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THE COST OF CASH IN INDIA

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People Research on India's Consumer Economy (PRICE) is a New Delhi based research center and think tank that builds and disseminates leading edge knowledge on India's consumer economy for use in public policy and business strategy. Its distinctiveness is that its insights are based on hard to come by proprietary, primary survey based data (no mean job in a country as large and heterogeneous like India) on India's consumer economy and what drives it — a 360 degree view on how Indians earn, spend, save, invest, live, think, access amenities and public goods, and consume. Its distinctiveness also lies in its ability to establish a linkage between economic and other policies and the state of wellbeing of various strata of people. It is a not for profit entity which welcomes researchers from all disciplines and from all spheres of work, interested in this arena of work. Current research areas include role of gold in India's consumer economy, and development of a comprehensive multi-dimensional index to measure inclusion levels of different segments of Indians.

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THE INSTITUTE FOR BUSINESS IN THE GLOBAL CONTEXT

THE COST OF CASH IN INDIA

PART TWO OF A SERIES ON THE COST OF CASH AROUND THE WORLD.

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The payments business in India is on the cusp of a revolution.

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EXECUTIVE SUMMARY

The payments business in India is on the cusp of a revolution. With rapid growth and modernization of the economy, there is no doubt that a majority of India's 1.2 billion plus citizens will demand and get modern financial services far superior to what their parents' generation enjoyed. It is simply a matter of when the supply side catches up.

This report is the product of a research effort that analyzed the most pertinent policy documents, reports, scholarship, expert interviews, and payments data. It is the second in a series of country reports on *The Cost of Cash* by the Institute for Business in the Global Context (IBGC). The series seeks to ascertain the private costs and risks of cash management facing diverse stakeholders in society: consumers, business, government, and financial systems. It does not forecast the likelihood that cash will fall into disuse, or drop below any threshold in payment market share. It is different from much of the academic work in payment economics, which focuses explicitly on social costs with a view toward informing debates around payment clearing and settlement. Instead, we analyze the private costs to households and businesses that arise from their use of cash, beginning when cash is received and ending when it is spent again. We base our estimates on original IBGC surveys, coauthors' surveys and interviews, and a broad mix of academic studies and official statistics.

THE RESERVE BANK OF INDIA AND COMMERCIAL BANKS FACE A TOTAL OF RS 21,000 CRORES (US $3.5 BILLION) IN CURRENCY OPERATIONS COSTS ANNUALLY.

The motivating question is why Indians transact primarily in cash, and whether there is reason to expect any drastic change in their payment behavior in the short to medium term. Our conclusions are as follows:

India is cash intensive, even for a developing country.

India uses a lot of cash by any measure. It has a very high ratio of currency in broad money (M1) and a low velocity of cash—that is, a low ratio of GDP to narrow money. For example, the velocity of M1 in India is 1.5, compared to more than 6.6 in the United States in Q3 of 2013—at which time the American easy money policy had driven velocity down from a five-year peak of nearly 11.

The ratio of money held in bills and coins (M0) to the amount held in demand deposit and savings accounts (M2) in India is 51%, which is higher than Egypt (29.3%), South Africa (8.9%), and Mexico (8.7%). For example, the velocity of M1 in India is 1.5 versus more than America's 6.6 in 2013 Q3—at which time the USA's easy money policy had driven velocity down from a five year peak of nearly 11.Moreover, considering just currency, the ratio of currency to GDP in India (12.2%) is higher than countries such as Russia (11.9%), Brazil (4.1%), and Mexico (5.7%).

Most Indians currently lack the means to use non-cash payments, even if they want to.

India's infrastructure of payments is growing, but from very modest beginnings. Fewer than 35% of Indians above the age of 15 have used a bank account. Less than 10% have ever used any kind of non-cash payment instrument. The proportion of payments made in cash is thought to be dropping, but from 2009-2011, growth of bank branches slowed. Check transactions have decreased by more than 20% from a 2008 peak, balanced by an increase in Automated Clearing House (ACH) outlays and payment card transactions. Mobile banking remains a banking product and not a robust retail payments system, with less than 3% of the value transacted by cards in the year ended March 2014.

The growth in value of ATM transactions has far outpaced the growth in the value of card payment transactions.

ATM transactions in India are worth more than point-of-sale payment transactions, the opposite of what we find in rich countries. The total value of ATM transactions increased more than five times between 2007 and 2012, from about 3 trillion to about 18 trillion rupees, while the value of card transactions barely doubled in the same period from 1 to 2 trillion rupees.

Despite its prowess in the telecommunications field, India has been left behind by its peers in mobile payments.

Though India has a fiercely competitive telecommunications market, possesses a well-developed financial system, and is a widely acknowledged technology exporter, fewer than 2% of Indians have used a mobile phone to receive a payment, compared to over 60% of Kenyans and 11% of Nigerians.

The RBI has consciously chosen a bank-led model over a telecoms-led one to achieve its financial inclusion goals.

Telecoms firms have only recently been allowed to enter the payments space in India, but are limited only to partnerships with banks. The RBI sees the expansion of the banking system through the appointment of business correspondents as crucial to increasing access to a wide range of financial services, not just remittances, which it sees as a limitation of the M-PESA service in Kenya.

Aadhaar, India's Unique Identity project, will significantly reduce costs of serving India's unbanked population.

With 350 million unique IDs already issued and 600 million expected to be completed by 2014, the Aadhaar project aims to give every Indian a portable identity that will enable them to access a range of financial

ALTHOUGH CONVENTIONAL WISDOM ASSUMES THAT CASH IS FREE, RESIDENTS OF DELHI SPEND 6 MILLION HOURS AND RS 9.1 CRORES (US $1.5 MILLION) TO OBTAIN CASH.

services independent of their physical location. For banks and their partner banking correspondents, this will mean a significant reduction in the costs of complying with "know your customer" (KYC) norms during account opening and assessing credit risk histories of low-income borrowers.

Households pay differently for access to cash according to their place in society, determined by income, employment, age, and place of residence. They also hold widely differing views on the risks of cash and strategies for risk management.

Although conventional wisdom assumes that cash is free, the residents of Delhi together spend 6 million hours and Rs. 9.1 crores (US $1.5 million) to obtain cash. Hyderabad, which is smaller, spends 1.7 million hours and Rs 3.2 crores (US $0.5 million) to do the same, which corresponds to fees and transport costs about twice as high as Delhi on a per capita basis. These fees, along with cash balances and wealth overall, rise in a linear fashion along with age in Delhi. Gender gaps are inseparable from women's place in the economy; they tend to remain outside of the labor force and in the home. Employers handle the most cash, spend the most for access to cash, appreciate the risks of large cash stocks the most, and most regularly breach their preferred cash ceilings.

In Delhi, residents accept that cash is unsafe to hold, even if they rarely or never hold more cash than would be prudent. Cash also seems more risky to the rich, to men, to the aged, and to those with bank accounts. Conversely, the *amounts of money* deemed high enough to be risky and low enough to be a feasible minimum balance both scale in a linear way with wealth. The wealthy are accustomed to holding and spending more, so both their preferred maxima and minima are higher; the same is true of employers and those paid electronically. Most crucially, those that receive bank deposits are keen to keep money in their accounts. They are much more likely than the rest to retain balances in the bank if the value is first paid into an account.

Consumers choose cash because they are keenly aware of its benefits and limitations.

ICE360° research shows that most consumers see three main benefits of cash. Cash confers power on the buyer, since she can offer fixed bids for a bundle of goods and services. More than 90% of respondents in every category agree this is the case. Self-control is very important to rural respondents, with more than 80% agreed that cash prevents people from spending too much. Cash transactions are perceived to be fastest, particularly among debit users and Delhi residents. Still, large majorities—about two-thirds of respondents—agree that cash ensures exact payment.

In terms of spending location, online shopping was the only category in which a majority of respondents preferred not to use cash. Wealth effects dominate cash balances. Consumer confidence, wealth, financial access, and the levels of cash ceilings and cash floors all correlate in a linear way. Moreover, cash-only consumers know far less about the features of credit card spending.

India's reserve bank and commercial banks face a grand total of Rs. 21,000 crores (US $3.5 billion) in currency operations costs annually.

The vast majority (86%) of that burden falls on commercial banks. The components are summarized below. In addition, the Reserve Bank of India (RBI) enjoys interest on the reserve assets that offset currency liabilities on the central bank balance sheet, or seigniorage.

TABLE 1. SUMMARY OF CURRENCY OPERATIONS COSTS

Operating Expenses	Rs. (crore)	USD (m)
New currency	₹ 2,872	$ 463
Currency chest	₹ 2,400	$ 387
ATM	₹ 10,500	$ 1,694
Interest (chest)	₹ 1,600	$ 258
Interest (ATM)	₹ 493	$79
Interest (branch)	₹ ,660	$ 429
Cards	₹ 521	$ 84
TOTAL	₹ 21,046	$ 3,394

Source: Reserve Bank of India, Annual Reports, survey data and author's calculations.

A raft of circulars since 2008 illustrate the Reserve Bank's priorities: availability, integrity, cleanliness, efficiency, reporting. Vigilance against counterfeit has ramped up recently, including the designation of a nodal officer to liaise with police in order to report suspected counterfeiting promptly. Cash in transit (CIT) is just a couple of decades old in India and remains a small industry. In a country of 1.25 billion and a GDP of Rs. 109 lakhs crores, just Rs. 1,500 crores (US $250 million) is spent on cash in transit, employing only 40,000 individuals and 6,000 vehicles.

Commercial banks are rapidly deploying new technology to optimize costs and enhance value delivery in cash operations. The most common areas of enhancement are deposit-taking ATMs, monitoring of cash deposit ratios, facilitating currency note exchange, improved currency chests, and doorstep banking services.

Black money remains a well-documented failure of governance in India with profound consequences for tax revenue, corruption, and law enforcement in general.

Statistics show that the informal economy, nearly 90% of India's labor market and firms, account collectively for some 40% of GDP. Economist Surjit Bhalla suggests that personal income tax compliance in India may be just 29%, or less than one-third the revenue that is India's due. Bringing in the informal economy out of the shadows would thus have enormous impacts on India's fiscal position.

Payments are central to India's future success in financial inclusion.

Much of India's recent approach has focused on the supply side of financial inclusion. The priorities of the Reserve Bank are to promote safe, efficient, accessible, inclusive, interoperable, and robust payment systems. India has addressed these priorities both through the creation of national champions, such as the National Payments Corporation of India (NPCI) and its subsidiaries, and through direct investment in universal identification. India has built the capacity to clear and settle payments. Access to that infrastructure on a sustainable and profitable basis is a key reason behind India's investment in universal identification and Aadhaar-enabled payments services (AEPS). According to a recent McKinsey report, the benefits of a government-led payments strategy will include lower costs of payments and less leakage from public expenditures.

While the value of non-cash payments in India has been increasing steadily since 2007, cash transactions still dwarf the alternatives.

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CASH OUTLOOK IN INDIA

In the winter of 2010, after a spate of multi-billion dollar corruption scandals made front-page news across the country, thousands of protesters marched to New Delhi to voice their discontent at the ruling government. They demanded a ban on 500 (~$8.5 USD) and 1000 (~$17 USD) rupee notes—which at that time accounted for 76% of the value of all currency in circulation, though only 17% in volume.[1] They reasoned that everyday transactions generally require smaller denomination bills, while larger bills serve only to facilitate illegal transactions and money laundering.

When *The Times of India* later asked a number of Indian bankers whether this was a plausible option, however, the reaction was overwhelmingly negative. The bankers unanimously responded that if ATMs, which typically hold about 10,000 notes, were to stock only 100 rupee notes, the rate of replenishment would rise dramatically, increasing ATM operating costs, transportation expenses, the cost of printing more bills, and the opportunity cost of time spent counting and storing bills. Thus, while the bankers and civil society activists both preferred a reduction in cash transactions, they fundamentally disagreed on how to bring this about.

MOST INDIANS LACK THE MEANS TO USE CASHLESS ALTERNATIVES, IRRESPECTIVE OF THEIR DESIRE TO DO SO.

This story, ostensibly about corruption, reveals a great deal about the state of payments in India—namely, that Indians pay for most things in cash. Indeed, the *Times* report concludes with a quote from an unnamed banker, who points out that only about 5% of all transactions in India are electronic, hinting that the key to reducing off-the-book transactions and increasing government revenue lies in reducing the cash intensity of India's economy.

The State of Cash in India

Cash remains the most readily available and widely used form of payment in India. In 2012, for instance, 87% of all transactions in India were cash-based. Cash also fuels India's huge informal economy, which constitutes 23% of official GDP, according to one estimate.[2] Even Indians with access to formal banking tend to carry a lot of cash with them—typically in high denomination bills.[3] While the value of non-cash payments in India has been increasing steadily since 2007 (Table 1), cash transactions still dwarf the alternatives.[4]

1 Mayur Shetty, "Banning 500 & 1000 notes not feasible: Bankers," *The Times of India*, June 9, 2011.
2 Schnieder, et al., "Shadow Economies All Over the World: New Estimates for 162 Countries from 1999 to 2007," *World Bank Development Research Group*, July 2010: 19.
3 Euromonitor International, "Financial Cards and Payments in India," *Country Report*, February 2014.
4 EuroMonitor International, *Passport: Survey*, 2013.

TABLE 2. CASH AND NON-CASH TRANSACTION PROFILE FOR INDIA

Payment Type	2007	2008	2009	2010	2011	2012
Card Payment Transactions (Excluding Commercial)	2.8%	3.1%	2.9%	2.8%	3.5%	4.1%
Electronic Direct / ACH Transactions	2.6%	3.0%	3.8%	4.5%	5.6%	6.8%
Cash Transactions	90.6%	90.0%	89.7%	89.5%	87.9%	86.6%
Other Paper Transactions (Checks, Demand Drafts)	4.1%	3.9%	3.6%	3.2%	2.9%	2.5%

Source: EuroMonitor Passport 201

India's cash intensity also stands out in contrast to other developing countries. The value of notes and coins in circulation as a percentage of GDP in India is 12.04%, compared to 3.93% in Brazil, 5.32% in Mexico, and 3.72% in South Africa.[5]

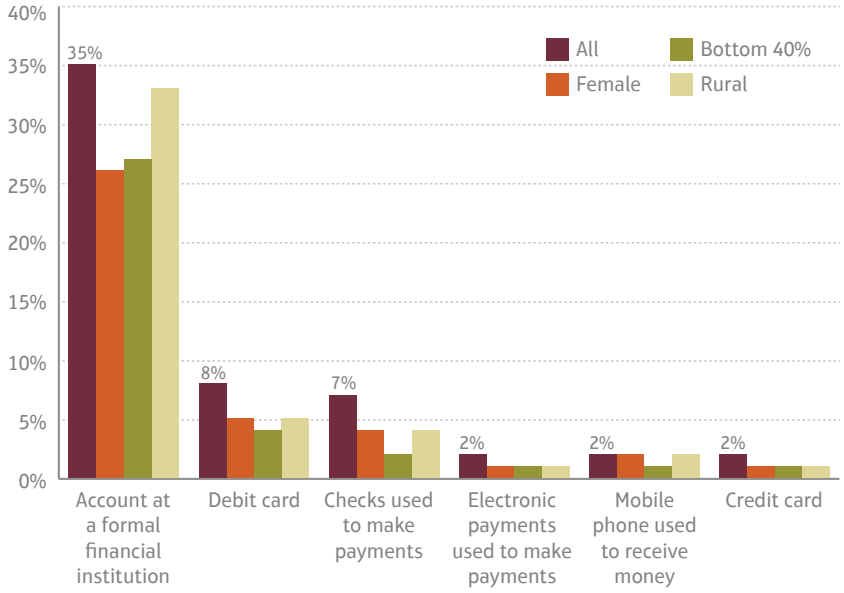
Moreover, India's monetary base (M0) as a percentage of demand deposit and savings accounts (M2) is over 50%, a much higher value than in other developing countries such as Mexico (9%), South Africa (9%), China (5%), and even cash-intensive Egypt (24%).[6]

Most Indians lack the means to use cashless alternatives, irrespective of their desire to do so. Indeed, the Global Financial Inclusion Database (Global Findex) estimates that only about 35% of the population over the age of 15 has an account at a formal financial institution, less than 9% of that same group has a debit card, and only 2% has a credit card.[7]

Of the non-cash instruments used, however, checks are the most prevalent: roughly 7% of the population has used a check within the last 12 months to make a payment, while only around 2% have used mobile phones to receive money or have been involved in an electronic payment in the last 12 months. These numbers are significantly lower for females, in rural areas, and among the bottom 40% of the population, as depicted in Figure 1.

5 International Monetary Fund, *International Financial Statistics*, 2013.
6 Bank for International Settlements, *Statistics on Payment, Clearing and Settlement Systems in the CPSS Countries*, 2011.
7 Demirguc-Kunt, Asli, Leora Klapper, and Douglas Randall, *Measuring Financial Inclusion: The Global Findex Database*. WPS6025. Policy Research Working Paper, World Bank, 2012.

FIGURE 1. ACCESS TO FINANCIAL MARKETS



Source: Global Financial Inclusion Database 2011.

