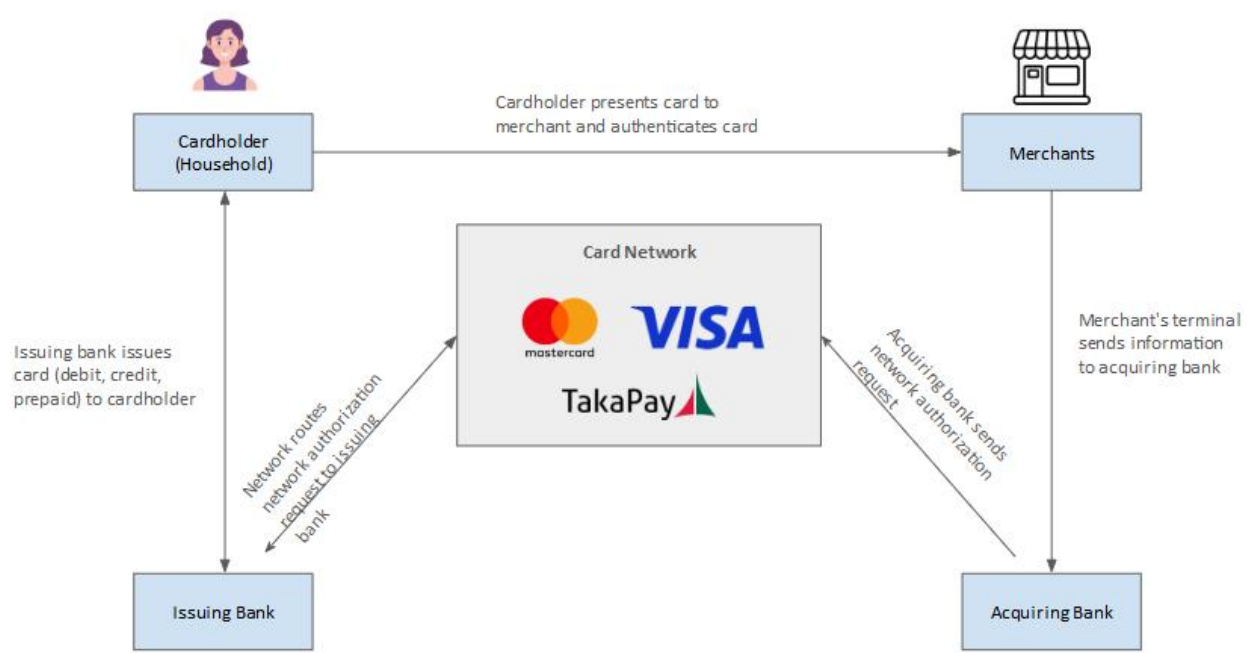
This cash dependency creates a domino effect throughout the value chain. Merchants, needing cash on hand to pay wholesalers, actively encourage customers to pay in cash—sometimes refusing digital payments altogether. This allows them to maintain the necessary cash flow without incurring the cash-out fees they would face when converting digital payments to cash for wholesale payments. The situation is particularly acute for micro-merchants operating on thin margins, for whom these fees represent a substantial cost. During focus group discussions, several merchants confirmed promoting cash to customers, creating a circular system where cash preference is reinforced at every transaction level from the consumer to the wholesaler, effectively limiting digital payment adoption despite its potential benefits.

5.2 Digital Payments Value Chain

5.2.1 Card

The card payment value chain facilitates transactions between consumers and merchants through a network of financial institutions and card schemes.<sup>120121</sup> This value chain is supported by robust fraud prevention, compliance with regulatory standards, and settlement processes that reconcile transactions between the issuing and acquiring banks, ensuring merchants receive payments and cardholders' accounts are accurately debited.

Figure 11: Card Payment Value Chain



<sup>120</sup> Card Scheme Rule Documentation

<sup>121</sup> Genesis Analytics KII, 2024

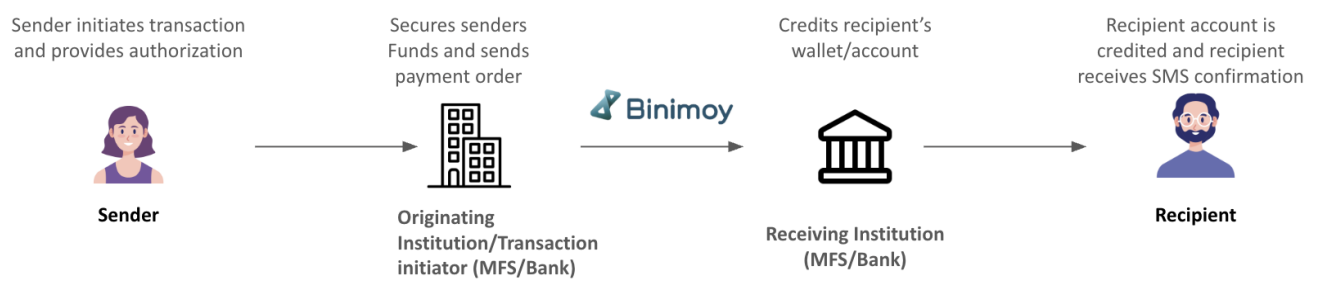
The process begins when the cardholder (consumer) presents their debit, credit, or prepaid card to the merchant for payment and authenticates the transaction, typically via PIN or signature. The merchant's terminal sends the transaction details to the acquiring bank (the merchant's bank), which processes the request and routes it to the card network (e.g., Visa, Mastercard, American Express, or TakaPay). The card network forwards the authorisation request to the issuing bank (the cardholder's bank) for verification.

Upon receiving the request, the issuing bank checks the cardholder's account for sufficient funds or credit and either approves or denies the transaction. This response is routed back through the card network to the acquiring bank and then to the merchant, enabling the transaction to be completed if approved. The card payment system ensures a secure and efficient flow of funds, leveraging standardised networks and protocols.

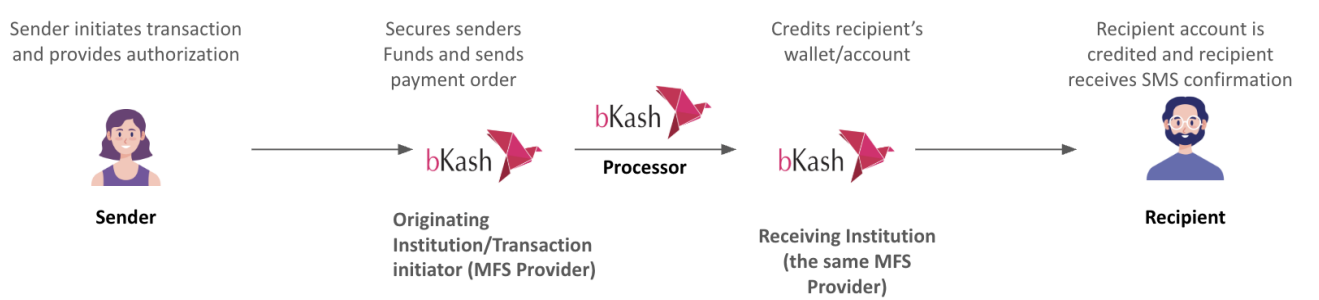
### 5.2.2 MFS

The MFS (Mobile Financial Services) payment value chain in Bangladesh enables digital financial transactions from or to mobile platforms. The stakeholders include the sender, originating bank, transaction processor, receiving bank and the recipient.<sup>122123</sup> Agents play a critical role in cash-in and cash-out transactions, extending the reach of MFS providers to rural and underserved areas. By fostering interoperability and maintaining robust oversight, MFS providers contribute significantly to the digital transformation of Bangladesh's payment ecosystem

**Figure 12: MFS off-us value chain**



**Figure 13: MFS on-us value chain**



The process starts with the sender initiating the transaction by providing necessary authorisation through their mobile wallet or banking app. The originating institution (transaction initiator) ensures the availability of funds, processes the transaction, and sends the payment instructions through the transaction processor - Binimoy for off-us transactions and through the MFS provider (eg bKash, Nagad) for on-us transactions. The transaction processor facilitates real-time fund transfers, ensuring compliance with interoperability and security standards set by the Bangladesh Bank's regulations. Once the payment is processed, the receiving

<sup>122</sup> MFS Regulation 2022. Available [here](#)

<sup>123</sup> Genesis Analytics KII, 2024

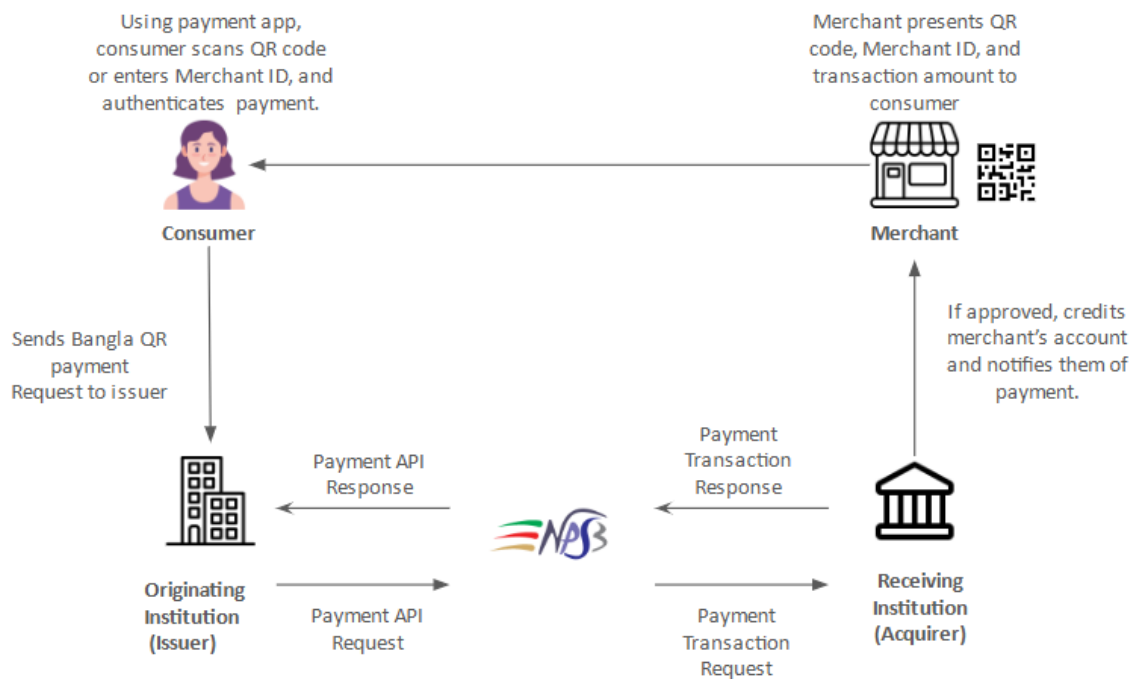


institution credits the recipient's wallet or bank account and notifies them of the successful transaction via SMS or other communication channels.

### 5.2.3 Bangla QR

Bangla QR's value chain is supported by multiple stakeholders including the Consumer, Merchant, Issuer, Acquirer, and the Transaction processor.<sup>124125</sup> Merchants and consumers interact through user-friendly mobile applications provided by issuers or acquirers, ensuring smooth onboarding and transaction handling. Acquirers (such as banks or PSPs) enroll merchants and manage QR code generation, while issuers facilitate payments from customer accounts. Clearing and settlement are conducted centrally to ensure compliance with Bangladesh Bank's guidelines, which emphasise real-time notifications, interoperability, and security. Off-us transactions are processed by the NPBS, whereas on-us transactions are processed by the financial services provider. By enabling digital transactions, particularly for small and micro-merchants, Bangla QR fosters greater financial inclusion, lowers the reliance on expensive POS systems, and establishes a unified framework for digital payments in the country.

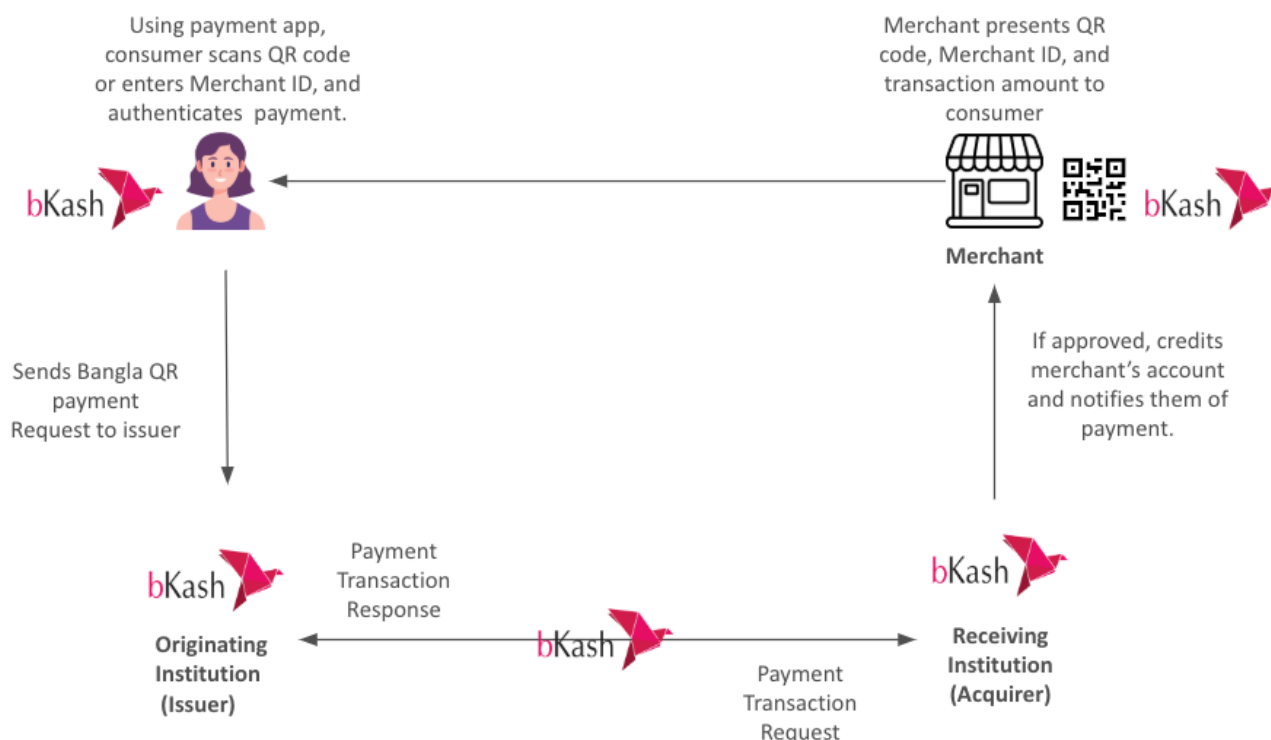
**Figure 14: Bangla QR off-us Value Chain**



**Figure 15: Bangla QR on-us Value Chain**

<sup>124</sup> Guidelines for 'Bangla QR' Code Based Payments, 2021. Available [here](#)

<sup>125</sup> Genesis Analytics KII, 2024



The Bangla QR payment system promotes a streamlined and interoperable approach for retail payments in Bangladesh. The payment flow begins when a merchant, equipped with a QR code (either static or dynamic), presents it to the consumer. A static QR code contains only the merchant's details, requiring the consumer to input the transaction amount, while a dynamic QR code incorporates both the merchant's details and the payable amount. Consumers use their mobile applications to scan the QR code, authorise the payment, and transmit the payment request to their financial institution, termed the "originating institution" or issuer. The issuer processes the payment request internally for on-us transactions and for off-us transactions externally by interacting with the clearing and settlement infrastructure—managed by Bangladesh Bank's National Payment Switch (NPSB)—to ensure the seamless transfer of funds to the receiving institution, which credits the merchant's account.

#### 5.2.4 Electronic Fund Transfer (EFT)

The BEFTN (Bangladesh Electronic Funds Transfer Network) payment value chain is designed to facilitate efficient and secure electronic funds transfers between financial institutions in Bangladesh. The value chain includes the sender, originating bank, transaction processor (BD-RTGS), receiving bank and the recipient.<sup>126127</sup>

**Figure 16: EFT Value Chain**



<sup>126</sup> BEFTN Operating Rules. Available [here](#)

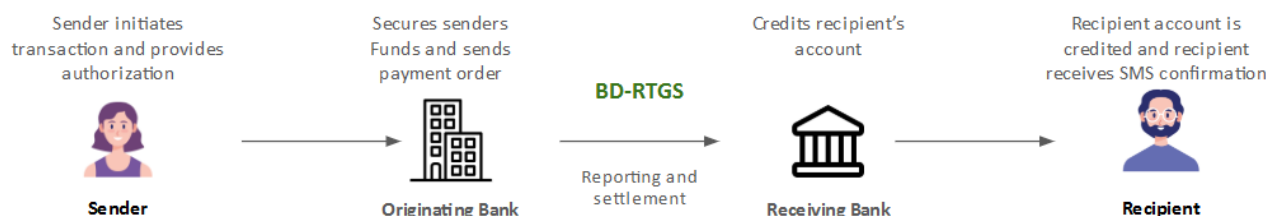
<sup>127</sup> Genesis Analytics KII, 2024

The process starts with the sender, also referred to as the Originator, initiating a transaction by providing the required authorisation to their bank, known as the Originating Bank (OB). The OB processes the request, ensures the availability of funds, and sends the payment order to the central clearing facility, BEFTN. Acting as the intermediary, BEFTN facilitates the clearing and settlement of the transaction by routing the payment information to the Receiving Bank (RB) based on the receiver's account details. The Receiving Bank then credits the recipient's account and notifies them of the successful transfer via SMS or other communication channels.

### 5.2.5 Bangladesh Real-Time Gross Settlement (RTGS)

The BD-RTGS (Bangladesh Real-Time Gross Settlement) payment value chain enables secure and instantaneous interbank settlements for high-value transactions and involves the sender, originating bank, transaction processor (BD-RTGS), receiving bank and the recipient.<sup>128</sup>

**Figure 17: RTGS Value Chain**



The process begins with the sender initiating a payment instruction and providing necessary authorisation through their bank, known as the "Originating Bank." This bank validates and secures the sender's funds before transmitting the payment order to the BD-RTGS system operated by the Bangladesh Bank. The RTGS system processes the transaction in real time, ensuring the immediate and gross settlement of the transaction without netting delays. Once processed, the system notifies the "Receiving Bank," which credits the recipient's account and informs them via SMS or email.

The BD-RTGS infrastructure is pivotal for maintaining the finality and irrevocability of payments. Every transaction involves stringent validation protocols, including sanctions screening and profile matching, to comply with the Bangladesh Financial Intelligence Unit's (BFIU) guidelines. The system supports both local and approved foreign currency transfers, ensuring robust liquidity management through mechanisms like the Intraday Liquidity Facility (ILF).

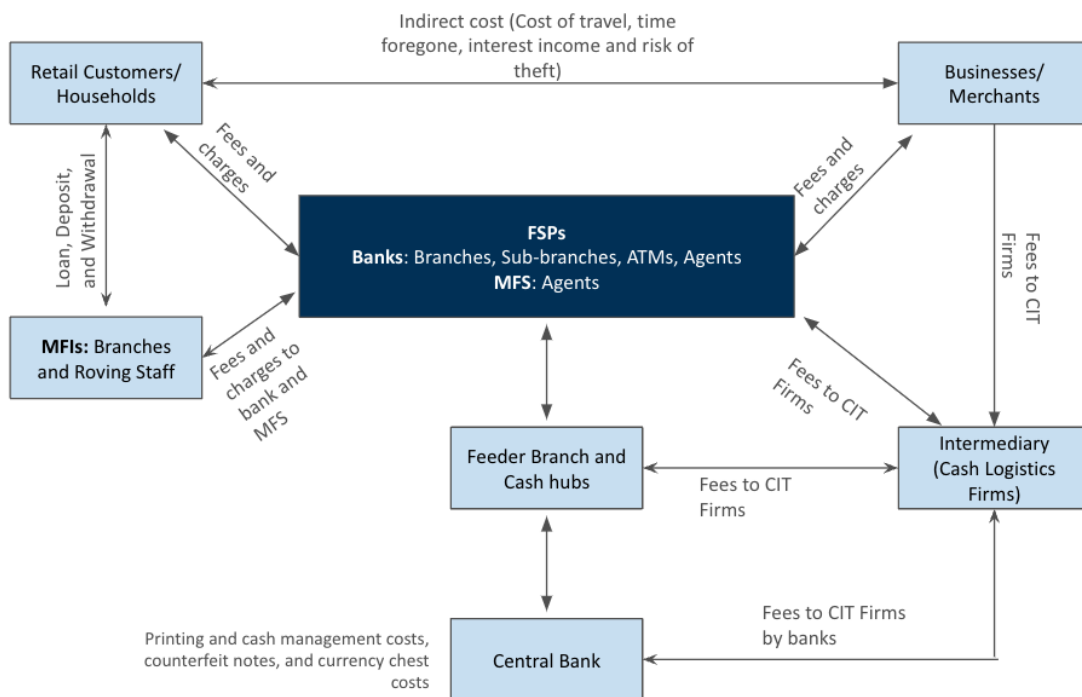
## 6 | Payment System Economics

### 6.1 Cash

**The cost of cash can be divided into direct and indirect components**, each contributing to the overall expense of managing physical currency in an economy.

<sup>128</sup> BD-RTGS Operating Rules. Available [here](#)

**Figure 18: Cost and Revenue of Cash**



**Direct costs are tangible and measurable**, including the central bank's costs for printing, distributing, and managing cash, as well as dealing with counterfeit currency and maintaining currency chests. Additionally, banks pay fees to Cash-in-Transit (CIT) firms for transporting cash between the Central banks, cash hubs, feeder branches, branches, Sub branches, and ATMs. Furthermore, Financial Service Providers (FSPs), such as banks and mobile financial service agents, charge fees to retail customers, businesses, and microfinance institutions (MFIs) for services like withdrawals, deposits, and account management. Businesses and MFIs also pay operational fees to banks and other FSPs for their cash-related activities.

**Indirect costs, though less visible, significantly impact the economy.** These include the opportunity cost of holding cash, as funds kept in physical form do not earn interest. Customers and businesses face travel and time costs when accessing banking services for cash transactions, often requiring trips to branches, ATMs, or agents. “Carrying cash in Dhaka city is very risky. When depositing cash into the bank, I need someone to accompany me. This results in both my and the other person's working time being wasted on the trip to the bank. Often, to transport the money safely, I have to hire a private car, rickshaw, or use a personal vehicle, all of which come with additional expenses. In total, it costs about 500–700 BDT just to go to and from the bank for depositing cash.” said a micro-merchant during an FGD.

Additionally, the use of cash comes with risks of theft and loss during handling and transportation. Manual cash handling also introduces inefficiencies, errors, and potential losses for businesses and financial institutions. Together, these direct and indirect costs highlight the economic burden of maintaining a cash-based system, encouraging a transition to digital payment methods in many economies.

**Table 12: Direct Cost, Indirect Cost and Revenue of Cash**

| Stakeholder | Direct Cost                                                 | Indirect Cost                                                    | Revenue    |
|-------------|-------------------------------------------------------------|------------------------------------------------------------------|------------|
| Households  | Transaction fees paid to banks for use of ATMs and branches | Opportunity costs of time spent accessing and using branches and | Cash backs |

|                     |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                    |                                                                                                         |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|                     | Interest foregone on average cash holdings                                                                                                                                                                                                                                                                                                            | ATMs<br>Expected loss due to the risk of holding cash                                                              |                                                                                                         |
| <b>Banks</b>        | Operating expenses of maintaining ATM and branch networks<br><br>Depreciation of incurred capex on ATM and branch networks<br><br>Operating expenses of cash operations<br>Transaction fees paid to other banks and payment networks and intermediaries<br><br>Payments to cash logistics companies<br><br>Interest foregone on average cash holdings | Opportunity costs of time spent handling and managing cash<br><br>Expected loss due to the risk of holding cash    | Transaction fees from households and businesses<br><br>Transaction fees from other banks and other FSPs |
| <b>CIT</b>          | Operating expenses of maintaining cash storage locations<br><br>Depreciation of incurred capex on vaults<br><br>Operating expenses of cash operations                                                                                                                                                                                                 | Expected loss due to the risk of holding cash                                                                      | Service fees from the central bank, banks and businesses                                                |
| <b>Central Bank</b> | Costs of printing of currency<br><br>Payments to cash logistics companies                                                                                                                                                                                                                                                                             | Losses from counterfeit currency                                                                                   | Fully subsidized by the Bangladesh bank                                                                 |
| <b>Businesses</b>   | Transaction fees paid to banks and other FSPs<br><br>Depreciation on cash infrastructure<br><br>Interest foregone on average cash holdings                                                                                                                                                                                                            | Opportunity costs of time spent handling and managing cash<br><br>Expected loss linked to the risk of holding cash | N/A                                                                                                     |
| <b>MFIs</b>         | Salaries to roving staff<br><br>Operating expenses of maintaining branch networks                                                                                                                                                                                                                                                                     | Opportunity costs of time spent handling and managing cash<br><br>Expected loss linked to the risk of holding cash | Fees from customers and small businesses                                                                |

Table 13: Estimated cash costs for each party

| Party            | Description                                                                          | Unit Cost                                                                         | Aggregate (Annual)  |
|------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------|
| <b>Household</b> | Foregone interest earnings on cash holdings                                          | Weighted average interest rate on deposits in Bangladeshi scheduled banks - 5.99% | BDT 64,088,336,144  |
|                  | Opportunity cost of time spent visiting and transacting at ATMs, branches and agents | BDT 150 per hour; 1 hour per transaction                                          | BDT 112,227,447,924 |

|              |                                                                                            |                                                                                                                                                                                                                                                                     |                      |
|--------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
|              | Fees paid to banks and MFS at ATMs, branches and agents                                    | <p>Simple average of off-us ATM withdrawal fee per transaction - BDT 16.67 per transaction</p> <p>Weighted average agent withdrawal fee per transaction - BDT 49.89</p> <p>Fees paid for MFS ATM withdrawals per year for consumers - 1.2% of transaction value</p> | BDT 50,484,549,736   |
|              | Cost of risk of cash holdings                                                              | Probability of theft or loss - 5% based on FGDs and KIIs                                                                                                                                                                                                            | BDT 53,496,106,965   |
| <b>Banks</b> | <b>Operating expenses of branch, ATM/CRM/CDM, and agent networks</b>                       |                                                                                                                                                                                                                                                                     |                      |
|              | Operating cost of branch network                                                           | Total average operating cost per branch per year - BDT 5,840,794                                                                                                                                                                                                    | BDT 65,907,522,091   |
|              | Operating cost of sub-branch network                                                       | Total average operating cost per sub-branch per year - BDT 388,965                                                                                                                                                                                                  | BDT 1,322,481,000.00 |
|              | Operating cost of bank agent network                                                       | Total average cost per bank agent per year BDT 78,201                                                                                                                                                                                                               | BDT 3,838,618,747.62 |
|              | Operating cost of ATM network                                                              | Total average operating cost per ATM per year - BDT 221,159                                                                                                                                                                                                         | BDT 2,971,492,324    |
|              | Operating cost of CDM network                                                              | Total average operating cost per CDM per year - BDT 221,159                                                                                                                                                                                                         | BDT 58,164,817.00    |
|              | <b>Total Operating expenses of branch, ATM/CRM/CDM, and agent networks</b>                 |                                                                                                                                                                                                                                                                     | BDT 75,474,855,545   |
|              | <b>Capital expenditure incurred on setting up new branches, ATMs/CRMs/CDMs, and agents</b> |                                                                                                                                                                                                                                                                     |                      |
|              | Capital cost of new agent banking outlets                                                  | Average branding cost of a new agent banking outlet - BDT 55,000                                                                                                                                                                                                    | BDT 141,350,000      |
|              | Capital cost of new ATMs per year                                                          | Upfront cost of ATM - BDT 550,000 per ATM                                                                                                                                                                                                                           | BDT 345,400,000      |
|              | Capital cost of new CRMs per                                                               | Upfront cost of CRM BDT                                                                                                                                                                                                                                             | BDT 1,086,750,000    |

|                     |                                                                                           |                                                                                                            |                            |
|---------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------|
|                     | year                                                                                      | 1,150,000.00                                                                                               |                            |
|                     | Capital cost of new bank branches per year                                                | Average capital expenditure for new bank branch - BDT 8,000,000                                            | BDT 1,432,000,000          |
|                     | Total Capital expenditure incurred on setting up new branches, ATMs/CRMs/CDMs, and agents |                                                                                                            | BDT 3,005,500,000          |
|                     | Interest earnings (foregone) on cash deposits in branches and ATMs                        | Interest rate (91-day Treasury bill yield) - 10.59%                                                        | BDT 43,020,494,568         |
|                     | Value of counterfeit notes                                                                | Direct value                                                                                               | BDT 15,040,450             |
|                     | ATM Interchange fees paid                                                                 | Interchange fee per withdrawal - BDT 20 per transaction                                                    | BDT 1,410,090,660          |
|                     | <b>Payments to cash logistics companies</b>                                               |                                                                                                            |                            |
|                     | Total cost (payments made to CiTs) for transporting cash to each branch per year          | Average total cost (payments made to CiTs) for transporting cash to each branch per year - BDT 150000      | BDT 1,692,600,000          |
|                     | Total cost (payments to CiTs ) for transporting cash to each sub-branch per year          | Average total cost (payments to CiTs ) for transporting cash to each sub-branch per year - BDT 76,332      | BDT 259,528,800            |
|                     | Total cost (payments made to CiTs) for transporting cash to each ATM/CRM/CDM per year     | Average total cost (payments made to CiTs) for transporting cash to each ATM/CRM/CDM per year - BDT 52,877 | BDT 937,720,718            |
|                     | Total cost (payments made to CiTs) for securing each branch per year                      | Average total cost (payments made to CiTs) for securing each branch per year - BDT 12,000,000              | BDT 135,408,000,000        |
|                     | Total cost (payments made to CiTs) for securing each ATM per year                         | Average total cost (payments made to CiTs) for securing each ATM per year - BDT 6,000,000                  | BDT 106,404,000,000        |
|                     | <b>Total payments to cash logistics companies</b>                                         |                                                                                                            | <b>BDT 244,701,849,518</b> |
| <b>Central Bank</b> | Total printing cost                                                                       | Consolidated cost                                                                                          | BDT 3,409,469,202          |
|                     | Total cost of transportation between central bank facilities                              | Consolidated cost                                                                                          | BDT 3,425,932              |
|                     | Total annual cash processing                                                              | Consolidated cost                                                                                          | BDT 40,138,632             |

|                                           |                                                                                                |                                                                                                                                                                                                                |                     |
|-------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
|                                           | machine depreciation                                                                           |                                                                                                                                                                                                                |                     |
|                                           | Total annual salary expense for staff directly involved in cash-related activities             | BDT 1,867,018 per staff                                                                                                                                                                                        | BDT 804,684,586     |
|                                           | Cost of cash disposal                                                                          | Consolidated cost                                                                                                                                                                                              | BDT 73,868,213      |
|                                           | Agency fee paid to Sonali Bank for conducting treasury functions on behalf of the central bank | Consolidated cost                                                                                                                                                                                              | BDT 6,717,800       |
| <b>Microfinance Institutions</b>          | Estimated cash-related operating costs of total market                                         | Share of the staff working hours spent on cash-related tasks - 30%<br><br>Operating expense related to cash-related tasks per staff - BDT 273,556                                                              | BDT 56,352,633,890  |
| <b>Government</b>                         | Estimated total foregone revenue due to presence of shadow economy                             | Tax revenue (% of GDP) - 7.64%<br><br>Size of the shadow economy (% of GDP) - 27.20%                                                                                                                           | BDT 933,232,831,994 |
| <b>Businesses: Retail Micro merchants</b> | Foregone interest earnings on cash holdings                                                    | Weighted average interest rate on deposits in Bangladeshi scheduled banks - 5.99%                                                                                                                              | ৳ 569,289,600       |
|                                           | Cost of risk of cash holdings                                                                  | Probability of theft or loss - 5% based on FGDs and KIIs                                                                                                                                                       | BDT 475,200,000     |
|                                           | Opportunity cost of time spent visiting and transacting at ATMs, branches and agents           | Opportunity cost per transaction - BDT 297                                                                                                                                                                     | BDT 47,155,680,000  |
|                                           | Fees paid to banks and MFS at ATMs, branches and agents                                        | Weighted average agent withdrawal fee per transaction - BDT 49.89<br><br>Average ATM withdrawal fee - 1.2% of transaction value<br><br>Simple average of off-us ATM withdrawal fee per transaction - BDT 16.67 | BDT 13,502,620,358  |
| <b>Businesses: FMCG Retailers</b>         | Foregone Interest on Cash Holdings                                                             | Weighted average interest rate on deposits in Bangladeshi scheduled banks - 5.99%                                                                                                                              | BDT 228,003,360     |
|                                           | Cost of Risk of Cash Holdings                                                                  | Probability of theft or loss - 5% based on FGDs and KIIs                                                                                                                                                       | BDT 228,384,000     |



|  |                                      |                                                                  |                |
|--|--------------------------------------|------------------------------------------------------------------|----------------|
|  | MFS deposit (Agent)                  | 0.20%                                                            | BDT 91,353,600 |
|  | Payments to Cash Logistics Companies | Average cost paid to CiT per trip to retail location -BDT 15,000 | BDT 3,000,000  |

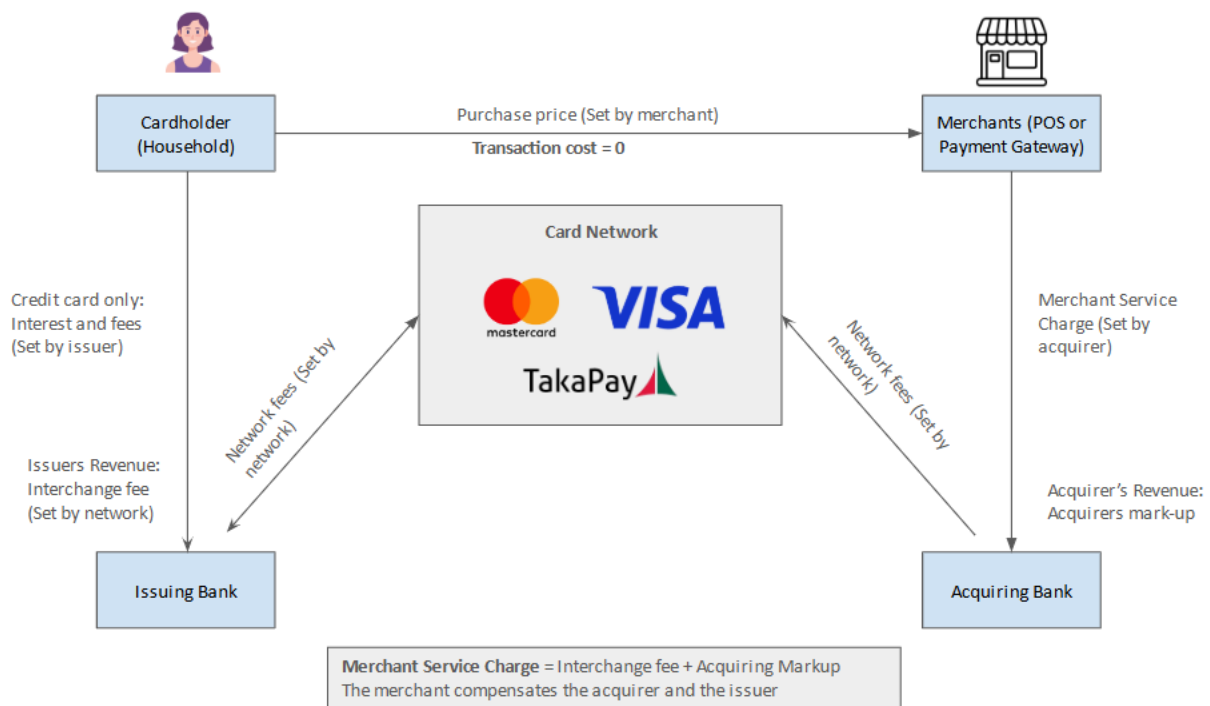
Table 14: Estimated cash revenue for each party

| Party                                     | Description                                                                       | Unit Cost                 | Aggregate (Annual) |
|-------------------------------------------|-----------------------------------------------------------------------------------|---------------------------|--------------------|
| <b>Household</b>                          | Households do not earn revenue from cash transactions                             |                           |                    |
| <b>Banks</b>                              | Simple average of off-us ATM withdrawal fee per transaction -                     | BDT 16.67 per transaction | BDT 1,175,310,565  |
| <b>Banks and MFS</b>                      | Weighted average agent withdrawal fee per transaction                             | BDT 49.89                 | BDT 44,832,841,761 |
| <b>MFS</b>                                | Fees paid for MFS ATM withdrawals per year for consumers                          | 1.2% of transaction value | BDT 4,476,397,411  |
| <b>Central Bank</b>                       | Bangladeshi bank does not levy any extra “cash-handling” fees on commercial banks |                           |                    |
| <b>Microfinance Institutions</b>          | Bangladeshi MFIs do not levy any extra “cash-handling” fees on their clients      |                           |                    |
| <b>Government</b>                         | The government does not earn additional revenue from cash transactions            |                           |                    |
| <b>Businesses: Retail Micro merchants</b> | Retail Micro merchants do not earn additional revenue from cash transactions      |                           |                    |
| <b>Businesses: FMCG Retailers</b>         | FMCG Retailers do not earn additional revenue from cash transactions              |                           |                    |

## 6.2 Digital Payments

### 6.2.1 Card

Figure 19: Cost and Revenue of Card Payments



1. **Cost to the Issuing Bank:** The issuing bank incurs costs for acquiring and managing customers, including onboarding, compliance (KYC/AML), marketing, and ongoing account maintenance. These costs are recovered through cardholder fees (e.g., annual fees, late payment charges) and interchange fees, which are set by the card network. Additionally, for credit cards, the issuer generates revenue from interest charged on outstanding balances.
2. **Cost to the Acquiring Bank:** The acquiring bank bears the cost of acquiring and managing merchants, which includes marketing, onboarding, compliance, and customer support. Acquirers also invest in payment infrastructure such as POS terminals or payment gateway systems. They recover these costs through the merchant discount rate (MDR), which includes the interchange fee and acquiring markup.
3. **Cost to the Merchant:** Merchants incur costs for signing up with POS or payment gateway providers, which often includes setup fees and recurring charges for maintaining the infrastructure. The merchant discount rate (MDR) is applied to each transaction, which compensates the acquirer and

issuer. Additionally, merchants may face indirect costs related to integrating payment systems and training staff to use them.