Growth in the value of card payment transactions in India has been slow, despite a significant increase in the prevalence of financial cards and ATMs. From 2007 and 2012, for instance, the number of financial cards in circulation more than doubled, from about 150 million to over 400 million. In the same period, the total value of ATM transactions increased more than five times, from approximately 3 trillion to 18 trillion rupees. Nonetheless, concurrent growth in the value of card payment transactions has remained largely stagnant. While the number of point-of-sale terminals (POS) has roughly doubled since 2010, there were only 1.07 million POS terminals nationwide at the end of March 2014, compared to more than 10 million retail businesses nationwide.8

Non-cash payment systems such as the Real Time Gross Settlement (RTGS), National Electronic Funds Transfer (NEFT), and National Electronic Clearing System (NECS) also witnessed rapid growth as channels for consumer payments in the same period, but such growth has typically benefitted the commercial sector more than retail clients. According to one study, this phenomenon can be explained by Indian banking norms: acquiring banks in India typically undercut their fees for large retailers in order to attract more current and savings account (CASA) deposits, which allows them to essentially recoup their costs through a float-based business model. However, this tends to exclude smaller merchants, who constitute the vast majority of India's retailing industry.9

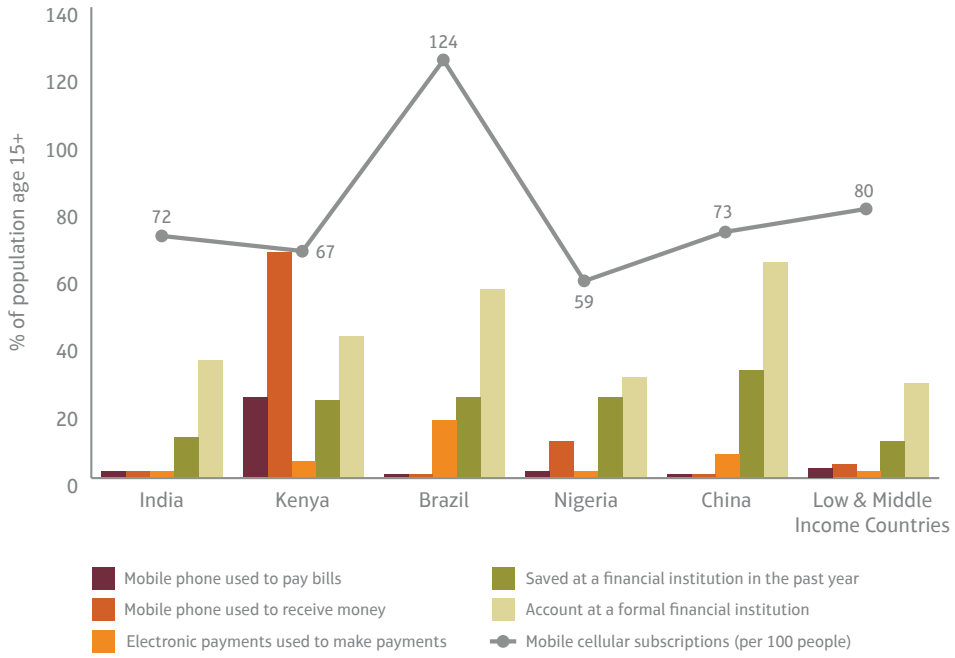
8 Reserve Bank of India, *Payment System Indicators*, 2014.
9 Ministry of Finance, Government of India, *Report of the Task Force on an Aadhaar-Enabled Unified Payment Infrastructure*, February 2012.

India also lags behind other developing countries in the use of formal financial institutions and mobile and electronic payments.[10] The percentage of India's population that has accounts with formal financial institutions (35%) is significantly lower than that of Kenya (42%), Brazil (55%), Nigeria (29%), and China (63%).[11] Additionally, despite a higher mobile penetration rate—defined as the number of cellular phones per 100 people—and triple the population, only 2% of Indians reported engaging in mobile payments, compared to 11% in Nigeria. When weighted for population, India also fares poorly in terms of ATM access when compared to Kenya, Nigeria, or Egypt.

On the other hand, when compared to the combined average for low and middle income countries, India does slightly better than average in percentage of population having access to an account and slightly worse in percentage of population that has received a mobile payment or been involved in an electronic transfer.

Finally, with just one in ten individuals reporting that they saved money in the last year, India fares poorly on savings; it is roughly on par with Brazil. China is the clear leader on this measure followed by Nigeria and Kenya, which are about evenly placed.

FIGURE 2. MOBILE VS. FINANCIAL PENETRATION



Source: World Bank Findex

10 The World Bank defines mobile and electronic payments as: "The percentage of respondents who used electronic payments (payments that one makes or that are made automatically including wire transfers or payments made online) in the past 12 months to make payments on bills or to buy things using money from their accounts(% age 15+)."

11 "An account (self or together with someone else) at a bank, credit union, another financial institution (e.g., cooperative, microfinance institution), or the post office (if applicable) including respondents who reported having a debit card (% age 15+)."

INDIA LAGS BEHIND OTHER DEVELOPING COUNTRIES IN THE USE OF FORMAL FINANCIAL INSTITUTIONS AND MOBILE AND ELECTRONIC PAYMENTS.

For a poor country with a GNI per capita of $1,420 in 2011, India has a remarkably well-developed financial sector.[12] In 2012, India's National Stock Exchange (NSE) was the world's largest exchange by number of trades in equity shares, beating even the New York Stock Exchange, which came in at number two.[13] The combined market capitalization of its top five listed telecom companies is over $60 billion, and about 67.9% of India's $136 billion in commercial service exports were in computers, communications, and other services.[14] By way of comparison, the average for high-income countries with GNI per capita of $12,575 or more is 47.2%. Indian cellphone users also enjoy the lowest usage rates in the world.[15]

It is striking then that India, with an economy that possesses many advantages unavailable to most low-income countries, has not been able to make significant progress in providing financial services to the vast majority of its people. In the next section of this outlook, we will provide an overview of what the payments architecture in India looks like and identify the barriers to progress in the growth of non-cash alternatives.

India's Payments Systems

Since attaining independence in 1947, India has made substantial progress in increasing the reach and effectiveness of its banking sector. India's bank branch to population ratio has increased tenfold from one branch per 136,000 people in 1950 to one per 13,000 people.[16]

In the wake of independence, the Reserve Bank of India (RBI), which had been set up in 1935 to regulate the banking sector and formulate monetary policy, reported that "commercial banks provided only 0.9% of the total credit to farmers (estimated at Rs 750 crore) in 1951-52," while agriculturalist moneylenders provided 24.9% and professional moneylenders accounted for 44.8% of the total credit provided to farmers in the same year.[17] For an overwhelmingly rural, agrarian country in desperate need of expanding access to financial services to spur growth, this was an unacceptable state of affairs. Moreover, given their experiences with the rapacious mercantilism of the colonial era, India's post-independence leaders favored a strong, interventionist state with the authority to set the country's economic priorities.

Thus, in 1969, the Indian government nationalized the 14 largest commercial banks in the country, raising the share of deposits held by public sector banks from 31% to 86%.[18] This allowed for rapid proliferation of bank branches and channeled credit into regulated priority sectors. Banks were given quantitative targets for the expansion of their bank networks and a set percentage of their credit portfolio had to be devoted to certain 'priority' sectors.

In 1980, another wave of bank nationalization included six more banks and raised the public sector's share of bank deposits to 92%.[19] As a result of this nationalization, bank branches grew from 8,262 in 1969 to 60,220 in 1991. Growth slowed after the passing of liberalization reforms in 1991, with only 8,135

12 World Bank, *World Development Indicators*, 2013.
13 World Federation of Exchanges, *2012 WFE Market Highlights*, 2013.
14 Business Today, "India's Most Valuable Companies," 2013.
15 Chiehyu Li and Bincy Ninan-Moses. "An International Comparison of Cell Phone Plans and Prices," *New America Foundation* (blog), October 14, 2010.
16 S. Ananth and T. Sabri Oncu, "Challenges to Financial Inclusion in India: The Case of Andhra Pradesh," *Economic and Political Weekly*, February 16, 2013: 78.
17 Gorwala, A.D., *All India Rural Survey Credit Committee's Report*, Reserve Bank of India, (Bombay: 1951-1954).
18 Roland, Christian, "Banking sector liberalization in India: evaluation of reforms and comparative perspectives on China" *Physica*, 2008
19 Ibid.

SINCE ATTAINING INDEPENDENCE IN 1947, INDIA HAS INCREASED THE DENSITY OF BANKS AMONG THE POPULATION TENFOLD.

bank branches added between 1991 and 2005. After 2005, however, a renewed emphasis by regulators and policymakers on financial inclusion led to the number of bank branches increasing substantially to 99,884, as of March 2012.[20]

In 1991, a balance-of-payments crisis forced the Indian government to undertake a far-reaching set of reforms to inject competitiveness into India's moribund economy and attract foreign investment. Substantial reforms were also made to banking regulation, with the government dismantling interest rate controls, granting licenses to new banks, and introducing capital adequacy measures to improve financial soundness. Recognizing that priority sector lending targets had significantly decreased the profitability of Indian banks, the government also moved to relax many of its more stringent norms. The definition of priority sector was expanded to include information technology companies, for instance, improving the profitability of priority sector lending.[21]

In the 1990s priority sector lending targets also spurred the growth of microcredit in India, which evolved into two distinct models: the microfinance institution (MFI) model, where MFIs borrow funds from banks and lend it microfinance clients who otherwise do not borrow from formal financial institutions, and the self-help group (SHG) model, where commercial banks lend directly to groups of borrowers formed specifically for this purpose. The latter is the predominant model in India.

REGULATORY & INSTITUTIONAL FRAMEWORK FOR PAYMENTS

As India's central bank, the Reserve Bank of India (RBI) is the nation's most important financial regulator. Its mandate is to achieve economic growth, price stability, and financial stability. Other institutions include the Securities and Exchange Board of India (SEBI), which is in charge of regulating the capital market; the Insurance Regulatory and Development Authority (IRDA), which regulates the insurance sector; and the Ministry of Finance, which also directly shapes outcomes in the financial markets through its supervision of public sector banks, management of public debt, and monitoring of capital markets.

Since 2007, the RBI has been the sole regulator of all payments and settlement systems in the country. Section 2 (1)(i) of the Payment and Settlement Systems Act defines a payment system as:

> *A system that enables payment to be effected between a payer and a beneficiary, involving clearing, payment or settlement service or all of them, but does not include a stock exchange.*[22]

The Act continues on to specify that no person, without explicit sanction from the RBI, shall "commence or operate a payment system."[23]

Within the RBI, the Board for Regulation and Supervision of Payment and Settlement Systems (BPSS), a committee of its central board that formulates policies that govern payment and settlement systems in India, sets standards and determines criteria for membership to these systems.[24]

20 Ibid.
21 Ibid.
22 Reserve Bank of India, *Payment and Settlement Systems Act*, 2007.
23 Ibid.
24 Bank of International Settlements, *Statistics on Payment, Clearing and Settlement Systems in the CPSS Countries (Figures for 2011)*, 2012.

Two other organizations play important roles in India's payments architecture, although they are not regulatory bodies. The first is the Clearing Corporation of India Limited (CCIL), which was set up in 2001 to provide an efficient and safe institutional framework for the clearing and settlement of trades in government securities, foreign exchange, money, and debt markets. It also operates the National Financial Switch (NFS), which helps settle most ATM transactions. Second is the National Payments Corporation of India (NPCI), a similarly constituted quasi-public organization. Promoted by the RBI, it has been tasked with the objective of consolidating and building upon existing payments infrastructure, and expanding the reach of retail payment services by constructing a technology platform that is low-cost yet robust.

NON-CASH PAYMENT MEDIA IN INDIA

The most important non-cash payment systems in India include the previously mentioned RTGS, NEFT, NECS, and checks and payment cards. Table 3 below describes each of these systems and their main characteristics.

TABLE 3. TYPES OF NON-CASH PAYMENT SYSTEMS IN INDIA

System Type	Description
RTGS	• Since 2004, mandatory for all large value and inter-bank transactions • Operated by the RBI • Processed 33 million transactions with a value of INR 394,533.6 billion in 2009 – 2010
NEFT	• Allows funds to be transferred from one bank to another • Final settlement of NEFT batches occurs through the RTGS • 66.3 million transactions with a value of INR 4,095.1 billion processed in 2009 – 2010
NECS	• Involves transactions that require transfer from one to many accounts (e.g. salaries or pensions) or from many to one account (e.g. utility bill payments) • Processed 149 million transactions with a value of INR 695.2 billion in 2009 – 2010
Checks	• Most popular form of non-cash payment by volume • More than 83% of total check volume is currently processed using automated MICR technology
Payment Cards	• Card based transactions — credit, debit, and prepaid — now account for over 56% by volume and 16% by value of retail electronic transactions • At present only banks can issue open-loop prepaid cards

ATM services have spread quite rapidly with the horizontal integration in service connectivity provided by NPCI technology that links the ATM switches of all banks. Retail electronic payments — including electronic funds transfer, NECS/ECS debit, credit cards, and debit cards — have outpaced checks in the last decade and have demonstrated rapid growth. According to RBI estimates, electronic retail payments have shown a 25-fold increase since 2003. In June 2011 alone transactions were valued at 1.74 crore rupees (US $280,000).[25]

25 Reserve Bank of India, *Payment and Settlement Systems, Bulletin 9A: Retail Electronic Payment Systems*, 2013.

Of these electronic payments, NEFT transactions constitute over 70% of the pie. The government-run State Bank of India has a sizable market share in all sectors including a 12% share in NEFT payment and 40% in the debit cards market. SBI's POS transactions have also increased to 24 crore (US $4 million) as they continue to expand the range of services in the debit cards market. It has instituted instant cash withdrawal and deposit facilities for migrants and has expanded its electronic banking and remittance facilities through RTGS and NEFT.

Two other non-cash payment systems are worth mentioning in addition to the five above: the set of exchange and settlement systems operated by the CCIL for transactions in government securities and foreign exchange markets; and the increasingly prominent Immediate Payment Service (IMPS) launched by the NPCI in November 2010, which allows consumers to use mobile phones to access their bank accounts and make interbank transfers in real-time, something that is not currently possible through NEFT.

The IMPS uses the National Financial Switch (NFS) infrastructure to make this possible and its use, while limited, is growing fast. The NFS itself facilitated expansion of ATM services across India by enabling connectivity between ATM switches of all banks.

After RTGS was made mandatory for all large value and inter-bank transfers, there was an exponential increase in the value of transactions the system processed. Compared to RTGS, other payments systems lagged behind, perhaps pointing to much deeper structural problems, such as access to financial services among the vast majority of the population. This has translated to much slower growth in consumer facing payment media such as financial cards, NEFT, and IMPS, among others.

Setting the Stage

This first chapter has motivated our inquiry into the cost of India being such a cash intensive economy. We noted how two thirds of India's population does not have a bank account at a formal financial institution, and that the incidence of debit and credit card usage, mobile money, and other electronic payments is in the single digits. India is also lagging when compared to its international peers.

We then traced the development of India's banking system, which placed great emphasis on bank branch based outreach, and followed the development of various electronic payment systems, noting that while the usage of non-cash media is low, the infrastructure to support more diversified payments systems exists.

Based on this understanding of the state of affairs of current cash usage, we will explore consumer attitudes that drive this behavior, what is required to sustain such cash intensity, the importance of the informal and illicit economy, and potential effects on financial inclusion.

The next two chapters report on original consumer surveys conducted in parallel by the Institute for Business in the Global Context and the People Research for India's Consumer Economy (ICE360°). The IBGC study estimates the cost of cash to consumers in direct and intuitive terms. The study covers fees, transit costs and time spent to get to the point where cash is accessed. It also compares the way different groups see the risks of cash, and how they manage those risks on a day-to-day basis. Finally, it analyzes how respondents think about cash as a method of receiving payments and a method for making payments.

The ICE360° survey, "Reasons and Attitudes to Using Cash in India", compares perceptions of cash to perceptions about credit and debit cards, the most commonly used noncash payment methods for Indian consumers. Grounded in focus group discussions, it assesses the prevalence of beliefs about cash's principal benefits: as a curb on spending, as a monitor on funds available, and as a tool for take-it-or-leave-it price negotiation when shopping. It also compares how well various demographic groups understand the features of credit and debit card accounts, with strategic implications for credit card marketing to India's middle class.

Our discussion of cash operations is the product of original research by faculty of the National Institute for Bank Management (NIBM) in Pune. It estimates the national cost of cash operations to the financial services industry, using a combination of secondary sources, corporate filings, surveys, and interviews with bank executives.

The next two chapters have more direct significance for public policy. They discuss fraud, tax evasion and financial inclusion. Using the best publicly available estimates of the scope of the informal economy and black money, we sketch the connections between black money and India's fiscal health. We then turn to financial inclusion and the specific measures that promise to expand financial access for those currently excluded in India.

Our chapter on innovation, "The Search for Opportunity," is a collection of five business cases about entrepreneurs and global companies in India today. Two are business correspondents (BCs) for banks that provide cash access and payment services. The third looks at a successful entrant into the payments gateway business, a market that heavily favors incumbents. The fourth reads the tea leaves for mobile money in India. And the fifth is a postmortem on a failed disbursement system for one of India's largest cooperatives. These are five crucial niches in the business ecosystems of payments. We conclude with observations and implications for the future of cash and payments in India.

Image via Creative Commons courtesy of FindYourFeet

This chapter reports the results of a 2013 survey conducted by the Institute for Business in the Global Context with Impetus Research.

CONSUMER CASH HABITS

Though few people pay explicit fees for cash in India, everyone pays in time. Delhi's 11 million inhabitants collectively spend some 6 million hours per month fetching cash; Hyderabad's 6.8 million inhabitants spend 1.8 million hours. When the greater Delhi area population of 25.4 million and the greater Hyderabad area population of 7.4 million are considered, the time spent to fetch cash swells to about 14 million hours per month for the former, and 1.86 million hours per month for the latter.

The aggregate monthly expense of fees for cash access is Rs. 9.1 crores (US $1.5 million) for Delhi and Rs. 3.2 crores (US $0.5 million) for Hyderabad in a typical month. The monthly fees per capita are Rs. 79 in the Delhi sample and Rs. 38 per month in the Hyderabad sample, among those that regularly pay fees. Few pay these explicit fees regularly, with 10% of those in Delhi and 12% of those in Hyderabad acknowledging such fees.

TWO THIRDS OF RESPONDENTS WOULD CHOOSE BANK DEPOSITS AS THE SAFEST ASSETS, AFTER CASH.

Virtually everyone in Hyderabad acknowledged the time required to obtain cash, even for intra-household transfers, while 52% of Delhi respondents said that some time was generally required to obtain cash. The wait times are markedly different—Delhi respondents reported a typical wait time of 63 minutes per month, compared to 15 minutes for Hyderabad.[26] When specific cash access transactions were discussed rather than typical monthly behavior, respondents in both cities reported that "at least a bit of time" was required for those transactions.

This chapter reports on a survey fielded in June 2013 to estimate the costs of cash management. The survey carefully evaluates the cost of cash access events, with a particular focus on cash acquisition, and cash maintenance. One thousand randomly selected individuals in Delhi and Hyderabad were interviewed on a seven-part questionnaire. Detailed information was collected on demographics, sources of income and other payments, access to financial assets and services, specifics on five recent transactions, beliefs about cash, and payment choice preferences. Demographic information includes data on socio-economic classes (SEC) A1 to D2 inclusive.[27] The sample universe contained peri-urban areas outside the two cities.

26 These averages are calculated using a cutoff of at least five minutes per month for cash transactions. If very small reported monthly times are included (less than five minutes per month but still greater than zero), the averages change only slightly.

27 Market Research Society of India and Media Research Users Council, *The New SEC System*, 2011.

Identifying the Costs of Cash

The life cycle of cash has three phases: payment acceptance, cash in the consumer's wallet or home, and payment tender. This study examines the total life cycle costs of cash for the consumer by including the costs incurred at payment acceptance, in the wallet, before spending cash balances, and at the time of payment tender.

Three key consumer choices affect how the consumer pays for cash access. *The first choice is whether to hold money in cash or in a bank account.* How a consumer decides to hold money has knock on effects on almost all other cash-related activities. Transactional balances could be kept in a jar at home, in a bank account or credit union, with a savings group, on prepaid cards, as mobile money or in nonbank financial institutions. That is the basic decision in financial inclusion. Everything else, such as the issuance of payment credentials and dormancy of accounts, is secondary to the decision to open an account.

The second choice that affects the consumer's costs is *how to receive income*. This is often out of the individual's control. Employers, the state, or family may decide whether the individual is paid in cash, by check, or bank transfer. Checks and transfers are costless to deposit, but often require a bank visit or trip to the ATM for cash withdrawals.

The third choice that affects cash costs is *where, when and how payments are tendered*. Survey evidence from around the world suggests that payment choice is contextual.[28] People may systematically choose particular methods of payment for a given place of purchase: meaning, payments made in a shop, or online, or at the bank. Payment interfaces also play a role in shaping that decision: meaning whether payments are tendered at the cash register, on a web browser, or by handshake. In order to use a given payment method, consumers must open accounts and obtain payment cards, or checkbooks, or stocks of cash with which to pay. Those accounts and payment methods must be compatible with the types of payments acceptable to each counterparty. Some merchants refuse cards, others checks, and still others cash. Finally, customs shape payment choice, meaning that consumers and counterparties may find one or another payment method appropriate, or pleasant, or courteous. Individuals must allocate money in the right accounts to meet mutual expectations about how to pay. Cash holdings are one of the accounts in which consumers allocate money, so that payments will work.

Financial access shapes how individuals obtain cash. Unbanked individuals who receive cash at their place of business may pay no fees, surcharges or transit costs in order to receive their cash, while others may spend part of the workday in line to receive salary over the counter. They may face risks holding large cash balances in the home, spend more time traveling to offices to pay utilities and taxes, or spend more on money orders to complete remote payments than would be required with a debit account. Banked individuals, by contrast, may find cash costly to accept in terms of time, because it necessitates a face-to-face transaction and a subsequent bank visit to deposit the balance.

28 See, for example, Foster, et al., *Survey of Consumer Payment Choice*, Federal Reserve Bank of Boston, Research Data Report No. 13-2. 2010.

The various costs are detailed in Table 4 below, and whether our survey addressed them.

TABLE 4. A TYPOLOGY OF THE COSTS OF CASH

Type of Cost	How Consumers Pay
Fees	Consumers often pay fees for access to cash, depending on the point of access and the instrument used to receive cash. For example, ATMs often charge convenience fees to non-members. *These costs are measured in the IBGC Consumer Cash Habits survey.*
Transit	Consumers spend money and time traveling to the point where cash is accessed, whether that is a bank branch, ATM, money transfer operator, banking correspondent, shop, place of business, or place of employment. Transit costs are often multipurpose, in that a cash access transaction is not the only reason for the trip. *These costs are measured in the IBGC Consumer Cash Habits survey.*
Queue	Consumers may need to wait in line at their preferred cash access point. Wait times are often longer for check cashing and salary offices. *These costs are measured in the IBGC Consumer Cash Habits survey.*
Risks	Cash is generally not recoverable when consumers experience accidental loss or theft. Whereas many types of bank accounts provide protection against fraud and insurance against counterparty risk, consumers are largely exposed to the risks of holding cash. *These costs are **not** measured in the IBGC Consumer Cash Habits survey.*
Opportunity costs	Cash held in the home (for example, as prudential self-insurance) cannot be reinvested. Inflation erodes its value, and unlike most bank assets, it bears no interest. Because these funds are neither saved at interest nor invested, the opportunity cost of cash is the risk-adjusted return that consumers could otherwise realize on idle balances. *These costs are **not** measured in the IBGC Consumer Cash Habits survey.*

To illustrate the cost elements associated with the various forms of cash access, we highlight four specific cases:

Cash Access Case 1: Aadi obtains cash from his employer. Twice per month, he waits in the salary line and signs for an envelope of cash. Aadi has to spend time traveling to the salary office and waiting in line, and pay any fees due for cash salary payment.

Cash Access Case 2: Ananya receives a paycheck from her employer. Twice a month, she waits in the salary line and obtains the paper paycheck, which she later cashes. For Ananya, the cost of cash includes the time spent traveling to where the paycheck is cashed, the time waiting in the cashing line, and fees for converting the paycheck to cash. No time is spent obtaining the paycheck.

Cash Access Case 3: Harshil receives electronic payments such as salary, wages and/or government payments. These payments are credited to a bank account or prepaid card. For Harshil, the cost of cash includes the time spent converting those electronic balances to cash, such as time traveling to an ATM, waiting in the ATM line, and fees paid for ATM use. Any equivalent point of withdrawal, such as a bank teller or money transfer office, could substitute for the ATM, depending where and how Harshil prefers to obtain cash.

Cash Access Case 4: Dhriti receives cash from several different sources. She works at home, taking care of the family and running a small business on the side. On rare occasions, she receives money sent home from a cousin working abroad. For Dhriti, access to cash involves face-to-face transfers from family, receipts from her small business, and visits to a money transfer office where remittances are sent. Her costs of cash include time spent traveling to the places where all these cash payments are received, time spent waiting in line (if any), and fees paid for access to cash at these various points.

Impact of Demographics

The total fees paid and time spent correlate somewhat with age; but they do not indicate a generational shift in costs of cash access. Youth, under 30 years of age, are far more likely to receive cash as an intra-household transfer, rather than from wages, a bank or a business. Individuals over 50 years of age are less likely to use an ATM. Those who are over 50 are more likely (63%) to pay fees than those who are young (46%). This is somewhat connected with the individual's stage of life. The proportion of those holding jobs peaks at 31% among those aged 40-49, and the proportion of students among those aged 20-29 is 30%. Those over 50 are the vast majority of self-identified dependents, accounting for 25% of older Delhi residents and 40% of older Hyderabadis. More than 90% of dependents obtain cash at home. By contrast, employees and single workers (self-employed) account for more than 90% of ATM users in both cities.

Wealth has some influence on the costs individuals face; but generally total costs rise with income.[29] This suggests two things: first, that the wealthy are more likely to have financial institutions and assets that permit cash access. Second, that they are more willing to spend on financial services such as payments and access to cash. What might they be willing to pay for? Perhaps, the financial institution might offer ancillary services such as interest income or insurance against loss. Or perhaps, for the convenience of obtaining funds just in time for an expense. All of these things are likely true in part. Apart from the wealthy (class A1), the upper middle classes (A2, A3, B1, B2) are virtually identical in their costs of cash. Poorer demographics (C1, C2, D2) are lower in averages and medians.

Time spent on cash access tells the same story. The only group that diverges systematically from the rest is the wealthy (A1), who spend much more time than the rest to obtain cash. This suggests again that either financial transactions are inescapable for the well-off, that they are perfectly happy to pay a little time and money to keep some funds on deposit and not in cash, or quite possibly, that their business is financial in nature, necessitating frequent handling of cash.

The apparent **gender gap** has everything to do with women's place in the household in India. The surface statistics shows that women enjoy cheaper access to cash. Women in Hyderabad paid fees in just 5% of cases versus 19% for men. In Delhi, just 2% of women pay for access to cash. The average monthly costs are 50% higher for men than women in each city, corresponding to an absolute difference of Rs 30 per month in Delhi.

29 Our measure of income is qualitative socioeconomic class (SEC) measure proposed by the marketing association. See Market Research Society of India, 2011.

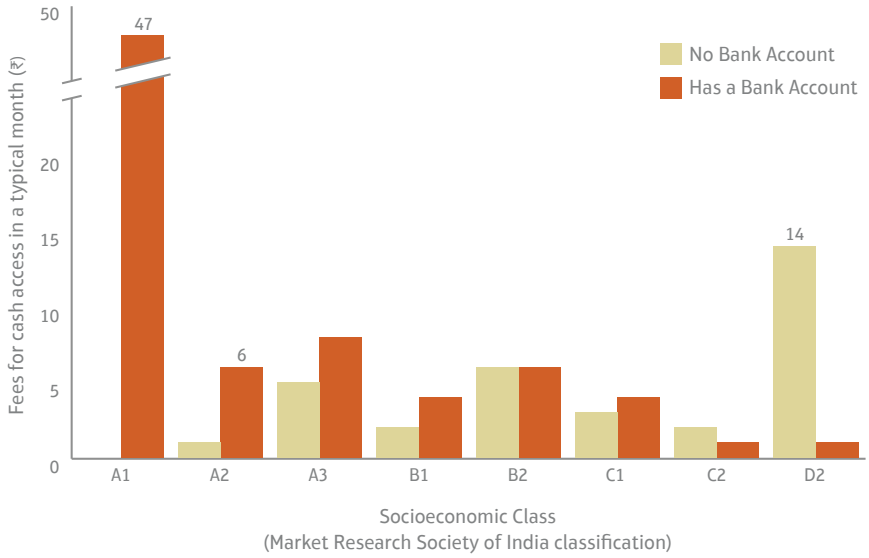
But the social difference between men and women in India is vast. 60% of Hyderabad women and 80% of Delhi women work in the home, versus fewer than 2% of men in both cities. 80% of single workers are male. Among employed Delhi residents, women and men have virtually indistinguishable incidence of fees and time spent. In Hyderabad, women employees spend Rs 2 less in fees per month, and their fee incidence is just 16% versus 22% for men.

Employment is a crucial determinant of an individual's cost of cash because it correlates tightly with income, access to financial services, and typical cash source. So it is unsurprising to find that employers (who happen to be the wealthiest group) are also paying the highest total fees (Rs. 82 per month average in Delhi) and time (61 minutes per month average in Delhi, and also significantly higher fee incidence (50% of employers in Hyderabad, versus just 21% of employees and 3% of students there).

This leads naturally to the question, what is it about employment and wealth that raises the costs of access to cash? This report shows the payment instrument used to receive income has an overwhelming influence on the location, the frequency, and the mode of access to cash. For those that are paid in cash, there is literally no distinction between income received and cash received. The big decision is whether and when to exchange cash for other assets. For those that obtain cash in self-employment and cash from family members, the decision may be largely equivalent. For those that receive non-cash payments—for wages, benefits or transfers—the first decision in a cash economy is how soon to convert payments to cash and whether to do it in full.

This opens up the possibility of a perverse incentive where individuals who are connected to the non-cash system suffer higher costs by virtue of having to convert to cash often, thereby decreasing the motivation of those who are more cash intensive from wanting to convert to non-cash instruments.

FIGURE 3. CASH FEES BY WEALTH AND FINANCIAL ACCESS



Financial Inclusion and the Cost of Cash

Access to finance has a complex relationship with the cost of financial services. Monthly costs for cash access are generally higher among the wealthy and those with financial access. But financial access is common among the rich and rare among the poor. Figure 3 illustrates this trend, where financially included consumers at the lowest income levels face lower monthly cash fees than those without bank accounts. At the highest levels of income, essentially all consumers have access to banks and payment accounts, but do not have cheap access to cash. One possible explanation for this is the willingness to pay for convenience. Interestingly, D2 respondents without a bank account pay a higher amount in fees compared to everybody else except banked A1 individuals. We suspect that this fee bakes in the cost of borrowing to access cash.

These averages also gloss over important differences between different types of users. Interpersonal transfers are often free. So when wealthier dependents obtain cash from the breadwinner, the dependents appear to get free cash. Many of these dependents do not yet have their own bank accounts. So the costless acquisition of cash from intra-household transfers may exaggerate differences among the banked and unbanked in that average. Among those with financial access, fee incidence drops off sharply among the poor. The poor and unbanked, however, display fee incidence on par with the rest of the unbanked population. Financial access helps the poor to avoid unnecessary fees.

On a per-transaction cost basis, the gap between the unbanked and the banked narrows markedly. The relationship between rising cash access fees and wealth holds mostly at the low and high ends of the SEC spectrum; but no similar trend exists among the unbanked.

A number of other demographic factors, such as gender, age, and employment status, might influence those findings. Employees and self-employed single workers who have financial access also have lower cash access costs, compared to family workers and employers. Men pay higher costs than do women on both a monthly basis and a per-transaction basis. Among both genders, financial access correlates with higher prices and higher total expenses for cash.

Among the self-employed, financial access alone makes little difference to the incidence and levels of fees. It is the acceptance of bank transfers rather than cash that simultaneously lowers the cost per transaction and raises the likelihood that the individual will pay for access to cash.

Employees face almost no difference in the incidence or levels of fees based on whether income is received as cash, check or bank transfer. Among the employed, holding a bank account significantly reduces the incidence and the total monthly cost of fees for access to cash.

The use of postal financial services seems to be concentrated amongst the wealthy and banked. This may simply be a manifestation of the fact that wealthy and banked make use of all channels of cash intermediation available to them, rather than a castigation of the postal system as a good vehicle for financial inclusion. The same is true of all our nonbank financial services: investment accounts, microfinance institutions, and postal financial services. The only exception to that was the self-help group, but only 14 respondents (<1%) in the combined sample stated that they belong to self-help groups.

Beliefs and Behavior

In this section, we will explore beliefs and attitudes that may help explain cash usage preferences, and explore differences in those beliefs and attitudes between the Delhi and Hyderabad respondents which could inform differences between the cities themselves. We will be making use of the concepts of a "cash ceiling" and "cash floor" to refer to maximum and minimum amounts, respectively, of cash for some given purpose.

"Can money ever be too much to hold in cash?"

Cash Ceilings. This question asks respondents if there is some amount of money they would simply be unwilling to hold in cash. Less than one third of Hyderabad residents think such as a ceiling exists, while more than half of Delhi respondents do—a difference of 20 percentage points. Among men in both cities, the gap was even larger, with two thirds of Delhi's men agreeing that one should not keep too much money in cash. This difference was robust across income levels and employment categories. Hyderabad's students were most comfortable, with fewer than one in five considering it was unsafe to hold cash.

Among respondents who had a bank account in Delhi, two out of three respondents recognized the existence of a cash ceiling, perhaps precisely because they had a safe place to keep the cash. Interestingly, the results among Hyderabad's financially included was the opposite: two out of three bank account holders felt they were comfortable holding any amount in cash. Among those without a bank account, a risky cash ceiling did not exist for the majority of respondents.

Social norms are often a response to realities on the ground. Poor infrastructure, meaning scarce points of access, can raise the costs of fetching money from a bank branch. Mistrust in financial institutions might arise from local banking conditions, such as poor fee disclosure, unwelcoming financial product design, or concerns about bank solvency. Nonbank financial institutions can offer the utility of bank balances. Where point-of-sale terminals are plentiful and the cost of payments is low, bank balances and payment cards are mutually reinforce each other—something that is not possible if cash must be converted before it is spent.

We can hypothesize multiple mechanisms for belief formation and behavioral traits when it comes to higher income and assets on one hand, and views on the risks of cash on the other. The wealthy are more likely to see cash as risky. They might have more favorable financial product designs and infrastructure. They may have more direct experience handling large cash balances, which could cue consideration of attendant risks. Higher asset balances may also lead them to consider the returns on savings in a different way than otherwise. And they may be more likely to use non-cash payments for specific, high value purchases and bill payments.