4. **Cost to the Cardholder:** Cardholders may pay fees such as annual card fees, interest on credit card balances, and foreign transaction fees. These fees contribute to the overall cost of using the card but vary based on the terms set by the issuing bank.
5. **Network Fees:** Card networks (e.g., Visa, Mastercard) set network fees, which are charged to both issuers and acquirers. These fees cover the cost of operating the payment network, ensuring security, and providing global interoperability.

## Indirect Costs

1. **Cost of Acquiring and Managing Users:**
  - a. **Onboarding Costs:** Originating and Receiving Institutions invest in customer education, KYC (Know Your Customer) compliance, and promotional campaigns to onboard users.
  - b. **Customer Support and Retention:** Costs include maintaining call centers, offering troubleshooting services, and providing periodic updates to users.
  - c. **Technology Costs:** Developing user-friendly mobile applications and SMS/USSD interfaces to cater to a diverse user base, including non-smartphone users.
2. **Regulatory and Compliance Costs:**
  - a. Institutions must comply with regulatory requirements, such as anti-money laundering (AML) and combating the financing of terrorism (CFT) measures, adding to operational costs.

Table 15: Estimated card costs for each party

| Party                  | Description                                                                                     | Unit Cost                   | Aggregate          |
|------------------------|-------------------------------------------------------------------------------------------------|-----------------------------|--------------------|
| <b>Network</b>         | Annual NPSB platform/software maintenance cost (Share related to TakaPay, POS, Card operations) | BDT 14,430,089 Per year     | BDT 14,430,089     |
| <b>Issuing Banks</b>   | Total Cost of issuing 1 new card                                                                | BDT 2,175 per card          | BDT 13,531,151,325 |
|                        | Total Cost of Maintaining 1 card customer per year                                              | BDT 130.19 per card         | BDT 5,479,592,166  |
| <b>Acquiring Banks</b> | NPSB Platform Cost                                                                              | BDT 11,140 per POS terminal | BDT 1,208,344,660  |
|                        | Cost of merchant acquisition (POS)                                                              | BDT 1,700 per POS merchant  | BDT 9,203,800      |
|                        | Cost of POS depreciation per year                                                               | BDT 130 per POS terminal    | BDT 14,100,970     |
|                        | Cost of merchant maintenance per year                                                           | BDT 9,276 per POS terminal  |                    |
| <b>Merchants</b>       | Merchant Discount Rate                                                                          | 1.60% per transaction       | BDT 8,077,376,000  |
| <b>Cardholders</b>     | Card issuance fee                                                                               | 0                           | 0                  |

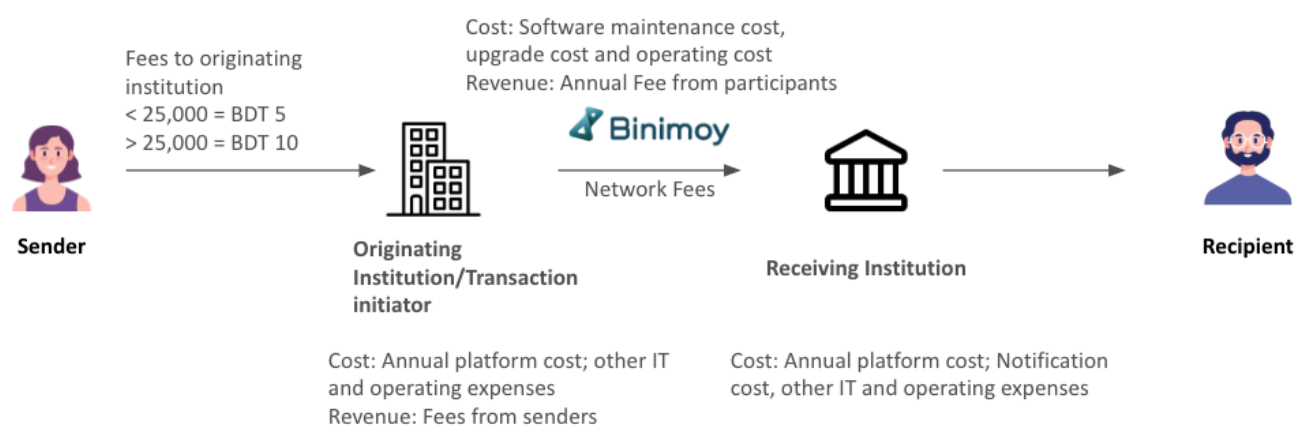
|  |                       |         |                    |
|--|-----------------------|---------|--------------------|
|  | Reissue fee for cards | BDT 400 | BDT 539,219,680    |
|  | Card annual fee       | BDT 600 | BDT 25,253,516,400 |

Table 16: Estimated card revenues for each party

| Party           | Description                                            | Unit Cost                            | Aggregate         |
|-----------------|--------------------------------------------------------|--------------------------------------|-------------------|
| Network         | MDR paid to card scheme                                | 0.20% per transaction                | BDT 1,009,672,000 |
|                 | NPSB platform access revenues                          | BDT 11,140 per POS terminal per year | BDT 1,208,344,660 |
| Issuing Banks   | MDR paid to issuing bank                               | 1.20% per transaction                | BDT 6,058,032,000 |
| Acquiring Banks | MDR paid to acquiring bank                             | 0.20% per transaction                | BDT 1,009,672,000 |
| Merchants       | Merchants do not earn revenue from card transactions   |                                      |                   |
| Cardholders     | Cardholders do not earn revenue from card transactions |                                      |                   |

## 6.2.2 Mobile Financial Services (MFS)

Figure 20: Cost of MFS



### Direct Costs

- Cost to the Sender:** Senders pay fees to the originating institution based on the transaction value:
  - Less than BDT 25,000: BDT 5
  - More than BDT 25,000: BDT 10
- Cost to the Originating Institution:** Originating institutions incur costs for maintaining and upgrading platforms, IT infrastructure, and operating expenses. Their revenue is derived from fees collected from senders.

3. **Cost to the Receiving Institution:** Receiving institutions also bear costs for annual platform maintenance, notification systems, and other IT and operational expenses. They depend on the system's architecture and the network provider's support.
4. **Cost to the Network Provider (Binimoy):** The network provider who is also the transaction processor incurs costs related to software maintenance, system upgrades, and operating expenses. Its revenue comes from annual fees charged to participating institutions.

## Indirect Costs

5. **Cost of Acquiring and Managing Users:**
  - a. **Onboarding Costs:** Originating and Receiving Institutions invest in customer education, KYC (Know Your Customer) compliance, and promotional campaigns to onboard users.
  - b. **Customer Support and Retention:** Costs include maintaining call centers, offering troubleshooting services, and providing periodic updates to users.
  - c. **Technology Costs:** Developing user-friendly mobile applications and SMS/USSD interfaces to cater to a diverse user base, including non-smartphone users.
6. **Regulatory and Compliance Costs:**
  - a. Institutions must comply with regulatory requirements, such as anti-money laundering (AML) and combating the financing of terrorism (CFT) measures, adding to operational costs.

Table 17: Estimated MFS costs for each party

| Party                           | Description                                                         | Unit Cost                   | Aggregate (Annual) |
|---------------------------------|---------------------------------------------------------------------|-----------------------------|--------------------|
| <b>Network (Binimoy)</b>        | Annual Binimoy platform/software licencing/maintenance cost (fixed) | BDT 39,000,000 per year     | BDT 39,000,000     |
|                                 | Additional lump-sum system upgrade cost per year                    | BDT 1,660,000 per year      | BDT 1,660,000      |
| <b>Originating institution</b>  | Annual binimoy platform cost                                        | BDT 150,000 per participant | BDT 2,400,000      |
|                                 | Transaction cost: Network cost                                      | BDT 0.50 per transaction    | BDT 90,216         |
|                                 | Transaction cost: Notification SMS cost                             | BDT 1.36 per transaction    | BDT 245,387        |
| <b>Receiving Institution</b>    | SMS notification cost per transaction received                      | BDT 1.36 per transaction    | BDT 245,387        |
| <b>Receiver (P2B) Merchants</b> | Merchant Discount Rate                                              | 1% of transaction value     | BDT 6,030,050,000  |
| <b>Receiver (P2P)</b>           | Individuals do not incur any cost for MFS transactions              |                             |                    |
| <b>Sender</b>                   | Average cost of P2P payment per transaction                         | BDT 5 per transaction       | BDT 5,401,827,195  |

|  |                                         |                            |                   |
|--|-----------------------------------------|----------------------------|-------------------|
|  | Transaction fee per salary disbursement | 1.85% of transaction value | BDT 6,685,918,500 |
|--|-----------------------------------------|----------------------------|-------------------|

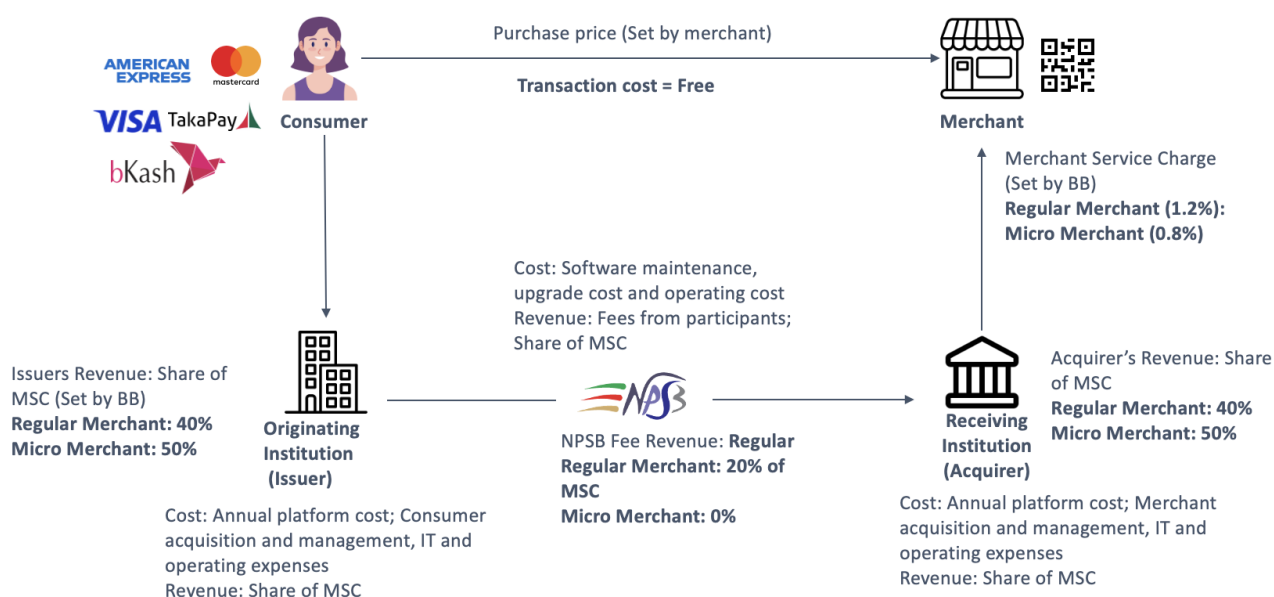
Table 18: Estimated MFS revenues for each party

| Party                   | Description                                         | Unit Cost                   | Aggregate (Annual) |
|-------------------------|-----------------------------------------------------|-----------------------------|--------------------|
| Network                 | Participants binimoy platform access cost annually  | BDT 150,000 per participant | BDT 2,400,000      |
|                         | Fee per transaction (P2P)                           | BDT 0.50 per transaction    | BDT 90,216         |
|                         | MDR paid to NPSB (P2B)                              | 0.20% of transaction value  | BDT 1,206,010,000  |
| Originating institution | MDR paid to issuer (P2B)                            | 0.40% of transaction value  | BDT 2,412,020,000  |
|                         | P2P fees per transaction                            | BDT 5 per transaction       | BDT 5,712,439,570  |
| Receiving Institution   | MDR paid to acquirer (P2B)                          | 0.40% of transaction value  | BDT 2,412,020,000  |
| Receivers               | Receivers do not earn revenue from MFS transactions |                             |                    |
| Senders                 | Senders do not earn revenue from MFS transactions   |                             |                    |

## 6.2.3 Bangla QR

### 6.2.3.1 Bangla QR: off-us transactions

Figure 21: Cost of Bangla QR



## Direct Costs and Revenue

### 1. **Cost to the Consumer:**

- The consumer typically pays no direct fee for using QR payment methods. However, they may incur indirect costs such as USSD access fee or internet cost for accessing the app.

### 2. **Cost to the Merchant:**

- Merchants pay a **Merchant Discount Rate (MDR)**, which is set by the acquirer. The prevailing market rate and maximum set by the Bangladesh Bank is as follows:
  - Regular Merchants: 1.2% of the transaction amount
  - Micro Merchants (PRA): 0.8% of the transaction amount

### 3. **Revenue and Cost to the Issuing Institution:**

- **Revenue:** Issuing banks share the merchant discount rate with the acquiring institution and the transaction processor (NPSB). The sharing formula is set by the NPSB. The NPSB also manages disbursement of revenue to participants.
  - Regular Merchants: 40% of 1.2% of transaction value
  - Micro Merchants: 50% of 0.8% of transaction value
- **Cost:** Customer acquisition and maintenance

### 4. **Revenue and Cost to the Receiving Institution (Acquirer):**

- **Revenue:** Acquiring banks share the merchant discount rate with the issuing institution and the transaction processor (NPSB). The sharing formula is set by the NPSB.
  - Regular Merchants: 40% of 1.2% of transaction value
  - Micro Merchants: 50% of 0.8% of transaction value
- **Cost:** Merchant acquisition and maintenance

### 5. **Cost to NPSB:**

- **Revenue:** Acquiring banks share the merchant discount rate with the issuing institution and the transaction processor (NPSB). The sharing formula is set by the NPSB.
  - Regular Merchants: 20% of 1.2% of transaction value
  - Micro Merchants: 0% of 0.8% of transaction value (indicating subsidies for financial inclusion)
- **Cost:** NPSB incurs operational costs for maintaining the switch and ensuring system integrity. The NPSB functions as a public utility, funding its operations through a cost-recovery fee model.

## Indirect Costs

### 6. **Cost of Acquiring and Managing Merchants:**

- **Onboarding Costs:** Acquirers invest in acquiring merchants through marketing, sales agents, and compliance processes, including KYC checks.
- **Hardware and Technology Costs:** Providing QR code generation, displays, and integration with payment systems.
- **Merchant Education and Training:** Acquirers train merchants on using QR systems, troubleshooting, and reconciling transactions.

- **Customer Support:** Maintaining call centres and systems for addressing merchant queries and issues.
- **Retention Costs:** Offering incentives, promotional schemes, or reduced MDR rates to retain merchants, especially micro and small merchants.

**7. Regulatory and Compliance Costs:**

- Acquirers and issuers must adhere to local regulations, such as AML and CFT measures, adding to their operational costs.

Table 19: Estimated Bangla QR costs for each party

| Party                          | Description                                                                                     | Unit Cost                       | Aggregate       |
|--------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------|-----------------|
| <b>Network</b>                 | Annual NPSB platform/software maintenance cost (Share related to TakaPay, POS, Card operations) | BDT 1,155,145 Per year          | BDT 1,155,145   |
| <b>Originating institution</b> | SMS Notification cost                                                                           | BDT 1 per transaction           | BDT 2,179,255   |
| <b>Receiving Institution</b>   | SMS Notification cost                                                                           | BDT 1 per transaction           | BDT 2,179,255   |
|                                | Bmerchant acquisition cost                                                                      | BDT 300 per Bangla QR merchant  | BDT 109,242,900 |
| <b>Receiver (Merchants)</b>    | Merchant Discount Rate                                                                          | 1% of transaction value         | BDT 86,930,083  |
| <b>Sender</b>                  | Transaction cost                                                                                | Bangla QR is free for consumers |                 |

Table 20: Estimated card revenues for each party

| Party                          | Description                                                 | Unit Cost                            | Aggregate         |
|--------------------------------|-------------------------------------------------------------|--------------------------------------|-------------------|
| <b>Network</b>                 | MDR paid to NPSB                                            | 0.20% per transaction                | BDT 1,009,672,000 |
|                                | NPSB platform access revenues                               | BDT 11,140 per POS terminal per year | BDT 1,208,344,660 |
| <b>Originating institution</b> | MDR paid to originating institution (issuer)                | 0.60% of transaction value           | BDT 52,158,050    |
| <b>Receiving Institution</b>   | MDR paid to receiving institution (acquirer)                | 0.40% of transaction value           | BDT 34,772,033    |
| <b>Receiver (Merchants)</b>    | Merchants do not earn revenue from Bangla QR transactions   |                                      |                   |
| <b>Sender</b>                  | Cardholders do not earn revenue from Bangla QR transactions |                                      |                   |



### 6.2.3.1 Bangla QR: On-us transactions

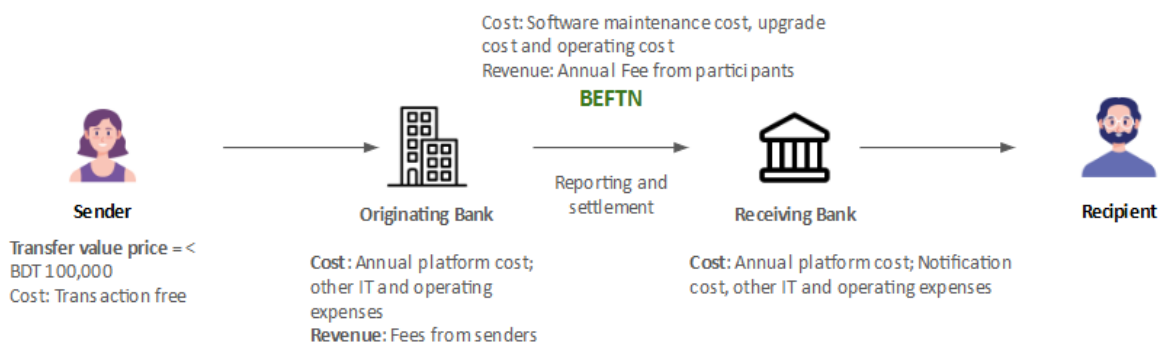
Figure 22: Bangla QR Cost - ON US



The cost structure for QR on-us transactions mirrors that of off-us QR transactions, with the key distinction lying in the participants, transaction processor and distribution of revenue. In on-us transactions, the originating institution (issuer) and the receiving institution (acquirer) are the same entity. As a result, the financial institution processes the transaction internally, in accordance with the Bangla QR operating rules, and retains the entire Merchant Discount Rate (MDR) paid by the merchant. The maximum MDR remains consistent across both transaction types (on-us and off-us) : 1.2% for regular merchants and 0.8% for micro merchants, the latter reflecting subsidies aimed at promoting financial inclusion.

### 6.2.4 EFT

Figure 23: EFT - Cost



#### Direct Costs

1. **Cost to the Sender:** The sender typically pays a nominal fee for initiating an EFT transaction. This fee varies based on the bank's policies and the transaction amount.

2. **Cost to the Originating Institution:** Originating institutions incur costs for maintaining and upgrading platforms, IT infrastructure, and operating expenses. Their revenue is derived from fees collected from senders.
3. **Cost to the Receiving Institution:** Receiving institutions also bear costs for annual platform maintenance, notification systems, and other IT and operational expenses. Their revenue is derived from account maintenance fees collected from receivers.
4. **Cost to the Bangladesh Bank:** BEFTN serves as the intermediary for settlement and reporting. Its costs include software maintenance, system integrity and human resource. These costs are covered through annual fees charged to participating banks. The annual fees cover the variable cost of running the system.

#### Indirect Costs

5. **Cost of Acquiring and Managing Users:**
  - a. **Onboarding Costs:** Originating and Receiving Institutions invest in customer education, KYC (Know Your Customer) compliance, and promotional campaigns to onboard users.
  - b. **Customer Support and Retention:** Costs include maintaining call centers, offering troubleshooting services, and providing periodic updates to users.
  - c. **Technology Costs:** Developing user-friendly mobile applications and SMS/USSD interfaces to cater to a diverse user base, including non-smartphone users.
6. **Regulatory and Compliance Costs:**
  - a. Institutions must comply with regulatory requirements, such as anti-money laundering (AML) and combating the financing of terrorism (CFT) measures, adding to operational costs.

Table 21: Estimated EFT costs for each party

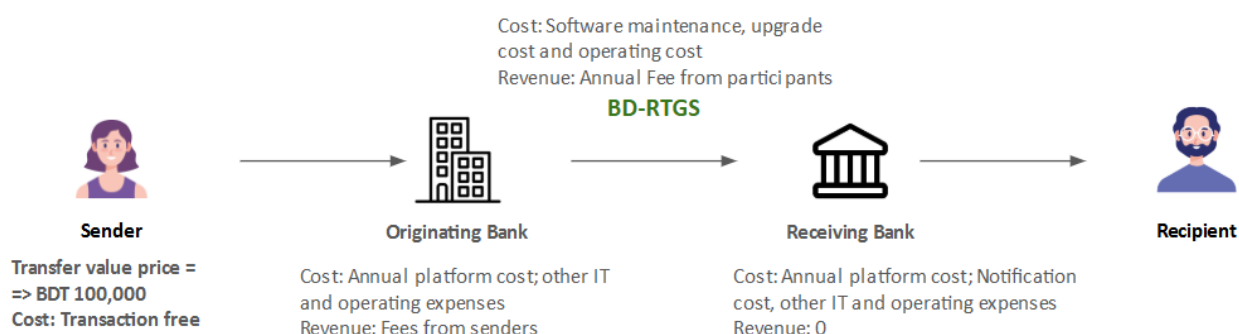
| Party                          | Description                                                             | Unit Cost                   | Aggregate (Annual) |
|--------------------------------|-------------------------------------------------------------------------|-----------------------------|--------------------|
| <b>Network (BEFTN)</b>         | Annual BEFTN platform/software maintenance cost (fixed)                 | BDT 201,778 per year        | BDT 201,778        |
|                                | Cost associated with regulatory, legal, and compliance to rules systems | BDT 1399 per year           | BDT 1399           |
| <b>Originating institution</b> | Annual BEFTN platform cost                                              | BDT 120,000 per participant | BDT 7,200,000      |
|                                | Customisation Cost                                                      | BDT 13,000 per day          | BDT 715,000        |
|                                | Transaction cost: Notification SMS cost                                 | BDT 1.00 per transaction    | BDT 239,618,308    |
| <b>Receiving Institution</b>   | Transaction cost: Notification SMS cost                                 | BDT 1.00 per transaction    | BDT 239,618,308    |
| <b>Receiver</b>                | EFT transaction is free                                                 |                             |                    |
| <b>Sender</b>                  | EFT transaction is free                                                 |                             |                    |

Table 22: Estimated EFT revenues for each party

| Party                          | Description                                                      | Unit Cost                   | Aggregate (Annual) |
|--------------------------------|------------------------------------------------------------------|-----------------------------|--------------------|
| <b>Network (BEFTN)</b>         | Annual Platform access fee                                       | BDT 120,000 per participant | BDT 7,200,000      |
| <b>Originating institution</b> | Receiving institutions do not earn revenue from EFT transactions |                             |                    |
| <b>Receiving Institution</b>   | Receiving institutions do not earn revenue from EFT transactions |                             |                    |
| <b>Receivers</b>               | Receivers do not earn revenue from EFT transactions              |                             |                    |
| <b>Senders</b>                 | <b>Senders</b> do not earn revenue from EFT transactions         |                             |                    |

### 6.2.5 Bangladesh Real-Time Gross Settlement (RTGS)

Figure 24: RTGS - Cost



#### Direct Costs

1. **Cost to the Sender:** The sender typically pays a nominal fee for initiating an RTGS transaction. This fee varies based on the bank's policies and the transaction amount.
2. **Cost to the Originating Institution:** Originating institutions incur costs for maintaining and upgrading platforms, IT infrastructure, and operating expenses. Their revenue is derived from fees collected from senders.
3. **Cost to the Receiving Institution:** Receiving institutions also bear costs for annual platform maintenance, notification systems, and other IT and operational expenses. They depend on the system's architecture and the network provider's support. Their revenue is derived from account maintenance fees collected from receivers.
4. **Cost to the Bangladesh Bank:** BD-RTGS serves as the intermediary for settlement and reporting. Its costs include software maintenance, transaction settlement, and compliance. These costs are covered through annual fees charged to participating banks.

#### Indirect Costs

5. **Cost of Acquiring and Managing Users:**

- Onboarding Costs:** Originating and Receiving Institutions invest in customer education, KYC (Know Your Customer) compliance, and promotional campaigns to onboard users.
- Customer Support and Retention:** Costs include maintaining call centers, offering troubleshooting services, and providing periodic updates to users.
- Technology Costs:** Developing user-friendly mobile applications and SMS/USSD interfaces to cater to a diverse user base, including non-smartphone users.

6. **Regulatory and Compliance Costs:**

- Institutions must comply with regulatory requirements, such as anti-money laundering (AML) and combating the financing of terrorism (CFT) measures, adding to operational costs.

Table 23: Estimated RTGS costs for each party

| Party                          | Description                                                                                                                                                                                                        | Unit Cost                   | Aggregate (Annual) |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------|
| <b>Network (BD-RTGS)</b>       | Annual software licensing fees                                                                                                                                                                                     | BDT 22,273,680 per year     | BDT 22,273,680     |
|                                | Annual platform maintenance cost                                                                                                                                                                                   | BDT 19,253,520 per year     | BDT 19,253,520     |
|                                | Lump-sum system upgrade cost                                                                                                                                                                                       | BDT 1,660,000 per year      | BDT 1,660,000      |
| <b>Originating institution</b> | Annual BD-RTGS platform cost                                                                                                                                                                                       | BDT 180,000 per participant | BDT 14,040,000     |
|                                | Customisation Cost                                                                                                                                                                                                 | BDT 13,000 per day          | BDT 55,770,000     |
|                                | Transaction cost: Fee per RTGS transaction                                                                                                                                                                         | BDT 98.90 per transaction   | BDT 974,968,186    |
|                                | Transaction cost: Notification SMS cost                                                                                                                                                                            | BDT 1.00 per transaction    | BDT 10,953,468     |
| <b>Receiving Institution</b>   | Transaction cost: Notification SMS cost                                                                                                                                                                            | BDT 1.00 per transaction    | BDT 10,953,468     |
| <b>Receiver</b>                | As per the Bangladesh Real Time Gross Settlement System Rules, Section 7 : "Participating Banks may choose to charge fees only from the Originator of the transaction". There is therefore no cost to the Receiver |                             |                    |
| <b>Sender</b>                  | Fee Per RTGS Transaction                                                                                                                                                                                           | BDT 100                     | BDT 985,812,120    |

Table 24: Estimated RTGS revenues for each party

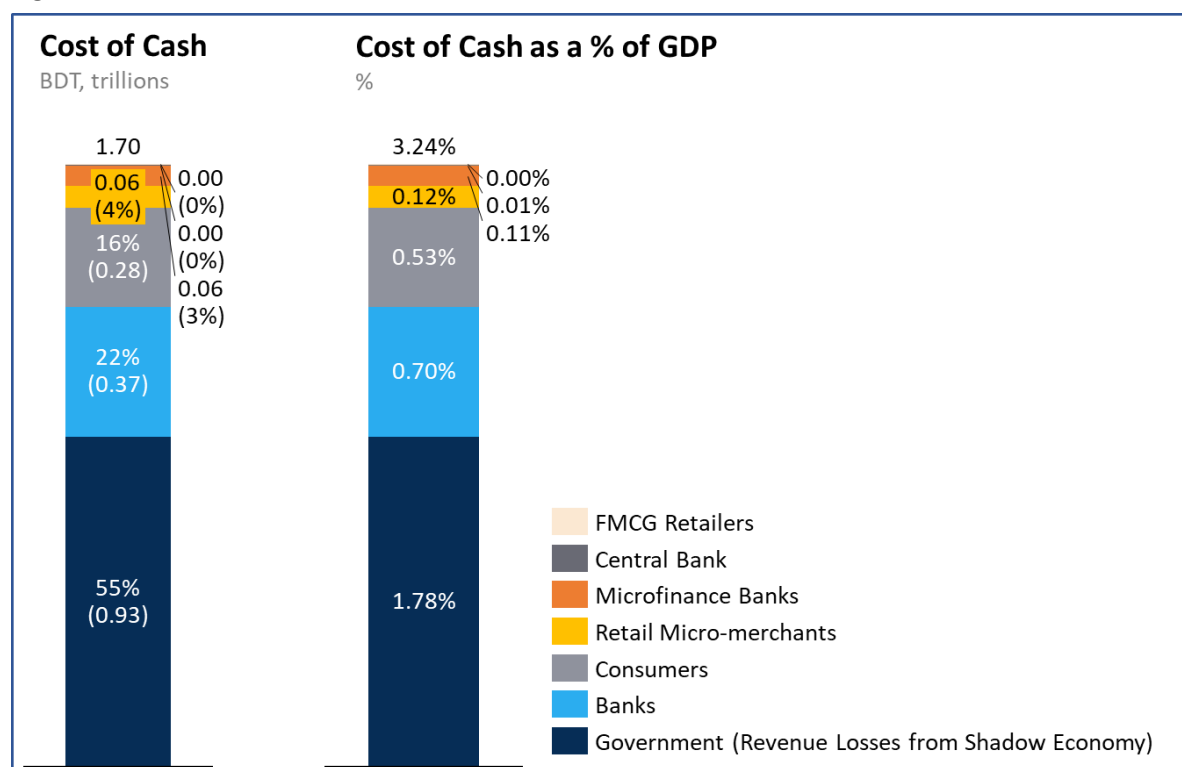
| Party          | Description                | Unit Cost                   | Aggregate (Annual) |
|----------------|----------------------------|-----------------------------|--------------------|
| <b>Network</b> | Annual Platform access fee | BDT 180,000 per participant | BDT 14,040,000     |
|                | Fee per RTGS transaction   | BDT 98 per transaction      | BDT 9,858,121      |

|                                |                                                                   |         |                 |
|--------------------------------|-------------------------------------------------------------------|---------|-----------------|
| <b>Originating institution</b> | Fee Per RTGS Transaction                                          | BDT 100 | BDT 985,812,120 |
| <b>Receiving Institution</b>   | Receiving institutions do not earn revenue from RTGS transactions |         |                 |
| <b>Receivers</b>               | Receivers do not earn revenue from RTGS transactions              |         |                 |
| <b>Senders</b>                 | <b>Senders</b> do not earn revenue from RTGS transactions         |         |                 |

## 7 | An Estimate of the Cost of Cash

The cost of cash to the Bangladesh economy totals approximately BDT 1.70 trillion (USD 14.18 billion) annually, representing 3.24% of the country's GDP or BDT 9,938 per capita. The World Bank estimates that the shadow economy constitutes 7.6% of Bangladesh's GDP. When this is taken into account, the cost of cash in Bangladesh is high compared to benchmark countries.<sup>129</sup> The cost of cash would be 1.47% if the shadow economy and its associated revenue losses were removed. The cost of cash estimate is similar to India (1.7% of GDP) and South Africa (1.6% of GDP).

Figure 25: Cost of Cash Across Stakeholders



These costs are distributed across various stakeholders in the financial ecosystem. The most substantial component stems from revenue losses due to the shadow economy (BDT 933.23 billion), accounting for 1.77% of 2023 GDP. This is followed by costs borne by commercial banks (BDT 367.63 billion or 0.70% of 2023 GDP)

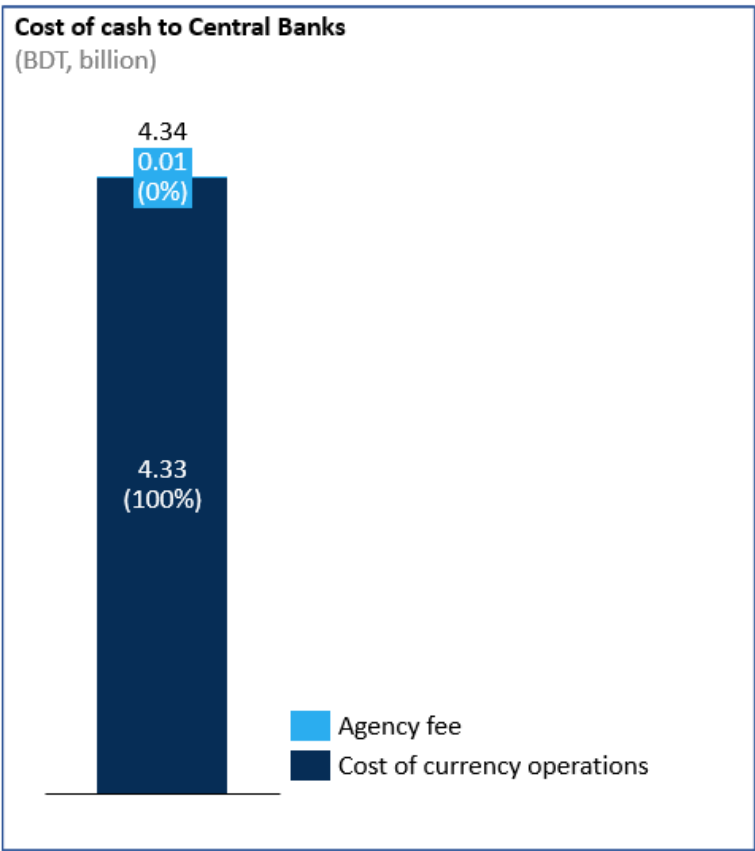
<sup>129</sup> World Bank, 2023 - Available [here](#)

and consumers (BDT 280.30 billion or 0.53% of 2023 GDP). While cash has traditionally been viewed as a "free" payment method, this analysis reveals the significant hidden costs associated with its use, which impact economic efficiency and hinder financial inclusion efforts.

These costs are calculated at today’s cash-use intensity, so they represent the current annual cost to the economy. Looking forward, savings will not fall in a linear way as cash volumes drop. Instead, they come in step-changes: one tranche of savings is unlocked when the ATM network congestion in the urban is addressed, or when cash-in-transit (CIT) routes are consolidated. Even at very low usage levels, a “residual cash infrastructure” (central-bank vaults, wholesale sorting, branch cash expenses) will still impose a baseline cost. Recognising this non-linearity is critical for sequencing policy moves.