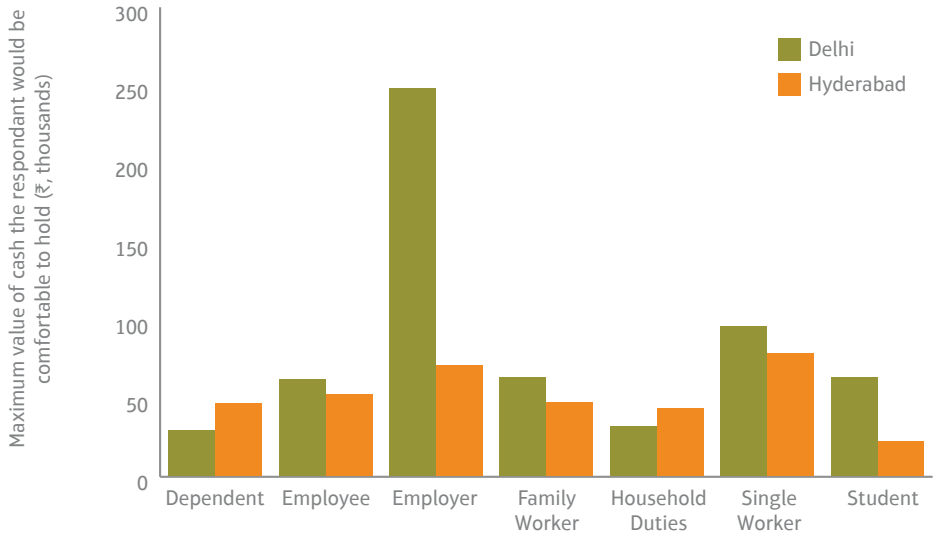
Economic roles, such as salaried work, self-employment, or household duties, display weak links to attitudes towards riskiness. In Delhi, majorities of every employment category other than housewives and dependents agree that cash can be risky. In Hyderabad, no employment categories share that view as a majority.

Those who receive noncash income, meaning a bank deposit, payroll card or check, are most likely to hold the view that cash is risky. In cash-friendly Hyderabad, 40 percent of those receiving non-cash income considered holding cash risky, versus just one in four for those who received income in cash. Thus, it seems that what city one resides in has the strongest correlation with one's attitude towards the riskiness of handling cash, more so than employment or source of income.

"What amount of money would you consider too much to hold in cash?"

We then ask how much cash they would be comfortable to hold. Effectively we asked them to name the ceiling they would prefer their cash balance not to exceed. Not surprisingly, that level is related to wealth levels.

FIGURE 4. CASH CEILINGS BY TYPE OF EMPLOYMENT



The difference is most visible at the upper and lower ends of the income scale. The median cash ceiling for D2 is around Rs. 10,000. A majority of respondents for middle classes B1 to C2 gave cash ceilings between Rs. 10,000 and Rs. 50,000, though the median income rises within it. Among the rich, or classes A1 and A2, Rs. 50,000 was the median, with a majority of respondents anwering between Rs. 20,000 and Rs. 100,000.

In both cities, men are comfortable with higher cash ceilings than women; although the difference is much greater in Delhi than Hyderabad. Delhi shows almost no difference between young and old; whereas in Hyderabad the middle-aged have far higher ceilings than the young. Financial access predictably mirrors the effect of greater wealth, i.e. those with more wealth also have greater access, and those with more access are also comfortable with a higher ceiling.

EMPLOYERS REPORTED REACHING THEIR CASH CEILINGS WITH FAR GREATER REGULARITY THAN OTHERS IN THE ECONOMY.

Business ownership affects reported cash ceilings.[30] This effect is particularly strong in the United States; and it is also present in the India data to some extent. Self-employed Mexicans and Americans were comfortable holding many thousands more dollars of income than salaried employees and homemakers. In India, Delhi employers had such a boost in their comfort holding rupees, but the effect was much more modest among single workers. Furthermore, employers reported hitting their cash ceilings with far greater regularity than others in the economy. Whereas a typical employee might handle more cash than was comfortable annually or more rarely, some twenty percent of employers reported handling larger volumes of cash than they were comfortable with on a monthly basis.

Rather unsurprisingly, cash maxima correlate linearly with wealth. The change is most visible at the upper and lower ends of the income scale. Responses to this question provoke mostly round numbers in reply. The interquartile range for middle classes B1-C2 are the same, though the median rises steadily with income. Between A1 and B1, in upper middle-income groups, the whole range of responses begins to shift upward. So the rise in average cash ceilings is reflective of the whole income group's perceptions, and not a few outliers dragging the average up. In both cities, men are comfortable with higher cash ceilings than women; although the difference is much greater in Delhi than Hyderabad. Delhi shows almost no difference between young and old; whereas in Hyderabad the middle aged have far higher ceilings than the young. Financial access predictably mirrors the effect of greater wealth.

"Is there a minimum amount of cash you try to keep on hand?"

Cash Floors. We then asked the opposite question: whether there was a minimum amount of cash that respondents felt they had to have on hand. Effectively, this asks whether respondents try to keep their level of cash above some floor. 80% of Delhi respondents and half of those in Hyderabad responded that it was quite likely they would always have some cash on hand. These differences between the cities were consistent across income, gender, and employment categories.

Whether one has a bank account or not does not seem to be related with having a cash floor—more than three quarters of banked and unbanked respondents in Delhi saw the need for petty cash, while more than half of banked and unbanked respondents did not feel the same in Hyderabad.

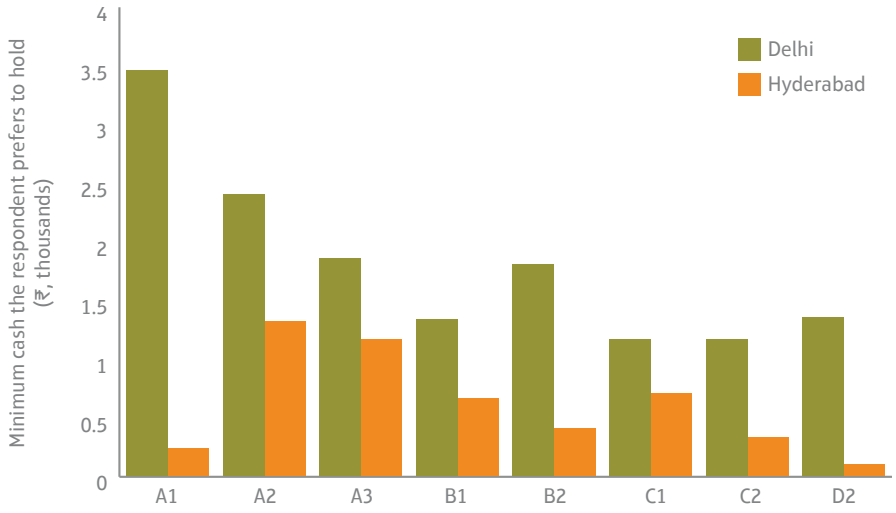
Indeed, it seems that irrespective of what demographic variable we looked at, Delhi respondents had a greater recognition of a cash floor than Hyderabad residents.

30 Bhaskar Chakravorti and Benjamin D. Mazzotta, *The Cost of Cash in the United States*, The Fletcher School of Law and Diplomacy, Tufts University, 2013.

"What is the minimum amount?"

Next, respondents were asked to specify the minimum amount of cash they would need to have on hand. Their responses revealed some intriguing differences between Delhi and Hyderabad. Delhi residents broadly agreed that keeping some money on hand, and meaningfully large amounts, is a necessity. Delhi residents of middle and high income shared a median reported cash minimum of about Rs. 1,000 rupees. The difference between rich and poor median cash floors was a factor of two. Hyderabad showed relatively large variation between rich and poor, with the rich reporting a value ten times higher than did the poor.

FIGURE 5. CASH FLOORS BY CITY AND WEALTH



The obvious explanation for a lower cash floor for the poor is that it corresponds to their lower consumption buckets. It is possible that the rich may bake in a cushion for non-essential or luxury expenses.

Hyderabad residents kept markedly less cash on hand than Delhi residents. In Delhi, most of the respondents said their cash floor fell between Rs. 500 and Rs. 2,000 in cash, while in Hyderabad that range was Rs 200 to Rs. 500. This difference persisted across age groups, gender, employment categories and other demographic variables. Across the cities, Delhi employees had a cash floor twice as high as Hyderabad employees. The floor was four and eight times higher for Delhi's self-employed and employers respectively. In Hyderabad across all employment categories, cash floors are remarkably similar. In Delhi, however, the median cash floors among employers are four times higher than for employees and three times higher for single workers than family workers.

"When you receive money in your account, do you typically withdraw all of it?"

Cashing Out. The survey finds that recipients of electronic funds transfers are comfortable leaving the bulk of the money in non-cash forms. This is encouraging when the putative rumblings of consumer grievances, typically with regard to financial infrastructure, fee disclosures, and residual balances are concerned. That these customers prefer to hold part or all of their balance is good news for the float proposition where finance companies can earn income on the balance, allowing them to offer reduced fees.

Respondents were asked how they would respond when receiving a noncash payment. Would they withdraw all funds over the counter, withdraw all funds through the ATM, withdraw only enough for a few days' expenses and leave the remainder on deposit, or simply plan to leave everything in the account? Most respondents across income brackets in both cities agreed that taking only enough cash for a few days was most prudent.

"How much cash do you have in your wallet, pocket, or purse?"

Wallet balances increase with income in both Hyderabad and Delhi. The average A1 respondent had Rs. 2,221 in their wallet in Delhi, and Rs. 540 in Hyderabad The corresponding figures for a D2 respondent were Rs. 413 and Rs. 540 respectively. Delhi's lower income respondents keep more than their counterparts in Hyderabad, both in absolute terms and as a percentage of the values held by each city's wealthy. Median values in Delhi are identical across age brackets above 30, whereas Hyderabad's wallet cash balances decline with age.

Employers hold about twice as much as employees in their wallet. Single workers in Hyderabad hold cash closer in amount to employers, while in Delhi single workers resemble employees. Housewives in Delhi keep a bit more than half as much cash on hand relative to employees, whereas in Hyderabad it is less than half. At all levels of income and for all employment categories, those with bank accounts hold higher cash balances than those without bank accounts. This is consistent with other survey findings that show banks are more likely to serve the rich than the poor as the wealthy simply have more cash to go around, holding more on hand despite having put a significant chunk of it in a bank account.

"Have you ever had more cash than you were comfortable to keep? How often has that happened?"

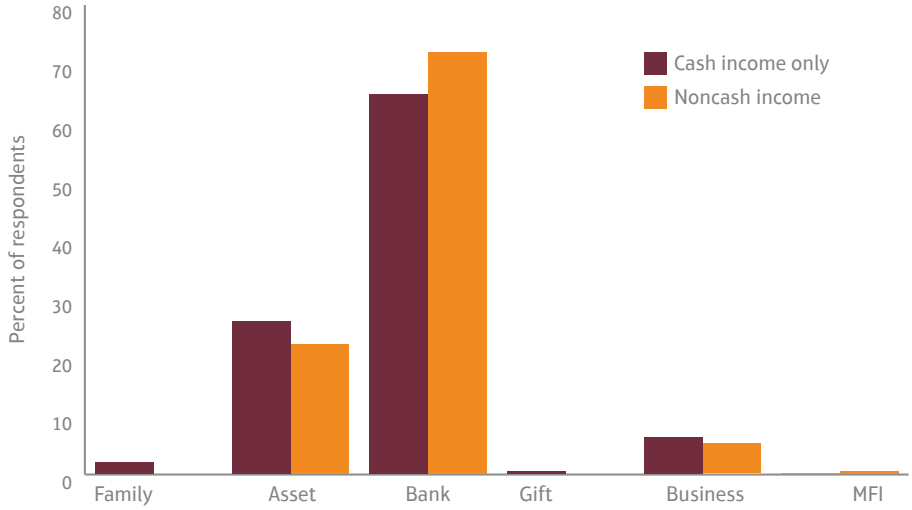
"Where would you prefer to keep your money, if you had too much to hold in cash?"

Generally speaking, the demographics that regularly consider whether to hold large sums in cash are employers and the wealthy. In the Delhi sample, 34% of the wealthiest respondents reported having exceeded the value of the cash ceiling, versus 14% for the poorest. Employers reported the same at 39%, a rate more than 50% higher than for employees and double that of housewives.

Male respondents reported hitting the cash ceiling more often than females in both cities. Heads of household were slightly more likely to respond that they have handled large sums of cash, as are those over 40. The biggest difference between the two cities is that overwhelmingly more Hyderabad respondents recalled having exceeded the cash ceiling, as compared to Delhi. For example, the rate was 70% among the wealthy in Hyderabad and just 25% in Delhi. Among employees, the respective shares are 69% in Hyderabad versus 24% in Delhi; and for single workers 56% in Hyderabad versus 30% in Delhi.

Bank deposits were the preferred choice of asset for excess cash. Deposits were one of six choices in our survey, along with entrusting a family member to hold the money, purchasing a tangible asset (such as gold or livestock), business investment, gifts and microfinance institutions. Americans are nearly unanimous on this question, choosing banks above other assets for surplus cash; but Mexicans are not. Two thirds of respondents in India said, if they had excess cash, they would choose to deposit it with a bank. Yet fewer than half of adults have a bank account and an outright majority of them are dormant, according to World Bank survey evidence.

FIGURE 6. ASSETS PREFERRED TO CASH



In our Mexico survey (forthcoming), respondents are more likely to have a favorable view of bank deposits when they earn noncash income, such as a paycheck or payroll card. An outright majority of Mexicans *with bank income* prefer to make only partial withdrawals. Among those with only cash income or no income, the majority prefers to immediately cash out any payments or deposits received. The effects of bank income on Indians' views are more subtle. Strong majorities claim they prefer not to cash out payments received (see Figure 6. Cash Out Preferences). Noncash income also increases the ratio of Indians that would entrust surplus funds with a bank, but only from 65% to 72%.

Vast differences of opinion divide the banked from the unbanked. 87% of Delhi residents with bank accounts would choose a bank to hold surplus funds, versus 56% of the unbanked. 30% of the unbanked in Delhi would choose tangible assets, and just 3% of banked residents said the same thing. The disparity in Hyderabad was just as great, though skewed in favor of nonbank assets. 72% of Hyderabad's unbanked favored assets and 22% favored banks. Among Hyderabad respondents with bank accounts, 40% favored assets and 58% would choose to deposit the funds in a bank.

Hyderabad exhibited differences in their reported preference of noncash assets, among groups by gender, by age, and by employment. The share of those who would deposit funds, rather than buying tangible assets, fell with age, from 62% of those in their 20s to 19% of those in their 50s. A majority of men would deposit funds in banks but a majority of women would not. And while 60% of employees would trust banks, only 40% of housewives and 40% of self-employed would do the same.

Future Trajectory

Today, residents of Delhi invest 60 lakhs hours per month and Rs 9.1 crores simply to obtain cash for daily life. Hyderabad's population spends 17 lakhs hours and Rs 3.2 crores to do the same. These headline numbers mask a great deal of variation by neighborhoods, by socioeconomic groups, by role in the workforce, by age and by gender. They also mask adoption of non-cash instruments, changing norms, and greater financial inclusion.

As income payments are increasingly delivered by bank transfer and other electronic payment systems, we expect a number of things will happen. First, consumers will come to think of their money and their cash as distinct entities. At present only a few individuals with significant assets think in those terms. Second, consumers will come to consider the convertibility of non-cash assets as a key feature of financial services design. What works well for a salaried employee in the middle of a commercial center will not work well for a consumer in rural areas miles from the nearest point of cash access. Third, the question of who pays for cash access will take on greater significance. Although today those same individuals may be perfectly willing to travel great distances and wait in line to complete transactions, cash access fees may seem unjust to new customers unless education and expectations can be aligned with infrastructure and sustainable service models.

This chapter is based on an ICE360° report by Rama Bijapurkar and Rajesh Shukla.

Image via Creative Commons courtesy of Waterdotorg

REASONS AND ATTITUDES TO USING CASH IN INDIA

Most consumers see three main benefits of cash. Cash confers power on buyers, since they can offer fixed bids for a bundle of goods and services. More than 90% of respondents in every category agree this is the case. Self-control is very important to rural respondents, where more than 80% agreed that cash prevents people from spending too much. Debit users and Delhi residents perceive cash transactions to be fastest. Two-thirds of the respondents appreciate that cash assures exact payment. As for where cash is spent, online shopping was the only category in which a majority of respondents preferred not to use cash. Wealth influences cash balances, as does consumer confidence, wealth, financial access, and the levels of cash ceilings and cash floors. We also find that cash-only consumers know far less about credit cards.

Background

Most developed economies with high degrees of financial inclusion are characterized by low use of cash for retail payments. As incomes and education rise, available non-cash payment channels are widely used, such as credit cards, debit cards, prepaid cards, and online money transfers. Greater use of non-cash payments not only reduces the costs associated with transacting in cash, but significantly reduces the opportunity costs associated with the traditional forms of banking.

TOO OFTEN WE ASSUME PEOPLE RESIST MOVING AWAY FROM CASH BECAUSE THEY FAIL TO RECOGNIZE THE COST.

On the other hand, most low- and middle-income economies are characterized by low levels of financial inclusion. Limited penetration of the formal financial system implies limited scope of shifting to alternate forms of payment, leaving cash as the principal medium of exchange, until very recently. The rapid dissemination of technology platforms over the past decades mostly aided those who were educated and had higher income to move away from cash. Mobile money has changed that reality for many in Africa, Latin America and Asia.

Cash continues to play the central role as a medium of exchange in India. Even among those with bank accounts, cash dominates retail payments. While transactions of higher value may be routed through the banking system, daily purchases remain largely in cash.

Too often we assume that people don't move away from cash to card or other non-cash means because (i) they don't recognize the cost of cash and (ii) they lack access or education about noncash payments. As governments and central banks learn about the total systemic cost of cash (from printing or minting it all the way to being spent), they will push harder to eliminate cash. Regulation and policy incentives will promote noncash consumer payments. However cost is not the only factor in consumer payment choice. Further, for reasons of convenience and privacy, cash exerts a powerful pull on consumers. Today,

India suffers poor network connectivity, a patchy ecosystem point of sale payments, and a fear that the tax man may be eavesdropping on noncash payments.

In this context, it is important to map where and why people use cash and their attitudes to cash and non-cash media to provide a framework for creation of new non-cash products that can compete well with cash. In addition to this mapping, a set of attitudes to measure barriers to non-cash and perceived problems with cash will be valuable information. These can aid future directions for accelerating non-cash usage—either by way of interventions or by way of communication.

Methodology

In January 2014, the People Research on India's Consumer Economy (ICE360°), a Delhi-based think tank, conducted a survey of 1,005 individuals representing various age groups, gender, education levels. The study, entitled "Reasons and Attitudes to Using Cash in India," focused on drivers behind the usage of cash vis-à-vis credit and debit cards. It identified and explored triggers for, and barriers to, credit and debit card use; and analyzed people's cash-handling practices. Finally, the scope of inquiry included day-to-day purchases of goods and services, including routine bill payments and work-related activities.

The findings of the survey compare beliefs, knowledge and attitudes about cash, debit and credit cards among demographic and financial groups. Demographic groups included location, age, sex, and affluence. Financial groups included those that regularly use credit cards, those that regularly use debit and cash, and those that use only cash for payments.

The respondents were drawn from three purposively selected locations, all within India's northern region.

1. New Delhi city, the richest of all the megacities in India and with a diverse population along socio economic and occupational lines.
2. A small town called Meerut in the state of Uttar Pradesh, with a population of 0.35 million. A city strong in manufacturing, the city is rapidly developing and Morgan Stanley in 2011 ranked it second on the vibrancy Index of Indian cities, based on measures like financial services penetration, bank infrastructure, and consumption.
3. Five villages around Meerut, which we classify in India as "rurban," that is, where the urban-rural divide starts to blur, and it is a little bit of each. Rurban is showing a very high growth rate for consumer goods. This corresponds loosely to peri-urban areas in American geography jargon.

A two stage stratified sampling design was used in drawing a probability sample (households and then individuals) using a ready-made frame for the first stage. Census urban blocks and a sampling frame (list of individuals over 20 years of age) was developed for the second stage. The ultimate respondents were done to represent diverse SEC categories including demographics. A summary of sample size and its allocation is provided in Table 5.

TABLE 5. SAMPLE SIZE AND DISTRIBUTION

States		Sample Blocks (Villages)	Sampling Frame (Individuals)	Sample Respondents
Delhi	Urban	25	2,500	497
	Rural	5	500	104
Meerut	Urban	15	1,500	300
	Rural	5	5,00	104
	Total	**50**	**4,500**	**1,005**

Interviews were conducted face-to-face with a questionnaire. The questionnaire was developed with focus groups that explored consumer beliefs about cash and payment cards. The survey schedule was pre-tested with a small number of respondents and accordingly desired changes were made in the content, wording as well as ordering of questions. Locally recruited graduate interviewers were engaged for the collection of primary data through the conduction of face-to-face interviews of the respondents.

Response rates in this chapter are weighted by the state's demographic parameters (such as sex, age, location, etc.). These parameters came from the India Census of 2011. Weights were trimmed to prevent individual interviews from exerting too much influence on the final results. The use of these weights in statistical analysis ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the state population.

Results and Discussion

FINANCIAL INCLUSION

Financial access is adequate in all the surveyed locations in Delhi as well as Meerut. A majority of the surveyed population (91%) have a bank account. Debit card ownership is much lower in comparison (60%).

While 7% respondents in Delhi owned pre-paid cards, less than 1% of Meerut's respondents did so. A negligible section of people (2%) were found to me maintaining accounts in either post offices or as part of any self-help group. Similarly, "Kishan Credit Cards," or cards for farmers, are almost non-existent in both Delhi and Meerut (less than 1 %).

Bank accounts, debit cards and credit cards are three financial instruments that have found various levels of penetration into the markets of Delhi and Meerut. Let us have a look at these three financial instruments across different population groups.

ALL CATEGORIES OF CONSUMERS STRONGLY BELIEVE IN SOME OF THE BENEFITS OF USING CASH FOR DAY-TO-DAY TRANSACTIONS.

BANK ACCOUNT OWNERSHIP

While bank account ownership was similar among males and females in Meerut, it was less among females as compared to males in case of Delhi. Having a bank account is directly related to the level of education attainment in Delhi. However, in case of Meerut, more than 90% of respondents across all education levels had bank accounts, including those who were illiterate. The age of a person is not found to have any relation to having a bank account in either Delhi or Meerut. More than 95% of Delhi respondents worked on a regular basis as salaried earners or had a business of their own had a bank account. Among individuals who were engaged in unpaid household activities, mostly females, in Delhi, only 78% had bank accounts. On the contrary, there is more than 95% penetration of banks among people in Meerut irrespective of their occupation.

DEBIT CARD OWNERSHIP

Cash and debit card usage (for ATMs) is the mainstream majority of payment options, and cash holds sway among rural, lower income, less educated, and those not traditionally employed—especially women and housewives. The gender gap in debit card ownership is considerably higher in Delhi as compared to that in Meerut. 69% of males surveyed have debit cards, which is 17% higher than female respondents. In comparison, the proportion of males in Meerut who had a debit card was higher by 5 percentage points than of female debit card holdings. Additionally, the levels of debit card ownership increase with higher education.

Even though overall ownership of debit cards was higher in Delhi as compared to Meerut, ownership among graduates and post-graduates was relatively higher in Meerut. For instance, while 76% of university graduates in Delhi had a debit card, the corresponding figure for Meerut was 84%. In contrast, a higher proportion of illiterate individuals in Delhi (40%) had a debit card than those in Meerut (15%). The survey also revealed that debit card ownership is much higher among younger age-groups. In terms of occupation, the highest debit card ownership is observed among regular salaried people, followed by the businessmen. However, debit card penetration is much lower among those who are involved in unpaid housework.

Incidentally, debit card penetration is much higher than credit cards because it is often given automatically when one opens a bank account.

CREDIT CARD OWNERSHIP

Credit cards have penetrated only a small segment of society, consisting primarily of the affluent, educated, and salaried individuals. Asset ownership patterns confirm this received wisdom. While television, cable connection, two-wheelers, and refrigerators have penetrated across all types of consumer categories, assets such as cars, air conditioners, laptops, and internet access have penetrated mostly among credit card owners and least among cash-only users. This indicates that credit cards have penetrated mostly among the affluent classes of the society. Male respondents had a much higher rate of credit-card ownership than females. 12% of male respondents had a credit card in Delhi, compared to 5% of females. Even in Meerut where overall credit card ownership is very low, the difference between males and females in visible—23% as compared to almost negligible credit card ownership of 0.5% among females. The credit card market is dominated by males with 79% male users. On the contrary cash-only users are equally distributed between males and females.

When educational attainment is less than complete secondary school, credit card ownership is almost non-existent. Even though overall credit card penetration in Delhi is only 9%, 21% of graduates and 47% of post-graduates reported owning credit cards. This is the case in Meerut too, where 11% of graduates owned a credit card, compared to 2% of the overall survey sample. Age does not play a very major role in credit card adoption.

Affluence is the next biggest differentiator, after education. At the aggregate level, the penetration of credit cards was found to be very low (7.4%) except in Delhi rich consumers where 25.8% respondents reported that they had a credit. More than half of the credit card users are regular salaried workers, followed by one third being businessmen. On the other hand, more than half (55%) of those who use cash alone are either women engaged in unpaid household work and casual laborers who do not have any regular source of income. The average income earned by the credit card users is found to be double the amount earned the cash users.

Attitudes Toward Cash and Cards

All categories of consumers strongly believe in some of the benefits of using cash for their day-to-day transactions (Table 5 and Table 6). However, the proportion does go down with credit card adoption. Thus, while 96% of cash users feel cash allows them freedom of negotiations, 90% of credit card users feel the same. The proportions are still very high, but it is worth nothing that the sanctity of cash is questioned more once users are exposed to other payment forms. A similar pattern is seen when respondents are asked if cash allows them greater control over spending, and provides assurance of exact payments. Interestingly, those who use both cash and debit cards have higher confidence that cash is the fastest transaction method (87%), compared to those who use cash only and credit card users (82%).

TABLE 6. AGREEMENT WITH ARGUMENTS IN FAVOR OF CASH, BY CARD OWNERSHIP

Arguments	Credit Card	Cash & Debit	Only Cash	All
Allows negotiation	90	97	96	96
Control over spending	75	78	80	78
Fastest transaction method	82	87	82	85
Assurance of exact payment	61	65	66	65

Scale: numbers represent percent within category.
Column headings refer to respondents' ownership of payment methods: credit cards, debit cards, and cash.

Source: ICE360° Cash Survey-2014

Similar differences are evident when the same issues are posed to residents of Delhi, Meerut City, and rural Meerut. The greatest difference of opinion occurs on the question of whether cash represents the fastest method of transaction—88% of Delhi respondents agree, compared to 71% of rural Meerut residents.

TABLE 7. AGREEMENT WITH ARGUMENTS IN FAVOR OF CASH, BY LOCATION

Arguments	Delhi	Meerut City	Meerut Rural	All
Allows negotiation	96	91	99	96
Control over spending	78	75	81	78
Fastest transaction method	88	76	71	85
Assurance of exact payment	65	62	68	65

Scale: numbers represent percent within category
Source: ICE360° Cash Survey-2014

FINANCIAL OPTIMISM

The majority of credit card users consider themselves to be economically better off—they are financially optimistic, and confident about stability of their income. In comparison, most of the cash-only users perceive themselves to be in the lower middle or middle class of the society. They are much less confident about the stability of their income source, and feel that they would need a long period of time to find an equivalent source of household income if it were lost. By self-assessment, 29% of credit card users are rich, followed by another 61% who consider themselves middle class. Cash users' self-assessments are equally distributed between lower-middle class and middle class. Around 9% of the cash users also perceive their economic status to be poor. In terms of stability in household income, credit card users had the greatest confidence level (79%), followed by users who use debit card and cash (about half), with pure cash users coming last (36%).

Credit card users also believe they are better insulated from economic shocks. Credit card users also more frequently report they would be able to find an equivalent income source within six months. Only 12% credit cards felt they would take around two years to find an equivalent source to income, while the figure for cash-only users was as high as 40%.

CASH USE AND ATTITUDES TOWARD CASH

The survey analyzed how much people spend on major goods and services and their preferred mode of payment for each. It confirmed that majority of the consumers use cash more extensively than cards across all categories of expenditures. One of the characteristics of cash is that it contains memory and provides

THE FUNCTIONAL KNOWLEDGE OF WHAT A CREDIT CARD DOES WAS VERY LOW AMONG NON-USERS.

tangible cues about how much money has been spent and how much remains. From the large cash share of cash expenditures, we infer that consumers value the benefits of cash, such as tangible balance monitoring.

Cards are not widely accepted everywhere as we can see from the survey findings, especially when half of the consumer market in informal and unorganized. A significant proportion of consumers (72%) use cards on in case of online shopping. Around one fourth consumers (23%) use cards also for paying their internet bills.

CASH IN HAND

There is great level of comfort in keeping moderate to significant levels of cash in hand, especially in small towns and traditional rural areas. Even card users keep significant amounts of cash in hand, and they keep higher balances. The proportion of respondents who keep more than Rs. 2,000 as minimum cash in hand is 29% in case of credit card users, as compared to 12% in case of cash-only users.

The average amount of minimum cash carried by cash-only users or "debit cash and cash" users is observed to be relatively lower than the amount carried by credit card users. The proportion of respondents who carry minimum cash in the range of Rs. 100 to Rs. 500 is 13% among credit card users, as compared to 27% among the cash users.

Similarly, average amount of cash considered too large to handle by the respondents is observed to be lower for credit card users than debit card or cash users. As compared to 21% credit card users who perceive cash higher than Rs. 10,000 to be large enough to carry, the same in case cash users is only 6%.

AWARENESS OF CASH USERS ABOUT BENEFITS OF CREDIT CARD

The functional knowledge of a credit card is very low among the cash users, especially "Only Cash" users (see Table 7 and Table 8). For some benefits, awareness of credit card users is also low.

Awareness of none of the features eight features we asked about was more than 50% for cash users. Less than 10% of cash only users were aware of important features, such as the 30-day zero interest credit period, equated monthly installments (EMI), and reward points earned. The zero interest credit period provides short-term financing at no cost for borrowers that are able to manage timely payments. EMIs transform large lump-sum payments into smaller, regular expenses with no additional paperwork. And reward points can yield cash or shopping discounts to qualifying cardholders with timely payments.

These features also scored poorly compared to awareness of the features among credit-card users, with 39% not being aware of rewards. This suggests credit cards may have general marketing shortcomings for certain issues. The awareness of "debit card and cash" users is somewhere in the middle of the two groups.

TABLE 8. AWARENESS OF THE BENEFITS OF CARDS, BY CARD OWNERSHIP

Benefits of Card	Credit Card	Cash & Debit	Only Cash	All
Allows purchase irrespective of having cash or not	100	82	50	71
Financial transaction anytime anywhere	99	87	48	73
Provides additional proof of purchase	89	51	17	41
Receive SMS if card is swiped	97	80	34	64
Gives a credit period of 30 days with zero interest	80	30	7	25
Hassle free and fast payment	94	55	20	44
Facility to pay in EMIs without any paperwork	81	25	7	22
Reward points earned on all expenses	61	22	8	20

Column headers refer to respondents' ownership of payment methods: credit card, debit card, and cash.
Source: ICE360° Cash Survey-2014

Respondents in Meerut, including rural areas, were more aware of two of the benefits of credit cards (purchase without cash, and transact anytime and anywhere) compared to Delhi respondents. Awareness was higher for the other benefits among Delhi respondents.

TABLE 9. AWARENESS OF THE BENEFITS OF CARDS, BY LOCATION

Benefits of Card	Delhi	Meerut City	Meerut Rural	All
Allows purchase irrespective of having cash or not	68	83	83	71
Financial transaction anytime anywhere	70	84	85	73
Provides additional proof of purchase	39	60	42	41
Receive SMS if card is swiped	68	69	38	64
Gives a credit period of 30 days with zero interest	30	14	5	25
Hassle free and fast payment	44	64	37	44
Facility to pay in EMIs without any paperwork	26	14	3	22
Reward points earned on all expenses	21	19	12	20

Source: ICE360° Cash Survey-2014

Opportunity

Cash reigns supreme even among credit card users. Cash coexists with cards for a variety of reasons, not just for tax avoidance but also because cards are not yet widely accepted. Credit cards penetration is very low except in pockets of high affluence and education which constitute a small portion of the total sample. Debit card penetration is much higher but it is used mainly used at ATMs, and obtained automatically with bank accounts. ATMs optimize cash usage and make it more convenient form of transaction.

The functional knowledge of what a credit card does is very low among non-credit card users—another indicator of how cards have not been marketed at a functional level, even to debit card users. Active users of debit cards that lack credit cards today are the main opportunity discovered in this research. This group is already familiar with the usage of a payment card, and find cards convenient enough to use. They know a bit more about the benefits of card use than cash-only individuals, but not enough to convince them to change the way they spend. Marketing should focus on more careful discussion of the features of credit cards (as well as the obligations), in that group of consumers who actively use debit cards.

This chapter is based on survey evidence and expert interviews conducted by NIBM faculty K. Ramesha, D. Bapat, and D. Roy.

CASH OPERATIONS

This chapter examines the cost of cash from the perspective of production cost, cash management, cash transport, interest cost of carrying cash at currency chest, cash in hand at branches, and ATMs. It looks at costs occurred across the defined processes of production, distribution, processing, dispensing, and redistribution of currency, then examine the current state of cash in India, how it is handled, and some best practices. Finally, it extrapolates the cost of commercial cash operations in India from survey evidence.

The State of Cash in India

One of the RBI's main functions is to manage the currency. Section 22 of the RBI Act allows it to issue notes, and its currency management operations ensure an adequate supply of good quality bank notes and coins.

TABLE 10. STATE OF AFFAIRS OF CASH IN INDIA

Indicator	Value
Currency (value, Rs billions)	11,648
Currency growth, year on year	14%
Coin (value, Rs billions)	1,530
Coin growth, year on year	11%
Cost of new currency (Rs billions)	28.72
Soiled notes	20.4%
Counterfeit notes (parts per million)	6.77

Source: Reserve Bank of India, Annual Report 2012 – 2013

Note issuance and currency management is performed in a variety of means and locations: 18 issue offices, the sub-office of Lucknow issue office at Lucknow, a currency chest near Kochi, and a wide network of currency chests and small coin depots. The RBI has agency arrangements mainly with scheduled commercial banks to manage currency chests for custodial inventory. The national network includes approximately 4,000 currency chests and a similar number of small coin deposits around the country, of which nationalized banks and the State Bank of India manage 96%.

BANKS ARE LOOKING FOR WAYS TO REDUCE COSTS BY OUTSOURCING CASH HANDLING FUNCTIONS TO SPECIALIZED CASH-IN-TRANSIT COMPANIES.

Typically, bank notes and coins are distributed through bank branches, ATMs, and currency vending machines. Commercial banks also employ installed note sorting machines (NSM), desktop note sorters, note-counting machines, ATMs, cash recycles and note detectors. From 2007 to 2008, in order to improve the supply of good quality notes, currency chests at commercial banks were mechanized, which resulted in the installation of high capacity currency verification and processing systems (CVPS), currency disintegration and briquetting systems (CDBS), and desktop sorting machines.

New currency is drawn through an account maintained by the bank at RBI in a "currency chest." Currency chests can be housed by public, private, and even foreign banks, and are audited by the RBI on a regular basis. Chests are managed by the main bank or select branches and are authorized to supply and receive currency. The currency chest designates that notes are either ATM-fit, issuable, or soiled. While ATM-fit and issuable notes are used for recirculation, soiled notes are sent back to RBI. At the end of each day, excess receipts are deposited into the chest. If payments exceed receipts currency is withdrawn from the chest and RBI is informed.