**Cost of Cash to the Central Bank**

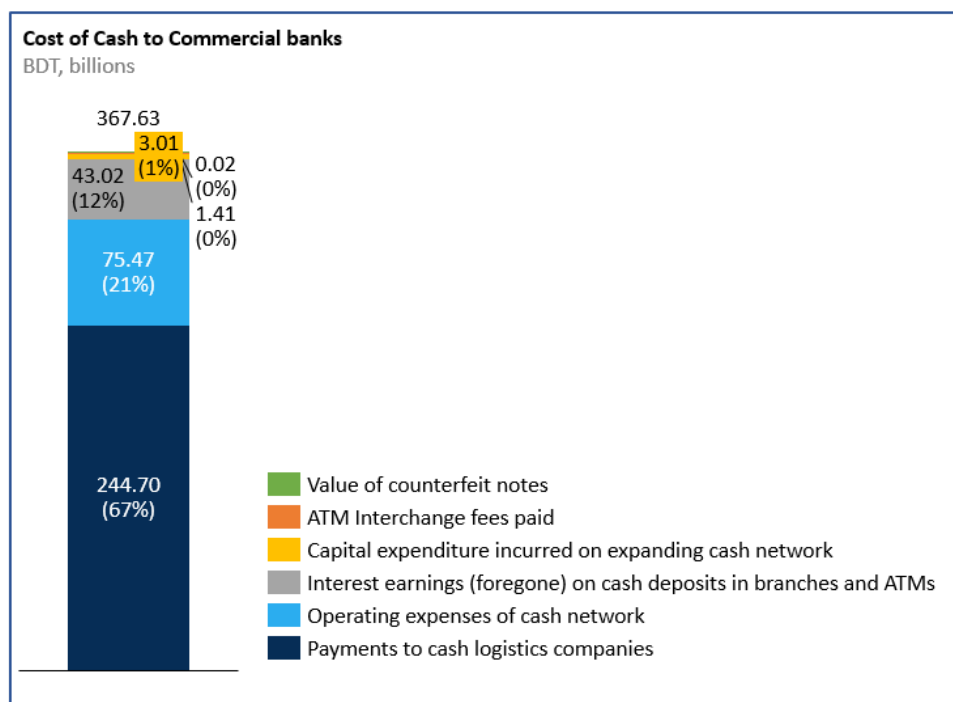
Figure 26: Cost of cash to the Central Bank



The Bangladesh Bank incurs annual costs of BDT 4.34 billion (USD 36 million) in its role as the issuer and manager of the nation's currency, representing 0.0083% of 2023 GDP. These expenses encompass currency printing and production through the Security Printing Corporation (Bangladesh) Ltd, currency distribution to Bangladesh Bank facilities and Sonali Bank locations, ongoing management of vault and storage facilities, and counterfeit prevention measures. Notably, the Bangladesh Bank fully subsidizes these costs rather than passing them on to commercial banks or end users—a practice that differs from countries like South Africa where such costs are transferred to commercial banks. This subsidization policy effectively incentivizes cash usage throughout the economy by masking its true costs.

**Cost of Cash to Commercial Banks**

Figure 27: Cost of Cash to Commercial Banks



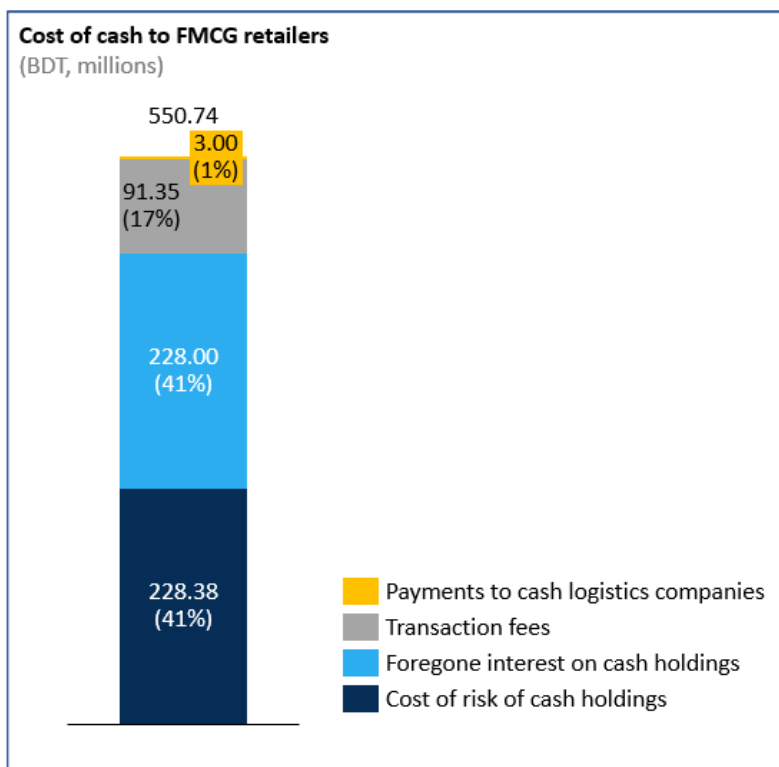
Commercial banks bear the highest institutional cost of cash, totaling BDT 367.63 billion (USD 3.06 billion) annually, equivalent to 0.70% of 2023 GDP. These expenses include operating costs for extensive physical infrastructure (branches, ATMs, CRMs, agent banking outlets), capital expenditure on expanding the cash distribution network, opportunity costs of maintaining cash reserves, losses from counterfeit notes, interchange fees for off-us ATM withdrawals, and payments to cash logistics companies. Banks typically recover these costs through various fees charged to customers and businesses, including account maintenance fees, cash withdrawal charges, and service fees.

### Cost of Cash to Microfinance Institutions

Microfinance institutions incur annual costs of BDT 56.35 billion (USD 468.9 million) in cash-related operations, representing 0.11% of GDP. Their cost structure differs from commercial banks, relying heavily on roving staff to handle cash collections and disbursements in field locations, maintaining branch networks in remote areas with limited digital infrastructure, and managing the security, counting, and transportation of cash. During key informant interviews, MFI stakeholders often perceived cash handling as "free" since staff are already employed to do the job as well as deliver on non-cash microfinance activities, overlooking the indirect costs and opportunity costs of staff time spent on cash handling rather than on other value-added services, a perception that may contribute to slow digital adoption in the microfinance sector.

### Cost of Cash to FMCG Retailers

Figure 28: Cost of Cash to FMCG Retailers



FMCG retailers bear a cash-related cost of BDT 550.74 million (USD 4.58 million) annually, equivalent to 0.001% of 2023 GDP. Despite appearing relatively small compared to other sectors, these costs represent a significant operational burden for individual retailers operating in a high-volume, low-margin business environment. Their expenses include foregone interest on cash holdings, risk of theft or robbery, transaction fees for using MFS agents (approximately 0.2% of transaction value), and payments to cash-in-transit services. During interviews, retailers reported that approximately 80% of their sales are still conducted in cash, with security concerns prompting some large retailers to maintain multiple vaults and use MFS agents after hours to reduce overnight security risks.

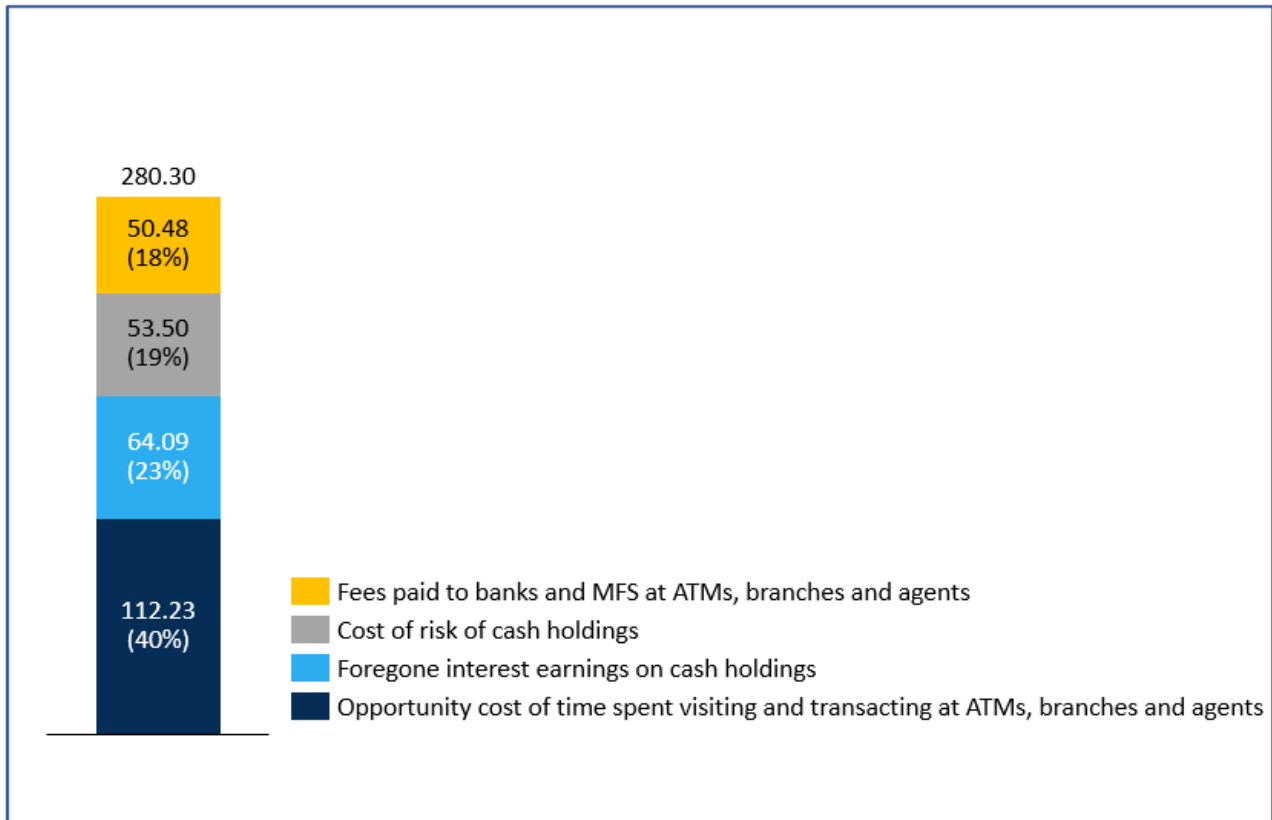
#### Cost of Cash to Retail Micro-Merchants

Retail micro-merchants collectively bear cash-related costs of BDT 61.70 billion (USD 513.42 million) annually, representing 0.12% of 2023 GDP. These costs include foregone interest on cash holdings, risk of theft or loss, opportunity costs of time spent managing cash transactions, and fees paid to banks and MFS agents. Focus group discussions revealed that micro-merchants typically hold cash for approximately three days before depositing or reinvesting it, and many reported substantial time commitments for cash management, with some visiting banks 3-4 times monthly and ATMs 5-7 times monthly. As one merchant noted, "Carrying cash in Dhaka city is very risky. When depositing cash into the bank, I need someone to accompany me. This results in both my and the other person's working time being wasted on the trip to the bank."

#### Cost of Cash to Consumers



Figure 29: Cost of Cash to Consumers



Consumers bear the highest direct cost of cash among end-users, amounting to BDT 280.30 billion (USD 2.33 billion) annually, equivalent to 0.53% of 2023 GDP. These costs include BDT 64.09 billion in foregone interest from holding cash rather than keeping funds in interest-bearing accounts, BDT 53.50 billion in potential losses due to theft or loss, BDT 112.23 billion in opportunity costs of time spent accessing and handling cash, and BDT 50.48 billion in direct fees paid to banks and MFS providers. While these costs are substantial, most consumers remain unaware of their magnitude, consistently viewing cash as a "free" payment method during focus group discussions—a perception gap that contributes to continued cash preference despite increasing digital alternatives.

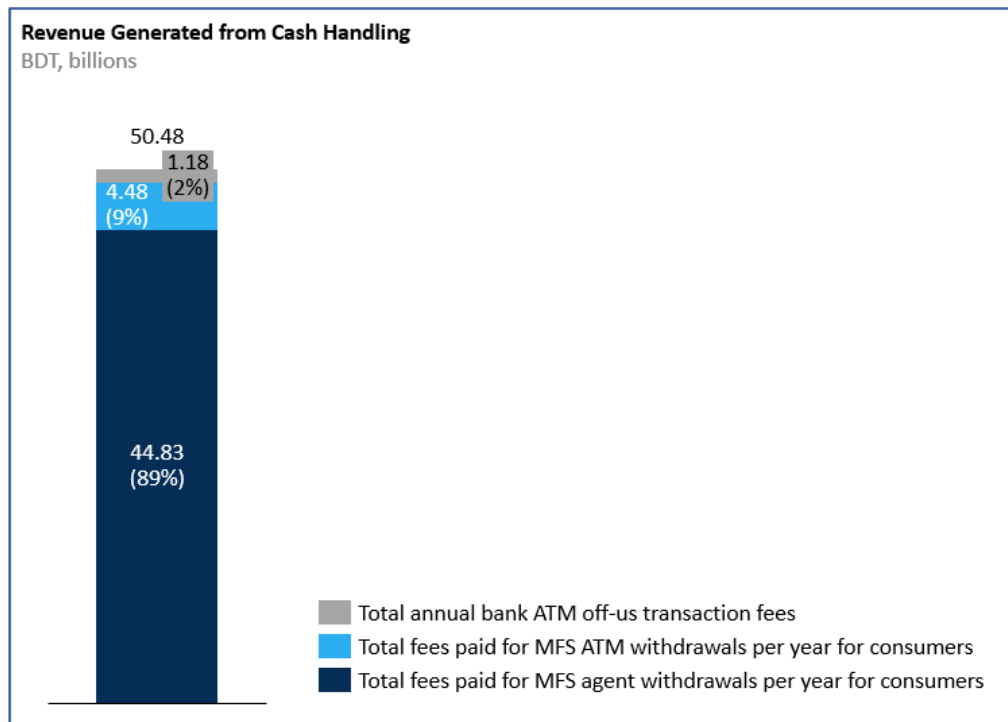
#### Cost of Cash to the Government (Revenue Losses due to Presence of Shadow Economy)

The largest economic cost associated with cash usage stems from revenue losses due to the shadow economy, amounting to BDT 933.23 billion (USD 7.77 billion) annually, or 1.77% of 2023 GDP. The cash-intensive nature of Bangladesh's economy facilitates informal economic activities—estimated at approximately 43% of GDP—that remain outside the tax net. Cash transactions in this segment are largely untraceable, enabling tax avoidance and limiting the government's ability to mobilize domestic resources effectively. As one stakeholder noted, "When some businesses receive payments in cash, particularly big merchants, they don't always log it—hence avoiding taxes." These revenue losses directly impact the government's ability to fund essential public services, infrastructure development, and social welfare programs.

While cash imposes substantial costs, it also generates revenue for certain stakeholders, particularly agents and financial service providers. The MFS agent network, comprising over 1.7 million agents nationwide, earn an estimated BDT 70.78 billion in commissions annually from facilitating cash-in and cash-out transactions

valued at BDT 3.83 trillion. Banks earned approximately BDT 2.20 billion from "off-us" ATM transaction fees, while MFS providers generated an estimated BDT 5.48 billion from cash-out fees. These revenue streams create financial incentives for maintaining cash infrastructure rather than transitioning to fully digital solutions, raising questions about the sustainability of current business models in an increasingly digital financial landscape.

Figure 30: Revenue Generated from Cash Handling



### Comparative Cost of Cash

Bangladesh's total cost of cash (formal and informal economy included) at 3.24% of GDP is significantly lower than India (4.9%). Without the informal economy, Bangladesh's cost of cash at 1.47% is lower or comparable to other economies - India (1.7%), South Africa (1.6%), United States (1.18%) but higher than Australia (0.8%).

Table 25: Cost of Cash per capita and Cost of cash as a % of GDP

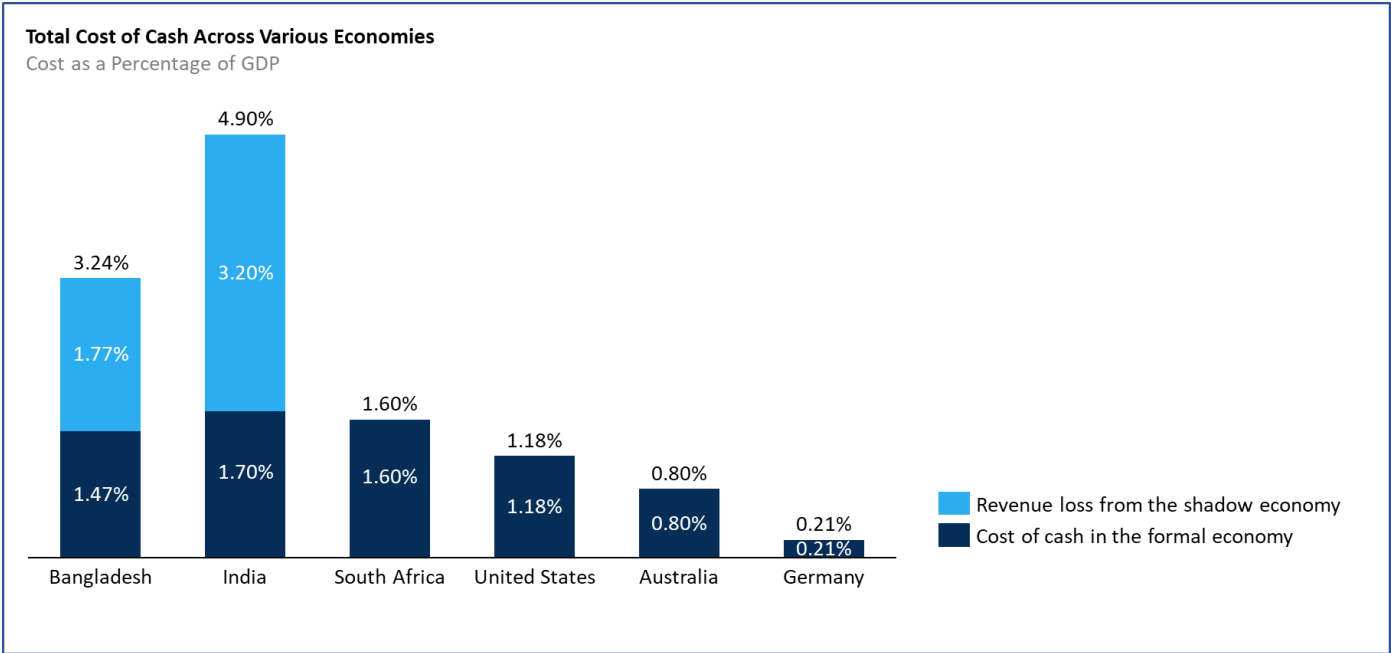
| Country      | Year of study | Cash share of retail | Actual Cost (USD' billion) with shadow economy | Actual Cost (USD' billion) without shadow economy | Cost of cash as % of GDP with shadow economy | Cost of cash as % of GDP without shadow economy | Cost of cash per capita (USD) without shadow economy |
|--------------|---------------|----------------------|------------------------------------------------|---------------------------------------------------|----------------------------------------------|-------------------------------------------------|------------------------------------------------------|
| India        | 2016          | ~80% <sup>130</sup>  | 82.5                                           | 27.5                                              | 4.9%                                         | 1.7%                                            | 21                                                   |
| South Africa | 2019          | ~73% <sup>131</sup>  | -                                              | 6.3                                               | -                                            | 1.6%                                            | 106                                                  |

<sup>130</sup> Data for India, 2025 - Available [here](#)

<sup>131</sup> Payment Association of South Africa (2019). Available [here](#)

|                           |      |                     |      |     |       |       |    |
|---------------------------|------|---------------------|------|-----|-------|-------|----|
| Bangladesh <sup>132</sup> | 2025 | ~75% <sup>133</sup> | 14.2 | 6.4 | 3.24% | 1.47% | 37 |
|---------------------------|------|---------------------|------|-----|-------|-------|----|

Figure 31: Total Cost of Cash Across Various Economies



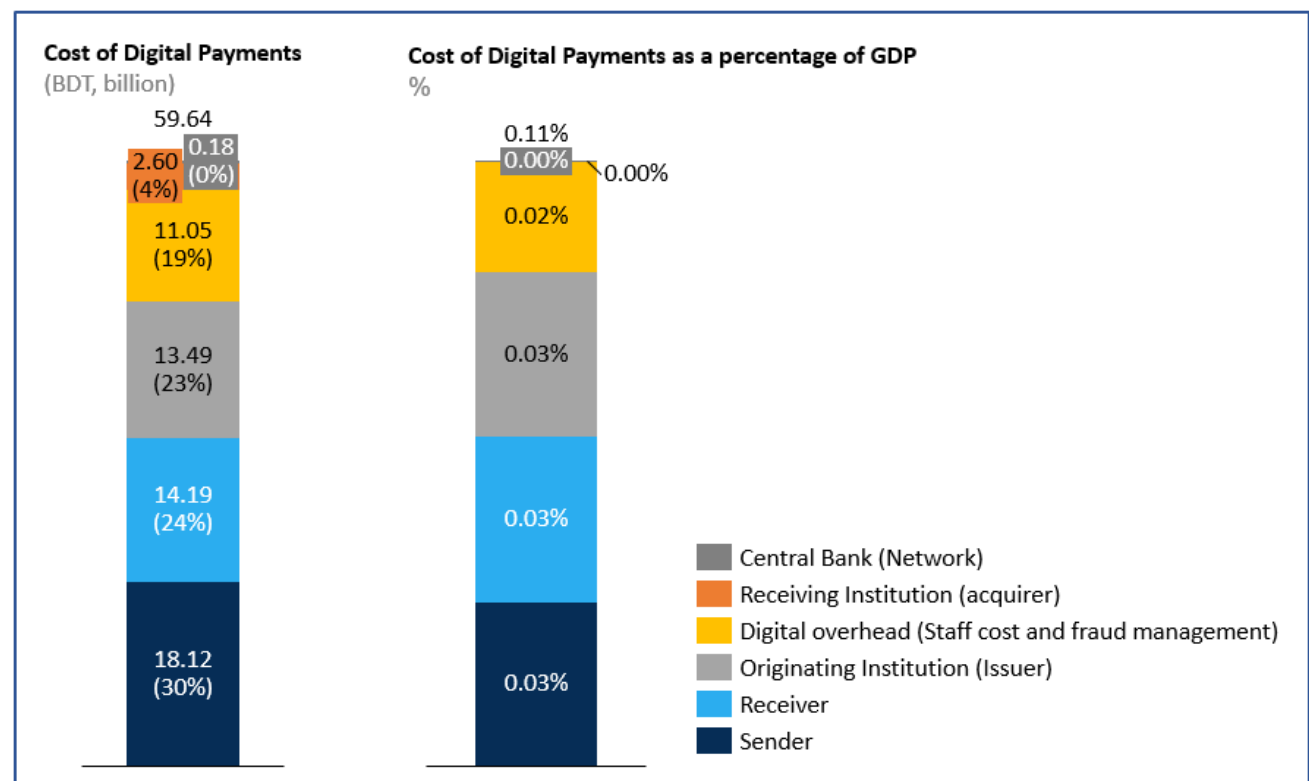
Bangladesh could realize significant economic gains through a concerted shift toward digital payments. Achieving the country's goal of becoming a cashless economy by 2031 will require addressing misaligned incentives and perceptions that currently sustain cash usage, making the true costs of cash more transparent, creating a level playing field between cash and digital payments, and developing inclusive digital solutions that meet the needs of all segments of society.

<sup>132</sup> Genesis Analytics, 2025 Calculation

<sup>133</sup> Payments CMI, 2024 - Available [here](#)

## 8 | An Estimate of the Cost and Revenue of Digital Payments

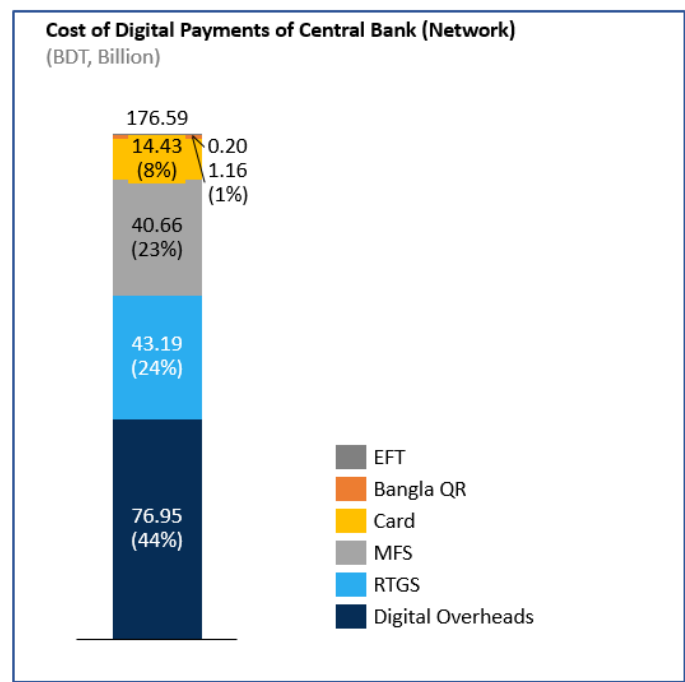
Figure 32: Cost of Digital Payments Across Stakeholders



Bangladesh's digital payment ecosystem, while significantly more cost-effective than cash, involves various stakeholders incurring costs and generating revenue through different digital payment methods. Bangladesh's total annual cost of digital payments is estimated at BDT 56.64 billion (USD 496.23 million), representing 0.11% of 2023 GDP. Revenue generated from digital payments totals BDT 23 billion (USD 192 million), indicating a net cost to the ecosystem. Consequently, payment services operate at a loss for providers. This chapter outlines the costs and revenues associated with key players in the digital payment landscape.

Central Bank

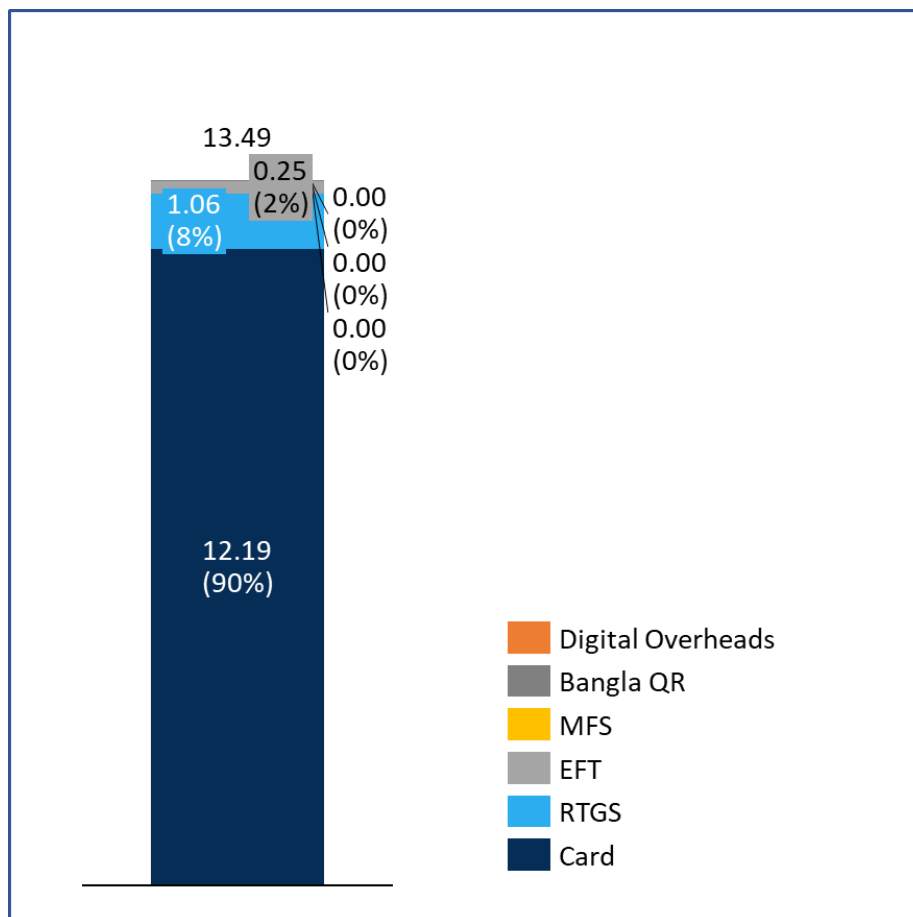
Figure 33: Cost of Digital Payments of the Central Bank



The Bangladesh Bank incurs annual costs of approximately BDT 177 million (USD 1.5 million) in maintaining digital payment infrastructure, representing just 0.17% of total digital payment costs. The majority of these costs stem from operating digital payment platforms. Despite these modest costs, the central bank generates substantial revenues totaling BDT 3.48 billion (USD 28.93 million) annually from its payment infrastructure operations.

Originating Institution (Issuer)

Figure 34: Cost of Digital Payments of Originating Institution



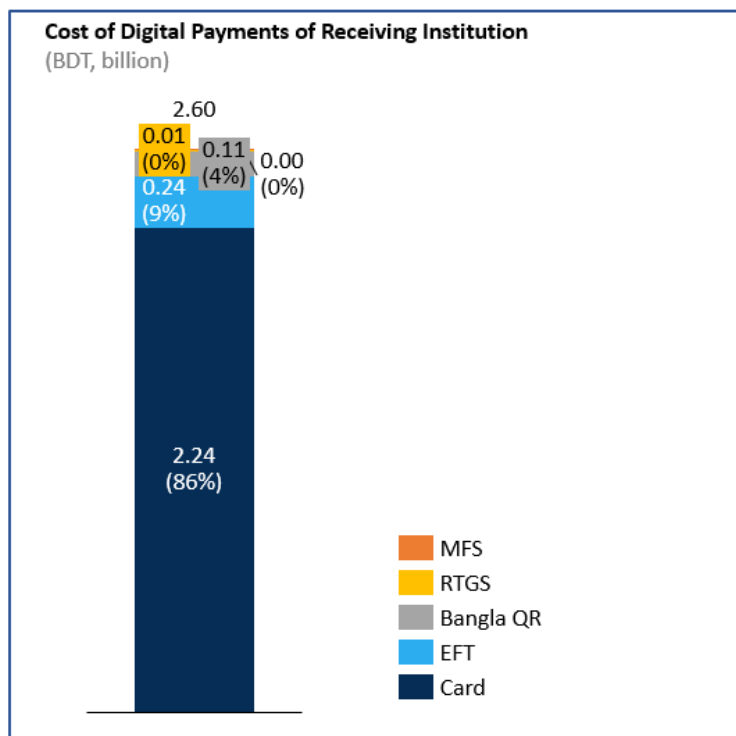
Originating institutions (issuers) bear the second-largest cost burden in the digital payments ecosystem at approximately BDT 13.49 billion (USD 112.3 million) annually, representing 22.63% of total costs. The vast majority of these costs—BDT 12 billion—are associated with card payments. These expenses include infrastructure maintenance, customer acquisition, fraud prevention, compliance, and transaction processing.

For card transactions, issuers incur significant costs for maintaining the network, ensuring security, and processing authorizations. In the MFS ecosystem, originating institutions face comparatively lower costs of BDT 2.7 million, primarily related to platform integration and transaction processing. For RTGS transactions, issuers bear costs of approximately BDT 1.1 billion, while EFT transactions account for BDT 247.5 million.

Despite these costs, originating institutions generate the highest revenue in the ecosystem at BDT 15.2 billion annually. The overwhelming majority—BDT 8.1 billion—comes from MFS operators, highlighting the profitability of mobile financial services in Bangladesh. Card-related revenues amount to BDT 6.1 billion, primarily from interchange fees (averagely 0.6% of transaction value), annual card fees, late payment charges, currency conversion fees, and interest on credit card balances. RTGS transactions contribute BDT 985.8 million, while Bangla QR generates BDT 52.2 million. This revenue structure demonstrates how digital payment providers, particularly MFS operators, have developed highly profitable business models despite the significant infrastructure and operational costs.

## Receiving Institution (Acquirer)

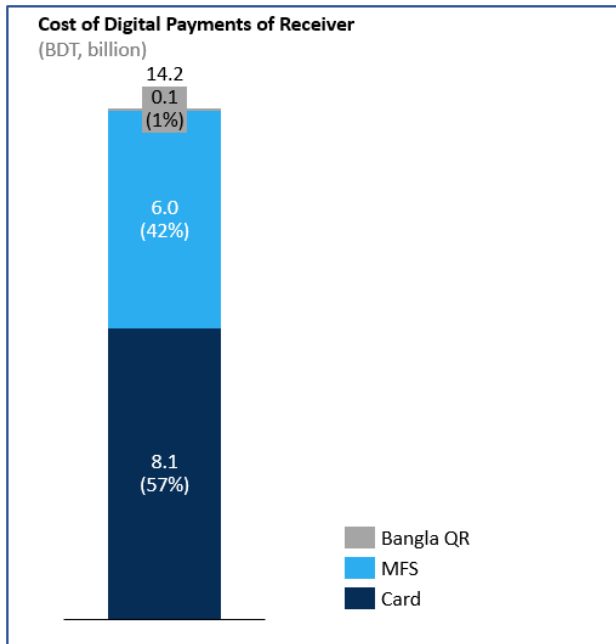
Figure 35: Cost of Digital Payments of the Receiving Institution



Receiving Institutions (Acquirers), such as banks and Payment Service Providers (PSPs), focus on enabling merchants to accept digital payments. They incur costs related to merchant acquisition (e.g., POS deployment, QR code issuance), platform access fees (like NPSB for cards and Bangla QR), and transaction processing. The total estimated cost for receiving institutions is BDT 2.6 billion (USD 21.6 million). Revenue for acquirers primarily comes from the Merchant Discount Rate (MDR) paid by merchants, totaling an estimated BDT 3.46 trillion (USD 28.76 million). Because the MDR do not fully cover acquirers' operating costs, the shortfall is typically offset in three ways: (i) cross-subsidy from the issuing side—interchange income; (ii) float/working-capital income earned on merchants' settlement balances; and (iii) ancillary fees (merchant loans) that carry higher margins.

## Receiver (Merchant)

Figure 36: Cost of Digital Payments of the Receiver



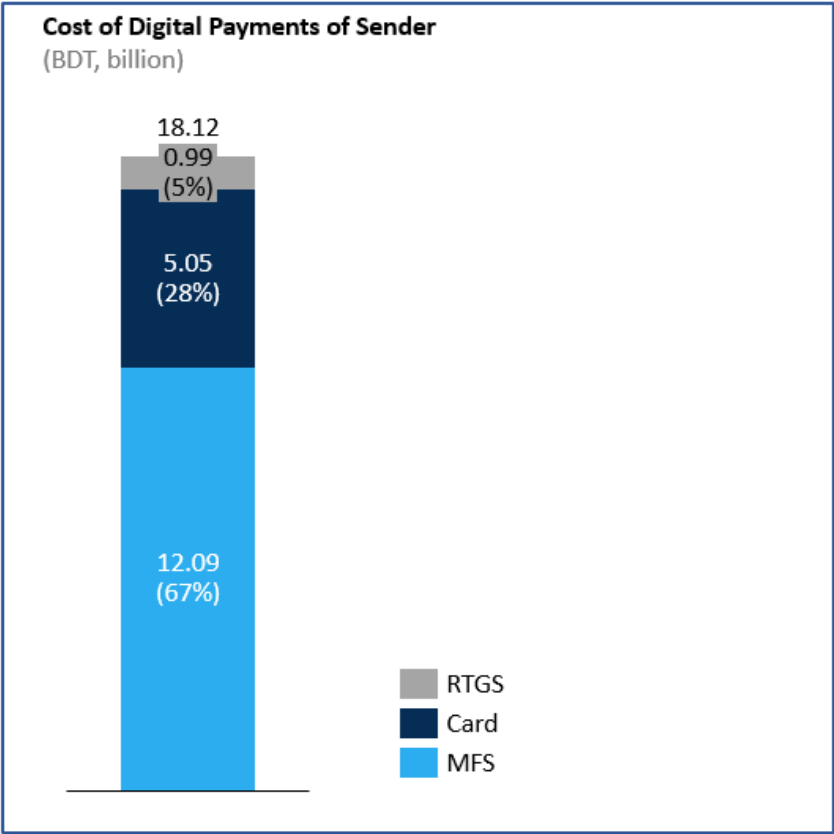
Receivers, primarily merchants, incur digital payment costs of approximately BDT 14.2 billion (USD 118.1 million) annually, accounting for 23.80% of total costs. The largest component is card-related costs at BDT 8.1 billion, followed by MFS costs at BDT 6 billion. Bangla QR costs for merchants amount to BDT 86.9 million annually. For card transactions, merchants are subject to a Merchant Discount Rate (MDR) of 1.6% of transaction value (industry average). For Bangla QR, the MDR is structured as 1.2% for regular merchants and 0.8% for micro-merchants (PRA holders). This rate is discounted from the transaction value before funds are settled to the merchant.

Merchants do not directly earn revenue from the payment system itself. Instead, their benefit comes from increased sales, reduced cash handling costs, and broader customer reach. Some merchants pass portions of the MDR to consumers through higher prices for digital payment transactions, effectively converting a cost to indirect revenue. This cost displacement reflects the ongoing challenge of merchant adoption in Bangladesh's digital payment ecosystem, as merchants must either absorb these costs or risk customer dissatisfaction by passing them on.