Stakeholders in the Cash Flow Cycle

The RBI is endowed with the right to issue and create currency. Note and mint factories—under either government or RBI control—produce all denominations of notes and coins. Stakeholders in the cash cycle include the Reserve Bank, cash in transit companies, managed service providers, commercial banks, wholesale customers, and wholesale customers.

Cash is typically accessible at bank branches and ATMs, although banks occasionally provide cash pick up services to preferred customers. Most of the growth in cash infrastructure is in ATMs, which multiplied from 27,088 to 114,014 (1.14 lakhs) between 2007 and 2013—a fourfold increase in just six years. To be sure, some banks are expanding their ATM network more aggressively than others; Bank of Baroda, for example, aimed to get to 6,000 ATMs by March 2014, compared to 2,630 in 2013.[31] Generally speaking, the increase in the number of ATMs will likely add to the complexity of cash management for ATM services.

ATMs in India are located both onsite, in close proximity to bank branches, and offsite. Because some banks have more physical branches than ATMs, however, the Finance Ministry recently mandated that public sector banks have at least one non-branch ATM equivalent. Banks are also deploying cash deposit machines to reduce pressure on cashiers.

ATMs can be *brown label*, with hardware and lease agreements managed by service providers and cash management and connectivity managed by the sponsoring bank, or *white label*, which are owned and managed by non-banking companies and do not display affiliation with any bank.

Currently, banks are looking for ways to reduce cash handling costs by outsourcing cash handling functions to specialized cash-in-transit (CIT) companies. This would allow them to focus on providing excellent service and acquiring and retaining customers. CIT companies can transport Rs. 150,000 million on a daily basis and Rs. 40,000 million on an overnight basis. The overall turnover of member CIT companies is Rs. 15,000 million rupees with the employment of 6000 vehicles and 40,000 people. The extent to which banks have outsourced other functions is presented in Table 11. Processing refers to the sorting, banding, bundling, and shrink-wrapping of currency.

31 *Economic Times*, "Bank of Baroda to have 6,000 ATMS by March," November 8, 2013.

TABLE 11. OUTSOURCING IN CASH HANDLING OPERATIONS

	Processing	Machine Operation	Cash in Transit
Private Sector Banks	Partly Outsourced	Partly Outsourced	Fully Outsourced
Banks from SBI/ Nationalized Banks	In-House	In-House	Outsourced
Other Nationalized Banks	In-House	Partly Outsourced	Partly Outsourced

Cash is distributed to banks from the processing office to the branch back office. The branch back office supplies counters with currency notes and coin, which are taken by the public. In the reverse flow, the public presents soiled notes to tellers, who return them to the back office for remission to the processing office. This process and other stakeholders are outlined in Figure 7.

FIGURE 7. STAKEHOLDERS IN INDIA'S CASH CYCLE

Commercial banks focus on five principal technologies to increase efficiency and drive revenue growth with respect to cash handling operations. They expand the share of deposits taken through less costly ATM channel, as compared with bank tellers. They monitor cash to deposit ratios, in order to ensure the bank does not hold more cash than is necessary for business. They exchange soiled currency notes through new notes in house, rather than paying for that service. They expand their network of currency chests. And finally, they provide doorstep banking service to nonfinancial businesses.

Core banking solutions allow account connectivity across various channels within the same bank in real time. Once a core banking solution is in place, customers can operate their account from any branch, use multi-city checks, and critically, use ATMs. Thus far, public sector banks have been slower to implement core banking solutions than private ones, however.

ATMs were initially considered extensions of bank branches, but private banks with a handful of branches pushed to increase their footprint, especially when they realized that the cost of dispensing cash at an ATM was much lower than at a branch. Well-designed products also promoted the use of ATMs. For example, CitiBank, a foreign bank, leveraged ATMs to salaried customers by offering Suvidha Accounts—this was very popular when offered in Bangalore.

Chennai-based Financial Software and Systems (FSS) has developed a transaction switch called Base24, which enables connectivity between ATMs and core banking solutions. When the customer enters a transaction at an ATM, data flows to the switch and then to the core banking solution for authentication. Authentication is performed to verify the cardholder and the required amount in the customer's bank account. Upon verification, the ATM allows the customer to dispense cash. Once the cash is dispensed, information is passed to the ATM switch and then to the core banking solution. FSS partnered with ACI in India and has provided customization to the banks.

Of the 125,000 total ATMs in India, FSS manages about 20,000 out of about 60,000 offsite ATMs. From the end of the month to the first week of the following, about Rs. 2.5 million is dispensed each day. For the rest of the month, this figure reaches Rs. 1 million.

Cash handling is complex because branches have to distribute cash between ATMs, cash deposit machines, and branches, and end up carrying extra cash as buffer. Traffic congestion and other external factors add to this complexity. Various initiatives are currently aimed at enhancing information sharing, reduce cash handling time and increase productivity levels. Indeed, organizations are moving towards various technological advances and process-oriented approaches through outsourcing to improve efficiency in cash operations. Officials associated with cash operations feel that additional process improvements can produce savings of at least 25%.

With respect to security of cash, guidelines regarding cash management operations are issued to the currency chest and branches. The head office monitors cash retention limits at branches in real time, and currency chests at all branches are online with the core banking system. Retention limits are different for branches within city limits and those outside. Prior trends in cash retention, as well as time and distance to currency chests are used to plan for replenishments.

Site preparation for ATMs involves site management, identifying an enclosure, providing air conditioning, and ensuring uninterrupted power supply (UPS). ATMs also require everyday care such as dispensing cash, paper replenishment, and journal management. This is referred to as *first line activity*. Normally, an ATM contains four compartments of cash, called cassettes. One such compartment filled with Rs. 1,000 denomination notes will contain Rs. 2 million. Managed service providers (MSP) manage the loading of cash and clearing of paper jams. In addition, MSP engages in remote monitoring, which provides information on the status of an ATM such as whether it is in-service or out of service. Remote monitoring can also indicate the reasons that an ATM is of out of service, if that is the case.

Currency chests may also serve banks that do not have one of their own, as is the case for many co-operative and private banks with limited presence. Banks have also started offering door-step services to various retailers, gasoline outlets with high cash collection and other small and medium enterprises. Given the complexity and potential for specialization, it is conceivable that white label currency chests or cash centers may appear, akin to white label ATMs.

Executive Survey

Coauthors at the National Institute for Bank Management identified key objectives for currency operations executives. Their literature review revealed five operational goals: cost reduction, security, process improvement, transparency, and audit traceability. They then fielded an executive survey to assess the prevalence and rank order of these objectives, using a wide spectrum of market participants in the sample.

Participants perceived *security* as the most important issue, with 53% of respondents identifying it as their primary concern. Any incident of theft or fraud has the potential to impact a bank's reputation, and they often seek the support of local police. *Cost* and *process improvement* were both ranked second, while *transparency* and *audit traceability* appear to be of lesser concern, although transparency does appear to be the primary concern of one banker.

PARTICIPANTS PERCEIVED SECURITY AS THE MOST IMPORTANT ISSUE, WITH 53% IDENTIFYING IT AS THEIR PRIMARY CONCERN.

Supply Chain Management

Banks see developing a more efficient cash supply chain as one of their primary goals. To do so, they must begin with overstaffed branches. The currency chest is a legacy system that is dependent on a bank's staff, whose productivity levels might differ significantly among themselves and when compared to outsourced staff. Automation and integration can make counting, recounting, reporting, inventorying, monitoring, and control—each of which takes place every time cash is handled—more efficient.

The next step in improving efficiency involves greater surveillance and monitoring of the currency chest from the head office with respect to branch retention limits and actual cash holding at branches and regions to identify outliers. Indeed, to be effective, any reports generated must be timely and regular, make it to the appropriate officials, and be part of a system of consequences and rewards.

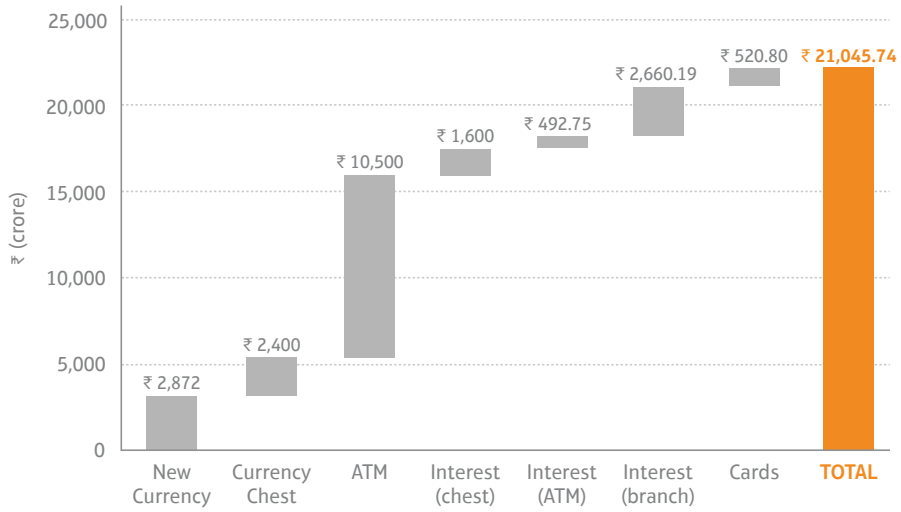
Another key objective of banks entering into agreements with various service providers is managing and mitigating risk. At the state level, the RBI is responsible for ensuring that various players such as commercial banks, bank-managed currency chest operations, and service providers comply with relevant regulations, but banks task internal departments with monitoring agreements as well. Banks look into issues of collateral and bank guarantees, perform surprise checks and audits of ATMs, and pay special attention to exceptional transactions as well. As complexity grows and the incidence of counterfeit notes has increased, banks have a greater need to manage currency chests. The approach of currency chest varies from reactive cost center, proactive cost center, service approach, and profit center.

Finally, the simple reality of dealing with infrastructure can also prove difficult to manage. A city with a population of 4 million has more than 18 currency chests, each with its own rental, security and other costs that add to this challenge.

National Cost of Currency Operations

We analyze the cost component from the perspective of production, forward distribution, processing, redistribution, reverse distribution (soiled notes). We base much of our analysis on the works of Kleine, Krautbauer and Weller (2013).[32] The RBI incurs costs from printing currency, undertaking forward transport from manufacturing facility to issue department, and reverse transport soiled notes. CIT companies charge fees and incur expenses through operating and insurance costs. Since they have to follow an agreement with banks or MSPs, any event of nonconformance may involve penalties and costs. MSPs manage ATMs in India and earn fees from banks and incur expenses for payment to CIT companies, operating and insurance costs. Banks earn limited fees from cash operations but end up incurring expenses for cash handling and processing costs, insurance cost, payments for cash in transit companies, and losses on interest for standing amounts in branch and ATM.

FIGURE 8. COSTS OF CURRENCY OPERATIONS IN INDIA



Source: Reserve Bank of India, Annual Reports

32 Kleine Jens, et al., "Cost of Cash: Status quo and development prospects in Germany," *Steinbeis Research Centre for Financial Services, Steinbeis-Hochschule Berlin*, (Munchen, January 2013).

Best Practices

Bank executives in the survey and focus groups describe a wide variety of best practices, with quite different levels of improvement, depending on the task at hand. Generally speaking, executives believe that moving away from the traditional practice of conducting counting and sorting tasks in-house and instead bringing outsourced companies into automated sorting operations has increased efficiency. Private banks are spearheading this mode of outsourcing. Most efficiency gains occur under when banks maintain strict control, however.

As per the clean note policy, banks will now offer machine-processed notes. Some banks sort notes at their branches with note-sorting machines, reducing transportation costs between branch and currency chests. In this vein, some experts argue that they have been able to manage cash operations within reasonable limits while meeting the regulator's requirement of clean note policy.

With regards to security, some have recently suggested that installations of CCTV cameras have successfully reduced frauds.

Some banks have been successful in raising awareness of reducing operation costs. Best practices in currency chest floor management seem to be when employees are recognized and rewarded for implementing projects with cross-functional abilities, and when Management Information Systems (MIS) are automated with a focus on decision making and controls.

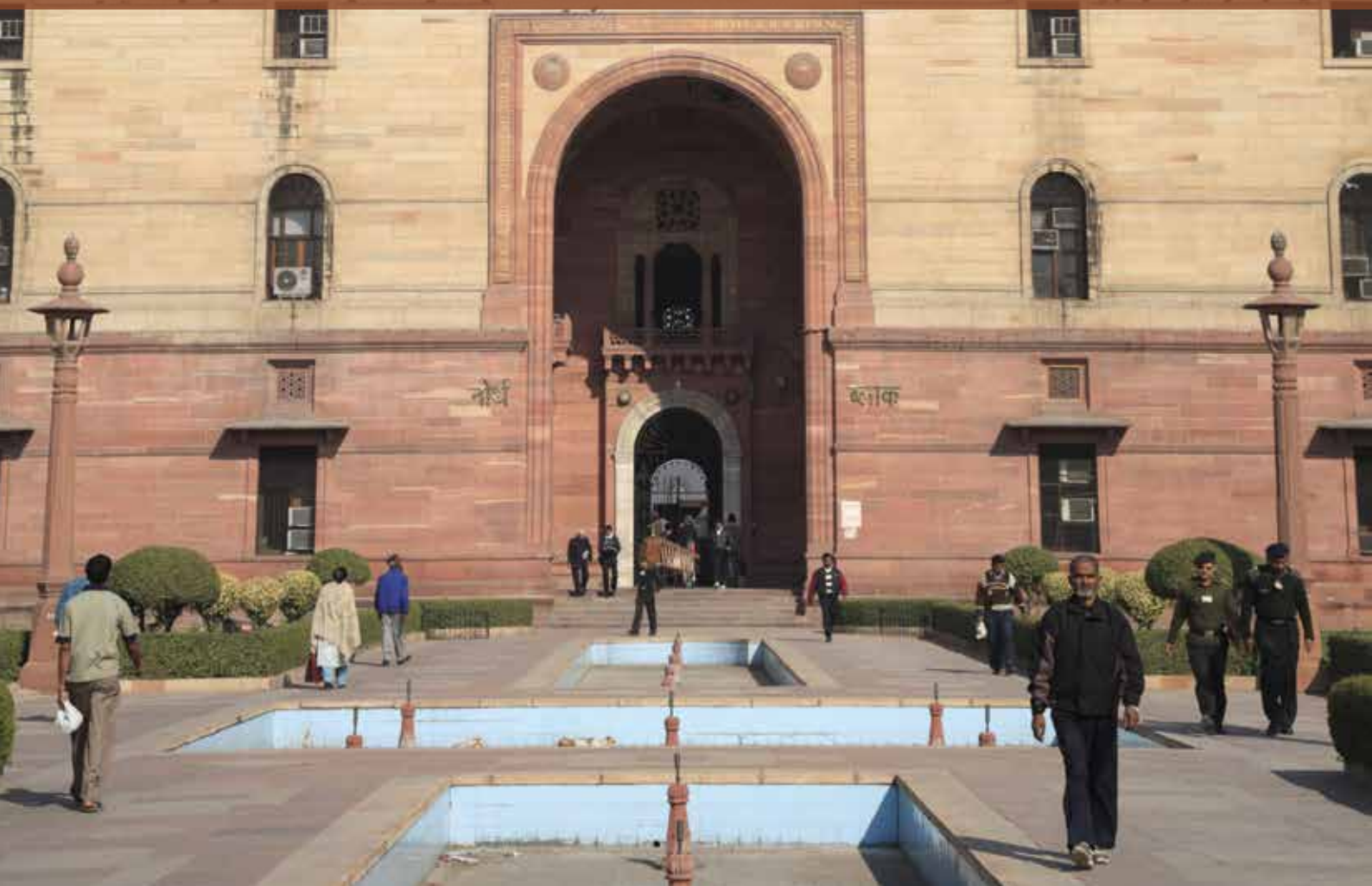
Banks have started doorstep services for retailers with significant cash collections, charging a nominal fee or factoring it into float income from deposits. Some retailers, however, have a preference for cash, often for fear of an audit trail, and even charge extra for use of a PoS device. This results in accumulation of significant amounts of cash, which banks can choose to collect.

Observations

- **Multidimensional Management:** Banks handle currency management via operations, finance, and accounts departments. An alternate channel department manages cash deployment operations at ATMs. No enterprise wide approach currently exists in the bank system.
- **Monitoring:** Monitoring of currency management operation occurs on a daily basis. System-wide real time monitoring would improve such efforts.
- **Awareness:** Currency chest managers and bank operations heads indicate that building awareness to reduce cash retention level to the optimum level is needed.

- **Supply Chain and Logistics:** With different cash handoffs, there is an increase in cost of transport. The delays and enhanced security risk further increase the cost.
- **Stakeholders:** Challenges persist over ownership and responsibility at different points of supply chain. This increases the need for interface management with stakeholders.
- **Reprocessing:** RBI policy requires that customers be provided with machine-fit notes. In some cases, currency is brought from the branches for processing at currency chests. Some banks are equipping branches with the capability to process currency as well. Additional costs are associated with transport and other handling activities in cases where branches must bring currency to currency chests.

Of particular interest is the tax revenue that could be earned by improving tax compliance.



INFORMAL AND ILLICIT ECONOMIES

The dominance of cash in India bears significant consequences for the government because it keeps business in the shadows. An informal economy results in tax revenue losses for the government, as a large portion of the population is employed in it. Cash also affords the presence of an illicit economy has provided a thriving ecosystem for 'black money.' These costs are explored in detail within this chapter.

Size of the Informal and Illicit Economy

The informal economy refers to economic activities that are neither taxed nor monitored by the government.[33] The informal economy includes both traditional sectors such agriculture, for which some limited data is available, and growing sectors such as undocumented service. The National Sample Survey Organization (NSSO) estimates that 50% of the Indian economy is informal and employs 85% of the workforce. A recent Credit Suisse report suggests that India could add up to 15% to its GDP by better estimating the informal sector.[34] The burden of dealing with this parallel economy falls on the income tax department.

BLACK MONEY CREATES SEVERAL COSTS FOR AN ECONOMY, INCLUDING UNDERESTIMATION OF GDP AND LOSS OF REVENUE THROUGH TAX EVASION.

The impact of such a large informal economy is manifold. The prevalence of such a high rate of informal activity bears significant consequences for the government in terms of lost revenue. Tax collection in India is primarily derived from direct taxes (income tax, corporate tax, etc.) and indirect taxes (excise duty, customs duty, etc.). Of these two revenue streams, direct taxes constitute the bulk of GOI's revenue collection from taxes.

In addition to lost tax revenue, it leads to diluted operational ethics across multiple sectors, distorts prices, and leakage in government transfers and subsidies. Eradicating unreported earnings may well have a positive effect on urban poverty through wage payments since a majority of labor migrants are involved in work within the informal economy.

A large segment of the informal economy consists of illicit economic activity such as money laundering, corruption, and organized crime. Sarkar summarizes the same sources found in the Ministry of Finance report: a series of national studies through the Ministry of Finance and the NIPFP by Kaldor, Wanchoo, Rangnekar, Chopra, and Gupta (separately).[35] Chopra's estimates indicated a rapid rise in black money as a share of GDP between the early 1960s to late

33 Sukanta Sarkar, "The Parallel Economy in India: Causes, Impacts, and Government Initiatives," *Economic Journal of Development Issues* 11 (2010).

34 Neelkanth Mishra and Ravi Shankar, "India Market Strategy," *Credit Suisse*, 09 July, 2013.

35 Sukanta Sarkar, "The Parallel Economy in India: Causes, Impacts, and Government Initiatives," *Economic Journal of Development Issues* 11 (2010); see also Ministry of Finance, *Black Money*, 2012.

1970s. By 1977 he estimated 8098 crores (then US $9.5 billion). By the 1980s both Gupta and the NIPFP estimated black money at roughly 40% of national income. By all serious estimates the problem of black money has risen sharply since about 1970, and by the 1980s accounted for more than a quarter of all economic activity (including black and white money together).

Regular blockbuster scandals highlight the scale of the problem, such as the *hawala* scam of 1996 involving $18 billion in transfers to prominent politicians, the Rs 950 crore Fodder Scam exposed around the same time, money laundering by the state of Jharkhand's chief minister to the tune of Rs. 2500 crore (US $415 million) in 2009[36], and the mega scheme of 2011 involving tax evasion worth Rs. 7000 crore (US $1.2 billion) probed under Prevention of Money Laundering Act.[37] A recent *Economist* article alleges government officials are probably the largest beneficiaries of the illicit economy.[38]

Black money creates several costs for an economy, including underestimation of the GDP, loss of revenue through tax evasion, and distortion of the liquidity of money in the economy. 'Black' money used to purchase fixed assets and other valuables such as gold significantly impacts prices and elevates inflation for the country's monetary policies. The Report on Illicit Financial Flows from Developing Countries estimated that the Indian economy lost $123 billion in "black money" between 2001 and 2010.[39]

The Financial Intelligence Unit monitors fraudulent transactions and operates as an independent body. The Finance Bill 2012 also suggested taking measures to undercut the conversion of black money into bullion and jewelry by taxing the buyer (1% of the sales) for high cash transactions. Finally, the government has established an e-payment gateway that uses direct deposit for government salaries and benefits, in order to enhance transparency and accountability.

Injecting counterfeit notes through neighboring countries are flooding the money supply. According to some sources approximately 2,500 crore Rupees (US $415 million) in counterfeit notes came into India from countries like Dubai, Bangkok, Thailand, Nepal, Pakistan, and Bangladesh in 2012.[40] The sources of these currencies are often large-scale organizations, even terrorist organizations and underworld agents.

The Government of India released a report in 2012 titled *Black Money*[41] that discusses the elaborate channels of money laundering through cash and other methods. It foresees electronic transfer facilities as "one of the major thrusts towards strengthening accountability and discouraging unaccounted activities." The validity of checks and demand drafts has been reduced from six to three months, and the private sector is being encouraged to pay wages through banking channels.

In India, as is true for most of South Asia, remittance-oriented *hawala* transactions have traditionally served those who were underbanked and in need of money transfer services. The *hawala* systems have increasingly been identified with evasion of currency controls and taxes, as well as criminal money transfers, often perceived by states as a means of money laundering and terrorist financing in extreme cases.[42]

36 *Business Standard*, "Madhu Koda arrested in Rs 2,000-cr hawala scam," December 1, 2009.
37 NDTV India, "Hasan Ali raided, arrested for money laundering," March 8, 2011.
38 *The Economist*, "Evasive action: A banking scandal highlights the problem of black money in India," March 23, 2013.
39 Dev Kar and Karly Curcio, *Illicit Financial Flows from Developing Countries: 2000-2009*, Global Finance Integrity, January 2011.
40 Kartikeya Sharma, "Fake currency on the rise: Classified memo reveals Rs 2,500 crore in counterfeit notes entered India in 2012," *Daily Mail India*, September 23, 2013.
41 Ministry of Finance, Government of India, *Black Money*, May 2012.
42 Financial Action Task Force, *Role of Hawala and other Similar Service Providers in Money Laundering and Terrorist Financing*, October 2013.

TO BE TRULY EFFECTIVE, A POLICY TO FORMALIZE THE ECONOMY MUST ACHIEVE EFFICACY RATES OF 25-50%.

The Financial Intelligence Unit (FIU-IND) is responsible for receiving and sharing information regarding suspect transactions. According to the Annual Report (2011-12) of the FIU-IND approximately 10.19 million cash transaction reports (CTRs) exceeded the high-value transaction trigger of Rs. 10 lakh. Suspicious transactions amounted to 69,224 reports, filed by banks, financial institutions, and intermediaries. Counterfeit Currency Reports (CCR) were filed by banks amounted to 3,27,382 reports, with highest compliance rates demonstrated by private sector banks. FIU-IND received 7,50,921 reports of fake currencies to the order of Rs. 60 crore.

The Tax Impact of Black Money

Of particular interest is the potential return that could be earned by improving tax compliance. The tax gap in India may be in excess of two thirds of taxes due, according to analyst Surjit Bhalla of Oxus Investments.[43] Aggregate compliance by Bhalla's estimate is just 29% of the true tax liability. To put this in perspective, the US Internal Revenue Service puts the tax *gap* for federal revenue at 14.5%, and that is considered scandalously large. Bhalla calculates further that tax compliance is lowest in the middle income bracket of Rs 5-10 lakhs annual income, at 10%.

The relationships between the informal economy, financial inclusion, and the tax gap are far from straightforward. Cultivators account for 30% of India's workers and agricultural laborers, 24%, but agriculture is sheltered from personal tax in India.[44] Those with incomes under Rs 1.8 lakhs (US $3,000) owe no income tax, so in principle neither financial inclusion in rural areas nor electronic payments of salary and wages to those earning less than Rs. 1.5 lakhs should have a direct impact on the personal tax compliance rate. Effects on tax compliance would either come through different revenue sources or through spillover effects as personal non-agricultural incomes rose above the line.

We share Bhalla's conviction that tax broadening, rather than raising rates to soak the rich, are a just and equitable approach to improving national tax revenue. If it is true that compliance really bottoms out at roughly thirty percent, then raising compliance must be a simple matter of executive policy, and need not threaten India's business climate or require passage of new laws.

The Ministry of Finance's influential *Black Money* report detailed two methods of intermediating black money—off-books transactions and manipulation of books of accounts, each aimed at reducing the tax liabilities of individuals and businesses. In virtually every category of off-books transaction described by the Ministry of Finance, and more than half of the manipulation categories, cash can be used to effect reduction of tax liability.

Taking these estimates of the tax gap as our starting point, we estimate below the fiscal benefit (to the government) of policies that promote formalization of the Indian economy. This analysis does not advocate any specific method of bringing informal economic activity into the formal sector, or simulate economic impacts on specific sectors in order to estimate the tax impact of one policy versus another. It simply asks, what the government stands to gain from a rise in official GDP, if the effective tax rate is roughly constant.

In order to estimate that, we create two parameters and explain how the fiscal benefit would scale with unspecified policies of arbitrary efficacy in bringing informal GDP out of the shadows. This approach,

43 Bhalla, Surjit S., "Tax administration, heal thyself." *The Indian Express*, February 8, 2013.
44 Census of India, Government of India, *Primary Census Abstract*. 2011.

while extremely flexible, is appropriate because informal GDP is by its nature unobserved. It is neither amenable to direct measurement through normal survey analysis, nor feasible to model on an industry-by-industry basis.

Formality multiplier, γ: How effective is the policy in formalizing economic activity? What fraction of informal economic activity (GDP_i) does the policy itself into the formal economy (GDP_f)?

$$\gamma = \frac{GDP_f}{GDP_i}$$

Average effective tax rate, τ: What is the effective tax rate on that type of economic activity? For a labor market, what is the total of direct taxes due on economic activity?

$$\tau = \frac{T}{GDP}$$

Taken together, these two parameters give an effective tax recoup rate of any proposed policy improvement is the product of these two numbers, $\gamma\tau$.

Table 12 illustrates the additional revenue for various effective tax recoup rates and relative importance of informality and efficacy parameters in creating an impact on GDP. The greater the size of the informal economy, the larger is the prize for returning that sector into the formal economy. And the more effective a policy is at formalizing labor markets and business income, the greater the resulting benefits to tax revenues.

TABLE 12. MARGINAL TAX REVENUE FROM FORMALIZATION POLICY

Informal economy (as a share of GDP)	Policy efficacy: 2%	5%	10%	15%	25%	50%	75%	90%
20%	2	5	11	16	27	53	80	96
30%	3	8	16	24	40	80	120	144
40%	4	11	21	32	53	106	160	191
50%	5	13	27	40	66	133	200	239

Tax revenue per crore GDP (₹, thousands)

Table 12 shows that concern over the size of the informal economy is misplaced. We know that the size of the informal economy is large. Whether it represents 20% or 50% of formal GDP is certainly an important question; but what matters far more is what exactly the government plans to do about it. The efficacy of a policy to bring the informal economy out of the shadows is what matters. The Indian economy stood at 113 lakh crore (trillion rupees) in 2012. Small, incremental changes that succeed in reaching only 2% or 5% of the informal economy will have only modest effects on India's fiscal position and the national debate on tax broadening. To be truly effective, a policy to formalize the economy must achieve efficacy rates in the range of 25-50% to have a meaningful effect on the growth of direct tax revenue to the government. This does not represent a tax hike, but a tax broadening, which has the knock-on effects of promoting engagement with formal governance, enhancing citizen ownership of public works, and minimizing economic distortions from taxation. The national conversation must tackle difficult issues, such as the benefits of improved financial access, an improved institutional environment, and a national shift in beliefs and attitudes. At current effective tax rates of 5.3% (direct revenue to GDP), a policy with 25% efficacy in formalizing underground economic activity could feasibly raise 0.5 lakhs per crore of GDP, or something on the order of 57 thousand crores (567 billion rupees, or $9.2 billion). This amounts to a 10% increase in national revenues.[45]

45 Ministry of Finance, Government of India. 2013. *Economic Survey 2012 – 2013.*

In its Payment Systems Vision Document, the Reserve Bank of India highlighted four challenges that must be overcome.

FINANCIAL INCLUSION

India's bid for robust financial inclusion faces daunting challenges. Its enormous population of 1.2 billion generates personal consumption expenditure (PCE) of Rs. 49 lakh crores (US $898 billion), and the vast majority of related transactions are conducted in cash.[46] The total amount spent on cards was just Rs. 1.43 lakhs crores as of March 2013, or around 3.9% of PCE. Moreover, according to the RBI, 41% of India is entirely unbanked and just 14.6% have a debit card. A total of 362 million debit cards were in circulation as of August 2013, and only 18.5 million credit cards. With an estimated of 2.3 cards per borrower, the population with a debit card is thought to be just 155 million of 800 million bankable individuals. Only 52 of 1,787 banks in India issued cards to their customers due to prohibitive costs by the year 2010.

ACCORDING TO THE RBI, 41% OF INDIA IS ENTIRELY UNBANKED AND JUST 14.6% HAVE A DEBIT CARD.

Supply side infrastructure contributes to the problem. Fewer than 130,000 ATMs and 1 million POS terminals were operating nationwide as of August 2013. With 15 million merchants in business, no more than 6% of those can have a terminal, and many are concentrated in a handful of businesses. As a result, debit cards are used for ATM withdrawals (92% of transaction volume) more than ten times as frequently as for purchases (8%).

Many initiatives in recent years have attempted to reduce cash usage with economic savings and customer convenience in mind. The GoI also stands to gain; one estimate found that it would save Rs. 4.13 billion while routing Rs. 2.93 trillion in various subsidies.[47] This is likely because current operations are characterized by inordinate delays, leakages, and rely heavily on manual work.

Payment infrastructure in India is evolving rapidly. The RBI has enumerated policy priorities of safety, efficiency, accessibility, inclusion, interoperability, and authority. Payment clearing and settlement systems have recently gone electronic, with the advent of real-time gross transfers (RTGS), national electronic funds transfers (NEFT), national electronic clearing services (NECS), check truncation, and payment cards. The RuPay card network, Kisan cards, immediate payments service (IMPS), and the universal identity program Aadhaar are leading the way, with sector-specific programs such as PunGrain (rice) and Sub-K (dairy) enjoying mixed results.

Needless to say, a one-size-fits-all solution will not work to promote financial inclusion in all situations. Consider a farmer living in a Jharkand village whose pension is hand-delivered in cash. A new micro-ATM located 10 km from home may not represent a big improvement, even net of any fees due to the local pension official under cash delivery. However, for the migrant laborer in

46 Reserve Bank of India, *Database on Indian Economy*, 2014.

47 Ehrbek, et al., *Inclusive growth and financial security: The benefits of e-payments to Indian society*, McKinsey & Company, November 2010.

DR. K.C. CHAKRABARTY HAS DEFINED FOUR ESSENTIAL FINANCIAL SERVICES THAT THE RBI SEES AS ESSENTIAL TO ITS FINANCIAL INCLUSION MISSION.

Delhi, a cheap money transfer opportunity represents a giant leap of progress. She may deposit her day's cash earnings at the corner store and the next day send money to her sister in a village in Uttar Pradesh by mobile phone, much like one of Kenya's M-PESA clients. In essence, India's vast landscape requires region-sensitive solutions. A more holistic approach that focuses on goals rather than means may be more helpful.

Policy Environment and Developments

In a keynote address to the American India Foundation in New Delhi, Dr. K.C. Chakrabarty, Deputy Governor of the RBI, defined financial inclusion as:

> *The process of ensuring access to appropriate financial products and services needed by all sections of the society in general and vulnerable groups such as weaker sections and low income groups in particular, at an affordable cost, in a fair and transparent manner, by regulated, mainstream institutional players.*[48]

Elsewhere Dr. Chakrabarty has identified four essential financial services that the RBI sees as being essential to its financial inclusion mission: a savings-cum-overdraft account; a remittance product for electronic benefits transfer (EBT) and other remittances; a pure savings product, ideally, a recurring deposit scheme; and entrepreneurial credit in the form of a Kisan Credit Card (KCC) or a general credit card (GCC).[49]

In its recent *Payment System Vision Document*, the RBI highlighted four key challenges that need to be overcome for non-cash payment methods to really take off in India.[50] The first is the poor penetration of the banking system, particularly in rural areas where only a quarter of over six hundred thousand villages have access to a banking outlet. The second is the preference for cash over all other forms of payment among Indian consumers, many of whom lack access to formal financial services. The third, which represents as much a challenge as an opportunity, is the gargantuan task of migrating government payments to electronic platforms.[51] And finally, the lack of POS infrastructure must be addressed, since it is a huge constraint on the growth of electronic transactions. Less than 600,000 retailers out of over 10 million nationwide have the necessary infrastructure to accept card payments.

The RBI's goal is to transition India away from its heavy dependence on cash and towards a "less-cash society, if not cashless society." It identifies seven key elements (7 A's) of what it sees as a modern and widespread payment system: accessibility, availability, awareness, acceptability, affordability, assurance and appropriateness.

The RBI sees the lack of identification documents among customers unable to fulfill KYC norms as one of the major issues, and lists a number of goals—from simplifying KYC norms for using various payment services to encouraging the use of prepaid cards. It also highlights the need to improve financial literacy among the general population.

48 Dr. K.C. Chakrabarty, "Financial Inclusion of Urban Poor in India," Lecture, Annual National Seminar from American India Foundation, New Delhi, January 28, 2013.
49 Dr. K.C. Chakrabarty, "Financial Inclusion: A road India needs to travel." *Live Mint*, October 12, 2011.
50 Reserve Bank of India. *Payment System Vision Document 2012 – 2015*. 2012.
51 Ibid.

With regard to a "less-cash society," the RBI seeks innovation that helps achieve "convergence of products and services which should be available across all delivery channels to all in a low cost safe and efficient manner." On mobile payments, it encourages mobile network operators and banks to "cooperate and collaborate" through a centralized platform such as the IMPS offered by the NPCI. It suggests a number of initiatives to discourage cash use, such as placing a transaction limit on payments that can be made by cash and checks.