**Sender (Consumer)**



Figure 37: Cost of Digital Payments of Sender



The Sender initiating a digital payment, whether a consumer or a business, may face transaction fees. For card payments, senders might pay annual card fees. The total estimated cost for senders across various digital payment methods is BDT 18.12 trillion (USD 150.8 million). Senders generally do not generate direct revenue from making digital payments but benefit from convenience and security, potentially avoiding the indirect costs associated with cash.

Digital Overhead

The cost of digital overheads in Bangladesh, encompassing staff expenses and exception handling for both the central bank and financial institutions, represents a significant aspect of the digital payments ecosystem. The Central Bank's Payment Systems Department (PSD) incurs an annual cost of BDT 76.95 million (USD 640 thousand), which includes BDT 73 million in staff salaries and BDT 4 million for cybersecurity and fraud measures. Financial institutions also bear substantial overhead costs. Exception handling, involving dispute resolution and fraud investigations, is estimated to cost BDT 451 million per year. Furthermore, significant staff costs are associated with various digital payment functions within banks and MFS providers, amounting to BDT 11.05 billion per year. These figures underscore the considerable investment in human resources and the necessary processes for managing and securing digital payment operations within Bangladesh.

**Focus Box: Barriers to banks' scaled engagement in Bangladesh's payments business<sup>134</sup>**

Banks in Bangladesh are generally not scaling up their engagement in the payments business due to a

<sup>134</sup> Genesis Analytics KII, 2024

combination of **unfavourable economics, stringent regulatory compliance concerns, and the competitive landscape.**

- **Unfavourable Economics:** Banks, especially those on the acquiring side, find the current fee structures and revenue-sharing models disincentivising. For instance, high interchange fees paid to issuing banks for premium card transactions can lead to **losses for the acquiring bank**. Despite Bangladesh Bank's efforts to regulate MDRs, banks often route premium cards through international schemes rather than the National Payment Switch Bangladesh (NPSB), which might offer lower fees, because these schemes provide other incentives like awards and capacity building. Additionally, some banks argue that current regulations, such as lower ATM withdrawal fees, inadvertently make cash transactions cheaper than digital ones, further discouraging digital adoption.
- **Regulatory and Risk Aversion:** A significant barrier for banks is their **high sensitivity to compliance, AML/CFT issues, and reputational risk**. Bangladesh Bank's low tolerance for fraud and willingness to levy fines make banks hesitant to onboard certain merchant segments, particularly micro-merchants under Personal Retail Accounts (PRA) with simplified KYC, due to the perceived higher risk of illicit transactions. For banks, the potential financial and reputational costs associated with fraud in small-ticket digital payments often outweigh the limited revenue these services generate.
- **Competitive Landscape and Market Dynamics:** The pervasive presence and strong growth of Mobile Financial Services (MFS) providers like bKash and Nagad present a formidable challenge. MFS providers benefit from extensive agent networks, less stringent KYC processes for small accounts, and a willingness to subsidise certain transaction costs, making them highly accessible and preferred by consumers for small-ticket payments, especially in rural areas. Banks also face challenges with interoperability, as not all MFS are fully integrated with national payment systems for all services, which complicates seamless digital transactions. This, combined with a persistent consumer preference for cash due to familiarity, perceived security, and lack of understanding of digital benefits, limits the overall demand for banks' digital payment offerings.

## Conclusion

At the national level, cash imposes an annual economic cost of about BDT 1.70 trillion (3.24 % of 2023 GDP) versus BDT 59.64 billion (0.11 % of 2023 GDP) for digital payments, so cash is roughly 29 times more expensive in aggregate. The per capita cost difference is equally striking: BDT 9,938 annually for cash versus just BDT 348 for digital payments. It is noteworthy that cash usage contributes to shadow economy losses of BDT 933 billion (1.77% of 2023 GDP), a cost that digital payments help mitigate.

## 9 | Non-priced Impact of Cash and Digital Transactions

This section details the broader societal and economic implications of cash and digital transactions that extend beyond their immediate financial aspects. Based on insight from KII and FGDs, we explore how these forms of payment influence areas such as economic impact, social impact and environmental impact.

### 9.1 Cash

#### 9.1.1 Economic Impact

- **High cost of cash operations and potential inefficiencies in transaction processing**

Cash management incurs significant economic inefficiencies impacting all stakeholders. The physical nature of cash demands extensive investments in printing, processing, sorting, counting, distribution, and destruction. These activities require robust infrastructure and substantial manpower, leading to

high operational costs for central and commercial banks. Furthermore, storing and transporting cash necessitates comprehensive security measures, adding layers of complexity and expense. These measures involve coordination among multiple security agencies and logistics providers, further escalating costs.

According to a KII with bank officials in Dhaka, "The manual processes involved in cash handling, such as counting, sorting, and distribution, require substantial manpower and are prone to errors, which not only increase operational costs but also delay transaction processing."

Transporting cash is particularly costly due to its reliance on security measures. It involves armored vehicles guarded by personnel alongside bank staff, which is not only expensive but also subject to risks like theft and loss. As one Cash-in-Transit (CIT) stakeholder highlighted, "Transporting cash requires security vehicles and extensive security in transit and in the back office, which is not only expensive but also poses risks such as theft." These risks introduce additional burdens of insurance and risk management, further driving up costs. Stakeholders emphasize that these security arrangements necessitate significant investments in advanced measures, such as real-time transmission CCTV in Cash-in-Transit vehicles, compounding the overall costs involved in cash operations.

- **Informal Economy Contributions**

**Cash plays a pivotal role in the informal economy, influencing both positive and negative aspects of economic development.** On one hand, cash transactions enable business operations where banking services are limited or absent, providing a lifeline for small traders and those involved in the micro-enterprise sectors. This aspect of cash is particularly crucial in developing economies like Bangladesh, where a significant portion of the population relies on daily cash earnings for survival. Cash is the lifeblood of the informal sector; it enables daily wage earners and small vendors to sustain their livelihoods where financial services are scarce," noted an FGD participant. This sentiment underscores the critical role that cash plays in facilitating economic activities in areas underserved by formal banking services. It is noteworthy that large factories in Bangladesh are switching to MFS and bank accounts to pay salaries; however, they facilitate the deployment of ATMs in their premises for staff to withdraw their funds immediately.

**However, the anonymity and untraceability of cash transactions pose substantial challenges to economic formalisation and governance.** Cash is inherently opaque in nature, making it the preferred medium for illicit activities such as money laundering and tax evasion. As one stakeholder mentioned, "Cash payments, while cost-effective for some, can facilitate illicit activities and tax avoidance, as they are harder to trace." Another stakeholder described it simply, "Nobody pays their tax if they are paid in cash." This opacity significantly hinders the government's ability to monitor and collect taxes, directly impacting GDP transparency. The underreporting of earnings and the accumulation of wealth that goes untaxed due to cash transactions contribute to substantial fiscal losses for the state. These losses affect the government's ability to fund public services and infrastructure, ultimately slowing national economic development.

One stakeholder highlighted an important aspect to this - **formal organisations can informalise their operations using cash.** He said, "The regulator needs to make changes on the merchants side, when

some businesses receive payments in cash, particularly big merchants, they don't always log it - hence avoiding taxes."

The dual role of cash in supporting informal economies while also facilitating tax evasion and other illicit activities presents a complex challenge. While it promotes economic activity in underserved sectors, it also deprives the government of valuable fiscal resources needed for comprehensive economic planning and development.

- **Access to Financial Services**

Cash reliance significantly affects access to financial services, including credit, especially in rural and underserved urban areas. In many such locations, cash remains the primary medium of exchange because access to banking facilities is limited. People often lack the necessary documentation or literacy to engage with formal banking systems, perpetuating a cycle of exclusion from financial services that could otherwise enhance their economic stability and growth. A stakeholder described it as follows "While criminal activities and tax evasion are more difficult to quantify but can be inferred from gaps in tax income or the informal sector, financial exclusion can be indirectly measured by assessing the economic opportunities lost for unbanked persons." This scenario underscores the need for improved financial education and infrastructure development to bridge the gap between traditional cash systems and modern financial services.

- **Opportunity Cost of Time:** Both consumers and businesses invest significant time visiting banks or ATMs to withdraw cash. This time could otherwise be utilised for running their businesses or engaging in other productive activities. For example, during a focus group discussion with micro-merchants, one participant shared, "For my business, I visit the bank three to four times a month, and sometimes even more. On average, I also go to the ATM five to seven times a month for cash withdrawals. Each bank visit takes at least an hour, while each ATM trip takes around half an hour. Additionally, I often spend BDT 50 to 100 per trip if I take a rickshaw." This highlights the tangible and intangible costs associated with accessing cash.

### 9.1.2 Social Impact

- **Security Risks**

**The reliance on cash also carries substantial security risks with broad social implications.** Cash-related crimes such as theft and burglary not only lead to direct financial losses but also pose a significant threat to the safety and well-being of individuals and communities. These crimes instil fear among community members, impacting their sense of security and influencing daily operations. A micro merchant said in a FGD, "There are significant risks associated with cash transactions, and we often encounter such risks. For instance, about five or six months ago, I sent my younger brother to collect a payment of approximately 500,000 BDT from a client. Returning with the money, robbers intercepted him. The robbers were armed with sharp weapons and a gun. They held the gun to his chest and took the entire 500,000 BDT. This resulted in a substantial financial loss for me. However, had the client given me a bank check or transferred the money directly to my bank account, I could have avoided such a financial loss. Hence, I believe cash handling carries many risks." This fear can deter economic activities, particularly in markets or during late hours, further affecting local economies. For example, retailers use the services of CIT firms to store money overnight during peak

seasons, when they are unable to take their turnover to the bank after working hours. Small and large retailers pay MFS agents to deposit their funds into their accounts after working hours.

**Businesses, especially small and medium enterprises, bear the brunt of these risks.** Handling large sums of cash daily exposes them to potential theft, and the costs associated with securing money—such as safes, security personnel, and insurance—can significantly cut into profits. A large retailer shared in a KII "Every day, we face the risk of handling large sums of cash. It's not just about potential theft; it's the cost of securing money through vaults, security personnel, and insurance that eats into our profits." A retailer we engaged mentioned that they maintain at least eleven vaults. These additional security expenses can be prohibitive for small businesses, hindering their ability to invest in growth or development.

Moreover, the psychological impact on individuals who experience or fear cash-related crimes can be profound. In communities where such crimes are frequent, economic activities may be reduced as people choose safety over commerce. The social fabric of these communities can suffer, leading to increased social isolation or a reluctance to engage in community-driven economic endeavors.

Addressing the social impacts of cash reliance requires integrated strategies that not only promote financial literacy and expand access to banking infrastructure but also enhance community policing and security measures. Such initiatives are crucial to mitigate the risks associated with cash handling and to foster a safer, more inclusive economic environment.

### 9.1.3 Environment Impact

- **Resource Usage and Waste**

**The environmental costs of producing and disposing of paper and coin currency are significant,** involving substantial resource depletion and waste management challenges. "The entire lifecycle of paper money, from raw material extraction to production and disposal, demands a substantial amount of paper, other printing materials, water and energy," noted a stakeholder during a KII. These materials must be processed, often involving chemicals that can lead to environmental pollution if not managed correctly.

**Furthermore, the lifespan of physical currency is limited. Paper notes wear out and coins become too damaged for use, necessitating their disposal and replacement.** The disposal process itself poses environmental risks, particularly if incineration is used, as it can emit toxic substances into the atmosphere. "When banknotes and coins reach their end of life, their disposal can introduce heavy metals and other pollutants into landfills and incinerators, impacting air and soil quality," explained a stakeholder involved in cash operations during a KII. Notably, the Bangladesh Bank confirmed that the Ministry of Environment raised concerns about incineration, and they have switched to cash processors to shred the worn-out notes and subsequently dispose of the shredded notes at landfills. However, landfills pose a problem as non-degradable components of cash contribute to solid waste accumulation, potentially leading to soil and water contamination<sup>135</sup>. The cycle of producing, circulating, and disposing of cash thus embodies a continuous environmental cost that is often overlooked in discussions about currency systems.

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<sup>135</sup> Natural Library of Medicine, 2022. Available [here](#)

- **Transport and Distribution**

The transportation and distribution of cash also entail considerable environmental impacts, primarily through the carbon emissions associated with these activities. The need for secure transit typically involves armored vehicles, which are often not fuel-efficient and contribute significantly to carbon emissions. "The secure transportation of cash requires armored or security vehicles that are far from fuel-efficient, contributing to higher CO2 emissions", said a stakeholder. Moreover, the logistical requirements of cash distribution mean that these vehicles are frequently on the road, servicing ATMs and banks across urban and rural areas, further increasing the carbon footprint. A CIT stakeholder said, "Each and every day, we carry 10,000 crore taka of amount from one bank to another or from bank to financial institutions."

In addition to greenhouse gas emissions, the physical infrastructure needed to support the vast networks of cash distribution—such as bank branches and ATM networks—requires energy for construction and operation. **As of October 2024, there are 11,301 bank branches and 13,021 ATMs in Bangladesh.**<sup>136</sup> These structures often consume large amounts of electricity, much of which is sourced from non-renewable energy sources, contributing to overall environmental degradation.<sup>137</sup>

**Given these factors, the environmental impact of cash extends far beyond the direct effects of production and disposal, encompassing a wide range of activities that contribute to ecological strain.** To mitigate these impacts, the Bangladesh Bank and the Ministry of Environment, and financial institutions, may need to consider more sustainable practices in currency production, explore advancements in more eco-friendly transport technologies, and encourage the shift towards digital transactions which inherently possess a lower environmental footprint.

## 10.2 Digital Transactions

### 10.2.1 Economic Impact

- **Operational Efficiency:** The shift toward digital transactions significantly enhances operational efficiency across the financial landscape. This efficiency is primarily evidenced by the reduced need for physical infrastructure such as branches and ATMs, which traditionally incur high fixed costs in terms of real estate, maintenance, and staffing. "Our cash supply chain is very costly. We have to manage a daily operation for our distribution points including - ATMs, sub-branches, agents, branches etc " The adoption of digital platforms allows banks to operate with fewer physical outlets in areas that have adequate digital infrastructure, lowering the overhead costs associated with branch management. Furthermore, digital transactions streamline operations by automating processes that were previously manual and time-consuming, reducing the likelihood of human error and increasing the speed of service delivery.

This enhanced efficiency also extends to customer experience. Digital transactions provide convenience and immediacy that cash transactions cannot match, enabling users to complete payments, transfers, and other financial operations instantly through their mobile devices or computers. According to a stakeholder during a KII, "Users have learnt that it is risky for them to use cash. People get robbed, so they want to transition to MFS as it would be safer. They know that a

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<sup>136</sup> Bangladesh Bank. Available [here](#)

<sup>137</sup> International Energy Agency, 2022. Available [here](#)

digital transition would be safer for all." A Facebook commerce stakeholder said, "digital is easier to operate for both the buyer and the seller" highlighting the enhanced customer experience for digital transactions over cash. Another micro-merchant FGD participant said, "digital payment is the best option; however, the additional charge we must bear to convert digital payments into cash should ideally be borne by the customer—this would make it the best system. Regardless, cash transactions come with significant risks, such as theft, robbery, counterfeit notes and worn-out bills. For large sums, counting money when receiving or handing it to suppliers is a hassle."

- **Market Expansion:** Digital transactions have also catalysed significant market expansion, particularly in the realm of e-commerce. By facilitating easy, secure, and immediate online payments, digital platforms have become the backbone of the burgeoning e-commerce sector locally and cross-border. Digital payment solutions have opened up new markets for businesses, allowing them to reach a global customer base beyond geographical constraints. This expansion is not limited to large corporations but includes small and medium enterprises (SMEs) that can now access international markets without the substantial upfront investment traditionally associated with global expansion.
- **Access to Credit:** Digital transactions significantly impact merchants' access to credit by providing financial institutions with data-rich profiles of their economic activities. Through digital payment platforms, every transaction a merchant makes is recorded, creating a comprehensive financial history that banks and financial institutions can analyse. This "thick file" of transaction data allows lenders to assess creditworthiness more accurately and efficiently than traditional methods, which often rely on limited or outdated information.

In a KII, a fintech executive highlighted the transformative impact of digital transactions on lending: "Digital transaction records provide us with real-time insights into a merchant's cash flow and business stability, enabling us to offer more tailored and responsive credit solutions." This statement underscores how digital payments facilitate a deeper understanding of a merchant's financial health, allowing for more nuanced risk assessment.

The economic impacts of digital transactions thus encompass both enhanced operational efficiency and extensive market expansion. These benefits collectively contribute to a more dynamic and inclusive economic environment, where businesses can operate more efficiently and tap into new opportunities that were previously inaccessible.

### 10.2.2 Social Impact

- **Financial Inclusion:** Digital transactions play a pivotal role in promoting financial inclusion, especially through mobile banking and internet-based services. These platforms have been instrumental in bringing financial services to underserved populations, including rural areas and low-income groups. A representative from a mobile financial service provider noted during a KII, "Mobile banking has drastically reduced the barriers to banking services, enabling users in remote areas to conduct transactions that were previously impossible due to the lack of physical bank branches."

FGD with consumers reflect this sentiment. One participant shared, "Before mobile financial services, we had no way to save money securely. Now, I can manage my finances from my phone, pay bills, and even receive remittances from family in the city." This illustrates how digital platforms provide essential financial tools to those who were traditionally excluded from the banking system.

- **Consumer Behaviour and Trust:** The adoption of digital payment technologies has significantly influenced consumer behaviour. The convenience and efficiency of digital payments have encouraged a shift away from cash, particularly among younger, tech-savvy populations. In an FGD, a consumer stated, "I prefer digital payments because they are quick, and I don't have to carry cash around, which feels safer and more convenient."

However, the transition to digital payments is not without its challenges. Trust issues around privacy and data security are significant barriers. As one bank official mentioned in a KII, "While digital payments offer convenience, they also raise concerns about data privacy. We need to ensure robust security measures to protect consumer information." This concern is echoed in consumer feedback, where incidents of fraud and data breaches have made potential users wary of fully embracing digital technologies.

In a discussion with wholesalers, a participant highlighted, "I want to use digital payments for all transactions, but I hear about fraud cases which makes me nervous. I need assurance that my money and personal data are safe." This statement reflects a broader hesitation among consumers, indicating the need for improved security protocols and consumer education to build trust in digital payment systems.

Overall, the social impact of digital transactions is profound, facilitating greater financial inclusion and altering consumer behaviours. However, the growth of digital payment systems must be accompanied by enhanced security measures and effective consumer education campaigns to address privacy concerns and build lasting trust in these platforms.

- **Empowerment through Financial Literacy :** The introduction and adoption of digital financial services have led to increased initiatives in financial education and literacy. Participants in FGDs have expressed that the knowledge gained from using digital platforms has empowered them to make better financial decisions, leading to improved personal financial management and awareness of financial products.
- **Social Inclusion:** Digital payments facilitate greater social inclusion, especially for vulnerable groups such as women and the elderly, by providing them with secure and private ways to manage their finances. This was echoed in KIIs, where the empowerment of traditionally marginalised groups through mobile financial services or even farmer accounts was highlighted as a significant social benefit, enabling them to participate more fully in economic activities without the physical barriers associated with traditional banking.
- **Dependency and Exclusion:** While digital transactions promote inclusivity, they also risk creating a new form of dependency on technology, which can lead to exclusion if not managed carefully. Participants in some FGDs pointed out that not everyone has access to reliable internet or the necessary technology, which could exclude them from the digital economy. Additionally, FGD merchant participants emphasised that going completely digital may exclude certain consumers from their stores. This digital divide must be addressed to avoid creating disparities in access to financial services.



### 9.2.3 Environment Impact

- **Energy Consumption:** Digital transactions utilize existing digital infrastructure including data centers, network systems, and servers that consume energy. The Bangladesh Bank and commercial banks maintain multiple data centers, near data centers, and disaster recovery sites across the country.<sup>138</sup><sup>139</sup> While payment processing represents only a fraction of the total computational load on these systems, the growth of digital transactions contributes incrementally to overall energy demands.

The energy consumption directly attributable to payment processing is relatively modest compared to other digital activities. Payment transactions typically require minimal computational resources and energy when compared to data-intensive activities like video streaming, social media usage, or general smartphone operation. Most of the energy footprint from digital payments comes from maintaining the always-on infrastructure that supports various financial services, with payment processing representing just one of many functions.

Innovations such as energy-efficient server architectures and cooling methods that reduce electricity consumption are beginning to be implemented in Bangladesh, reflecting a growing awareness of the need to make digital financial services more sustainable.<sup>140</sup>

- **E-Waste Management:** The environmental impact of digital transactions on e-waste is primarily limited to specialized payment hardware such as POS devices and payment cards. Bangladesh disposes of approximately 30 million mobile phones as e-waste every year, but these devices would be purchased, used, and eventually discarded regardless of whether they're used for payments. Only 3% of e-waste goes to the recycling market while the rest is mixed with solid waste and sent to landfills.<sup>141</sup>

Solutions to these challenges include energy-efficient payment processing systems and recycling programs specifically targeting payment hardware.<sup>142</sup> As Bangladesh continues its digital transformation, incorporating environmental considerations into the design and implementation of payment systems—while acknowledging their relatively modest environmental footprint compared to broader digital ecosystems—will help ensure that digital financial services contribute to sustainable development goals.

The incremental environmental impacts of digital transactions—both in terms of energy consumption and e-waste generation—require consideration and proactive management to ensure that the shift towards digital financial systems contributes positively to sustainability goals.

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<sup>138</sup> Dutch Bangla Bank. Available [here](#)

<sup>139</sup> Bangladesh Bank. Available [here](#)

<sup>140</sup> Data Centre Magazine, 2024. Available [here](#)

<sup>141</sup> National Centre for Biotechnology Information, 2022. Available [here](#)

<sup>142</sup> OECD. Available [here](#)

## 10 | Price and Non-Price Incentives Influencing Payment Preferences

### 10.1 Digital Payments

The adoption of digital payment methods presents a range of price and non-price incentives that can deliver significant benefits across various sectors. These incentives not only help in cutting costs but also in boosting revenue streams and improving operational efficiencies. Below, we provide a summarized review of these incentives, drawing on insights from Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). A detailed analysis of the incentives is included in the appendix. The extent to which Bangladesh is capitalizing on the price and non-price incentives of digital payments has been assessed and ranked as follows:

**Green:** Primary data (KII and FGD) combined with desktop research indicate that Bangladesh is fully leveraging this incentive

**Yellow:** Primary data and desktop research show that Bangladesh is partially leveraging this incentive.

**Red:** Primary data and desktop research reveal that Bangladesh is not leveraging this incentive.

Table 25: **Price and Non-Price Incentives for Digital Payment Adoption**

| Price Incentives for Digital Payment Adoption |                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Industry Level                                |                                                                                                                                                                                                                                                                                       | Ranking Rationale and Notes                                                                                                                                                                                                                                                                                                                                                              |
| Revenue Generation                            | Digital transactions create new revenue streams through fees like MDR and interest on credit cards.                                                                                                                                                                                   | By integrating digital services and payments into the daily activities of end-users, Financial Service Providers (FSPs) and the government can significantly increase their revenue streams. Kenya earns USD 6 million from its eCitizen platform daily. This integration enables them to lower costs and capitalize on increased transaction volumes, leading to greater profitability. |
| Reduced Operational Costs                     | Transitioning from cash to digital significantly reduces costs associated with cash management and security.                                                                                                                                                                          | Urban branches comprise 54% of all bank locations. Despite the growing adoption of digital banking, banks continue to expand their physical presence with more branches, sub-branches, and ATM locations in urban areas, where the need for such facilities is decreasing.                                                                                                               |
| Pricing cash printing and distribution        | Central bank removing subsidy of cash printing and initial distribution would incentivize banks, and downstream parties to whom banks shifted those costs, to adopt digital payments                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                          |
| Micro Level                                   |                                                                                                                                                                                                                                                                                       | Ranking Rationale and Notes                                                                                                                                                                                                                                                                                                                                                              |
| Cost Savings                                  | <p>Reduction in costs related to physical cash transport, handling, and risk.</p> <p>Manufacturers and wholesalers, who clearly recognize significant costs of cash handling, counting, storage, and security, could incorporate these costs into wholesale prices, incentivizing</p> | <p>Due to the developing payment ecosystem in Bangladesh, citizens are still required to carry cash for purchases and to access government services, including the metro</p> <p>Merchants respond to wholesale incentive structures. Merchants themselves, particularly family businesses where cash handling is 'all in the family'</p>                                                 |

|                                                          |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                          | downstream customers to pay digitally to reduce these costs                                                              | may not crystallize significant costs but wholesalers do.<br><br>Formal/large scale merchants might also price differentially for cash if there is a significant cost relative to digital                                                                                                                                                                                                                                                |
| Discounts or Cashback Offers                             | Incentives like discounts and cashback make digital payments more attractive than using cash.                            | Digital platforms like Food Panda and banks such as City Bank incentivize the use of digital payments by offering numerous discounts and cashback options. However, there is potential for adopting formalized loyalty programs, similar to those that have seen great success in South Africa. Notable examples include Discovery Vitality, FNB eBucks, and Capitec Live Better.                                                        |
| Potential for Higher Sales                               | Digital payment options can broaden customer base and increase sales through convenience.                                | Merchants reported that they need to pay suppliers in cash, and customers also noted that merchants prefer cash transactions. Consequently, merchants are not fully leveraging the potential for increased sales that could come from embracing digital payment methods                                                                                                                                                                  |
| Tax Benefits and Financial Transparency                  | Digital transactions improve financial record-keeping and compliance, enhancing relationships with authorities.          | The government has not yet effectively showcased the tax advantages that come with compliance, such as tax rebates and government programs tied to the tax system. Consequently, merchants currently see more value in tax avoidance than in compliance. Additionally, most micro merchants, who obtain credit from Microfinance Institutions (MFIs) as individuals, are not required to demonstrate tax compliance to secure such loans |
| Cost Savings from Avoiding Cash Withdrawal Fees          | Avoids fees associated with cash withdrawals at ATMs or banks or agents, directly benefiting users.                      | ATM transactions in Bangladesh have continued to grow year-over-year by 11% from 2022 to 2023, indicating that end-users are not deterred by withdrawal fees.                                                                                                                                                                                                                                                                            |
| Change Shortage Management                               | Digital payments prevent the issue of change shortages, ensuring exact transaction amounts.                              | End-users adopt digital payments to circumvent issues with receiving exact change. Even when transactions are initiated with cash, any discrepancies in change can be resolved digitally if the merchant does not have the correct amount.                                                                                                                                                                                               |
| <b>Non-Price Incentives for Digital Payment Adoption</b> |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Industry Level</b>                                    |                                                                                                                          | <b>Ranking Rationale and Notes</b>                                                                                                                                                                                                                                                                                                                                                                                                       |
| Government or Regulatory Support                         | The Bangladesh Government encourages financial institutions to promote digital payments for broader financial inclusion. | Bangladesh is currently adopting a precautionary approach to Mobile Financial Services (MFS). Given its status as an emerging segment in digital financial services, a 'test and learn' approach, as was the case in Kenya, should be prioritized to foster innovation                                                                                                                                                                   |
| Customer Engagement                                      | Digital financial services offer value-added services such as budgeting that enhance customer retention and engagement.  | NPSB and Financial Service Providers (FSPs) should adopt an open architecture approach, allowing developers to seamlessly integrate payment solutions into other solutions that encompass the daily activities of end-users. This strategy would                                                                                                                                                                                         |

|                         |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                                                             | facilitate the creation of value-added services, mirroring the successful super app models seen in Kenya and China                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Micro Level</b>      |                                                                                             | <b>Ranking Rationale and Notes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Operational Simplicity  | Digital payment simplifies transaction processes, reducing errors and operational time.     | While payments provide operational simplicity, there is considerable scope for further development in this area. QR payments aimed at micro merchants are not yet fully standardized across all FSPs (proprietary QR still exist), and despite guidelines allowing for both fixed and dynamic QR codes, the latter are not widely implemented, leaving room for errors                                                                                                                                                                                                                                                                   |
| Safety                  | Digital transactions reduce the need for physical cash, decreasing security risks.          | Focus group discussions indicate that while end-users and merchants recognize the safety benefits of digital payments, they are unable to fully utilize these advantages due to a predominantly cash-dependent payment ecosystem. Additionally, some participants have noted that banking hours do not align well with their business operations, making agents a necessary but costly alternative. This not only shifts the risk to a third party but also involves agents who lack formal mechanisms to protect cash from theft.                                                                                                       |
| Simplified Accounting   | Integrates with accounting software for easier management and reconciliation.               | Merchants dedicate several hours daily to reconciling their books with cash-at-hand. Fintechs like TallyKhata have introduced innovative bookkeeping solutions that integrate Bangla QR, yet adoption rates remain low. A significant barrier continues to be digital literacy. In contrast, Kenya has successfully addressed similar challenges through community-level interventions involving savings groups, SACCOs, and cooperatives. Notably, some of these cooperatives, such as the Co-operative Bank of Kenya (Co-op Bank), have evolved into commercial banks, demonstrating the effectiveness of these grassroots strategies. |
| Bulk Payment Efficiency | EFT and RTGS improve the speed and reliability of bulk payment processes.                   | Large merchants, businesses, and the government capitalize on the efficiencies of EFT and RTGS for disbursing salaries, to pay vendors and social cash transfers. Interestingly, despite the adoption of these digital payment methods, large business (mainly manufacturers) also facilitate the immediate availability of cash by installing ATMs on their premises, thereby perpetuating the dominance of cash in the economy.                                                                                                                                                                                                        |
| Enhanced Trust          | Modern payment options boost consumer confidence and trust in transactions with businesses. | Considering the current state of the payment ecosystem as previously described, merchants are not fully embracing the potential for enhanced trust that comes with digital payment adoption                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Supply Chain Efficiency | Digital payments enhance the traceability and speed of transactions within supply chains.   | Primarily, it is wholesalers and large businesses that fully capitalize on this incentive.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

|             |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reputation  | Adopting digital payment solutions boosts a business's reputation for innovation and reliability. | Merchants are not leveraging this incentive to the extent seen in other markets, where many have adopted cashless operations for both operational efficiency and enhanced reputation. However, entities like Dhaka Power Distribution Company Limited (DPDC) have successfully transitioned to fully cashless operations, demonstrating that this shift is achievable for other organizations as well.                                               |
| Convenience | Digital payments allow for transactions anytime and anywhere, enhancing user convenience.         | End-users and industry stakeholders have identified challenges with the reliability of digital payments, citing issues such as interoperability and the diversity of payment tools like QR codes. Additionally, certain payment technologies such as NFC payments, such as Google Pay, Samsung Pay, are not yet available in Bangladesh. In India, Google Pay holds a 37% market share of UPI payments, making it a highly preferred payment method. |

## 10.2 Cash

Despite the increasing adoption of digital payment solutions, cash continues to be a prevalent method of transaction, buoyed by various price and non-price incentives that resonate with different stakeholders. This section provides a summary of these incentives for continuing to use cash, incorporating insights from Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) to explore how these incentives shape stakeholders' preference for cash.

A detailed analysis of these incentives is included in the appendix. We have evaluated and categorized the extent to which Bangladesh is reducing the reliance on these cash incentives or aligning digital payments to offer comparable benefits as follows:

**Green:** Primary data (KII and FGD) and desktop research suggest that Bangladesh is effectively reducing these incentives or aligning digital payments.

**Yellow:** Primary data and desktop research indicate that Bangladesh is partially reducing these incentives or aligning digital payments.

**Red:** Primary data and desktop research show that Bangladesh is not reducing these incentives or effectively aligning digital payments.

Table 26: **Price and Non-Price Incentives for Continued Use of Cash**

| Price Incentives for Continued Use of Cash |                                                                             |                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Industry Level                             |                                                                             | Ranking Rationale and Notes                                                                                                                                                                                                                                                                                 |
| Minimal Fees for Cash                      | Cash transactions often have lower or no fees compared to digital payments. | In Bangladesh, P2P and P2B cash transactions, using cash incurs no immediate fees. However, there are direct and indirect costs related to accessing and managing cash that end-users often overlook. It is essential to highlight these hidden costs more clearly to end-users through awareness programs. |
| BB pricing for cash                        | Printing and distribution costs                                             | The Bangladesh Bank is absorbing the full cost of printing                                                                                                                                                                                                                                                  |

|                                 |                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 | absorbed by central bank subsidizes use of cash across the system. In other markets, like South Africa, the central banks pass this cost to commercial banks. | and distribution to collection points.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Cash-Out Cost Considerations    | Merchants and wholesalers view cash as advantageous due to the absence of extra charges associated with cashing out digital transactions.                     | <p><b>Merchants repeatedly flagged two distinct cost pain-points:</b></p> <p><b>(a) Cash-out to physical notes (CICO):</b> paying the 1–2 % agent/ATM fee to turn digital balances into cash. This charge is typically passed on to shoppers or absorbed in margins, nudging everyone back toward cash.</p> <p><b>(b) Wallet-to-account transfers:</b> moving day-end takings from an MFS wallet into a bank account. Although still digital, the fee structure often mirrors cash-out pricing.</p> <p>Therefore, reducing cash-out costs is crucial to prevent this forced preference for cash.</p> |
| Cost-Free Setup                 | Cash does not involve initial setup costs, unlike digital payment systems.                                                                                    | Bangladesh has made significant strides in introducing QR payment technology, which offers the advantage of having little to no setup costs, making it comparable to cash in terms of affordability for merchants.                                                                                                                                                                                                                                                                                                                                                                                   |
| High Merchant Acquisition Costs | High costs are involved in acquiring merchants for digital payment systems due to complex onboarding processes.                                               | The cost of acquiring merchants is increased by the risk-averse nature of banks, which mandate physical onboarding and verification of merchants' addresses and businesses. This requirement tends to concentrate their efforts in urban areas. Mobile Financial Services (MFS) providers like bKash are addressing this issue by offering fully digital onboarding and verification processes. However, this approach increases their exposure to fraudulent merchants                                                                                                                              |
| <b>Micro Level</b>              |                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Cost Avoidance                  | High initial costs and maintenance for digital systems deter banks from digital payment system adoption.                                                      | To date, not all banks have joined the NPSB or IDTP. Digital transformation is a costly endeavor that often requires external funding. While many banks have begun this journey, others have yet to embark on it. This ultimately in part inhibits them from participating in emerging payment systems. The Bangladesh Bank should actively encourage and promote digital transformation within the banking sector by highlighting the benefits and impacts of such initiatives.                                                                                                                     |
| Revenue Opportunity             | Cash transactions create a revenue opportunity for agents due to lucrative commissions                                                                        | There are over 1.8 million MFS agents in Bangladesh as of Q3 2024, a 76% increase from the same time in 2019. This agent business is growing as evidenced by the sustained increase in the number of MFS agents across the country. What we are not seeing is an increase in the services that these agents can provide beyond cash-in/cash out and bill payment. In other markets like Nigeria, agents are able to open accounts, create and issue debit cards etc.                                                                                                                                 |

|                                                       |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Avoidance of Merchant Discount Rate (MDR)             | Merchants avoid digital payments to escape transaction fees that reduce profit margins.                      | Merchants have frequently expressed concerns about Merchant Discount Rate (MDR). However, keeping service charges free for transactions under USD 24 has helped encourage digital payment adoption in India enabling even small merchants to embrace digital payments. In Kenya, merchants have the flexibility to select tariffs based on their business strategies, enabling a formalized cost-sharing mechanism between merchants and consumers. |
| Immediate Liquidity                                   | Cash transactions allow immediate access to funds, unlike delayed processing in digital transactions.        | The T+1 settlement timeline, where transactions are settled one day after they are made, discourages some merchants from adopting digital payments, citing the need for immediate liquidity as a primary reason for preferring cash. While some fintechs have introduced solutions aimed at addressing this need for a fee, adoption rates remain low.                                                                                              |
| Informal Practices                                    | Businesses prefer cash to avoid tax liabilities                                                              | In Kenya, revenue authorities spend days conducting random checks at merchant locations to verify the accuracy of their tax returns. The unpredictability of these audits encourages merchants to adhere to transparent business practices. However, there is no evidence that the revenue authority in Bangladesh is implementing similar measures to combat tax avoidance.                                                                        |
| <b>Non-Price Incentives for Continued Use of Cash</b> |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Industry Level</b>                                 |                                                                                                              | <b>Ranking Rationale and Notes</b>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Legacy Systems                                        | Banks' established cash transaction infrastructures are deeply ingrained and costly to overhaul for digital. | Banks have established physical cash hubs or feeder branches across the country specifically designed to handle cash operations. Additionally, Microfinance Institutions (MFIs) employ thousands of roving staff members who not only support cash transactions but also facilitate various other programs of the institutions.                                                                                                                     |
| Resistance from Cash Operations Staff                 | Employees fear job loss and disruption, leading to resistance against digital payment adoption.              | "Some bank stakeholders have acknowledged that bank employees often resist digital transformation due to fears of job loss. However, this resistance is not insurmountable, as staff can be retrained to remain relevant and effective in an increasingly digital banking environment. Some banks such as City Bank have successfully managed digital transformation programs regardless of this resistance.                                        |
| Delayed Transactions                                  | Some FSPs intentionally create frictions in digital transitions to protect their cash-based ecosystem.       | This issue, cited by both Payment Service Providers (PSPs) and end-users, is deeply entrenched. The underlying motive is to prevent users from making payments at a Bangla QR of a different acquirer, which often leads end-users to mistakenly believe that the platforms are not functioning properly. More effort is required to stop such unfair practices.                                                                                    |
| Interoperability Challenges                           | Poor participation and proprietary systems hinder the effectiveness of platforms like Binimoy.               | Some banks and Mobile Financial Services (MFS) providers have yet to join the IDTP (Binimoy) systems, partly due to the absence of a compelling business case. Additionally, some institutions continue to use their proprietary QR solutions. In countries like India and                                                                                                                                                                          |



|                               |                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               |                                                                                                                                                                                      | Kenya, reliance on proprietary solutions persisted for many years until regulators intervened decisively to promote interoperability and, crucially, ensure fair competition                                                                                                                                                                                                                                                                                               |
| Transaction Limit Constraints | There is a transaction limit set for digital transfers via MFS. Users particularly wholesalers, highlighted the need for higher transaction limits on MFS.                           | The daily transaction limit for Mobile Financial Services (MFS) in Bangladesh is BDT 50,000 (approximately USD 406), which may suffice for most individual users. However, merchants have expressed concerns that this limit does not meet their daily business needs                                                                                                                                                                                                      |
| User Experience Issues        | Digital payments are seen as inconvenient compared to the simplicity of cash transactions due to the number of steps required to complete a transaction.                             | End-users and industry stakeholders have pointed out difficulties with the complexity of transaction processes, specifically criticizing the static nature of QR codes and the lack of contactless payment options like NFC, which have proven successful in countries like China.                                                                                                                                                                                         |
| <b>Micro Level</b>            |                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Consumer Trust                | Rural consumers often rely on agents for cash transactions due to trust and accessibility. In many rural communities, agents handling cash transactions are seen as trusted figures. | Our engagements indicate that consumers trust digital payments less than traditional methods, primarily due to concerns about fraud, cyber theft, and digital identity leaks. This distrust is compounded by the lack of regulations requiring Financial Service Providers (FSPs) to absorb losses from such incidents, unlike in the United Kingdom. In the UK, banks and payment providers must reimburse victims of Authorized Push Payment (APP) fraud. <sup>143</sup> |
| Familiarity with Cash         | Cash transactions are straightforward and reliable, offering a sense of control that digital lacks.                                                                                  | Consumers and businesses are well-acquainted with cash, and the availability of various denominations in notes and coins adds to its convenience. The withdrawal of 500 and 1000 rupee notes from the Indian economy made carrying large amounts of cash inconvenient, which subsequently led to a noticeable increase in digital payments.                                                                                                                                |
| Customer Preference           | Cash remains preferred for small and informal transactions, valued for its quick and effective exchange.                                                                             | India has tackled the preference for small transactions by eliminating fees for consumers on transactions, while only applying fees to merchants for transactions over USD 24. In contrast, in Bangladesh, merchants are required to pay a fee on all transactions, irrespective of the amount.                                                                                                                                                                            |
| Simplicity of Cash            | For micro merchants, cash sidesteps technical issues, requiring no infrastructure or complex interfaces.                                                                             | Digital payments in Bangladesh should strive to match the simplicity of cash, ensuring they are free from interoperability and functionality issues. However, as previously discussed, this ideal is not currently being met in Bangladesh.                                                                                                                                                                                                                                |
| Security Concerns             | Cash is perceived as safer against cyber threats compared to digital payments.                                                                                                       | Fraud and cyber theft continue to be significant concerns in Bangladesh. Participants in focus group discussions have reported losses due to fraud and cyber theft, while other stakeholders have pointed out incidents of digital identity data breaches, further impacting public trust in the security of digital platforms.                                                                                                                                            |

<sup>143</sup> UK Government. New failure to prevent fraud guidance published. Available [here](#)



|                      |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Digital Divide       | Inconsistent access to necessary digital tools and infrastructure reinforces reliance on cash.      | Phone ownership in Bangladesh is currently at 79%, which is lower compared to India at 95% and Kenya at 118%. This suggests significant potential for growth in Bangladesh.                                                                                                                                                                                                               |
| Low Digital Literacy | A significant portion of the population lacks the skills to navigate digital platforms effectively. | Digital financial literacy in Bangladesh remains relatively low, as nearly half of mobile money users are unable to independently manage their accounts. This compares unfavorably with Kenya, where 83% can operate independently. <sup>144</sup> Stakeholders have highlighted digital literacy as a crucial area for improvement to enhance the adoption of digital payment solutions. |

<sup>144</sup> A2i (2019). Upscaling Financial Inclusion Through Financial Education. Available [here](#).

## Appendix

### Price and Non-Price Incentives Influencing Payment Preferences

#### Price Incentives for Digital Payment Adoption

**The adoption of digital payment methods offers various price incentives that can benefit stakeholders across different sectors.** These incentives not only help reduce costs but also enhance revenue streams and operational efficiencies. Below is a detailed review of these incentives based on insights gathered from Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) for each stakeholder.

##### Industry Level

- **Revenue Generation:** Digital transactions open up new avenues for revenue through fees such as Merchant Discount Rate (MDR), charges and interest earning on credit cards. These fees, while facilitating the provision of enhanced digital services, also contribute to the banks' profitability. "We see a steady revenue stream from transaction fees and the growing subscription to our digital products," noted a bank executive in a KII. Similarly, another stakeholder said, "Digital payments have opened up new ways for us to enhance our service offerings." Agents also earn commissions from facilitating digital transactions. This incentivises agents to promote and support the adoption of digital payments among their customers.
- **Reduced Operational Costs:** Banks experience significant cost reductions when they transition from cash to digital. Costs associated with cash handling, transportation, and security are markedly decreased. This shift allows banks to reallocate resources towards enhancing digital infrastructure and customer service. "Switching to digital has significantly lowered our costs related to cash handling and transportation," a bank executive explained during a KII.

##### Micro Level

- **Cost Savings:** The shift to digital payments significantly reduces the need for physical cash transport, cutting down on the costs and risks associated with cash-in-transit. This reduction in logistical needs not only lowers costs but also simplifies the operational model for agents. An agent said in an FGD "Reducing cash handling means less worry about transport and security."
- **Discounts or Cashback Offers:** Digital payment platforms incentivise users through discounts or cashback offers on transactions. These incentives make digital payments more attractive compared to using cash. "I often choose digital payments to take advantage of discounts and cashback offers. These add up to significant savings," a consumer expressed in an FGD.
- **Potential for Higher Sales:** Digital payment options provide convenience to customers, potentially increasing sales. Merchants can capture a broader customer base, including those who prefer non-cash payment methods for reasons of security or convenience. "Offering digital payment methods has definitely attracted more customers. People appreciate the convenience," a retailer mentioned, highlighting the impact of digital payments on customer footfall and sales.
- **Tax Benefits and Financial Transparency:** Digital transactions facilitate greater financial transparency, which can lead to tax benefits and improved compliance with financial regulations. This transparency also enhances the credibility of businesses with financial institutions and tax authorities. "Digital payments have improved our record-keeping and made our transactions more transparent. This transparency is good for our relationship with tax authorities and banks," a business owner reflected.
- **Cost Savings from Avoiding Cash Withdrawal Fees:** Individuals save on fees associated with cash withdrawals at ATMs or bank branches. Digital transactions typically do not incur these fees, providing

a direct financial benefit to users. "Avoiding ATM fees by using digital payments means I can use that money elsewhere," explained an individual during a discussion about the personal financial benefits of digital transactions.

- **Change shortage:** Change-related losses during small cash transactions can significantly accumulate over time. A merchant described a typical scenario " When making a purchase worth 68 BDT with a 70 BDT note, shopkeepers often do not return the small remaining balance of 2 BDT. Instead, they might compensate with an item like a 1 BDT candy, or provide no compensation at all. This seemingly minor discrepancy can result in a notable financial loss when repeated multiple times daily could cost me BDT 100 -200 per month." Cashless payments addresses this issue effectively, as it ensures that customers are charged exactly for their purchase amount, eliminating any excess cost due to unreturned change. This would provide greater transactional accuracy and enhance consumer satisfaction by ensuring fair financial practices.

### Non-Price Incentives for Digital Payment Adoption

The shift towards digital payment systems extends beyond financial benefits, encompassing a range of non-price incentives that enhance user experience, increase user engagement and enhance operational capabilities across various sectors. The following is a detailed exploration of these non-price incentives, with insights drawn from KIIs and FGDs that highlight the impact on different stakeholders.

#### Industry Level:

- **Government or Regulatory Support:** Many governments, including that of Bangladesh, encourage financial institutions to promote digital payments as a part of broader financial inclusion goals. For instance, the Personal Retail Accounts (PRA) enabled banks and other FSPs to serve micro merchants without a business registration. "The regulatory support provided by the government for promoting digital payment has been a game changer," mentioned a senior banking official. These advances make investments in digital technologies more feasible and attractive.
- **Customer Engagement:** Value-added services like mobile apps and financial tools enhance customer retention. For banks, digital payment platforms like mobile apps and online banking services significantly boost customer engagement. These platforms offer features such as real-time transaction tracking, automated bill payments, and personalised financial insights, which empower customers by providing them with more control over their finances. The availability of these value-added services not only helps in retaining customers but also attracts a younger, more tech-oriented demographic that prioritises ease and efficiency in their banking interactions. A bank stakeholder mentioned during a KII, "Our mobile app has not just retained customers but attracted a tech-savvy demographic eager for financial control at their fingertips."

#### Micro Level:

- **Operational Simplicity:** Digital tools simplify transaction processes and reduce errors. Digital tools also drastically simplify the transaction process for agents. By integrating digital transactions, agents can manage larger volumes of transactions with greater accuracy and less physical paperwork "Digital transactions have drastically cut down the time and complexity of our daily operations," an agent revealed in an FGD. This shift not only reduces the likelihood of human error but also streamlines the entire process, from payment collection to settlement, thereby improving overall operational efficiency.
- **Safety:** Digital transactions mitigate risks associated with carrying large amounts of cash. The shift to digital transactions means a significant decrease in the security risks associated with managing large

amounts of cash. Digital payments eliminate the need for physical transportation of money, which is often vulnerable to theft. A Facebook commerce stakeholder explained during a KII, "The largest cost of cash stems from theft. For instance, there have been cases where the delivery person ran off with all the cash." An agent expressed during an FGD, "It is safer to manage transactions on a device than to carry cash that could be easily stolen" highlighting that digital transactions eliminate the need for costly security measures typically required to safeguard cash transactions.

- **Simplified Accounting:** Digital payments facilitate automated record-keeping and reconciliation which transforms the way merchants manage their finances. "Digital payments directly integrate with our accounting software, making end-of-day closures much smoother," a merchant shared. Transactions made digitally can be automatically logged and integrated into accounting systems, facilitating easier and more accurate financial management. This automated record-keeping is particularly beneficial during tax season and when reconciling sales, reducing the administrative burden associated with cash handling.
- **Bulk Payment Efficiency:** Electronic Fund Transfers (EFT) and Real-Time Gross Settlement (RTGS) systems improve the efficiency of bulk payments. These systems enable faster transaction times and reduced handling errors, which are crucial for managing large-volume transactions in the wholesale sector. "The use of EFT and RTGS has streamlined our bulk payment processes, making them faster and more reliable," stated a wholesaler during a KII. "This efficiency is critical for our operation scale."
- **Enhanced Trust:** Modern payment options increase customer confidence. Merchants who adopt digital payment methods often see an increase in customer trust. Digital platforms typically come with enhanced security features that protect against fraud, giving customers peace of mind when transacting. A merchant during a FGD said, "Some Customers see us as more legitimate and secure when we offer digital payment options". Moreover, the ability to offer digital receipts and instant payment confirmations adds a layer of transparency and professionalism to the transaction process, appealing to a broader customer base.
- **Supply Chain Efficiency:** Digital payments improve traceability and timeliness of transactions. For wholesalers and businesses involved in larger and more complex transaction networks, digital payments offer enhanced efficiency. The immediacy and traceability of digital transactions ensure that payments along the supply chain are made promptly and recorded accurately, which is crucial for maintaining operational flow and meeting contractual obligations. Digital payments have made our supply chain operations more efficient and transparent," a business owner noted, highlighting the improved oversight and speed of payments.
- **Reputation:** Businesses adopting digital methods are viewed as innovative and efficient. Embracing digital payment technologies can significantly enhance a business's reputation. Companies known for leveraging modern technologies are often viewed as more competent and reliable, which can be a decisive factor in B2B (business-to-business) environments. This reputation for innovation can attract new business opportunities, partnerships, and even investments. "Being digital-first has not only improved our operations but has also boosted our market reputation as a forward-thinking company,"
- **Convenience:** Digital payments save time by eliminating the need for physical cash handling. One of the most significant advantages of digital payments for individuals is the sheer convenience they offer. Digital platforms allow users to make payments anytime and anywhere, eliminating the need to physically visit banks or stores. "Paying digitally means I can handle all my transactions from home, saving me time and hassle," an individual explained during an FGD.

## Price Incentives for Continued Use of Cash

Despite the growing prominence of digital payment solutions, cash remains a dominant transaction method, supported by various price incentives that appeal to different stakeholders. These incentives often revolve around the avoidance of transaction fees, the simplicity of cash transactions, and lower operational costs associated with digital transition barriers. This section reviews the price incentives for continued use of cash, integrating perspectives from KIIs and FGDs to illustrate how these factors influence the preference for cash among stakeholders.

### Industry Level

- **Minimal Fees:** Stakeholders highlight that cash transactions generally incur lower or no fees compared to digital payments, which can often include various processing fees. This makes cash more attractive to consumers who wish to avoid extra costs. One bank executive mentioned, 'Our customers lean heavily towards cash because it doesn't carry the same fees as digital transactions, making it more desirable for everyday use.'" Regardless, customers perceive cash as cheaper than digital, as they do not fully account for the indirect costs. During an FGD, one participant noted, "I prefer cash because I don't have to worry about extra charges. What I pay is exactly what the other person gets."
- **Cost of cash out:** The cost of cash out at agent locations was repeatedly highlighted by merchants as a key incentive for cash transactions. A merchant explained their perspective on the cost issue: 'Our business operates on a monthly subscription model, where most customers traditionally pay in cash. We have some who pay through MFS, which simplifies the process as we don't need to visit their homes to collect payments. While cashless transactions are preferable due to their convenience, the fees associated with MFS cash-outs are a deterrent, leading us at times to favor cash transactions.' Some merchants noted that they mitigate their financial burden by passing on a portion of these cash-out costs to their customers. 'When I know that converting digital payments to cash will incur substantial fees, I discuss this with the customer and often persuade them to share in the cost. For smaller amounts, though, I usually absorb the cost myself.' This practice of transferring fees to consumers could potentially discourage the use of digital payment methods."
- **Cost-Free Setup:** Unlike digital systems, which may require an investment in hardware, software, or service fees, using cash does not entail initial setup costs, making it financially less burdensome. Setting up digital payment systems involves not just financial outlay, but also time and effort in training and implementation. Cash needs none of that," explained a business owner.
- **High cost of merchant acquisition:** Acquiring merchants across Bangladesh is costly. While the Personal Retail Account (PRA) has simplified KYC for merchant onboarding, and some MFS players deployed digital onboarding mechanisms to scale their merchant solutions nationwide, banks still require wet signatures and physical verification of merchants. This limits the reach of bank merchant solutions and slows digital merchant acceptance in the country.

### Micro Level

- **Cost Avoidance:** The transition to digital payments systems requires significant upfront investments in technology and infrastructure. Many banks find the high initial costs and the ongoing maintenance expenses a deterrent, slowing the pace of digital adoption. A bank stakeholder explained the reluctance towards digital expansion, stating, "The sheer scale of investment required to fully adopt digital platforms is daunting. We're talking about significant sums that need to be justified by a corresponding return on investment, which isn't always immediately clear."

- **Revenue Opportunity:** For agents, traditional cash services such as cash-ins and cash-outs remain lucrative, often because they are paid commissions based on these transactions. This stable revenue stream makes them less inclined to push for digital payment adoption. "The commission model for cash transactions remains unbeaten," noted one agent during the FGDs.
- **Avoidance of Merchant Discount Rates (MDR):** Merchants avoid digital payments to escape the transaction fees (MDR) charged on each transaction, which can cut into their margins. A merchant expressed his concerns about digital payments, "Every digital transaction eats into our profit margin. With cash, what you see is what you get."
- **Immediate Liquidity:** Cash transactions provide immediate liquidity, allowing merchants to reinvest or use the funds right away, without waiting for transaction processing times associated with digital payments. "Cash flow is everything," mentioned another merchant during a focus group. "With cash, I can reinvest in my business immediately, without waiting for funds to clear."
- **Informal Practices:** Many businesses prefer cash as it enables them to stay under the radar of tax authorities, avoiding formal scrutiny and potentially higher tax liabilities. "Staying off the radar helps us keep our overheads down," admitted a wholesaler. "With cash, we manage our tax liability more strategically."

### Non-Price Incentives for Continued Use of Cash

The preference for cash in many transactions is not solely driven by cost-related factors but also by a variety of non-price incentives. These include the familiarity and trust in cash, the ease of access, and the avoidance of technological dependency, which can be particularly important in regions with limited digital infrastructure. This section reviews the non-price incentives that sustain the use of cash, drawing on insights from KIIs and FGDs to provide a comprehensive understanding of why various stakeholders continue to rely on cash.

#### Industry Level

- **Legacy Systems:** Banks have established extensive infrastructures for handling cash transactions that are deeply woven into their operational frameworks. These systems have evolved over decades, with significant investments in both physical and human resources dedicated to efficient cash management. Transitioning to digital systems requires not only financial investment but also a cultural shift within institutions, which can be a complex and lengthy process. An executive explained during a KII, "Our systems have been optimised over decades to handle cash efficiently, making the shift to digital not only cumbersome but costly in terms of retraining and system overhauls."
- **Resistance from Cash Operations Staff:** Stakeholders noted that concerns about job security significantly influence some employees' attitudes towards digital transition. Employees in cash handling roles often express apprehension about digital payment systems, fearing that such shifts could make their positions redundant. This resistance can lead employees to subtly discourage decision-makers from adopting digital technologies, highlighting potential disruptions and job losses that might ensue.
- **Delayed Transactions:** Some FSPs reportedly create intentional frictions to shield their ecosystem, squeezing consumers and merchants to use the same service provider. These intentional frictions include requiring multiple QR scans for payments, as highlighted by a PSP stakeholder: *"Sometimes a consumer has to scan a QR code 30–40 times before a payment goes through because the issuer feels they aren't benefiting enough from the interoperable payment system."*
- **Interoperability:** Despite regulatory initiatives aimed at enhancing interoperability among digital payment platforms in Bangladesh, significant hurdles remain. Platforms such as the Bangla QR and the Interoperable Digital Transaction Platform (IDTP), also known as Binimoy, strive to bridge gaps between mobile financial services (MFS), banks, and payment service providers. However, the uptake

of Binimoy has been limited, largely due to the inadequate business case for payment service providers (PSPs) and resistance from potential participants who are concerned about profitability and market dynamics.

A banking stakeholder explained their reluctance to join Binimoy, stating, "The decision not to be part of Binimoy is fundamentally a business call. Integrating into such a system doesn't seem commercially viable for us right now." This sentiment reflects a broader trend where various players prioritize their own proprietary systems over shared solutions, even though shared systems like Binimoy are supported by Bangladesh Bank.

Merchants, particularly those in mobile financial services, feel the impact of this lack of interconnectedness the most. "The major issue with digital payment solutions, especially for MFS, is the absence of a unified transaction system," a merchant noted. For instance, customers who use different MFS like bKash, Nagad, or Rocket face difficulties making payments if the recipient uses a different system. "This lack of interlinkage forces businesses and customers to navigate multiple platforms, which complicates transactions and confuses customers," the merchant added.

The limited interoperability, driven by poor participation from financial institutions, has negatively affected market perceptions of the Binimoy system's effectiveness. "While the concept and model of Binimoy are sound, the technology and stakeholder engagement necessary to make it operational are lacking," a stakeholder criticized. Some suggest that instead of creating a separate new system like Binimoy, integrating MFS into existing banking frameworks such as the National Payment Switch Bangladesh (NPSB) could have been more effective. "Creating Binimoy was perhaps an unnecessary step. By integrating MFS directly with NPSB, we could have avoided the complexities and customer inconvenience of registering on a new system," a senior payment executive at a bank commented.

This ongoing debate highlights the critical need for a more integrated approach to ensure seamless transactions across all digital payment platforms in Bangladesh, reducing friction for users and enhancing the overall efficiency of the financial ecosystem.

- **Transaction Limit:** There is a transaction limit set for digital transfers via MFS. An FGD participant mentioned "I believe this limit should be removed. For business purposes, I should be able to transfer amounts like BDT 100,000, BDT 500,000, or even BDT 1,000,000 to my suppliers or clients without any hassle."
- **Limited operation of new payment systems:** Stakeholders pointed out that new payment systems or innovative payment solutions are not working as intended, specifically, Binimoy.
- **User Experience and Form Factor:** A KII participant highlighted that digital payment via QR is time-consuming and largely inconvenient. It requires opening an app, entering a password, scanning the code, entering a Pin / OTP, and then entering the price. This discourages usage, especially when cash is viewed as quicker and more convenient. The Bangla QR operating rules cite the ability to offer dynamic QR that does not require the user to enter the purchase price. However, implementation has been slow. FSPs and PSPs should also consider innovating around NFC payments through Apple Wallet, Google Pay, Samsung Pay and other phone wallet systems. These solutions and even WhatsApp have been widely adopted in other markets such as India.
- **Limited Payment System market development:** Operationalising Payment Systems requires market development. The buy-in from Financial Service Providers (FSPs) is crucial for a successful payment system, as evidenced by lessons from other markets. Some banks integrated with shared payment systems, like Bangla QR, do not actively promote its use or feature it prominently in their apps and some outrightly do not want to join the system because of a limited business case. This limits

awareness and ease-of-use, hindering wider adoption. A KII participant noted that “The market for Bangla QR is ‘sustaining’ rather than growing, with limited merchant adoption and few transactions processed per merchant.” The Bangladesh Bank should collaborate with FSPs to demonstrate the market opportunity (business case) and potential applications (use case) of each payment system.

## Micro-Level

- **Consumer Trust:** Rural consumers often rely on agents for cash transactions due to trust and accessibility. In many rural communities, agents handling cash transactions are seen as trusted figures. The tangible aspect of cash, where transactions are conducted physically and receipts are provided immediately, builds a level of trust that digital transactions often fail to match. This trust is crucial in areas where skepticism towards digital technologies prevails. "Our customers prefer dealing with cash. They trust it because it's tangible, and they trust us to handle it correctly," an agent remarked during an FGD.
- **Familiarity:** Many people find cash transactions straightforward and reliable, sticking to what they know best. The physical aspect of handling money gives a sense of control and immediacy that digital transactions may lack. "Cash is immediate and tangible. There's no need to check if a transaction went through or worry about security issues," said an older focus group participant, highlighting the comfort and reliability of cash.
- **Customer Preference:** Cash remains dominant in small and informal transactions. Merchants often cater to customer preferences to maintain good service and ensure repeat business. In many places, especially within rural regions and in informal sectors, customers continue to show a strong preference for cash. This is particularly pronounced in transactions involving low-value items, where the immediacy and physical exchange of cash are seen as quick and effective. A merchant stated, "Customers often find cash transactions quicker and easier for everyday purchases."
- **Simplicity:** Cash avoids technical issues associated with digital systems. Cash transactions sidestep many of the complications associated with digital payments, such as the need for reliable technological infrastructure, the risk of downtimes, and the complexities of dealing with failed digital transactions. Merchants appreciate the simplicity of cash, which does not require dependence on digital payment gateways or the internet, thereby avoiding potential technical failures that could impede sales. "With cash, I don't have to deal with system downtimes or payment failures," a merchant noted, expressing the hassle-free nature of cash.
- **Security Concerns:** Fear of cybersecurity threats discourages digital uptake. There is a pervasive concern about cybersecurity among businesses when considering digital payments. "There is a fear of hacking with digital transactions. If my account gets hacked, all my money could be stolen. If security can be ensured, digital payment systems are excellent. Otherwise, as we are accustomed to cash transactions, I find that quite acceptable as well." explained a business owner during an FGD. Another FGD participant said, "The fear of cyber threats and financial fraud keeps many of us sticking to cash" The fear of data breaches, hacking, and other cyber threats makes cash seem safer, particularly for businesses that may not have the financial capability to invest in high-level digital security solutions. The confidentiality and control offered by cash transactions provide a sense of security that digital platforms can sometimes fail to convey.
- **Digital Divide:** Limited access to smartphones and internet services in rural areas. The availability of necessary digital tools, such as smartphones and reliable internet connections, is not uniform across all regions. Many rural areas lack the infrastructure required to support robust digital payment systems, making cash a necessity rather than a choice. This divide not only hampers the adoption of digital payments but also reinforces the reliance on cash for daily transactions. "Not everyone here has a smartphone or good internet, so how can we rely on digital payments?" a participant



questioned during a focus group. Another FGD participant highlighted the importance of not leaving any one behind as Bangladesh transitions to a fully digital economy, "If cashless technology is implemented universally, special attention should be given to users at the grassroots level. These individuals might not be fully adapted to or familiar with the proper usage of digital systems. It must be ensured that they can access and utilise this technology effectively without facing financial losses or inconveniences."

- **Low Digital Literacy:** Many individuals lack the skills to navigate digital platforms. There is a pervasive concern about cybersecurity among businesses when considering digital payments. The fear of data breaches, hacking, and other cyber threats makes cash seem safer, particularly for businesses that may not have the financial capability to invest in high-level digital security solutions. The confidentiality and control offered by cash transactions provide a sense of security that digital platforms can sometimes fail to convey. "Even if I had the technology, I wouldn't know how to use it safely and effectively," an individual expressed during an FGD.

## Cost of cash calculation methodology

### Cost of Cash to Consumers

Adapting the approach used in other studies, the cost of cash to consumers is calculated as the sum of four components<sup>145</sup>:

$$\text{Cost of Cash to Consumers} = \text{Foregone Interest Earnings on Cash Holdings} + \text{Cost of Risk of Cash Holdings} + \text{Opportunity Cost of Time} + \text{Fees Paid to Banks and MFS}$$

**Table 28: Household cost of cash summary**

| Variable                                                                             | Final Cost, Annual BDT | Percentage |
|--------------------------------------------------------------------------------------|------------------------|------------|
| Foregone interest earnings on cash holdings                                          | ৳64,088,336,144.07     | 15.49%     |
| Cost of risk of cash holdings                                                        | ৳3,496,106,965.00      | 12.93%     |
| Opportunity cost of time spent visiting and transacting at ATMs, branches and agents | ৳245,753,535,600.00    | 59.39%     |
| Fees paid to banks and MFS at ATMs, branches and agents                              | ৳0,484,549,736.49      | 12.20%     |
| Total                                                                                | ৳13,822,528,445.56     |            |

An explanation of the calculation for each of these components is detailed below.

#### ***Foregone Interest Earnings on Cash Holdings***

This represents the interest households forgo by holding cash instead of depositing it in an interest-bearing account.

It is calculated as:

$$\text{ForegoneInterestEarnings} = \left( \frac{E_h \times S_h}{4} \right) \times N_h \times r$$

Where:

- $E_h$  - Average monthly household expenditure
- $S_h$  - Share of household transactions conducted in cash
- $N_h$  - Number of households
- $r$  - Weighted average deposit interest rate

The foregone interest earnings on cash holdings estimate the opportunity cost households incur by keeping cash instead of depositing it in an interest-bearing account.

The calculation assumes that households hold, on average, a quarter of their monthly cash expenditure at any given time, reflecting frequent income receipts and rapid spending cycles in Bangladesh. Many households, especially those in informal employment, receive income daily or weekly rather than monthly, preventing the accumulation of large cash balances. Instead, cash is earned and spent in short cycles, keeping the average

<sup>145</sup> Visa (2016). Accelerating the Growth of Digital Payments in India. Available [here](#).

amount held at any moment relatively low.<sup>146</sup> Additionally, financial diaries indicate that low-income households quickly allocate cash to essentials, often running low before the next income inflow.<sup>147</sup> Savings, when possible, are frequently deposited with microfinance institutions or informal savings groups rather than held as idle cash.<sup>148</sup> Given these assumptions, it is therefore plausible that the typical household in Bangladesh holds, on average, no more than a quarter of its monthly cash expenditure at any given time.

The opportunity cost is determined by applying the weighted average deposit interest rate, representing the returns households could have earned had they deposited these funds instead.<sup>149</sup> This approach assumes that cash holdings remain relatively stable over time and that the interest rate accurately reflects the opportunity cost of holding cash. Additionally, it does not account for households potentially reallocating cash into other financial instruments or informal savings mechanisms. The calculation is detailed in the table below.

**Table 29: Household foregone interest earnings on cash holdings calculation**

| Variable                                                                  | Value              | Source                                                                                                |
|---------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------|
| Average monthly household expenditure                                     | ৳1,500.00          | <a href="#">Bangladesh Bureau of Statistics - Household Income and Expenditure Survey Data (2022)</a> |
| Share of household transactions conducted in cash                         | 80%                | <a href="#">Assumption based on BTCA Bangladesh Country Diagnostic (2022)</a>                         |
| Monthly cash outflow per household                                        | ৳1,200.00          | Calculation                                                                                           |
| Average cash holding per household                                        | ৳300.00            | Assumption: Households hold a quarter of their total cash expenditure at any given time               |
| Number of households at the national level                                | 169,828,911.00     | <a href="#">Bangladesh Bureau of Statistics - Household Income and Expenditure Survey Data (2022)</a> |
| Total household cash holdings (national level)                            | ৳50,948,673,300.00 | Calculation                                                                                           |
| Weighted average interest rate on deposits in Bangladeshi scheduled banks | 5.99%              | <a href="#">Bangladesh Bank (2025)</a>                                                                |
| Annual foregone interest earnings                                         | ৳3,018,336,144.07  | Calculation                                                                                           |

### **Cost of Risk of Cash Holdings**

This represents the potential financial loss households incur due to the risk of theft or inadvertent loss of cash.

It is calculated as:

$$Cost of Risk of Cash Holdings = \left( \frac{E_h \times S_c}{4} \right) \times N_h \times p_t$$

Where:

- $E_h$  - Average monthly household expenditure
- $S_h$  - Share of households transactions conducted in cash

<sup>146</sup> CGAP (2018). 2017 Global Findex: Behind the Numbers. Available [here](#).

<sup>147</sup> Brac Institute of Governance and Development (2022). The Future of Financial Inclusion: Presenting the Findex 2021 Findings. Available [here](#).

<sup>148</sup> Brac Institute of Governance and Development (2022). The Future of Financial Inclusion: Presenting the Findex 2021 Findings. Available [here](#).

<sup>149</sup> Bangladesh Bank (2025). Interest Rates. Available [here](#).

- $N_h$  - Number of households
- $p_t$  - Probability of theft or loss

The cost of risk of cash holdings is estimated based on the assumption that households hold, on average, a quarter of their monthly cash outflow at any given time - as justified above. This reflects the gradual spending of cash over the month, similar to the approach used in estimating foregone interest earnings. The total exposure to risk is then scaled up to the national level by multiplying by the number of households.

The probability of theft or loss represents an assumed risk factor. In the absence of precise, country-specific data, we adopt a conservative assumption of 5% as the probability of cash being lost or stolen. This reflects the likelihood that a household will experience theft or an inadvertent loss of their cash holdings over a given period. This estimation assumes that any stolen or lost cash is irrecoverable, leading to a full financial loss. This reflects the likelihood that a household will experience theft or an inadvertent loss of their cash holdings over a given period. The 5% estimate is based on household surveys in Bangladesh, which have reported annual theft victimization rates ranging from 3% to 9%, with a national security survey estimating that 8.65% of households experienced theft in a year, suggesting that 5% represents a cautious mid-range estimate.<sup>150</sup> The calculation is detailed in the table below.

**Table 30: Household cost of risk on cash holdings calculation**

| Variable                                          | Value                 | Source                                                                                                |
|---------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------|
| Average monthly household expenditure             | ₳1,500.00             | <a href="#">Bangladesh Bureau of Statistics - Household Income and Expenditure Survey Data (2022)</a> |
| Share of household transactions conducted in cash | 80%                   | <a href="#">Assumption based on BTCA Bangladesh Country Diagnostic (2022)</a>                         |
| Monthly cash outflow per household                | ₳5,200.00             | Calculation                                                                                           |
| Average cash holding per household                | ₳6,300.00             | Assumption: Households hold cash for half the month                                                   |
| Number of households at the national level        | 169,828,911.00        | <a href="#">Bangladesh Bureau of Statistics - Household Income and Expenditure Survey Data (2022)</a> |
| Total cash holdings (national level)              | ₳1,069,922,139,300.00 | Calculation                                                                                           |
| Probability of theft or loss                      | 5.00%                 | Assumption: Based on insights from KIIs and FGDs                                                      |
| Annual cost of risk of cash holdings              | ₳3,496,106,965.00     | Calculation                                                                                           |

### **Opportunity Cost of Time Spent Visiting Cash Channels**

Consumers incur an opportunity cost when they spend time traveling to and transacting at ATMs, bank branches, or mobile money agents. This cost reflects the foregone wages that could have been earned if this time had been spent on income-generating activities instead.

It is calculated as:

$$OpportunityCost = T_t \times N_t \times W$$

Where:

- $T_t$  - Total time spent per transaction (in hours)

<sup>150</sup> CGAP (2016). Smallholder Household Survey. Available [here](#).

- $N_t$  - Total number of cash withdrawals/deposits across all consumers
- $W$  - Average hourly wage (representing foregone earnings)

The calculation assumes that each transaction, including travel, queuing, and processing time, takes 1.5 hours on average, based on findings from focus group discussions. The opportunity cost is estimated using an hourly wage of  $\text{৳}150.00$  (obtained from an employment report in Bangladesh), representing the earnings that could have been made during this time.<sup>151</sup> The total number of cash transactions per year is derived by estimating the number of consumers using cash channels and multiplying this by their average number of transactions per year. The estimated number of cash users is based on the proportion of adults with a bank or mobile money account, while the average number of cash withdrawals per consumer is assumed to be 24 per year, based on insights from focus group discussions. The calculation is detailed in the table below.

**Table 31: Household opportunity cost of time calculation**

| Variable                                                                          | Value                    | SOURCE                                                                                                                                            |
|-----------------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Total time spent per transaction (hours)                                          | 1.00                     | Assumption: Based on average time taken across Consumer FGD participants                                                                          |
| Average hourly wage                                                               | $\text{৳}137.00$         | <a href="#">Fair Labour Association (2018)</a>                                                                                                    |
| Opportunity cost per transaction                                                  | $\text{৳}68.50$          | Calculation: Total time spent per transaction * Average hourly wage*0.5 (0.5 accounts for unemployment and low productivity levels)               |
| Proportion of adult population with bank/MFS account (latest data)                | 53%                      | <a href="#">World Bank (2021)</a>                                                                                                                 |
| Adult (15+) population in Bangladesh                                              | 128,801,643.00           | <a href="#">World Bank (2023)</a>                                                                                                                 |
| Estimated total number of consumers making cash deposits/withdrawals              | 68,264,871.00            | Calculation: Proportion of adult population with bank/MFS account * Adult population                                                              |
| Average number of cash withdrawals/deposits per consumer per year (based on FGDs) | 24.00                    | Assumption: Based on average number of cash trips per month across Consumer FGD participants                                                      |
| Total number of cash withdrawals/deposits per year across all consumers           | 1,638,356,904.00         | Calculation: Estimated number of individuals making cash deposits/withdrawals * Average number of cash withdrawals/deposits per consumer per year |
| Annual opportunity cost of time                                                   | $\text{৳}112,227,447.92$ | Calculation: Opportunity cost per transaction * Total number of cash withdrawals/deposits per year across all consumers                           |

### **Fees Paid to Banks and MFS**

Consumers incur direct monetary costs in the form of withdrawal fees when transacting at MFS agents, ATMs, and bank branches. These fees vary based on the transaction channel, provider, and market share of each provider. The total fees paid are determined by multiplying the weighted average withdrawal fee for each channel by the total number of withdrawals occurring through that channel.

It is calculated as:

<sup>151</sup> Fair Labor Association (2018). Toward Fair Compensation in Bangladesh: Insights on Closing the Wage Gap. Available [here](#).

$$FeesPaid = (W_{MFSAgent} \times N_{MFSAgent}) + (W_{MFSATM} \times N_{MFSATM}) + (W_{BankATM} \times N_{BankATM})$$

Where:

- $W_{MFSAgent}$  - Weighted average MFS withdrawal fee at MFS agents.
- $N_{MFSAgent}$  - Total number of MFS withdrawals conducted at agents.
- $W_{MFSATM}$  - Weighted average withdrawal fee for MFS transactions at ATMs.
- $N_{MFSATM}$  - Total number of MFS withdrawals conducted at ATMs.
- $W_{BankATM}$  - Weighted average withdrawal fee for bank off-us ATM transactions.
- $N_{BankATM}$  - Total number of bank off-us ATM withdrawals.

The total fees paid to banks and MFS are determined by multiplying the weighted average withdrawal fee for each channel by the total number of withdrawals conducted through that channel. Fees are incurred at different rates depending on whether withdrawals take place at MFS agents, MFS-linked ATMs, or bank ATMs. The calculation accounts for variations in fees across service providers by weighting withdrawal fees according to their market shares.

The proportion of MFS withdrawals conducted at agents relative to ATMs is assumed to be 90% and calculated by using the relative number of channels of these types available to the public as a proxy. Similarly, the ratio of bank ATM withdrawals to deposits is estimated based on available MFS transaction data, and assumes that MFS customer withdrawal/deposit behaviour is consistent with that of bank customers. For ATM withdrawal fees for bank customers, only off-us fees are considered, as on-us intra-city withdrawals are free across all providers reviewed.

Withdrawals at bank branches and agents are excluded, as industry norms indicate that direct withdrawal fees at bank counters and agents are not charged. Likewise, deposits are free across all channels, meaning they do not contribute to the financial cost borne by consumers when accessing cash. The final calculation therefore represents only the direct costs consumers incur when withdrawing cash from MFS agents, MFS-linked ATMs, or off-us bank ATMs. The calculation is detailed in the table below.

**Table 32: Household fees paid to banks and mfs calculation**

| Variable                                                                               | Value               | Source                                                                                       |
|----------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------|
| Total volume of MFS withdrawals per year                                               | 1,248,056,478.00    | <a href="#">Bangladesh Bank (2023)</a>                                                       |
| Total value of MFS withdrawal per year                                                 | ৳825,980,693,000.00 | <a href="#">Bangladesh Bank (2023)</a>                                                       |
| Average value of MFS withdrawal                                                        | ৳,065.55            | Calculation                                                                                  |
| Assumed share of MFS withdrawals per year attributable to consumers                    | 80%                 | <a href="#">Bangladesh Bank MFS Data (2025;2024)</a>                                         |
| Total volume of MFS withdrawals per year attributable to consumers                     | 998,445,182.40      | Calculation                                                                                  |
| Total volume of MFS withdrawals conducted at agents per year attributable to consumers | 898,600,664.16      | Assumption: Assuming ratio of MFS transactions conducted at agents relative to ATMs is 90/10 |
| Total volume of MFS withdrawals conducted at                                           | 99,844,518.24       | Assumption: Assuming ratio of MFS                                                            |

|                                                                                                                                |                           |                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| ATMs per year attributable to consumers                                                                                        |                           | transactions conducted at agents relative to ATMs is 90/10                                                                                |
| bKash agent withdrawal fee                                                                                                     | 1.85%                     | <a href="#">bKash (2025)</a>                                                                                                              |
| bKash market share                                                                                                             | 75%                       | <a href="#">BTCA Bangladesh Country Diagnostic (2022)</a>                                                                                 |
| Nagad agent withdrawal fee                                                                                                     | 1.50%                     | <a href="#">Nagad (2025)</a>                                                                                                              |
| Nagad market share                                                                                                             | 10%                       | <a href="#">BTCA Bangladesh Country Diagnostic (2022)</a>                                                                                 |
| Rocket agent withdrawal fee                                                                                                    | 1.80%                     | <a href="#">Rocket (2025)</a>                                                                                                             |
| Rocket market share                                                                                                            | 5.00%                     | <a href="#">BTCA Bangladesh Country Diagnostic (2022)</a>                                                                                 |
| Weighted average agent withdrawal fee                                                                                          | 1.63%                     | Calculation                                                                                                                               |
| Weighted average agent withdrawal fee per transaction                                                                          | ৳49.89                    | Calculation                                                                                                                               |
| <b>Total fees paid for MFS agent withdrawals per year for consumers</b>                                                        | <b>৳44,832,841,760.57</b> | <b>Calculation</b>                                                                                                                        |
| Number of bKash ATM withdrawals                                                                                                | 93,604,235.85             | Calculation                                                                                                                               |
| bKash ATM withdrawal fee                                                                                                       | 1.50%                     | <a href="#">bKash (2025)</a>                                                                                                              |
| Total fees paid for bKash ATM withdrawals per year                                                                             | ৳4,304,228,279.63         | Calculation                                                                                                                               |
| Number of Rocket ATM withdrawals                                                                                               | 6,240,282.39              | Calculation                                                                                                                               |
| Rocket ATM withdrawal fee                                                                                                      | 0.90%                     | <a href="#">Rocket (2025)</a>                                                                                                             |
| Total fees paid for Rocket ATM withdrawals per year                                                                            | ৳72,169,131.19            | Calculation                                                                                                                               |
| <b>Total fees paid for MFS ATM withdrawals per year for consumers</b>                                                          | <b>৳4,476,397,410.81</b>  | <b>Calculation</b>                                                                                                                        |
| Total volume of off-us bank ATM transactions                                                                                   | 70,504,533.00             | <a href="#">Bangladesh Bank (2024)</a>                                                                                                    |
| Assumed ratio of off-us withdrawals to other types of off-us ATM transactions (balance enquiry, fund transfer, mini-statement) | 80%                       | Assumption: 80% of all off us bank ATM transactions are withdrawals                                                                       |
| Total volume of off-us bank ATM withdrawals                                                                                    | 56,403,626.00             | Calculation                                                                                                                               |
| Assumed share of off-us bank ATM withdrawals per year attributable to consumers                                                | 80%                       | Assumption: 80% of all off-us bank ATM withdrawals are performed by consumers, as opposed to micro-merchants                              |
| Total volume of off-us bank ATM withdrawals per year attributable to consumers                                                 | 45,122,901.00             | Calculation                                                                                                                               |
| Simple average of off-us ATM withdrawal fee per transaction                                                                    | ৳16.67                    | Simple average of off-us ATM withdrawal fees from banks where fees were readily available - Dutch-Bangla Bank, BRAC Bank, and Islami Bank |
| <b>Total annual bank ATM off-us transaction fees</b>                                                                           | <b>৳1,175,310,565.11</b>  | <b>Calculation</b>                                                                                                                        |
| Annual value of fees paid to banks and MFS                                                                                     | ৳0,484,549,736.49         | Calculation                                                                                                                               |

## Cost of Cash to the Central Bank

The cost of cash to the central bank is calculated as follows<sup>152</sup>:

$$\text{Cost of Cash to The Central Bank} = \text{Cost of Currency Operations} + \text{Value of Counterfeit Notes} + \text{Cash Carrying Costs of Currency Vaults and Chests Annually}$$

An explanation of the calculation for each of these components is detailed below.

**Table 33: Central bank summary**

| Variable                    | Final Cost, Annual BDT |
|-----------------------------|------------------------|
| Cost of currency operations | ৳4,331,586,565.13      |
| Agency fee                  | ৳6,717,800.00          |
| Total                       | ৳4,338,304,365.13      |

### Cost of Currency Operations

The cost of currency operations reflects the expenses incurred by the central bank in producing, managing, and maintaining the physical cash supply. These costs include the printing of banknotes, transportation between central bank facilities, machine depreciation, staff salaries, and the cost of currency disposal. The total cost is derived by summing these components.

It is calculated as:

$$\text{Cost of Currency Operations} = P + T + D + S + R$$

Where:

- *P* - Total annual printing cost, which includes all expenses incurred at SPCBL for cash operations (i.e. raw materials for production, storage, staff salaries, etc.)
- *T* - Total annual cost of transportation between central bank facilities.
- *D* - Total annual depreciation cost of cash processing machines.
- *S* - Total annual salary expense for non-SPCBL staff directly engaged in cash-related activities.
- *R* - Total annual cost of currency disposal.

A critical assumption in this calculation is that the total printing cost already accounts for all costs incurred at the Security Printing Corporation Bangladesh Ltd. (SPCBL) in producing, storing, and distributing currency. This includes staff salaries, vaulting costs, security measures, and logistics associated with the initial distribution of cash. This assumption is based on insights from key informant interviews (KIIs) with the Bangladesh Bank Currency Management Department.

Other components, such as transportation costs between central bank facilities, cash processing machine depreciation, salaries of currency management and operations staff, and the cost of disposal, are separately accounted for in the calculation. The figures used for these variables were provided directly to the research team by the Bangladesh Bank. The calculation is detailed in the table below.

<sup>152</sup> For this calculation, we utilise an augmented version of the calculation conducted in the [Visa \(2016\)](#) study to cater for some nuances in the Bangladesh Bank's cash distribution model.



**Table 34: Central Bank Cost of currency operations**

| Variable                                                                                             | Value             | Source                                     |
|------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------|
| Total printing cost                                                                                  | ৳4,409,469,201.93 | Data provided directly by Bangladesh Bank. |
| Total cost of transportation between central bank facilities                                         | ৳4,425,932.00     | Data provided directly by Bangladesh Bank. |
| Total annual cash processing machine depreciation                                                    | ৳40,138,632.30    | Data provided directly by Bangladesh Bank. |
| Number of currency management and cash operations staff directly involved in cash-related activities | 431.00            | Data provided directly by Bangladesh Bank. |
| Average annual salary expense per currency management and cash operations staff member               | ৳1,867,017.60     | Data provided directly by Bangladesh Bank. |
| Total annual salary expense for staff directly involved in cash-related activities                   | ৳804,684,585.60   | Calculation                                |
| Cost of disposal                                                                                     | ৳3,868,213.30     | Data provided directly by Bangladesh Bank. |
| Annual cost of currency operations                                                                   | ৳4,331,586,565.13 | Calculation                                |

**Cash Carrying Costs of Currency Chests Annually**

Currency chests in Bangladesh Bank are held at Sonali Bank facilities, where Sonali Bank carries out treasury functions on behalf of Bangladesh Bank. For these services, Bangladesh Bank pays Sonali Bank an agency fee. As such, the total cash carrying cost is taken directly from the annual agency fee paid to Sonali Bank, with no additional calculations required. The detailed calculation is captured in the table below.

**Table 35: Central bank agency fee**

| Variable                                                                                       | Value         | Source                                 |
|------------------------------------------------------------------------------------------------|---------------|----------------------------------------|
| Agency fee paid to Sonali Bank for conducting treasury functions on behalf of the central bank | ৳6,717,800.00 | <a href="#">Bangladesh Bank (2024)</a> |
| Annual agency fee                                                                              | ৳6,717,800.00 | <a href="#">Bangladesh Bank (2024)</a> |

**Cost of Cash to Banks**

Adapting the approach used in other studies, the cost of cash to banks as follows<sup>153</sup>:

It is calculated as:

$$\text{Cost of Cash to Banks} = \text{Operating Expenses of Cash Networks} + \text{Capital Expenditure on Cash Infrastructure} + \text{Foregone Interest on Cash Holdings} + \text{Value of Counterfeit Notes} + \text{Interchange Fees Paid} + \text{Payments to Cash Logistics Companies}$$

**Table 36: Banks summary calculation**

| Variable                                                      | Final Cost, Annual BDT |
|---------------------------------------------------------------|------------------------|
| Operating expenses of branch, ATM/CRM/CDM, and agent networks | ৳75,474,855,544.94     |

<sup>153</sup> Visa (2016). Accelerating the Growth of Digital Payments in India. Available [here](#).

|                                                                                     |                     |
|-------------------------------------------------------------------------------------|---------------------|
| Capital expenditure incurred on setting up new branches, ATMs/CRMs/CDMs, and agents | ₹8,005,500,000.00   |
| Interest earnings (foregone) on cash deposits in branches and ATMs                  | ₹43,020,494,567.97  |
| Value of counterfeit notes                                                          | ₹15,040,450.00      |
| ATM Interchange fees paid                                                           | ₹1,410,090,660.00   |
| Payments to cash logistics companies                                                | ₹244,701,849,518.00 |
| Total                                                                               | ₹67,627,830,741     |

An explanation of the calculation for each of these components is detailed below.

### ***Operating Expenses of Cash Networks***

The operating expenses of cash networks reflect the costs incurred by banks in maintaining the infrastructure required for cash distribution. These costs include the operation of bank branches, sub-branches, ATMs, agent banking networks, cash deposit machines (CDMs), and cash recycling machines (CRMs). The total cost is derived by summing these components.

It is calculated as:

$$\begin{aligned} \text{Operating Expenses of Cash Networks} = & (C_{Branch} \times N_{Branch}) + (C_{S-branch} \times N_{S-branch}) + (C_{Agent} \times N_{Agent}) \\ & + (C_{AgentOutlet} \times N_{AgentOutlet}) + (C_{ATM} \times N_{ATM}) + (C_{CRM} \times N_{CRM}) + (C_{CDM} \times N_{CDM}) \end{aligned}$$

Where:

- $C_{Branch}$  - Average operating cost per branch per year
- $N_{Branch}$  - Total number of branches nationwide
- $C_{S-branch}$  - Average operating cost per sub-branch per year
- $N_{S-branch}$  - Total number of sub-branches nationwide
- $C_{Agent}$  - Average operating cost per agent per year
- $N_{Agent}$  - Total number of agents nationwide
- $C_{AgentOutlet}$  - Average operating cost per agent outlet per year
- $N_{AgentOutlet}$  - Total number of agent outlets nationwide
- $C_{ATM}$  - Average operating cost per ATM per year
- $N_{ATM}$  - Total number of ATMs nationwide
- $C_{CRM}$  - Average operating cost per CRM per year
- $N_{CRM}$  - Total number of CRMs nationwide
- $C_{CDM}$  - Average operating cost per CDM per year
- $N_{CDM}$  - Total number of CDMs nationwide

The operating expenses of cash networks were calculated by summing the costs of maintaining various cash distribution channels, including branches, sub-branches, agent banking outlets, ATMs, cash recycling machines (CRMs), and cash deposit machines (CDMs). For each component, the total cost was determined by multiplying the average annual operating cost per unit by the total number of units nationwide. The average operating costs for each component were obtained from a large bank in Bangladesh, while the total number of branches, ATMs, agent outlets, and other cash infrastructure components were sourced from official Bangladesh Bank statistics.<sup>154</sup> Since direct data for operating expenses for CDMs was unavailable, the calculation assumes that the cost of operating a CDM is identical to that of a CRM. The calculation is detailed in the table below.

**Table 37: Operating expenses of branch and atm networks calculation**

| Variable                                                                | Value                    | Source                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Total average operating cost per branch per year                        | ৳5,840,794.23            | Calculation based on data provided by commercial banks - including the total salary expense of staff engaged in cash-related staff per branch, average rent, insurance, and utilities per branch, average annual depreciation expense per branch, and total salary of head office staff managing branches. |
| Total number of branches nationally                                     | 11,284.00                | <a href="#">Bangladesh Bank (2024)</a>                                                                                                                                                                                                                                                                     |
| <b>Total annual operating costs of branches nationally</b>              | <b>৳5,907,522,091.32</b> | <b>Calculation</b>                                                                                                                                                                                                                                                                                         |
| Total average operating cost per sub-branch per year                    | ৳88,965.00               | Calculation                                                                                                                                                                                                                                                                                                |
| Total number of sub-branches nationally                                 | 3,400.00                 | <a href="#">Bangladesh Bank (2024)</a>                                                                                                                                                                                                                                                                     |
| <b>Total annual operating costs of sub-branches nationally</b>          | <b>৳,322,481,000.00</b>  | <b>Calculation</b>                                                                                                                                                                                                                                                                                         |
| Total average cost per bank agent per year                              | ৳8,201.00                | Data provided directly by commercial banks                                                                                                                                                                                                                                                                 |
| Total number of agents nationwide                                       | 15,957.00                | <a href="#">Bangladesh Bank (2024)</a>                                                                                                                                                                                                                                                                     |
| Total average cost per agent bank outlet per year                       | ৳22,286.67               | Data provided directly by a large bank in Bangladesh.                                                                                                                                                                                                                                                      |
| Total number of agent outlets nationwide                                | 21,186.00                | <a href="#">Bangladesh Bank (2024)</a>                                                                                                                                                                                                                                                                     |
| <b>Total annual operating costs of agent banking network nationally</b> | <b>৳,838,618,747.62</b>  | <b>Calculation</b>                                                                                                                                                                                                                                                                                         |
| Total average operating cost per ATM per year                           | ৳21,159.00               | Calculation based on data provided by commercial banks                                                                                                                                                                                                                                                     |
| Total number of ATMs nationally                                         | 13,436.00                | <a href="#">Bangladesh Bank (2024)</a>                                                                                                                                                                                                                                                                     |
| <b>Total annual operating costs of ATMs nationally</b>                  | <b>৳,971,492,324.00</b>  | <b>Calculation</b>                                                                                                                                                                                                                                                                                         |
| Total average operating cost per CRM per year                           | ৳41,159.00               | Calculation based on data provided by commercial banks                                                                                                                                                                                                                                                     |
| Total number of CRMs nationally                                         | 4,035.00                 | <a href="#">Bangladesh Bank (2024)</a>                                                                                                                                                                                                                                                                     |
| <b>Total annual operating costs of CRMs nationally</b>                  | <b>৳,376,576,565.00</b>  | <b>Calculation</b>                                                                                                                                                                                                                                                                                         |

<sup>154</sup> Bangladesh Bank (2024). Bangladesh Bank Digital Financial Inclusion Statistics. Available [here](#).

|                                                             |                          |                                                                           |
|-------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------|
| Total average operating cost per CDM per year               | ৳221,159.00              | Assumption: The average cost per CDM is equal to the average cost per ATM |
| Total number of CDMs nationally                             | 263.00                   | <a href="#">Bangladesh Bank (2024)</a>                                    |
| <b>Total annual operating costs of CDMs nationally</b>      | <b>৳8,164,817.00</b>     | <b>Calculation</b>                                                        |
| <b>Annual operating expenses of branch and ATM networks</b> | <b>৳5,474,855,544.94</b> | <b>Calculation</b>                                                        |

### **Capital Expenditure on Cash Infrastructure**

Capital expenditure on cash infrastructure represents the investment required for expanding and upgrading cash distribution channels. This includes the cost of setting up new bank branches, agent banking outlets, ATMs, and cash recycling machines (CRMs). The total capital expenditure is calculated by summing the costs of these components.

It is calculated as:

$$\text{Capital Expenditure on Cash Infrastructure} = (K_{Agent} \times \Delta N_{Agent}) + (K_{ATM} \times \Delta N_{ATM}) + (K_{CRM} \times \Delta N_{CRM}) + (K_{Branch} \times \Delta N_{Branch})$$

Where:

- $K_{Agent}$  - Average branding cost of a new agent banking outlet
- $\Delta N_{Agent}$  - New agent banking outlets nationwide per year
- $K_{ATM}$  - Upfront cost of an ATM
- $\Delta N_{ATM}$  - Average change in the number of ATMs per year
- $K_{CRM}$  - Upfront cost of a CRM
- $\Delta N_{CRM}$  - Average change in the number of CRMs per year
- $K_{Branch}$  - Average capital expenditure for a new bank branch
- $\Delta N_{Branch}$  - Average change in the number of bank branches per year

Each of these components was calculated using a combination of data sources. The average branding cost for new agent banking outlets and the upfront costs of ATMs, CRMs, and bank branches were obtained from a large bank in Bangladesh. The annual change in the number of agent outlets, ATMs, CRMs, and bank branches was determined by taking the average change over the past four years, based on official Bangladesh Bank statistics.<sup>155</sup> The total capital expenditure is taken as the sum of these components. The calculation is detailed in the table below.

<sup>155</sup> Bangladesh Bank (2024). Bangladesh Bank Digital Financial Inclusion Statistics. Available [here](#).

**Table 38: Capital Expenditure on Cash Infrastructure calculation**

| Variable                                                                                        | Value                   | Source                                                      |
|-------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------|
| Average branding cost of a new agent banking outlet                                             | ৳55,000.00              | Data provided directly by a large bank in Bangladesh.       |
| New agent banking outlets nationwide per year                                                   | 2,570.00                | <a href="#">Based on data from Bangladesh Bank (2024)</a>   |
| <b>Total annual capital cost of new agent banking outlets per year</b>                          | <b>৳41,350,000.00</b>   | Calculation                                                 |
| Upfront cost of ATM                                                                             | ৳50,000.00              | Data provided directly by commercial banks                  |
| Average change in ATMs nationwide per year                                                      | 628.00                  | <a href="#">Based on data from Bangladesh Bank (2024)</a>   |
| <b>Total annual capital cost of new ATMs per year</b>                                           | <b>৳45,400,000.00</b>   | Calculation                                                 |
| Upfront cost of CRM                                                                             | ৳1,150,000.00           | Data provided directly by commercial banks                  |
| Average change in CRMs nationwide per year                                                      | 945.00                  | <a href="#">Based on data from Bangladesh Bank (2024)</a>   |
| <b>Total annual capital cost of new CRMs per year</b>                                           | <b>৳,086,750,000.00</b> | Calculation                                                 |
| Average capital expenditure for new bank branch                                                 | ৳8,000,000.00           | Data provided directly by commercial banks                  |
| Average change in bank branches per year                                                        | 179.00                  | <a href="#">Based on data from Bangladesh Bank (2024)</a> - |
| <b>Total annual capital cost of new bank branches per year</b>                                  | <b>৳,432,000,000.00</b> | Calculation                                                 |
| Annual value of capital expenditure on setting up new branches, ATMs, and agent banking outlets | ৳,005,500,000.00        | Calculation                                                 |

### **Foregone Interest on Cash Holdings**

Foregone interest earnings represent the opportunity cost of holding cash in bank branches and cash distribution points (ATMs and CRMs), rather than investing it in interest-bearing assets. Since banks must maintain cash reserves to meet customer withdrawals, these idle funds result in lost potential earnings. The total foregone interest earnings are calculated based on the estimated cash holdings in branches, ATMs, and CRMs, multiplied by the prevailing short-term interest rate.

$$\text{ForegoneInterestEarnings} = r \times (H_{ATM} + H_{Branch})$$

Where:

- $r$  - Interest rate (91-day Treasury Bill yield)
- $H_{ATM}$  - Average cash holdings in ATMs/CRMs
- $H_{Branch}$  - Average cash holdings across all bank branches nationwide

Each of these components was determined using a combination of bank-reported data and official Bangladesh Bank statistics:

- **Cash Holdings in ATMs/CRMs:** Estimated based on the total daily withdrawals at ATMs and CRMs, adjusted for a liquidity buffer. The liquidity buffer was assumed to be 20% above the daily withdrawal amount.
- **Cash Holdings in Bank Branches:** Calculated separately for urban and rural branches, using the average cash holdings per branch type and the total number of branches in each category. This data was provided by a large bank in Bangladesh.
- **Interest Rate:** The 91-day Treasury bill yield was used as a proxy for the return that could have been earned if these funds were invested.<sup>156</sup>

The final foregone interest earnings amount represents the annual cost to banks due to maintaining cash reserves instead of deploying these funds in interest-generating assets. The calculation is detailed in the table below.

**Table 39: Interest earnings (foregone) on cash deposits in branches and atms/crms calculation**

| Variable                                             | Value                     | Source                                                                                                                                                                                           |
|------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Total annual volume of ATM/CRM transactions          | 433,334,233.00            | Using data from Bangladesh Bank (2024)                                                                                                                                                           |
| Total annual value of ATM/CRM transactions           | ৳1,134,219,784,108.00     | Using data from Bangladesh Bank (2024)                                                                                                                                                           |
| Ratio of withdrawals to deposits                     | 50.79%                    | Assumption: Assumes the ratio of withdrawals to deposits from MFS customers is consistent with that of bank customers                                                                            |
| Total annual volume of ATM/CRM withdrawals           | 220,090,456.94            | Calculation                                                                                                                                                                                      |
| Total annual value of ATM/CRM withdrawals            | ৳76,070,228,348.45        | Calculation                                                                                                                                                                                      |
| Average size of ATM/CRM withdrawal                   | ৳2,617.42                 | Calculation                                                                                                                                                                                      |
| ATM/CRM withdrawal transactions per day              | 602,987.55                | Calculation                                                                                                                                                                                      |
| Average amount of cash withdrawn at ATM/CRMs per day | ৳89,137,299.11            | Calculation                                                                                                                                                                                      |
| Liquidity buffer multiplier                          | 1.20                      | Assumption: Assumes ATMs/CRMs on average maintain a cash reserve of approximately 20% above the daily withdrawal amount to accommodate fluctuations in demand, based on industry best practices. |
| <b>Average cash holdings in ATM/CRM nationwide</b>   | <b>৳46,964,758.93</b>     | <b>Calculation</b>                                                                                                                                                                               |
| Average cash holdings in a rural branch per branch   | ৳20,000,000.00            | Data provided directly by a large bank in Bangladesh.                                                                                                                                            |
| Number of rural branches nationwide                  | 5,297.00                  | <a href="#">Bangladesh Bank (2024)</a>                                                                                                                                                           |
| Average cash holdings in an urban branch per branch  | ৳0,000,000.00             | Data provided directly by a large bank in Bangladesh.                                                                                                                                            |
| Number of urban branches nationwide                  | 5,987.00                  | <a href="#">Bangladesh Bank (2024)</a>                                                                                                                                                           |
| <b>Average cash holdings across all branches</b>     | <b>৳05,290,000,000.00</b> | <b>Calculation</b>                                                                                                                                                                               |

<sup>156</sup> Bangladesh Bank (2024). Interest Rates. Available [here](#).

|                                                                              |                    |                                        |
|------------------------------------------------------------------------------|--------------------|----------------------------------------|
| nationwide                                                                   |                    |                                        |
| Interest rate (91-day Treasury bill yield)                                   | 10.59%             | <a href="#">Bangladesh Bank (2025)</a> |
| Annual interest earnings foregone on cash deposits in branches and ATMs/CRMs | ৳43,020,494,567.97 | Calculation                            |

### ***Value of Counterfeit Notes***

We have included the value of counterfeit notes in the cost of cash for banks because, under the Bangladesh Bank (Note Refund) Regulations - 2012, counterfeit notes are not reimbursed, meaning banks absorb the full financial loss.<sup>157</sup>

No calculation was required to obtain this value, as it was provided directly from official data shared by the Bangladesh Bank to the research team. The calculation is detailed in the table below.

**Table 40: Value of counterfeit notes calculation**

| Variable                          | Value          | Source                                     |
|-----------------------------------|----------------|--------------------------------------------|
| Value of counterfeit notes        | ৳15,040,450.00 | Data provided directly by Bangladesh Bank. |
| Annual value of counterfeit notes | ৳15,040,450.00 | Data provided directly by Bangladesh Bank. |

### ***Interchange Fees Paid***

Interchange fees are incurred by banks when their customers perform off-us ATM withdrawals, meaning they withdraw cash from an ATM operated by a different bank. In these cases, the issuing bank (the customer's bank) pays a fee to the acquiring bank (the bank that owns the ATM).

The total annual interchange fees paid by banks are calculated as follows:

$$\text{Interchange Fees Paid} = \text{Total Volume of Off-us ATM withdrawals} * \text{Interchange Fee per Withdrawal}$$

For this calculation, the total volume of off-us ATM withdrawals is assumed to be equal to the volume of ATM transactions processed by the National Payment Switch Bangladesh (NPSB).<sup>158</sup> The interchange fee per withdrawal is assumed to be 20 BDT, the maximum allowed by Bangladesh Bank.<sup>159</sup> The calculation is detailed in the table below.

**Table 41: Interchange fees calculation**

| Variable                                    | Value             |                                        |
|---------------------------------------------|-------------------|----------------------------------------|
| Total volume of off-us bank ATM withdrawals | 70,504,533.00     | <a href="#">Bangladesh Bank (2024)</a> |
| Interchange fee per withdrawal              | ৳20.00            | <a href="#">Bangladesh Bank (2024)</a> |
| Annual interchange fees                     | ৳1,410,090,660.00 | Calculation                            |

<sup>157</sup> Bangladesh Bank (2012). Bangladesh Bank (Note Refund) Regulations - 2012. Available [here](#).

<sup>158</sup> Bangladesh Bank (2024). National Payment Switch Comparative Summary Statement. Available [here](#).

<sup>159</sup> Bangladesh (2025). Determination of Fees/Charges for NPSB Transactions. Available [here](#).

### Payments to Cash Logistics Companies

Banks in Bangladesh rely on cash-in-transit (CiT) companies to manage the secure movement of cash between branches, ATMs, and vaults. The cost of these services is assumed to be fully borne by the banks, meaning we do not treat CiT companies as a separate entity in our cost of cash calculations. This avoids the risk of double counting the cost of cash logistics.

The total cost of CiT services was provided by a large commercial bank in Bangladesh. To estimate the cost for the entire banking sector, we scaled this figure based on the bank's market share, ensuring that the estimate reflects the total CiT expenditure across all banks in the country. The calculation is detailed in the table below.

**Table 42: Payments to Cash Logistics Companies by banks**

| Variable                                                                                                               | Value                     | Source                                                       |
|------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------|
| Average total cost (payments made to CiTs) for transporting cash to each branch per year                               | ৳150,000.00               | Data provided directly by a large bank in Bangladesh.        |
| Total number of branches nationally                                                                                    | 11,284.00                 | <a href="#">Bangladesh Bank (2024)</a>                       |
| <b>Total cost (payments made to CiTs) for transporting cash to branches per year</b>                                   | <b>৳1,692,600,000.00</b>  | <b>Calculation</b>                                           |
| Average total cost (payments to CiTs) for transporting cash to each sub-branch per year                                | ৳6,332.00                 | Data provided directly by a large bank in Bangladesh.        |
| Total number of sub-branches nationally                                                                                | 3,400.00                  | <a href="#">Bangladesh Bank (2024)</a>                       |
| <b>Total cost (payments made to CiTs) for transporting cash to sub-branches per year</b>                               | <b>৳59,528,800.00</b>     | <b>Calculation</b>                                           |
| Average total cost (payments made to CiTs) for transporting cash to each ATM/CRM/CDM per year                          | ৳2,877.00                 | Data provided directly by a large bank in Bangladesh.        |
| Total number of ATMs, CRMs, and CDMs nationally                                                                        | 17,734.00                 | <a href="#">Bangladesh Bank (2024)</a>                       |
| <b>Total cost (payments made to CiTs) for transporting cash to ATM/CRM/CDMs per year</b>                               | <b>৳37,720,718.00</b>     | <b>Calculation</b>                                           |
| Average total cost (payments made to CiTs) for transporting cash from cash hub to currency chest per cash hub per year | ৳250,000.00               | Data provided directly by a large bank in Bangladesh.        |
| Total number of cash hubs nationally                                                                                   |                           |                                                              |
| Average total cost (payments made to CiTs) for securing each branch per year                                           | ৳12,000,000.00            | Data provided directly by a large CiT company in Bangladesh. |
| <b>Total cost of securing branches nationwide per year</b>                                                             | <b>৳35,408,000,000.00</b> | <b>Calculation</b>                                           |
| Average total cost (payments made to CiTs) for securing each ATM per year                                              | 6,000,000                 | Data provided by a large CiT company in Bangladesh.          |
| <b>Total cost of securing ATMs nationwide per year</b>                                                                 | <b>৳6,404,000,000.00</b>  | <b>Calculation</b>                                           |
| Annual payments to cash logistics companies                                                                            | ৳44,701,849,518.00        | Calculation                                                  |

### Cost of Cash to Microfinance Institutions

The total cost of cash for microfinance institutions is calculated as follows:

$$\text{Cost of Cash for Microfinance Institutions} = (\text{Operating Expenses of Representative MFI} \times (1 - 15\%)) \times \text{Market Share Scaling Factor}$$



During key informant interviews with a large microfinance institution (MFI), it was stated that since these institutions primarily handle cash transactions. Data from a Microfinance Study by BFA Global puts cash handling at 30% of staff working hours. On this basis, we estimated the cash-related operating costs per staff of the representative MFI and then scaled this figure to reflect the entire sector using the institution's market share. This approach allows for a sector-wide estimate of cash-related costs incurred by microfinance institutions in Bangladesh. The calculation is detailed in the table below.

**Table 43: Cash-related operating costs of MFIs**

| Variable                                                                     | Value                    | SOURCE                            |
|------------------------------------------------------------------------------|--------------------------|-----------------------------------|
| Total operating expenses of a representative microfinance institution        | ৳16,598,495,060.00       | Grameen bank Annual report        |
| Number of staff of representative MFI                                        | 18203                    | Grameen bank Annual report        |
| Average operating expense per staff                                          | ৳11,854.92               | Calculation                       |
| Share of the staff working hours spent on cash-related tasks                 | 30%                      | <a href="#">BFA Global</a> Report |
| Operating expense related to cash-related tasks per staff                    | ৳73,556.48               | Calculation                       |
| Number of staff of all MFIs in Bangladesh                                    | 206,000.00               | <a href="#">Industry data</a>     |
| <b>Estimated cost of cash for the entire microfinance institution market</b> | <b>৳6,352,633,890.46</b> | Calculation                       |

### Cost of Cash due to Retail Micro-Merchants

The total cost of cash for retail micro-merchants is calculated as follows:

$$\text{Cost of Cash to Retail Micro-Merchants} = \text{Foregone Interest Earnings on Cash Holdings} + \text{Cost of Risk of Cash Holdings} + \text{Opportunity Cost of Time} + \text{Fees Paid to Banks and MFS}$$

**Table 44: Retail Micro-Merchants summary**

| Variable                                                                             | Final Cost, Annual BDT   |
|--------------------------------------------------------------------------------------|--------------------------|
| Foregone interest earnings on cash holdings                                          | ৳69,289,600.00           |
| Cost of risk of cash holdings                                                        | ৳75,200,000.00           |
| Opportunity cost of time spent visiting and transacting at ATMs, branches and agents | ৳47,155,680,000.00       |
| Fees paid to banks and MFS at ATMs, branches and agents                              | ৳13,502,620,357.96       |
| <b>Total</b>                                                                         | <b>৳1,702,789,957.96</b> |

An explanation of the calculation for each of these components is detailed below.

### Foregone Interest Earnings on Cash Holdings

The foregone interest earnings on cash holdings estimate the opportunity cost retail micro-merchants incur by keeping cash instead of depositing it in an interest-bearing account. This metric accounts for the lost returns that could have been earned had these funds been placed in a savings or deposit account. This is calculated as follows:

$$ForegoneInterestEarnings = (T_m \times S_m \times \frac{3}{30}) \times N_m \times r$$

Where:

- $T_m$  - Average monthly turnover per merchant
- $S_m$  - Share of turnover earned in cash
- $\frac{3}{30}$  - Assumption that micro-merchants onto cash for an average of three days before depositing or using it
- $N_m$  - Total number of retail micro-merchants
- $r$  - Weighted average deposit rate

The total number of retail micro-merchants was sourced from a UNCDF (2018) study, which provided a baseline estimate for the number of retail micro-merchants in 2018.<sup>160</sup> The same study also included an estimate of the average annual growth rate of micro-merchants. This growth rate was applied to project the total number of micro-merchants in 2025, under the assumption of constant growth.

For the average monthly turnover per merchant, we relied on total turnover figures from the same UNCDF (2018) study, assuming that turnover per merchant has remained constant over time. The share of turnover earned in cash was estimated based on assumptions used in previous studies on cash usage, indicating that approximately 80% of transactions are conducted in cash.

To estimate average cash holdings per merchant, we relied on FGD insights, which suggested that micro-merchants typically hold onto their cash earnings for around three days before depositing or spending it. This was incorporated by taking a fraction (3/30) of monthly cash turnover, assuming that cash is gradually spent or deposited over the course of a month.

The weighted average deposit interest rate was sourced from the Bangladesh Bank and reflects the opportunity cost that merchants incur by holding cash instead of depositing it in an interest-bearing account.<sup>161</sup> The final calculation provides an estimate of the total foregone interest earnings across all retail micro-merchants in Bangladesh, representing the economic cost of cash holdings. The calculation is detailed in the table below.

**Table 45: Foregone Interest Earnings on Cash Holdings of retail micro merchants**

| Variable                                             | Value      | Source                                                                                                          |
|------------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------------|
| Average monthly turnover per merchant                | ₳72,000.00 | <a href="#">UNCDF (2018)</a> inflation adjusted                                                                 |
| Share of turnover earned in cash                     | 80%        | <a href="#">Assumption based on BTCA Bangladesh Country Diagnostic (2022)</a>                                   |
| Average monthly turnover per merchant earned in cash | ₳57,600.00 | Calculation                                                                                                     |
| Average cash holding per merchant                    | ₳7,760.00  | Assumption: Retail micro-merchants holds onto cash for approximately 3 days on average - based on FGD insights. |

<sup>160</sup> UNDP (2018). Landscape Assessment of Retail Micro-Merchants in Bangladesh. Available [here](#).

<sup>161</sup> Bangladesh Bank (2025). Interest Rates. Available [here](#).

|                                                                           |                   |                                                                                         |
|---------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------|
| Total number of retail micro-merchants                                    | 1,650,000.00      | <a href="#">Calculation</a>                                                             |
| Total retail micro-merchant cash holdings                                 | ৳5,504,000,000.00 | Calculation: Total number of retail micro-merchants * Average cash holding per merchant |
| Weighted average interest rate on deposits in Bangladeshi scheduled banks | 5.99%             | <a href="#">Bangladesh Bank (2025)</a>                                                  |
| Annual foregone interest earnings                                         | ৳69,289,600.00    | Calculation                                                                             |

### **Cost of Risk of Cash Holdings**

This represents the potential financial loss households incur due to the risk of theft or inadvertent loss of cash.

It is calculated as:

$$Cost of Risk of Cash Holdings = (T_m \times S_m \times \frac{3}{30}) \times N_m \times p_t$$

Where:

- $T_m$  - Average monthly turnover per merchant
- $S_m$  - Share of turnover earned in cash
- $\frac{3}{30}$  - Assumption that micro-merchants hold onto cash for an average of three days before depositing or using it
- $N_m$  - Total number of retail micro-merchants
- $p_t$  - Probability of theft or loss

The cost of risk of cash holdings represents the potential financial loss retail micro-merchants may incur due to theft or inadvertent loss of cash. This cost is estimated based on the assumption that merchants hold onto their cash for an average period before making deposits or payments. Insights from focus group discussions (FGDs) suggest that micro-merchants typically retain cash for approximately three days before transacting. This assumption reflects the time cash remains vulnerable to theft or loss before being deposited or reinvested in business operations.

The total exposure to risk is then scaled to the national level by multiplying the average cash holding per merchant by the total number of micro-merchants in the country. This approach estimates the total volume of cash at risk across the sector at any given time.

The probability of theft or loss is applied to this total exposure to estimate the potential financial impact. In the absence of precise data specific to Bangladesh, we adopt a conservative assumption of 5% as the probability that cash held by micro-merchants is lost or stolen. This assumption is informed by insights from key informant interviews (KIIs) and FGDs and represents the likelihood that a merchant will experience a cash-related loss over a given period.

This estimation assumes that any stolen or lost cash is irrecoverable, resulting in a direct financial loss to the merchant. The calculation is detailed in the table below.

**Table 46: Cost of risk of cash holdings by retail micro merchants**

| Variable                                             | Value             | Source                                                                                                          |
|------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------|
| Average monthly turnover per merchant                | ৳2,000.00         | <a href="#">UNCDF (2018)</a>                                                                                    |
| Share of turnover earned in cash                     | 80%               | <a href="#">Assumption based on BTCA Bangladesh Country Diagnostic (2022)</a>                                   |
| Average monthly turnover per merchant earned in cash | ৳1,600.00         | Calculation                                                                                                     |
| Average cash holding per merchant                    | ৳1,760.00         | Assumption: Retail micro-merchants holds onto cash for approximately 3 days on average - based on FGD insights. |
| Total number of retail micro-merchants               | 1,650,000.00      | <a href="#">Calculation</a>                                                                                     |
| Total retail micro-merchant cash holdings            | ৳2,804,000,000.00 | Calculation                                                                                                     |
| Probability of theft or loss                         | 5.00%             | Assumption: Based on insights from KIIs and FGDs                                                                |
| Annual cost of risk of cash holdings                 | ৳140,200,000.00   | Calculation                                                                                                     |

### ***Opportunity Cost of Time Spent Visiting Cash Channels***

The opportunity cost of time captures the value of lost business or productivity when retail micro-merchants engage in cash transactions, including deposits and withdrawals. This cost reflects the time spent traveling to and from banking locations, waiting in queues, and completing transactions, which could otherwise be used for income-generating activities.

It is calculated as:

$$OpportunityCost = T_t \times N_t \times R_h$$

Where:

- $T_t$  - Total time spent per transaction (in hours)
- $N_t$  - Total number of cash withdrawals/deposits across all retail micro-merchants
- $R_h$  - Average hourly turnover per merchant (representing foregone earnings)

The total time spent per transaction is assumed to be one hour, based on insights from focus group discussions (FGDs) with consumers and micro-merchants. This assumption accounts for the combined time required for traveling, waiting, and completing a transaction.

The hourly turnover per merchant is estimated using data on monthly turnover per merchant, divided by the average number of hours worked per merchant per year. This approach ensures that opportunity costs reflect the actual earning potential of merchants during working hours. The estimate is derived from UNCDF (2018), which provides insights into the working patterns of retail micro-merchants.<sup>162</sup>

<sup>162</sup> UNDP (2018). Landscape Assessment of Retail Micro-Merchants in Bangladesh. Available [here](#).

The total number of cash withdrawals and deposits per year across all retail micro-merchants is calculated by multiplying the average number of cash transactions per merchant per month (as inferred from FGDs) by the total number of retail micro-merchants in Bangladesh. The calculation is detailed in the table below.

**Table 47: Retail micro merchants opportunity cost of time spent visiting cash channels**

| Variable                                                                                | Value                          | Source                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Total time spent per deposit/withdrawal transaction (hours)                             | 1.00                           | Assumption: Based on average time taken across Consumer FGD participants                                                                                                                                                                                                                                                  |
| Average hourly turnover per merchant                                                    | ৳2 9 7 .7 0                    | <a href="#">Calculation</a>                                                                                                                                                                                                                                                                                               |
| Opportunity cost per transaction                                                        | ৳2 9 7 .7 0                    | Calculation                                                                                                                                                                                                                                                                                                               |
| Average number of cash withdrawals/deposits per micro-merchant per year (based on FGDs) | ৳9 6 .0 0                      | Assumption: Based on average number of cash trips per month across micro-merchant participants<br><a href="#">Calculation: Applied a constant growth rate to the number of retail micro-merchants in UNCDF (2018) (the growth rate was based on the year-on-year growth of retail micro merchants found in the study)</a> |
| Total number of retail micro-merchants                                                  | 1,650,000.00                   |                                                                                                                                                                                                                                                                                                                           |
| Total number of cash withdrawals/deposits per year across all micro-merchants           | 158,400,000.00                 | Calculation                                                                                                                                                                                                                                                                                                               |
| Annual opportunity cost of time                                                         | ৳4 7 ,1 5 5 ,6 8 0 ,0 0 0 .0 0 | Calculation                                                                                                                                                                                                                                                                                                               |

### ***Fees Paid to Banks and MFS***

Micro-merchants incur direct monetary costs in the form of withdrawal fees when accessing cash from MFS agents, ATMs, and bank branches. These fees vary based on the transaction channel, provider, and market share of each provider. The total fees paid are determined by multiplying the weighted average withdrawal fee for each channel by the total number of withdrawals occurring through that channel.

It is calculated as:

$$FeesPaid = (W_{MFS_{Agent}} \times N_{MFS_{Agent}}) + (W_{MFS_{ATM}} \times N_{MFS_{ATM}}) + (W_{Bank_{ATM}} \times N_{Bank_{ATM}})$$

Where:

- $W_{MFS_{Agent}}$  - Weighted average MFS withdrawal fee at MFS agents.
- $N_{MFS_{Agent}}$  - Total number of MFS withdrawals conducted at agents.
- $W_{MFS_{ATM}}$  - Weighted average withdrawal fee for MFS transactions at ATMs.
- $N_{MFS_{ATM}}$  - Total number of MFS withdrawals conducted at ATMs.
- $W_{Bank_{ATM}}$  - Weighted average withdrawal fee for bank off-us ATM transactions.
- $N_{Bank_{ATM}}$  - Total number of bank off-us ATM withdrawals.

To estimate the fees paid by micro-merchants, we first calculated the average value of an MFS withdrawal by dividing the total value of MFS withdrawals by the total volume of MFS withdrawals. Using this, we determined the weighted average withdrawal fee per transaction, incorporating provider market shares.

To disaggregate total MFS withdrawals between consumers and micro-merchants, we assumed that 20% of all MFS withdrawals are performed by micro-merchants, while the remaining 80% are conducted by consumers.

To disaggregate withdrawals by channel, we assumed that the ratio of MFS withdrawals conducted at agents relative to ATMs is 90/10. This assumption is based on the relative availability of these channels to micro-merchants.

For bank ATM withdrawals, we used the total volume of off-us bank ATM transactions and assumed that 80% of these transactions are ATM withdrawals (as opposed to other types of off-us transactions in Bangladesh, such as balance inquiries, fund transfers, and mini-statements). Additionally, we assumed that 20% of all ATM withdrawals are performed by micro-merchants rather than consumers.

The total fees paid by micro-merchants to banks and MFS were then determined by multiplying the weighted average withdrawal fee for each channel by the estimated volume of withdrawals made by micro-merchants through that channel. Fees vary depending on whether withdrawals take place at MFS agents, MFS-linked ATMs, or bank ATMs, and the calculation accounts for these differences by weighting withdrawal fees according to provider market shares.

Withdrawals at bank branches and MFS agents are excluded, as industry norms indicate that direct withdrawal fees at bank counters and agents are not charged. Instead, levies, deposits, or service fees across all channels serve as the key contributors to the financial cost borne by micro-merchants when accessing cash. The final calculation therefore represents only the direct costs micro-merchants incur when withdrawing cash from MFS agents, MFS-linked ATMs, or off-us bank ATMs. The calculation is detailed in the table below.

**Table 48: Retail micro merchants - Fees Paid to Banks and MFS**

| Variable                                                                                     | Value               | Source                                                                                           |
|----------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------|
| Total volume of MFS withdrawals per year                                                     | 1,248,056,478.00    | <a href="#">Bangladesh Bank (2023)</a>                                                           |
| Total value of MFS withdrawal per year                                                       | ৳825,980,693,000.00 | <a href="#">Bangladesh Bank (2023)</a>                                                           |
| Average value of MFS withdrawal                                                              | ৳,065.55            | Calculation                                                                                      |
| Assumed share of MFS withdrawals per year attributable to micro-merchants                    | 20%                 | Assumption: 20% of all MFS withdrawals are performed by micro-merchants, as opposed to consumers |
| Total volume of MFS withdrawals per year attributable to micro-merchants                     | 249,611,295.60      | Calculation                                                                                      |
| Total volume of MFS withdrawals conducted at agents per year attributable to micro-merchants | 224,650,166.04      | Assumption: Assuming ratio of MFS transactions conducted at agents relative to ATMs is 90/10     |
| Total volume of MFS withdrawals conducted at ATMs per year attributable to micro-merchants   | 24,961,129.56       | Assumption: Assuming ratio of MFS transactions conducted at agents relative to ATMs is 90/10     |
| bKash agent withdrawal fee                                                                   | 1.85%               | <a href="#">bKash (2025)</a>                                                                     |
| bKash market share                                                                           | 75%                 | <a href="#">BTCA Bangladesh Country Diagnostic (2022)</a>                                        |
| Nagad agent withdrawal fee                                                                   | 1.50%               | <a href="#">Nagad (2025)</a>                                                                     |
| Nagad market share                                                                           | 10%                 | <a href="#">BTCA Bangladesh Country Diagnostic (2022)</a>                                        |

|                                                                                                                                |                          |                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Rocket agent withdrawal fee                                                                                                    | 1.80%                    | <a href="#">Rocket (2025)</a>                                                                                                             |
| Rocket market share                                                                                                            | 5.00%                    | <a href="#">BTCA Bangladesh Country Diagnostic (2022)</a>                                                                                 |
| Weighted average agent withdrawal fee                                                                                          | 1.63%                    | Calculation                                                                                                                               |
| Weighted average agent withdrawal fee per transaction                                                                          | ৳49.89                   | Calculation                                                                                                                               |
| <b>Total fees paid for MFS agent withdrawals per year</b>                                                                      | <b>৳1,208,210,440.14</b> | <b>Calculation</b>                                                                                                                        |
| Number of bKash ATM withdrawals                                                                                                | 23,401,058.96            | Calculation                                                                                                                               |
| bKash ATM withdrawal fee                                                                                                       | 1.50%                    | <a href="#">bKash (2025)</a>                                                                                                              |
| Total fees paid for bKash ATM withdrawals per year                                                                             | ৳1,076,057,069.91        | Calculation:                                                                                                                              |
| Number of Rocket ATM withdrawals                                                                                               | 1,560,070.60             | Calculation: Rocket market share * Total volume of MFS withdrawals conducted at ATMs per year                                             |
| Rocket ATM withdrawal fee                                                                                                      | 0.90%                    | <a href="#">Rocket (2025)</a>                                                                                                             |
| Total fees paid for Rocket ATM withdrawals per year                                                                            | ৳43,042,282.80           | Calculation                                                                                                                               |
| <b>Total fees paid for MFS ATM withdrawals per year for consumers</b>                                                          | <b>৳1,119,099,352.70</b> | <b>Calculation</b>                                                                                                                        |
| Total volume of off-us bank ATM transactions                                                                                   | 70,504,533.00            | <a href="#">Bangladesh Bank (2024)</a>                                                                                                    |
| Assumed ratio of off-us withdrawals to other types of off-us ATM transactions (balance enquiry, fund transfer, mini-statement) | 80%                      | Assumption: 80% of all off us bank ATM transactions are withdrawals                                                                       |
| Total volume of off-us bank ATM withdrawals                                                                                    | 56,403,626.00            | Calculation                                                                                                                               |
| Assumed share of off-us bank ATM withdrawals per year attributable to consumers                                                | 80%                      | Assumption: 80% of all off-us bank ATM withdrawals are performed by consumers, as opposed to micro-merchants                              |
| Total volume of off-us bank ATM withdrawals per year attributable to consumers                                                 | 45,122,901.00            | Calculation                                                                                                                               |
| Simple average of off-us ATM withdrawal fee per transaction                                                                    | ৳16.67                   | Simple average of off-us ATM withdrawal fees from banks where fees were readily available - Dutch-Bangla Bank, BRAC Bank, and Islami Bank |
| <b>Total annual bank ATM off-us transaction fees</b>                                                                           | <b>৳1,175,310,565.11</b> | <b>Calculation</b>                                                                                                                        |
| Annual value of fees paid to banks and MFS                                                                                     | ৳13,502,620,357.96       | Calculation                                                                                                                               |

### Cost of Cash for FMCG Retailers

FMCG retailers incur multiple costs associated with handling and managing cash, including foregone interest, security risks, cash handling expenses, and fees for banking services. These costs arise due to the need to maintain cash reserves, process payments, and ensure security during cash transportation and storage. Here, the focus is on FMCG retailers operating above the micro-merchant level, who typically handle larger transaction volumes and have more structured cash management practices.

The cost of cash for large retailers is calculated as:

$$\text{Cost of Cash for Large FMCG Retailers} = \text{Foregone Interest on Cash Holdings} + \text{Cost of Risk of Cash Holdings} + \text{Transaction Fees} + \text{Payments to Cash Logistics Companies}$$

An explanation of the calculation for each of these components is detailed below.

**Table 49: Cost of Cash for FMCG Retailers Summary**

| Variable                             | Final Cost, Annual BDT |
|--------------------------------------|------------------------|
| Foregone Interest on Cash Holdings   | ৳28,003,360.00         |
| Cost of Risk of Cash Holdings        | ৳28,384,000.00         |
| Transaction Fees                     | ৳1,353,600.00          |
| Payments to Cash Logistics Companies | ৳,000,000.00           |
| <b>Total</b>                         | <b>৳50,740,960.00</b>  |

#### ***Foregone Interest Earnings on Cash Holdings***

This represents the interest that FMCG retailers forgo by holding cash instead of depositing it in an interest-bearing account.

It is calculated as:

$$\text{ForegoneInterestEarnings} = (T_{FMCG} \times S_{FMCG} \times H_{FMCG}) \times r$$

Where:

- $T_{FMCG}$  - Average monthly turnover for FMCG retailers
- $S_{FMCG}$  - Share of FMCG transactions conducted in cash
- $H_{FMCG}$  - Assumed proportion of monthly cash turnover held at any given time (20%)
- $r$  - Weighted average deposit interest rate

The calculation assumes that retailers hold, on average, a portion of their monthly cash turnover at any given time before it is spent or deposited. This assumption reflects the operational realities of cash-intensive retail businesses, where cash is required for daily transactions but remains idle for short periods.

The total annual turnover for FMCG retailers was sourced from an industry report, while the share of turnover conducted in cash was obtained from a key informant interview (KII) with a large FMCG retailer in Bangladesh.<sup>163</sup> For this calculation, we assume that large FMCG retailers account for 60% of total FMCG sector revenue, reflecting their role in handling a significant share of formal retail transactions. While smaller retailers are far more numerous, their individual turnover is typically lower, meaning a substantial portion of overall sales volume is concentrated within large retail chains, independent supermarkets, and wholesalers.

The opportunity cost is determined by applying the weighted average deposit interest rate, representing the returns retailers could have earned had they deposited these funds.<sup>164</sup> This approach assumes that cash holdings remain relatively stable over time and that the interest rate accurately reflects the opportunity cost

<sup>163</sup> Invest Bangladesh (2023). FMCG. Available [here](#).

<sup>164</sup> Bangladesh Bank (2025). Interest Rates. Available [here](#).



of holding cash. Additionally, it does not account for businesses potentially reallocating cash into other financial instruments or informal savings mechanisms. The calculation is detailed in the table below.

**Table 50: FMCG Retailers Foregone Interest Earnings on Cash Holdings**

| Variable                                                                              | Value               | Source                                                                     |
|---------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------|
| Total annual FMCG turnover                                                            | ৳475,800,000,000.00 | <a href="#">Invest Bangladesh (2024)</a>                                   |
| Assumed proportion of total annual FMCG turnover attributable to large FMCG retailers | 60%                 | Assumption: 60% of annual FMCG turnover flows through large FMCG retailers |
| Total annual turnover of large FMCG retailers                                         | ৳285,480,000,000.00 | Calculation:                                                               |
| Proportion of transactions conducted in cash                                          | 80%                 | Key informant interview with large FMCG retailer in Bangladesh.            |
| Total monthly cash turnover                                                           | ৳19,032,000,000.00  | Calculation                                                                |
| Cash holding assumption                                                               | 20%                 | Assumption: Retailers hold 20% of monthly cash turnover at any given time  |
| Average cash holding                                                                  | ৳3,806,400,000.00   | Calculation                                                                |
| Weighted average interest rate on deposits in Bangladeshi scheduled banks             | 5.99%               | <a href="#">Bangladesh Bank (2025)</a>                                     |
| Annual foregone interest earnings                                                     | ৳228,003,360.00     | Calculation                                                                |

### **Cost of Risk of Cash Holdings**

The cost of risk of cash holdings represents the potential financial loss that FMCG retailers incur due to the risk of theft or inadvertent loss of cash.

It is calculated as:

$$\text{Cost of Risk of Cash Holdings} (T_{FMCG} \times S_{FMCG}) \times p_t$$

Where:

- $T_{FMCG}$  - Average monthly turnover for FMCG retailers
- $S_{FMCG}$  - Share of FMCG transactions conducted in cash
- $p_t$  - Assumed probability of cash being lost or stolen

This estimation assumes that 0.1% of annual cash turnover is lost to theft or misplacement, reflecting the financial risk associated with handling cash. The total annual turnover for FMCG retailers was sourced from an industry report, while the share of turnover conducted in cash (80%) was obtained from a key informant interview (KII) with a large FMCG retailer in Bangladesh. For this calculation, we assume that large FMCG retailers account for 60% of total FMCG sector revenue, reflecting their role in handling a significant share of formal retail transactions. The calculation is detailed in the table below.

**Table 51: FMCG Retailers Cost of Risk of Cash Holdings**

| Variable                   | Value               | Source                                   |
|----------------------------|---------------------|------------------------------------------|
| Total annual FMCG turnover | ৳475,800,000,000.00 | <a href="#">Invest Bangladesh (2024)</a> |

|                                                                                       |                     |                                                                            |
|---------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------|
| Assumed proportion of total annual FMCG turnover attributable to large FMCG retailers | 60%                 | Assumption: 60% of annual FMCG turnover flows through large FMCG retailers |
| Total annual turnover of large FMCG retailers                                         | ৳285,480,000,000.00 | Calculation                                                                |
| Proportion of transactions conducted in cash                                          | 80%                 | Key informant interview with large FMCG retailer in Bangladesh.            |
| Total annual cash turnover                                                            | ৳228,384,000,000.00 | Calculation                                                                |
| Probability of theft or loss                                                          | 0.10%               | Assumption: Based on past cost of cash studies                             |
| Annual cost of risk of cash holdings                                                  | ৳228,384,000.00     | Calculation                                                                |

### Transaction Fees

Transaction fees refer to the costs FMCG retailers incur when depositing cash into their accounts through financial service providers. While most deposits are made at bank branches at no cost, retailers sometimes use alternative channels, such as mobile financial service (MFS) agents, which charge a fee per deposit.

Based on key informant interviews, most FMCG retailers above the micro-merchant level deposit their cash through bank branches, which generally do not charge fees for over-the-counter deposits. However, cash collected after bank branches close is often deposited at the end of the day through the MFS agent network, which charges approximately 0.2% per deposit.

The total transaction fees paid by FMCG retailers is calculated as follows:

$$TotalTransactionFees = (TotalFMCGRetailDepositsThroughMFS) \times (MFSDepositFee)$$

For this calculation, it was assumed that the value of cash deposited in this way (not through the bank branch network) is equal to 20% of the total annual cash turnover for the FMCG retailers. The calculation is detailed in the table below.

**Table 52: FMCG Retailers Transaction Fees**

| Variable                                                    | Value               | Source                                                                                                                                                |
|-------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Total annual cash turnover                                  | ৳228,384,000,000.00 | Calculations conducted in cost of risk of cash holdings calculation.                                                                                  |
| Share of total turnover deposited through MFS agent network |                     | Assumption based on insights from KIIs - where stakeholder stated that the MFS network is used for deposits after hours when branches are 20% closed. |
| Total annual FMCG retail deposits through MFS agent network | ৳45,676,800,000.00  | Calculation                                                                                                                                           |
| MFS Agent deposit fee                                       |                     | Insight from Key Informant Interview with large 0.20% FMCG retailer.                                                                                  |
| Total transaction fees                                      | ৳1,353,600.00       | Calculation                                                                                                                                           |

### Payments to Cash Logistics Companies

This represents the total amount that large FMCG retailers in Bangladesh pay to cash-in-transit (CiT) service providers for cash handling services. Payments to cash logistics companies represent the total amount FMCGs pay to cash-in-transit (CiT) providers for transporting cash to retail locations. This is calculated by estimating

the total number of CiT trips completed across the industry and multiplying it by the average cost per trip. The formula used is:

It is calculated as:

$$AnnualPaymentsToCashLogisticsCompanies = (N_{CiT} \times \frac{1}{MS_{CiT}}) \times Cost_{CiT}$$

Where:

- $N_{CiT}$  - Number of retail CiT trips completed on an annual basis by a representative CiT company
- $MS_{CiT}$  - Market share of the representative CiT company
- $Cost_{CiT}$  - Average cost paid to CiT per trip to a retail location

where the number of retail CiT trips completed annually by a representative CiT company is scaled up using the inverse of the company's market share to estimate the total number of trips conducted across the industry. This figure is then multiplied by the average cost per trip to determine the total annual payments made to cash logistics companies. The calculation assumes that CiT trips are fairly uniform across providers in terms of cost and service structure, meaning the market share adjustment provides a reasonable estimate of total activity. The number of CiT trips and the cost per trip are based on data provided by a representative CiT provider in Bangladesh, while market share estimates are informed by key informant interviews. This approach accounts for direct cash transport costs incurred by FMCGs and forms one component of the overall cost of cash in Bangladesh. The calculation is detailed in the table below.

**Table 53: FMCG Retailers Payments to Cash Logistics Companies**

| Variable                                                                              | Value         | Source                                                         |
|---------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------|
| Number of retail CiT trips completed on an annual basis by representative CiT         |               | 30 Data provided directly by CiT company in Bangladesh.        |
| Market share of representative CiT company                                            | 15%           | Insights from key informant interview with representative CiT. |
| Estimated number of retail CiT trips completed on an annual basis by whole CiT market | 200           | Calculation                                                    |
| Average cost paid to CiT per trip to retail location                                  | ₳15,000.00    | Data provided directly by CiT company in Bangladesh.           |
| Annual total payments to cash logistics companies                                     | ₳3,000,000.00 | Calculation                                                    |

### Cost of Cash due to Shadow Economy

The presence of a shadow economy leads to lost tax revenue for the government, as economic activity occurring outside the formal sector is not reported and, therefore, not taxed.

The estimated revenue loss due to the presence of the shadow economy is calculated as follows:

$$Foregone\ Revenue = Nominal\ GDP \times Tax\ Revenue\ (\% \text{ GDP}) \times Size\ of\ Shadow\ Economy\ (\% \text{ GDP})$$

This calculation estimates the tax revenue that could have been collected if the entire shadow economy had been formalized and subject to taxation at the same rate as the formal economy. The assumption underlying this approach is that all economic activity in the informal sector is cash-based and largely outside the formal

tax net. This aligns with findings from studies on informal economies, which indicate that unregistered businesses and transactions primarily operate using cash, avoiding traceability and tax obligations. For this calculation, the nominal GDP (in current prices) and tax revenue as a percentage of GDP were sourced from the World Bank Development Indicators Database, while the estimated size of the shadow economy as a percentage of GDP was obtained from the Quarterly Informal Economy Survey by World Economics (2023).<sup>165,166</sup> This figure represents the maximum tax-revenue gap if current behavioural and enforcement conditions remained unchanged while all informal activity outside the tax system became fully traceable; in practice, the achievable yield would be lower and depend on complementary compliance measures. The calculation is detailed in the table below.

**Table 54: Revenue losses due to presence of shadow economy**

| Variable                                                           | Value                  | Source                                                                                |
|--------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------|
| Nominal GDP (current BDT)                                          | ৳44,908,417,000,000.00 | <a href="#">World Bank (2023)</a>                                                     |
| Tax revenue (% of GDP)                                             | 7.64%                  | <a href="#">World Bank (2023)</a>                                                     |
| Size of the shadow economy (% of GDP)                              | 27.20%                 | <a href="#">World Economics (2023)</a>                                                |
| Estimated total foregone revenue due to presence of shadow economy | ৳33,232,831,993.60     | Calculation: Size of shadow economy (% of GDP) * Tax revenue (% of GDP) * Nominal GDP |

## Cost of digital payment calculation

**Table 55: Cost of digital payments - Card**

| Stakeholder | BB PSD                                                         | Value                | Unit          | Unit Driver      | Source                                              |
|-------------|----------------------------------------------------------------|----------------------|---------------|------------------|-----------------------------------------------------|
| Network     | <b>Central Bank Taka Pay and POS (NPSB) Operations (Costs)</b> |                      |               |                  |                                                     |
|             | Annual NPSB platform/software maintenance cost USD             | \$304,000.00         | USD           | Annually         | Bangladesh Bank Data                                |
|             | USD - BDT Exchange rate                                        | 121.4                | Exchange rate | As of 20/02/2025 | Oanda                                               |
|             | Annual NPSB platform/software maintenance cost Taka            | ৳6,905,600.00        | Taka          | Annually         | Bangladesh Bank Data                                |
|             | Proportion of NPSB costs attributed to Taka pay                | 30%                  | Percent       | Annually         | Assumption: Based on aggregate NPSB payment volumes |
|             | Proportion of NPSB costs attributed to POS                     | 9.10%                | Percent       | Annually         | Assumption: Based on aggregate NPSB payment volumes |
|             | Proportion of NPSB costs attributed to card operations         | 39%                  | Percent       | Annually         | Calculation                                         |
|             |                                                                |                      |               |                  |                                                     |
|             | <b>Total Network cost</b>                                      | <b>৳4,430,089.60</b> | <b>Taka</b>   | <b>Annually</b>  |                                                     |

<sup>165</sup> World Bank (2023). World Development Indicators Database. Available [here](#).

<sup>166</sup> World Economic (2023). Quarterly Informal Economy Survey. Available [here](#).

|                 |                                                                  |                                                                                                                                                                                                                                                                    |        |                      |                                  |
|-----------------|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------|----------------------------------|
|                 | Assumptions                                                      | 5% of NPSB costs are attributed to Taka pay<br><br>30% of NPSB costs are attributed to POS operations. This assumption was formed by taking the number of NPSB transactions for ATM, POS, IBFT and Bangla QR, and working out POS share of total NPSB transactions |        |                      |                                  |
| Stakeholder     | Direct card costs                                                | Value                                                                                                                                                                                                                                                              | Unit   | Unit Driver          |                                  |
| Issuing Banks   | New cards                                                        |                                                                                                                                                                                                                                                                    |        |                      |                                  |
|                 | Card order cost per card (including personalisation)             | ৳60.00                                                                                                                                                                                                                                                             | Taka   | Per card             | Data provided by Issuing banks   |
|                 | Card pick-up and delivery                                        | ৳18.00                                                                                                                                                                                                                                                             | Taka   | Per card             | Data provided by Issuing banks   |
|                 | Cost of card customer acquisition                                | ৳800.00                                                                                                                                                                                                                                                            | Taka   | Per card             | Data provided by Issuing banks   |
|                 | <b>Total Cost of issuing 1 new card</b>                          | <b>৳1,078.00</b>                                                                                                                                                                                                                                                   | Taka   | Per card             | Calculation                      |
|                 | Total number of cards issued in 2023                             | 6,221,219.00                                                                                                                                                                                                                                                       | Number | Per year             | Bangladesh Bank Data             |
|                 | <b>Total cost of card issuance in Bangladesh in 2023</b>         | <b>৳6,706,474,082.00</b>                                                                                                                                                                                                                                           | Taka   | Per year             | Calculation                      |
|                 | Cards in Circulation                                             |                                                                                                                                                                                                                                                                    |        |                      |                                  |
|                 | Loyalty programme cost to bank per card                          | ৳18.00                                                                                                                                                                                                                                                             | Taka   | Per card per year    | Data provided by Issuing banks   |
|                 | Card hosting/ BIN fee per customer per year                      | ৳2.19                                                                                                                                                                                                                                                              | Taka   | Per card per year    | Data provided by Issuing banks   |
|                 | <b>Total Cost of Maintaining 1 card customer per year</b>        | <b>৳30.19</b>                                                                                                                                                                                                                                                      | Taka   | Per card per year    | Calculation                      |
|                 | Total number of issued cards as of 2023                          | 42,089,194.00                                                                                                                                                                                                                                                      | Number | Total in Circulation | Bangladesh Bank Data             |
|                 | <b>Total cost of card management in Bangladesh</b>               | <b>৳4,479,592,166.86</b>                                                                                                                                                                                                                                           | Taka   | Per card per year    | Calculation                      |
|                 | <b>Total Cost</b>                                                | <b>৳12,186,066,248.86</b>                                                                                                                                                                                                                                          | Taka   | Per year             |                                  |
| Stakeholder     | POS and E-commerce costs                                         | Value                                                                                                                                                                                                                                                              | Unit   | Unit Driver          |                                  |
| Acquiring Banks | NPSB Platform Cost                                               |                                                                                                                                                                                                                                                                    |        |                      |                                  |
|                 | NPSB Platform Access cost                                        | ৳1,140.00                                                                                                                                                                                                                                                          | Taka   | Per POS per year     | Data from from Bangladesh Bank   |
|                 | Total number of POS devices in 2023                              | 108469                                                                                                                                                                                                                                                             | Number | 2023 Total           | Bangladesh Bank Data             |
|                 | <b>Total cost of POS (NPSB) platform access</b>                  | <b>1,208,344,660.00</b>                                                                                                                                                                                                                                            | Taka   | Per year             | Calculation                      |
|                 | Cost of POS Merchant Acquisition                                 |                                                                                                                                                                                                                                                                    |        |                      |                                  |
|                 | Average cost of merchant acquisition (POS)                       | ৳1,700.00                                                                                                                                                                                                                                                          | Taka   | Per POS device       | Data provided by acquiring banks |
|                 | Total number of new POS devices in 2023                          | 5414                                                                                                                                                                                                                                                               | Number | Per year             | Bangladesh Bank Data             |
|                 | <b>Total cost of merchant acquisition in Bangladesh per year</b> | <b>৳9,203,800.00</b>                                                                                                                                                                                                                                               | Taka   | Per year             | Calculation                      |
|                 | <b>Cost of merchant and POS maintenance</b>                      |                                                                                                                                                                                                                                                                    |        |                      |                                  |

|                    |                                                                          |                                                                                                          |              |                                                             |                                  |
|--------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------|----------------------------------|
|                    | POS life span                                                            | 5.00                                                                                                     | Years        | Per device                                                  | Data provided by acquiring banks |
|                    | Annual POS depreciation rate                                             | 20.00%                                                                                                   | Percent      | Per year                                                    | Calculation                      |
|                    | Cost of POS Device                                                       | ৳650.00                                                                                                  | Taka         | Per device                                                  | Data provided by acquiring banks |
|                    | Annual depreciation per POS                                              | ৳130.00                                                                                                  | Taka         | Per year                                                    | Calculation                      |
|                    | <b>Total Cost of POS depreciation per year</b>                           | <b>৳4,100,970.00</b>                                                                                     | <b>Taka</b>  | <b>Per year</b>                                             | Calculation                      |
|                    | Cost of merchant maintenance per year                                    | ৳2,276.00                                                                                                | Taka         | Per POS Per year                                            | Data provided by acquiring banks |
|                    | <b>Total Cost of Merchant maintenance per year</b>                       | <b>৳1,006,158,444.00</b>                                                                                 | <b>Taka</b>  | <b>Per year</b>                                             | Calculation                      |
|                    | <b>Total Cost of merchant and POS maintenance per year</b>               | <b>৳1,020,259,414.00</b>                                                                                 | <b>Taka</b>  | <b>Per year</b>                                             | Calculation                      |
|                    | <b>Total Cost</b>                                                        | <b>2,237,807,874.00</b>                                                                                  | <b>Taka</b>  | <b>Per year</b>                                             |                                  |
| <b>Stakeholder</b> | <b>POS and e-Commerce</b>                                                | <b>Value</b>                                                                                             | <b>Units</b> | <b>Unit Driver</b>                                          |                                  |
| Merchants          | <b>Onboarding costs</b>                                                  |                                                                                                          |              |                                                             |                                  |
|                    | Merchant onboarding cost                                                 | ৳0.00                                                                                                    | Taka         | Per device                                                  |                                  |
|                    | <b>Total Cost to Merchants for onboarding and purchasing POS devices</b> | <b>৳0.00</b>                                                                                             | <b>Taka</b>  | <b>Per year</b>                                             |                                  |
|                    | <b>Ongoing Merchant POS costs</b>                                        |                                                                                                          |              |                                                             |                                  |
|                    | Merchant account annual costs                                            | 0.00                                                                                                     | Taka         | Per year                                                    |                                  |
|                    | <b>Total Merchant annual account costs</b>                               | <b>0.00</b>                                                                                              | <b>Taka</b>  | <b>Per year</b>                                             |                                  |
|                    | <b>Transactions</b>                                                      |                                                                                                          |              |                                                             |                                  |
|                    | Total value of card (POS and e-Commerce) transactions in 2023            | ৳504,836,000,000.00                                                                                      | Taka         | Per year                                                    | Bangladesh Bank Data             |
|                    | Merchant Service Charge                                                  | 1.60%                                                                                                    | Percent      | Per transaction                                             | Bangladesh Bank Data             |
|                    | <b>Total cost to merchants for all transactions</b>                      | <b>৳8,077,376,000.00</b>                                                                                 | <b>Taka</b>  | <b>Per year</b>                                             | Calculation                      |
|                    | <b>Total Cost</b>                                                        | <b>৳8,077,376,000.00</b>                                                                                 | <b>Taka</b>  | <b>Per year</b>                                             |                                  |
|                    | Assumptions                                                              | Merchants are not charged for e-commerce or POS onboarding. All costs come from Merchant Service Charge. |              |                                                             |                                  |
| <b>Stakeholder</b> | <b>Cards</b>                                                             | <b>Value</b>                                                                                             | <b>Units</b> | <b>Unit Driver</b>                                          |                                  |
| Card Holder        | <b>Ongoing Card charges</b>                                              |                                                                                                          |              |                                                             |                                  |
|                    | Card annual fee                                                          | ৳600.00                                                                                                  | Taka         | Per year                                                    | Data provided by Issuing banks   |
|                    | Total number of cards in circulation 2023                                | 42,089,194.00                                                                                            | Number       | Total (2023)                                                | Bangladesh Bank Data             |
|                    | Total number of cards that incur annual fees                             | 8,417,838.80                                                                                             | Number       | 80% of cards enjoy waivers and ~20% actually incur the fee. | Key informant interviews         |

|  |                                              |                                                                                                                                                                                                                                                                                                                                                                                           |             |                            |                          |
|--|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------|--------------------------|
|  | Total cost of annual card fees in Bangladesh | ৳,050,703,280.00                                                                                                                                                                                                                                                                                                                                                                          | Taka        | Bangladesh Total Annually. | Calculation              |
|  | <b>TOTAL COST</b>                            | <b>৳,050,703,280.00</b>                                                                                                                                                                                                                                                                                                                                                                   | <b>Taka</b> | <b>Per year</b>            |                          |
|  | <b>Assumptions</b>                           | <p>Assumption that 20% of new cards incur renewal fee</p> <p>Card issuance is generally free, but this cost is picked up in the annual charges. Customers in Bangladesh are offered reward points which can be used to pay the annual fee. Also, this fee is typically waived upon execution of a certain number of transactions.</p> <p>Merchants bear all the costs of transactions</p> |             |                            | Key informant interviews |

**Table 56: Cost of digital payments - MFS**

| Stakeholder             | Central Banks/ Governments Binimoy costs                            | Value                                                                                                                                              | Units       | Unit Driver     |                                |
|-------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------|--------------------------------|
| Binimoy                 | <b>Annual operational Costs</b>                                     |                                                                                                                                                    |             |                 |                                |
|                         | Annual Binimoy platform/software licencing/maintenance cost (fixed) | ৳9,000,000.00                                                                                                                                      | Taka        | Per year        | Bangladesh Bank Data           |
|                         | Additional lump-sum system upgrade cost per year                    | ৳1,660,000.00                                                                                                                                      | Taka        | Per year        | Bangladesh Bank Data           |
|                         | <b>Total annual costs of maintaining Binimoy</b>                    | <b>৳10,660,000.00</b>                                                                                                                              | <b>Taka</b> | <b>Per year</b> | Bangladesh Bank Data           |
|                         | <b>Transactional Costs</b>                                          |                                                                                                                                                    |             |                 |                                |
|                         | Fixed Cost per transaction                                          | ৳0.00                                                                                                                                              | Taka        | Per transaction |                                |
|                         | Total Volume of Binimoy transactions                                | 180,432.00                                                                                                                                         | Numer       | Per year        | Bangladesh Bank Data           |
|                         | Total Value of Binimoy transactions                                 | ৳56,600,000.00                                                                                                                                     | Taka        | Per year        | Bangladesh Bank Data           |
|                         | <b>Annual cost of transactions 2024</b>                             | <b>৳0.00</b>                                                                                                                                       | <b>Taka</b> | <b>Per year</b> |                                |
|                         |                                                                     |                                                                                                                                                    |             |                 |                                |
|                         |                                                                     |                                                                                                                                                    |             |                 |                                |
|                         |                                                                     |                                                                                                                                                    |             |                 |                                |
|                         | <b>TOTAL COST</b>                                                   | <b>৳10,660,000.00</b>                                                                                                                              | <b>Taka</b> | <b>Per year</b> |                                |
|                         | Assumptions                                                         | An average of NPSB and RTGS platform software/maintenance was taken as an approximate for annual platform cost as well as for annual upgrade costs |             |                 |                                |
| Stakeholder             | Transaction initiator costs (MFS initiating)                        | Value                                                                                                                                              | Units       | Unit Driver     |                                |
| Originating institution | <b>Annual operational Costs</b>                                     |                                                                                                                                                    |             |                 |                                |
|                         | Annual binimoy platform cost                                        | ৳150,000.00                                                                                                                                        | Taka        | Per year        | Data provided by banks         |
|                         | Number of participants integrated with Binimoy                      | 16.00                                                                                                                                              | Number      | To date (2024)  | Bangladesh Bank Data           |
|                         | <b>Total operational costs</b>                                      | <b>৳1,400,000.00</b>                                                                                                                               | <b>Taka</b> | <b>Per year</b> | Calculation                    |
|                         | <b>Transaction costs</b>                                            |                                                                                                                                                    |             |                 |                                |
|                         | SMS notification cost per transaction                               | ৳1.36                                                                                                                                              | Taka        | Per transaction | Data provided by MFS and banks |
|                         | Network cost per transaction                                        | ৳0.50                                                                                                                                              | Taka        | Per transaction | Data provided by MFS and banks |

|                       |                                                          |                                                                                                                                                                                      |              |                    |                                |
|-----------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------------|--------------------------------|
|                       | Total cost per transaction                               | ৳1.86                                                                                                                                                                                | Taka         | Per transaction    | Calculation                    |
|                       | Total Volume of Binimoy transactions                     | 180,432.00                                                                                                                                                                           | Number       | Per year           | Bangladesh Bank Data           |
|                       | <b>Total transactional costs</b>                         | <b>৳35,603.52</b>                                                                                                                                                                    | <b>Taka</b>  | <b>Per year</b>    | Calculation                    |
|                       | <b>Total Cost</b>                                        | <b>2,735,603.52</b>                                                                                                                                                                  | <b>Taka</b>  | <b>Per year</b>    | Calculation                    |
|                       | Assumptions                                              | The average of BEFTN and RTGS platform access costs was taken as an approximate value of Annual binimoy platform access costs                                                        |              |                    |                                |
| <b>Stakeholder</b>    | <b>Transaction costs receiving institution</b>           | <b>Value</b>                                                                                                                                                                         | <b>Units</b> | <b>Unit Driver</b> |                                |
| Receiving Institution | <b>Transaction costs</b>                                 |                                                                                                                                                                                      |              |                    |                                |
|                       | SMS notification cost per transaction received           | ৳1.36                                                                                                                                                                                | Taka         | Per transaction    | Data provided by MFS and banks |
|                       | Total Volume of Binimoy transactions Nov 2022 - Nov 2023 | 180,432.00                                                                                                                                                                           | Number       | Per year           | Bangladesh Bank Data           |
|                       | <b>TOTAL COST</b>                                        | <b>৳45,387.52</b>                                                                                                                                                                    | <b>Taka</b>  | <b>Per year</b>    |                                |
|                       | Assumptions                                              | Receiving institutions pay the platform access costs as an originating institution, therefore the only cost, if any, to receiving binimoy transactions lies in the transaction costs |              |                    |                                |
| <b>Stakeholder</b>    | <b>Costs to receivers</b>                                | <b>Units</b>                                                                                                                                                                         |              |                    |                                |
| Receiver              | <b>Person to Business (P2B) Payments</b>                 |                                                                                                                                                                                      |              |                    |                                |
|                       | Total Volume of Merchant payments in 2023                | 300,127,787.00                                                                                                                                                                       | Number       | Per year           | Bangladesh Bank Data           |
|                       | Total Value of Merchant payments in 2023                 | ৳603,005,000,000.00                                                                                                                                                                  | Taka         | Per year           | Bangladesh Bank Data           |
|                       | Total MDR payout                                         | 1.00%                                                                                                                                                                                | Percent      | Per transaction    | Data provided by MFS           |
|                       | <b>Total cost of P2B payments in Bangladesh</b>          | <b>৳6,030,050,000.00</b>                                                                                                                                                             | <b>Taka</b>  | <b>Per year</b>    |                                |
|                       | Assumptions                                              | As Binimoy is a centralised system, we assume that the MDR is equivalent to that of BanglaQR via the NPSB                                                                            |              |                    |                                |
| <b>Stakeholder</b>    | <b>Salary Payments</b>                                   | <b>Value</b>                                                                                                                                                                         | <b>Units</b> | <b>Unit Driver</b> |                                |
| Sender                | <b>Person to Person (P2P) Payments</b>                   |                                                                                                                                                                                      |              |                    |                                |
|                       | Total Volume of P2P payments in 2023                     | 1,080,365,439.00                                                                                                                                                                     | Number       | Per year           | Bangladesh Bank Data           |
|                       | Total Value of P2P payments in 2023                      | ৳8,747,904,000,000.00                                                                                                                                                                | Taka         | Per year           | Bangladesh Bank Data           |
|                       | Average P2P payment value                                | ৳8,469.11                                                                                                                                                                            | Taka         | Per transaction    | Calculation                    |
|                       | Average cost of P2P payment per transaction              | ৳5.00                                                                                                                                                                                | Taka         | Per transaction    | Data provided by MFS           |
|                       | <b>Total Cost of P2P Payments</b>                        | <b>৳5,401,827,195.00</b>                                                                                                                                                             | <b>Taka</b>  | <b>Per year</b>    | Calculation                    |
|                       | <b>Business to Person (B2P) Payments</b>                 |                                                                                                                                                                                      |              |                    |                                |
|                       | Total Volume of Salary Disbursement payments in 2023     | 62,122,475.00                                                                                                                                                                        | Number       | Per year           | Bangladesh Bank Data           |
|                       | Total Value of Salary Disbursement payments in 2023      | ৳61,401,000,000.00                                                                                                                                                                   | Taka         | Per year           | Bangladesh Bank Data           |
|                       | Transaction fee per salary disbursement                  | 1.85%                                                                                                                                                                                | Percent      | Per transaction    | Data provided by MFS           |
|                       | <b>Total cost of B2P payments</b>                        | <b>৳6,685,918,500.00</b>                                                                                                                                                             | <b>Taka</b>  | <b>Per year</b>    | Calculation                    |
|                       | <b>Account costs</b>                                     |                                                                                                                                                                                      |              |                    |                                |
|                       | Account opening costs                                    | ৳0.00                                                                                                                                                                                | Taka         | Per account        |                                |
|                       | Annual fees                                              | ৳0.00                                                                                                                                                                                | Taka         | Per year (2023     |                                |



|  |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        |                 |                      |
|--|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------|----------------------|
|  | Total number of new MFS accounts opened in 2023          | 29,411,875.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Number | Per year (2023) | Bangladesh Bank Data |
|  | Total number of individuals with MFS accounts as of 2023 | 220,475,448.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Number | Total 2023      | Bangladesh Bank Data |
|  | Total Cost of owning MFS account                         | ৳0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Taka   | Per year        |                      |
|  | Total Cost                                               | ৳2,087,745,695.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Taka   | Per year        |                      |
|  |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        |                 |                      |
|  | Assumptions                                              | <p>Opening an account is free of charge, and there are no annual account charges</p> <p>The average cost of P2P payment in Bangladesh is based on bKash's P2P costs at the average P2P payment value.</p> <p>Merchant payment is free for the sender, but a cost is borne by the receiver</p> <p>Utility bill payments, Government payments talktime purchase (mobile recharge), and inward remittances are all free for the sender and receiver.</p> <p>Salary disbursements MFS cost are borne by the employer, however the employee is required to bear the cash-out charges</p> |        |                 |                      |

**Table 57: Cost of digital payments - RTGS**

| Stakeholder                          | PSD Department RTGS Costs                                    | Value          | Unit   | Unit Driver  | Source                 |
|--------------------------------------|--------------------------------------------------------------|----------------|--------|--------------|------------------------|
| Central Bank (transaction processor) | Operational Costs                                            |                |        |              |                        |
|                                      | Annual software licensing fees                               | ৳22,273,680.00 | Taka   | Per year     | Bangladesh Bank Data   |
|                                      | Annual platform maintenance cost                             | ৳9,253,520.00  | Taka   | Per year     | Bangladesh Bank Data   |
|                                      | Lump-sum system upgrade cost                                 | ৳1,660,000.00  | Taka   | Per year     | Bangladesh Bank Data   |
|                                      | Annual Operational Costs                                     | ৳3,187,200.00  | Taka   | Per year     | Calculation            |
|                                      | Transaction fees                                             |                |        |              |                        |
|                                      | Cost per transaction (platform fee cost per transaction)     | ৳0.00          | Taka   | Per year     |                        |
|                                      | Volume of RTGS transactions 2024                             | 10,953,468.00  | Number | Per year     | Bangladesh Bank Data   |
|                                      | Annual Transaction Costs                                     | ৳0.00          | Taka   | Per year     |                        |
|                                      | Total Cost                                                   | ৳3,187,200.00  | Taka   | Per year     |                        |
| Stakeholder                          | RTGS                                                         | Value          | Unit   | Unit Driver  |                        |
| Origination Bank                     | Platform access cost                                         |                |        |              |                        |
|                                      | Annual Platform access cost                                  | ৳180,000.00    | Taka   | Per year     | Data provided by banks |
|                                      | Number of participants integrated with RTGS as of 2024       | 78.00          | Number | To date 2024 | Bangladesh Bank Data   |
|                                      | Total annual platform access costs for all participants      | ৳4,040,000.00  | Taka   | Per year     | Calculation            |
|                                      | Customisation costs                                          |                |        |              |                        |
|                                      | Customisation Cost                                           | ৳13,000.00     | Taka   | Per Man Day  | Data provided by banks |
|                                      | Number of man days spent on customisation/upgrades per year? | 55.00          | Days   | Per year     | Data provided by       |
|                                      |                                                              |                |        |              |                        |

|                             |                                                                                                                                                                                                                           |                          |             |                        |                        |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------|------------------------|------------------------|
|                             |                                                                                                                                                                                                                           |                          |             |                        | banks                  |
|                             | <b>Total customisation cost per year</b>                                                                                                                                                                                  | <b>৳5,770,000.00</b>     | <b>Taka</b> | <b>Per year</b>        | Calculation            |
|                             | <b>RTGS Transaction costs</b>                                                                                                                                                                                             |                          |             |                        |                        |
|                             | Fee per RTGS transaction                                                                                                                                                                                                  | ৳8.90                    | Taka        | Per transaction        | Data provided by banks |
|                             | Volume of RTGS transactions 2024                                                                                                                                                                                          | 10,953,468.00            | Number      | Per year               | Bangladesh Bank Data   |
|                             | Percentage of RTGS transactions not involving a government entity                                                                                                                                                         | 90%                      | Percent     | Per year               | Data provided by banks |
|                             | Volume of RTGS transactions that incur a transaction fee                                                                                                                                                                  | 9,858,121.20             | Number      | Per year               | Calculation            |
|                             | <b>Annual RTGS transaction costs</b>                                                                                                                                                                                      | <b>৳74,968,186.68</b>    | <b>Taka</b> | <b>Per year</b>        |                        |
|                             | <b>SMS Transactional Costs (RTGS)</b>                                                                                                                                                                                     |                          |             |                        |                        |
|                             | SMS notification cost per transaction                                                                                                                                                                                     | ৳1.00                    | Taka        | Per transaction        | Data provided by banks |
|                             | Volume of RTGS transactions 2024                                                                                                                                                                                          | 10,953,468.00            | Number      | Per year               | Bangladesh Bank Data   |
|                             | <b>Annual SMS costs</b>                                                                                                                                                                                                   | <b>৳0,953,468.00</b>     | <b>Taka</b> | <b>Per transaction</b> | Calculation            |
|                             | <b>Total Cost</b>                                                                                                                                                                                                         | <b>৳1,055,731,654.68</b> | <b>Taka</b> | <b>Per year</b>        |                        |
| <b>Stakeholder</b>          | <b>RTGS</b>                                                                                                                                                                                                               | <b>Value</b>             | <b>Unit</b> | <b>Unit Driver</b>     |                        |
|                             | <b>Transaction cost</b>                                                                                                                                                                                                   |                          |             |                        |                        |
|                             | SMS notification cost                                                                                                                                                                                                     | ৳1.00                    | Taka        | Per transaction        | Data provided by banks |
|                             | Volume of RTGS transactions 2024                                                                                                                                                                                          | 10,953,468.00            | Number      | Per year               | Bangladesh Bank Data   |
|                             | <b>Total cost</b>                                                                                                                                                                                                         | <b>৳0,953,468.00</b>     |             |                        |                        |
| <b>Stakeholder</b>          | <b>BB PSD</b>                                                                                                                                                                                                             | <b>Value</b>             | <b>Unit</b> | <b>Unit Driver</b>     |                        |
| <b>Recipient (Receiver)</b> | <i>As per the Bangladesh Real Time Gross Settlement System Rules, Section 7 : "Participating Banks may choose to charge fees only from the Originator of the transaction". There is therefore no cost to the Receiver</i> |                          |             |                        |                        |
| <b>Stakeholder</b>          | <b>BB PSD</b>                                                                                                                                                                                                             | <b>Value</b>             | <b>Unit</b> | <b>Unit Driver</b>     |                        |
|                             | <b>Transaction</b>                                                                                                                                                                                                        |                          |             |                        |                        |
|                             | Fee Per RTGS Transaction                                                                                                                                                                                                  | ৳100.00                  | Taka        | Per transaction        | Data provided by banks |
|                             | Volume of RTGS transactions 2024                                                                                                                                                                                          | 10,953,468.00            | Number      | Per year               | Bangladesh Bank Data   |
|                             | Percentage of RTGS transactions not involving a government entity                                                                                                                                                         | 90%                      | Percent     | Per year               | Data provided by banks |
|                             | Volume of RTGS transactions that incur a transaction fee                                                                                                                                                                  | 9,858,121.20             | Number      | Per year               | Calculation            |
|                             | <b>Total Cost</b>                                                                                                                                                                                                         | <b>৳85,812,120.00</b>    |             |                        |                        |

**Table 58: Cost of digital payments - Bangla QR**

| Stakeholder | PSD Department Bangla QR Costs                     | Value        | Unit          | Unit Driver      | Source               |
|-------------|----------------------------------------------------|--------------|---------------|------------------|----------------------|
|             | <b>Operational costs</b>                           |              |               |                  |                      |
|             | Annual NPSB platform/software maintenance cost USD | \$304,000.00 | USD           | Per year         | Bangladesh Bank Data |
|             | USD - BDT Exchange rate                            | 121.4        | Exchange rate | As of 20/02/2025 | Oanda                |

|                                         |                                                      |                       |             |                    |                        |
|-----------------------------------------|------------------------------------------------------|-----------------------|-------------|--------------------|------------------------|
|                                         | Annual NPSB platform/software maintenance cost Taka  | ৳6,905,600.00         | Taka        | Per year           | Bangladesh Bank Data   |
|                                         | Proportion of NPSB time/costs spent on Bangla QR     | 3.13%                 | Percent     | Per year           | Bangladesh Bank Data   |
|                                         | <b>Total operational costs</b>                       | <b>৳1,155,145.28</b>  | <b>Taka</b> | <b>Per year</b>    | Calculation            |
|                                         | <b>Transaction costs</b>                             |                       |             |                    |                        |
|                                         | Cost per transaction                                 | ৳0.00                 | Taka        | Per transaction    |                        |
|                                         | Volume of Bangla QR transactions 2023                | 2,179,255.00          | Number      | Per year           | Bangladesh Bank Data   |
|                                         | <b>Total Transaction costs</b>                       | <b>0.00</b>           | <b>Taka</b> | <b>Per year</b>    |                        |
|                                         | <b>Total Costs</b>                                   | <b>৳1,155,145.28</b>  | <b>Taka</b> | <b>Per year</b>    |                        |
| <b>Stakeholder</b>                      | <b>Issuer Bangla QR Costs</b>                        | <b>Value</b>          | <b>Unit</b> | <b>Unit Driver</b> |                        |
| <b>Origination institutions</b>         | <b>SMS Cost</b>                                      |                       |             |                    |                        |
|                                         | SMS Notification cost                                | ৳1.00                 | Taka        | Per transaction    | Data provided by banks |
|                                         | Volume of Bangla QR Transaction Total                | 2,179,255.00          | Number      | Per year           | Bangladesh Bank Data   |
|                                         | <b>Total Cost</b>                                    | <b>৳2,179,255.00</b>  | <b>Taka</b> | <b>Per year</b>    |                        |
| <b>Stakeholder</b>                      | <b>Receiving institutions Bangla QR costs</b>        | <b>Value</b>          | <b>Unit</b> | <b>Unit Driver</b> |                        |
| <b>Receiving institution (Acquirer)</b> | <b>NPSB Platform Cost</b>                            |                       |             |                    |                        |
|                                         | Annual NPSB Platform Access cost                     | ৳0.00                 | Taka        | Per year           | Data provided by banks |
|                                         | Number of FSPs equipped to process Bangla QR         | 42                    | Number      | To date            | Bangladesh Bank Data   |
|                                         | Total cost of NPSB platform access                   | ৳0.00                 | Taka        | Per year           | Calculation            |
|                                         | Proportion of NPSB owed to BanglaQR operations       | 3.13%                 | Percent     | Per year           | Bangladesh Bank Data   |
|                                         | <b>Total cost of BanglaQR (NPSB) platform access</b> | <b>৳0.00</b>          | <b>Taka</b> | <b>Per year</b>    | Calculation            |
|                                         | <b>SMS Cost</b>                                      |                       |             |                    |                        |
|                                         | SMS Notification cost                                | ৳1.00                 | Taka        | Per transaction    | Data provided by banks |
|                                         | Volume of Bangla QR Transaction Total                | 2,179,255.00          | Number      | Per year           | Bangladesh Bank Data   |
|                                         | <b>Total Cost</b>                                    | <b>৳2,179,255.00</b>  | <b>Taka</b> | <b>Per year</b>    |                        |
|                                         | <b>Merchant Acquisition</b>                          |                       |             |                    |                        |
|                                         | Cost per QR code issuance                            | ৳800.00               | Taka        | Per QR code        | Data provided by banks |
|                                         | Number of QRs issued in 2023                         | 364,143.00            | Number      | Per year           | Bangladesh Bank Data   |
|                                         | <b>Total merchant acquisition cost</b>               | <b>৳9,242,900.00</b>  | <b>Taka</b> | <b>Per year</b>    | Calculation            |
|                                         | <b>Total Costs</b>                                   | <b>৳11,422,155.00</b> | <b>Taka</b> | <b>Per year</b>    |                        |
| <b>Stakeholder</b>                      | <b>Merchant costs</b>                                | <b>Value</b>          | <b>Unit</b> | <b>Unit Driver</b> |                        |
| <b>Merchant</b>                         | <b>Onboarding costs</b>                              |                       |             |                    |                        |
|                                         | Onboarding cost per merchant                         | ৳0.00                 |             |                    |                        |
|                                         | <b>Total onboarding costs</b>                        | <b>৳0.00</b>          |             |                    |                        |
|                                         | <b>Transaction costs</b>                             |                       |             |                    |                        |
|                                         | Merchant service charge                              | 1%                    | Percent     | Per transaction    | Data provided by banks |
|                                         | Value of Bangla QR Transactions                      | ৳6,930,083.99         | Taka        | Per year           | Bangladesh Bank Data   |
|                                         | <b>Total Transactional costs</b>                     | <b>৳6,930,083.99</b>  | <b>Taka</b> | <b>Per year</b>    | Calculation            |
|                                         | <b>Total Cost</b>                                    | <b>৳6,930,083.99</b>  |             |                    |                        |
| <b>Stakeholder</b>                      | <b>Sender</b>                                        | <b>Units</b>          |             |                    |                        |
| Consumer (sender)                       | <b>Transaction costs</b>                             |                       |             |                    |                        |

|  |                                       |              |             |                        |                      |
|--|---------------------------------------|--------------|-------------|------------------------|----------------------|
|  | Cost per transaction                  | ৳0.00        | Taka        | Per transaction        |                      |
|  | Volume of Bangla QR transactions 2023 | 2,179,255.00 | Number      | Per year               | Bangladesh Bank Data |
|  | <b>Transaction costs</b>              | <b>৳0.00</b> | <b>Taka</b> | <b>Per transaction</b> |                      |

**Table 59: Cost of digital payments - EFT**

| PSD Department BEFTN Costs                                              | Value                  | Unit        | Unit Driver            | Source                 |
|-------------------------------------------------------------------------|------------------------|-------------|------------------------|------------------------|
| <b>Annual costs</b>                                                     |                        |             |                        |                        |
| Annual BEFTN platform/software maintainance cost (fixed)                | ৳201,778.00            | Taka        | Per year (2023)        | Bangladesh Bank Data   |
| Additional lump-sum system upgrade cost per year                        | ৳0.00                  | Taka        | Per year               | Bangladesh Bank Data   |
| Cost associated with regulatory, legal, and compliance to rules systems | ৳1,399.00              | Taka        | Per year               | Bangladesh Bank Data   |
| <b>Total Annual operational costs</b>                                   | <b>৳203,177.00</b>     | <b>Taka</b> | <b>Per year</b>        | Calculation            |
| <b>Transactional costs</b>                                              |                        |             |                        |                        |
| Cost per transaction                                                    | ৳0.00                  | Taka        | Per transaction        |                        |
| Volume of EFT Transactions                                              | 239,618,308.00         | Number      | Per year               | Bangladesh Bank Data   |
| <b>Total cost per transactions</b>                                      | <b>৳0.00</b>           | <b>Taka</b> | <b>Per year</b>        |                        |
| <b>TOTAL COSTS</b>                                                      | <b>৳203,177.00</b>     | <b>Taka</b> | <b>Per year</b>        |                        |
| <b>Originating Bank costs</b>                                           | <b>Value</b>           | <b>Unit</b> | <b>Unit Driver</b>     |                        |
| <b>Platform Access Costs</b>                                            |                        |             |                        |                        |
| BEFTN platform access cost                                              | ৳20,000.00             | Taka        | Per year               | Data provided by banks |
| Number of participants integrated with BEFTN                            | 60.00                  | Number      | To date (2024)         | Bangladesh Bank Data   |
| <b>Total BEFTN Platform Access cost</b>                                 | <b>৳20,000.00</b>      | <b>Taka</b> | <b>Per year</b>        | Calculation            |
| <b>Customisation Costs</b>                                              |                        |             |                        |                        |
| Customisation cost                                                      | ৳13,000.00             | Taka        | Per Man Day            | Data provided by banks |
| Number of man days spent on customisation per year                      | 55.00                  | Days        | Per year               | Data provided by banks |
| <b>Total platform costs</b>                                             | <b>৳13,000.00</b>      | <b>Taka</b> | <b>Per year</b>        | Calculation            |
| <b>Transaction costs</b>                                                |                        |             |                        |                        |
| BEFTN fee per EFT transaction                                           | ৳0.00                  | Taka        | Per transaction        |                        |
| Volume of EFT Transaction Total                                         | 239,618,308.00         | Number      | Per year               | Bangladesh Bank Data   |
| <b>Total Transaction costs</b>                                          | <b>৳0.00</b>           | <b>Taka</b> | <b>Per year</b>        |                        |
| <b>SMS Notification costs</b>                                           |                        |             |                        |                        |
| SMS Notification cost                                                   | ৳1.00                  | Taka        | Per transaction        | Data provided by banks |
| Volume of EFT Transaction Total                                         | 239,618,308.00         | Number      | Per year               | Bangladesh Bank Data   |
| <b>Total SMS notification costs</b>                                     | <b>৳239,618,308.00</b> | <b>Taka</b> | <b>Per transaction</b> | Calculation            |
| <b>Total Cost</b>                                                       | <b>৳239,618,308.00</b> | <b>Taka</b> | <b>Per year</b>        |                        |
| <b>Receiving Bank costs</b>                                             | <b>Value</b>           | <b>Unit</b> | <b>Unit Driver</b>     |                        |
| <b>SMS costs</b>                                                        |                        |             |                        |                        |
| SMS Notification cost                                                   | ৳1.00                  | Taka        | Per transaction        | Data provided by banks |
| Volume of EFT Transaction Total                                         | 239,618,308.00         | Number      | Per year               | Bangladesh Bank Data   |
| <b>Total Cost</b>                                                       | <b>৳239,618,308.00</b> |             |                        |                        |
| <b>Receiver costs</b>                                                   | <b>Value</b>           | <b>Unit</b> | <b>Unit Driver</b>     |                        |
| <b>Costs</b>                                                            |                        |             |                        |                        |
| Costs to receive BEFTN payment                                          | ৳0.00                  | Taka        | Per transaction        |                        |
| Volume of EFT Transaction Total                                         | 239,618,308.00         | Number      | Per year               | Bangladesh Bank Data   |
| <b>Total Costs</b>                                                      | <b>৳0.00</b>           | <b>Taka</b> | <b>Per transaction</b> |                        |
|                                                                         |                        |             |                        |                        |

| Sender costs                      | Value                 | Unit        | Unit Driver            |                      |
|-----------------------------------|-----------------------|-------------|------------------------|----------------------|
| <b>Banks fees per transaction</b> |                       |             |                        |                      |
| Cost per transaction              | ৳0.00                 | Taka        | Per transaction        |                      |
| Volume of EFT Transaction Total   | 239,618,308.00        | Number      | Per year               | Bangladesh Bank Data |
| <b>Total Costs</b>                | <b>৳0.00</b>          | <b>Taka</b> | <b>Per transaction</b> |                      |
| <b>TOTAL EFT COST</b>             | <b>৳87,354,793.00</b> |             |                        |                      |

**Table 60: Cost of digital payments - Digital Overhead**

| Stakeholder                   | Variable                                                                          | Value                    | Units         | Unit Driver        | Source                         |
|-------------------------------|-----------------------------------------------------------------------------------|--------------------------|---------------|--------------------|--------------------------------|
| Central Bank (overhead costs) | <b>Total number of employees in PSD Department</b>                                | 67.00                    | Number        | 2024 Total         | Bangladesh Bank Data           |
|                               | Total salary expense of employees in PSD Department                               | ৳2,799,100.33            | Taka          | Per year           | Bangladesh Bank Data           |
|                               | Total staff costs for PSD department                                              | ৳2,799,100.33            | Taka          | Per year           | Bangladesh Bank Data           |
|                               | <b>Cybersecurity and fraud costs</b>                                              |                          |               |                    |                                |
|                               | <b>Annual cybersecurity and fraud cost</b>                                        | ৳4,152,720.00            | Taka          | Per year           | Bangladesh Bank Data           |
|                               | <b>TOTAL COST</b>                                                                 | <b>৳6,951,820.33</b>     | <b>Taka</b>   | <b>Per year</b>    | Calculation                    |
|                               |                                                                                   |                          |               |                    |                                |
| <b>Stakeholder</b>            | <b>Banks overhead costs</b>                                                       | <b>Value</b>             | <b>Units</b>  | <b>Unit Driver</b> |                                |
| Exception handling            | <b>Exception handling</b>                                                         |                          |               |                    |                                |
|                               | Number of staff dealing with dispute resolution and fraud investigations          | 11.00                    | Number        | To date            | Data provided by MFS and banks |
|                               | Average salary of dispute resolution and fraud investigation staff                | ৳20,000.00               | Taka          | Per year           | Data provided by MFS and banks |
|                               | Total salary expense of dispute resolution and fraud investigation staff per bank | ৳920,000.00              | Taka          | Per year per bank  | Calculation                    |
|                               | Number of FSPs participating in NPSB                                              | 57.00                    | Number        | To date            | Bangladesh Bank Data           |
|                               | <b>Total cost of exception handling</b>                                           | <b>৳51,440,000.00</b>    | <b>Taka</b>   | <b>Per year</b>    | Calculation                    |
|                               | <b>Total Cost</b>                                                                 | <b>৳51,440,000.00</b>    | <b>Taka</b>   | <b>Per year</b>    | Calculation                    |
| Merchant Acquiring            | Number of staff at Head office managing POS merchant acquiring                    | 25.00                    | Number        | To date            | Data provided by MFS and banks |
|                               | Average salary                                                                    | ৳8,000.00                | Taka          | Per year           | Data provided by MFS and banks |
|                               | Total salary expense of merchant acquiring per FSP                                | ৳7,700,000.00            | Taka          | Per year per bank  | Calculation                    |
|                               | <b>Number of FSPs participating in NPSB</b>                                       | <b>57.00</b>             | <b>Number</b> | <b>To date</b>     | Bangladesh Bank Data           |
|                               | <b>Total cost of merchant acquiring staff</b>                                     | <b>৳1,008,900,000.00</b> | <b>Taka</b>   | <b>Per year</b>    | Calculation                    |
| Bangla QR                     | Bangla QR                                                                         |                          |               |                    |                                |
|                               | Number of staff at Head office managing Bangla QR                                 | 7.00                     | Number        | To date            | Data provided by MFS and banks |
|                               | Average salary                                                                    | ৳60,000.00               | Taka          | Per year           | Data provided by MFS and banks |
|                               | Total salary expense per FSP                                                      | ৳6,200,000.00            | Taka          | Per year per bank  | Calculation                    |
|                               | <b>Number of FSPs participating in Bangla QR</b>                                  | <b>42.00</b>             | <b>Number</b> | <b>To date</b>     | Bangladesh Bank Data           |
|                               | <b>Total cost of Bangla QR staff</b>                                              | <b>৳94,040,000.00</b>    | <b>Taka</b>   | <b>Per year</b>    | Calculation                    |
| EFT                           | EFT                                                                               |                          |               |                    |                                |
|                               | Number of staff at Head office managing EFT                                       | 4.00                     | Number        | To date            | Data provided by MFS and banks |
|                               | Average salary                                                                    | ৳60,000.00               | Taka          | Per year           | Data provided by MFS and banks |
|                               | Total salary expense per FSP                                                      | ৳8,400,000.00            | Taka          | Per year per bank  | Calculation                    |
|                               | <b>Number of FSPs participating in EFT</b>                                        | <b>60.00</b>             | <b>Number</b> | <b>To date</b>     | Bangladesh Bank Data           |
|                               | <b>Total cost of EFT Staff</b>                                                    | <b>৳30,400,000.00</b>    | <b>Taka</b>   | <b>Per year</b>    |                                |

|                               |                                                                    |                          |               |                   |                                |
|-------------------------------|--------------------------------------------------------------------|--------------------------|---------------|-------------------|--------------------------------|
| RTGS                          | RTGS                                                               |                          |               |                   |                                |
|                               | Numbet of staff at Head office managing RTGS                       | 78.00                    | Number        | To date           | Data provided by MFS and banks |
|                               | Average salary                                                     | ৳1,219,260.00            | Taka          | Per year          | Data provided by MFS and banks |
|                               | Total salary expense per FSP                                       | ৳5,102,280.00            | Taka          | Per year per bank | Calculation                    |
|                               | <b>Number of FSPs participating in RTGS</b>                        | <b>60.00</b>             | <b>Number</b> | <b>To date</b>    | Bangladesh Bank Data           |
|                               | <b>Total cost of EFT Staff</b>                                     | <b>৳7,706,136,800.00</b> | <b>Taka</b>   | <b>Per year</b>   | Calculation                    |
| Digital Banking staff (Banks) | Digital Banking                                                    |                          |               |                   |                                |
|                               | Numbet of staff                                                    | 20.00                    | Number        | To date           | Data provided by MFS and banks |
|                               | Average salary                                                     | ৳80,000.00               | Taka          | Per year          | Data provided by MFS and banks |
|                               | Total salary expense per FSP                                       | ৳15,600,000.00           | Taka          | Per year per bank | Calculation                    |
|                               | <b>Number of FSPs participating in digital systems in the NPSB</b> | <b>60.00</b>             | <b>Number</b> | <b>To date</b>    | Bangladesh Bank Data           |
|                               | <b>Total cost of digital banking staff</b>                         | <b>৳36,000,000.00</b>    | <b>Taka</b>   | <b>Per year</b>   | Calculation                    |
| MFS (MFS providers)           | MFS                                                                |                          |               |                   |                                |
|                               | Numbet of staff                                                    | 200.00                   | Number        | To date           | Data provided by MFS and banks |
|                               | Average salary                                                     | ৳2,520,000.00            | Taka          | Per year          | Data provided by MFS and banks |
|                               | Total salary expense per FSP                                       | ৳504,000,000.00          | Taka          | Per year per bank | Calculation                    |
|                               | <b>Number of major MFS providers in Bangladesh</b>                 | <b>5.00</b>              | <b>Number</b> | <b>To date</b>    | Bangladesh Bank Data           |
|                               | <b>Total cost of EFT Staff</b>                                     | <b>৳5,520,000,000.00</b> | <b>Taka</b>   | <b>Per year</b>   | Calculation                    |
|                               | <b>Total Digital overhead cost</b>                                 | <b>৳1,123,868,620.33</b> | <b>Taka</b>   | <b>Per year</b>   |                                |