RBI's vision is not without its critics. In their evaluation, Suyash Rai and Madhavi Pundit, economists at the National Institute for Public Finance and Policy (NIPFP) and the Asian Development Bank, respectively, criticize its narrow focus and dearth of quantifiable goals. They further argue that a vision document ought to be an opportunity to "think from first principles, and to dream about the payments landscape."[52]

Rai and Pundit also note that the RBI offers little by way of potential roles for the private sector, making it seem as though it "is running all payment systems, with incidental cooperation from the private sector."[53] They feel that the regulator is overstepping its role by participating in the provision of the very services it is supposed to be regulating—services that should be provided by a competitive, sensibly regulated private sector.

Ajay Shah, one of India's preeminent economists, argues that the Payment and Settlement Systems Act of 2007 fails to articulate to what ends the RBI should be using its powers as the sole authority on payments.[54] RBI's role as regulator of payment systems comes without clear objectives for consumer protection, economic efficiency, or the reduction of systemic risk, which makes it less accountable for its policies, which have fundamentally shaped the way payments in India work. Its decision to favor the bank-led business correspondent (BC) model over the telecom-led mobile banking model is one such policy.

A discussion of financial sector legislation and regulation that could impact financial inclusion in India would not be complete without mentioning the Financial Sector Legislative Reforms Commission (FSLRC), which has been tasked to rewrite legislation, rules, and regulations to fix an out-of-date, complex, and ambiguous regulatory system.[55] In doing so, it has sought to shift from a rule-based to a principles-based regulatory approach. By laying out the broad objectives of the policy, this approach aims to make financial regulation more transparent and visionary rather than reactive to changes in technology and market conditions. In terms of principles, the report suggests making regulation blind to ownership structures and company sectors, which would make it much easier for non-banks like telecom companies to set up new payment systems, as regulation would not discriminate between banks and non-banks.

Current State of Electronic Payments

The scale of benefits promised under electronic payments for government services is compelling. A 2010 McKinsey report found that initiating electronic payments as a means of disbursing government services can reduce current payment inefficiencies estimated at Rs. 1 lakh crore annually (US $22.4 billion).[56] These

52 Madhavi Pundit and Suyash Rai, "RBI vision document on payments: An evaluation," *Ajay Shah's Blog*, June 5, 2012.
53 Ibid.
54 Ajay Shah, "How to Make Progress on Payments," *Ajay Shah's Blog*, April 27, 2013.
55 Ministry of Finance, Government of India, "Setting Up of a Financial Sector Legislative Reforms Commission," Department of Economic Affairs, March 24, 2011.
56 Ehrbek, et al., *Inclusive Growth and Financial Security: The Benefits of E-Payments to Indian Society*, McKinsey & Company: November 2010.

savings derive from US $15.8 billion in government savings, US $6 billion to individual beneficiaries (of which US $3.9 billion is for the unbanked), and US $600 million to intermediaries. A 2003 Visa study estimated that a 10% increase in electronic payments correlates with a 0.5% increase in consumer spending; and that electronic payments can achieve cost saving worth about 1% of GDP.[57]

Efficient payment systems allow transactions to be completed safely and in a timely manner, contributing to overall economic performance. While the growth of electronic payments through National Electronic Funds Transfer (NEFT) and Real Time Gross Settlement (RTGS) has been impressive, electronic payment systems have yet to reach all regions of the country or sections of society. However, this can be achieved through standardization, interoperability, consolidation, and common infrastructure coupled with innovation in products and delivery channels.

The growing volume of electronic payments reflects customer acknowledgement of convenience and trust. The volume of electronic transactions increased from 1.2 billion in 2011-2012 to 1.7 billion in 2012-2013—a growth of 36%—and the total value of electronic transactions increased from Rs. 967.52 trillion to Rs. 1212.37 trillion over the same period—a growth of 25.31%.[58] Additionally, in the year 2012-2013, the share of electronic payments in overall non-cash payments (56.4%) surpassed the paper-based payment systems. The previous year, electronic payments represented 48.2% of overall non-cash payments. Mobile payments in 2012-2013 reached 53.30 million in volume and Rs. 59.90 billion in value. In the same year, the growth rate was 108% in volume and 229% in value. The overall share of mobile payments in the payment system, however, is minuscule. Nonetheless, the trend clearly indicates rising consumer acceptance for the electronic payments.

The introduction of electronic payment mechanisms will induce greater financial inclusion, actual realization of welfare schemes, transparency in disbursement, and reduction in corruption, Moreover, since the bulk of losses can be attributed to embezzlement and corrupt practices, the introduction of a transparent system will produce an increase in government revenue.

Challenges to India's Payment Systems Ecosystem

Despite recent advances, India's electronic payment system infrastructure needs to become more efficient, integrated, and must incorporate dexterity through standardization, interoperability, and the creation of common infrastructure. In an ideal scenario, the convergence of various payment systems could make payments truly indifferent to channel.

In India, there are different types of messaging solutions and formats specific to each of the payment systems. Banks or system participants are required to develop an application-specific Application Program Interface (API) to integrate with each of these systems. In the current system, portability, which would allow a seamless transfer in the case of switching service providers or systems failure, is a major challenge. Interoperability—the ability of one system to work with another seamlessly and without customer cognizance—has thus been a core RBI concern.

57 Global Insight Inc., *The Virtuous Circle: Electronic Payment and Economic Growth*, June 2003.
58 Reserve Bank of India, *RBI Bulletin: 43. Payment System Indicators*, 2013.

RBI has taken several steps to promote interoperability and development of common infrastructure in India, where ATMs are national infrastructure and are connected through ATM networks such as the National Financial Switch (NFS). NFS allows a customer from one bank to use an ATM from another bank. Furthermore, RBI has ensured the interoperability of BCs by standardizing the micro-ATMs they use. Potential also exists for further developments, like the linking of non-bank payment systems to inter-bank payment networks, or the implementation of GIRO-based payment systems to integrate bill payments.

Impact on Financial Inclusion

India has adopted a structured, planned, and integrated approach toward financial inclusion by focusing on both demand and supply side constraints. RBI has permitted non-bank entities to partner with banks for initiatives such as this. Indeed, technological advancement has made it possible to devise innovative ways of attaining financial inclusion. For example, bank agents have used handheld devices to draw people living in remote areas into the banking fold. Mobile technologies are trying to reach out to the populace starved of banking services as well. Financial institutions are also joining forces with network operators to provide access to mobile-based payment services—even among the unbanked.

The results of this effort speak for themselves. As of March 2013, nearly 268,000 banking outlets have been set up in villages, compared to 67,694 in March 2010.[59] In the same period, 7,400 rural bank branches opened. In addition, nearly 109 million Basic Savings Bank Deposit Accounts (BSBDAs) have been added, increasing the total number of BSBDAs to 182 million. The share of ICT based accounts also increased substantially between 2010 and 2013, from 25% to 45%. Small entrepreneurial credit has expanded as well. 33.8 million households were provided with small entrepreneurial credit during the same three-year period, even as the number of farm sector households increased by 9.48 million. In the nonfarm sector, the number of households grew by 2.25 million and 3.6 million households have obtained new credit. About 490 million transactions were carried out in ICT accounts through BCs in the same period.

Enduring Initiatives

For the first twenty years of economic liberalization in India, the GoI managed to make progress by simply selecting a sector with anemic growth and low innovation, identify stifling regulations, and annulling them. Now, as the country moves from low income to lower-middle income status and eyes further growth, it is not enough for policymakers to simply get out of the way. The task before Indian policymakers is to build a set of institutions that can reliably form the framework for India's ascendancy into the upper-middle income band and beyond. This chapter looks at three initiatives that have been implemented with that vision in mind.

59 Reserve Bank of India. *2013 – 2014 Annual Report*, Chapter IV: Credit Delivery and Financial Inclusion.

THE RESULTS OF THIS EFFORT SPEAK FOR THEMSELVES. AS OF MARCH 2013, NEARLY 268,000 BANKING OUTLETS HAVE BEEN OPENED INVILLAGES, COMPARED TO 68,000 IN MARCH 2010.

AADHAAR

The Aadhaar project was initially conceived as a technological solution for fixing leakages in India's welfare architecture. Each Aadhaar record is associated with a set of biometric indicators belonging to the individual, including fingerprints and iris scans. Indian policymakers hope this project will radically alter citizen-government engagement, from voting to collecting social security benefits and opening a bank account. The Unique Identification Authority of India (UIDAI), through its enrollment partner agencies, has issued more than 383 million Aadhaar numbers as of July 2013.[60] At current monthly enrollment rates, 600 million people are expected to have Aadhaar numbers by 2014.

The UIDAI has also created an online system enabling third parties to use Aadhaar numbers for identity verification. Accredited Authentication User Agencies (AUA) can also utilize the Aadhaar Payments Bridge (APB) to post payments directly to beneficiaries without going through multiple official levels, the typical sources of fraud and leakage. Beneficiaries can then withdraw money from certified POS devices that are connected to the Aadhaar Enabled Payments System (AEPS).

Aadhaar-enabled payments produce three key effects that will increase financial inclusion in India, and with it the use of electronic payments more generally. First, it allows easier KYC compliance, since the RBI has mandated that Aadhaar be accepted as a valid KYC document. Second, it separates identity documents from location. Whereas prior to Aadhaar, proof of residence was required to authenticate identity for new bank accounts, today biometric identification substitutes for proof of residence. Finally, the same biometric authentication can also prevent payment fraud, provided the point-of-sale terminal or bank implements Aadhaar authentication.

Various private players have launched initiatives that build on the Aadhaar infrastructure to offer a range of new services. Mastercard in India has developed a new payments solution combining the Aadhaar platform and Mastercard's own network.[61] Visa has also announced something similar, stating its intention to go beyond even traditional payment services by becoming a BC for banks.[62]

BUSINESS CORRESPONDENTS (BCS)

In order to achieve its goal of enabling a majority of Indians to access these services, the RBI has consciously adopted the bank-led, business correspondent (BC) model. In this model, a traditional brick and mortar bank uses intermediaries such as microfinance institutions, NGOs, cooperatives, and community-based organizations, among others, as "facilitators" in the provision of various banking services. Agents of intermediary organizations are able to provide the four key financial services the RBI sees as essential through the use of smartcards and low-cost POS devices. The use of such intermediaries and their agents has greatly expanded the number of villages in India that covered by a banking outlet.

The BC will provide banking services at the point of customer interface and a retail outlet. BCs can engage in identification of borrowers; collection and preliminary processing of loan applications including verification of primary information; creating awareness about savings and other products; education and advice

60 Unique Identification Authority of India, "Aadhaar Generation Progress in India," *Dashboard Summary*, 2014.
61 MasterCard Worldwide, "MasterCard Develops Payment Solution for 'Aadhaar'," December 7, 2010.
62 Arvind Jayaram, "Cash at your fingerprints," *The Hindu Business Line*, January 1, 2013

on managing money and debt counseling; processing and submission of applications to banks; promoting, nurturing, and monitoring SHGs, joint liability groups, credit groups, and others; post-sanction monitoring; follow-up for recovery; disbursal of small value credit; recovery of principal; collection of interest; collection of small value deposits; sale of micro insurance, mutual fund products, pension products, and other third party products; and receipt and delivery of small value remittances or other payment instruments.[63]

RUPAY CARDS

RuPay is a domestic card scheme managed by the National Payments Corporation of India (NPCI). RuPay intends to capture the vast opportunity that remains untapped with only 600,000 POS terminals and potentially more than 10 million merchant locations. The RuPay ATM and micro-ATM card offers interoperability, giving the card user access to over 80,610 ATMs under the NFS network. RuPay cards also support AEPS.

RuPay's pricing structure, with low and transparent fees, is designed to court cost-conscious merchants. The fee structure is around 5-6 basis points (both issuers and acquirers taken together) against 25 bps in case of an international card scheme. This also makes banks less vulnerable to currency fluctuations. RuPay cards are expected to combine with Kisan Credit Cards, which have been used since 1998 to provide adequate and timely credit to farmers. RuPay was also used to implement a grain procurement solution, Pun Grain, where 28,000 commission agents were issued debit cards and received sales proceeds within 48 hours instead of a couple of weeks while enabling grain procurement of over 3.7 million tons of paddy with a total settlement value amounting to Rs. 50,240 million.

63 Reserve Bank of India, "Financial Inclusion by Extension of Banking Services: Use of Business Correspondents (BC)," September 28, 2010

This chapter presents five business cases that showcase how companies have navigated India's regulatory landscape and infrastructure on the path to innovation.

SEARCH FOR OPPORTUNITY

We turn now to innovation and change. At the outset of this report, we argued that cash is costly for most stakeholders in society, through myriad channels of cost, risk, and risk mitigation. Where there is economic pain, innovators see opportunity. The pecuniary costs of cash represent opportunities. So do the shortcomings of existing payment infrastructure. This chapter presents five business cases that showcase how five companies have navigated India's regulatory and infrastructure landscape on the path to innovation.

Business correspondents (BCs) are a crucial component in the infrastructure of cash. Fino PayTech, Ltd., is the market leader in India. Our case reveals how this company made it to the top of the heap among nonbank financial institutions, and how favorable are the omens for its future.

WHERE THERE IS ECONOMIC PAIN, INNOVATORS SEE OPPORTUNITY.

Our second case, EKO, takes a different look at the BC business. It examines how a struggling BC found a path to profitability with the domestic remittances business, or money transfers.

The third case demonstrates that innovators can achieve success, even as a David among the Goliaths of the payment industry. Although the payments business does tend to favor incumbents that have already achieved scale, still Citrus earned the right to compete. Consumers recognized the brand's value proposition and Citrus grew its market share with superior technology.

Meanwhile, technologies that have been proven elsewhere around the world may not be suited to the particular challenges of India's economy. We examine the position of the world's best-known mobile money brand, M-PESA, in what is perhaps its biggest untapped market in the world.

Finally, we glean some painful lessons from a venture that stumbled off the starting blocks. It is widely accepted that one-to-many payments, such as salaries and government benefits, are more efficient to distribute electronically and a natural starting point for financial inclusion. A pre-eminent microfinance institution designed a superior technology to replace cash disbursements for one of India's premier cooperative societies. Yet payments reverted to cash amidst howls from the beneficiaries. The Sub-K case points out pitfalls for the next generation of cash-killers in rural finance.

FINO Paytech, Ltd.

It's tough being a BC to banks in India. The BC model involves banks appointing intermediaries ranging from NGOs to money transfer services and microfinance institutions. They offer a range of services on the banks' behalf through a network of physical outlets spread across India to reach the unbanked population. BCs make a commission on based on the number of new accounts they open for their client banks and for the transactions they facilitate for these account holders. In a survey of India's leading BCs by Microsave, a financial inclusion consultancy, about 70% reported that they run at a loss.[64]

Despite the challenging environment, Mumbai-based FINO (Financial Inclusion Network and Operations) Paytech Ltd has met with significant success. Founded in 2006, FINO is India's largest BC network, with over 33,000 customer service points, or *bandhus*, and a customer base of over 60 million. In recent years, FINO's relentless focus on achieving scale has begun to pay off. After growing close to 300% a year between 2008 and 2010, its gross revenues grew 85% in 2011 and 34% in 2012.

Though growth has slowed, profitability has improved significantly. FINO recorded its first profitable year in 2011 with a profit margin of 0.8%. It improved on this performance in 2012 when its profit margin rose to 4.8%. Certainly, with over 65% of India's population still unbanked, there is clearly vast potential for FINO to grow even further. However, a number of challenges—from the entry of new players into the segment, to the management of its growing short-term liquidity requirements, and the need to diversify its product offerings—remain ahead.

PIONEERING THE BC MODEL IN INDIA

FINO was initially envisioned as a technology provider to banks and MFIs looking to extend the reach of their financial services. It was incubated by ICICI, India's largest private sector bank, and founded by a trio of former ICICI employees. Prominent investors in FINO include a consortium of Indian public sector banks (22%), ICICI bank (19%), the International Finance Corporation (9.5%), the Blackstone Group (26%), and a number of Indian and foreign institutional and individual investors.

The backbone of FINO's model is a smartcard it issues to all its end users containing fingerprint information, demographic data, and details of a customer's financial relationship with up to eight banks. The customer brings the card, which also stores transaction history, to a *bandhu* equipped with a Bluetooth-enabled POS terminal that has printing capabilities and a mobile phone. Any transaction is authenticated twice, validating the card against the database of hot-listed cards stored in the POS terminal's memory and the end user's fingerprint against the biometric information stored in the card. To provide an additional layer of security, the *bandhu* is also required to activate the POS terminal at the start of the each day using her personalized smartcard. The POS terminal, which can print receipts of each transaction in the local language, securely stores the details of each transaction in its internal memory. This precludes the need for the POS terminal to be connected to FINO's server at all times, a necessity given the often patchy connectivity in many parts of rural India.

64 R. Kapoor and V. Shivshankar, *State of Business Correspondent Industry in India: The Supply Side Story*, Microsave, 2012.

COMPARED TO OTHER BCS IN INDIA, FINO HAS THE MOST DIVERSIFIED RANGE OF PRODUCTS TO OFFER, RANGING FROM SIMPLE SAVINGS ACCOUNTS TO REMITTANCES, CREDIT AND INSURANCE.

Bandhus, who are usually recruited from within a local community, report to a block coordinator who supervises cash float limits, collecting and disbursing cash from *bandhus* as needed. The block coordinator reports to a district coordinator. *Bandhus* are required to send a text message to FINO's server before leaving for work each day. This, in addition to the real-time transaction data, gives FINO's managers a rich set of data to monitor daily activity levels.

STRENGTHS

FINO continues to build on its formidable network and will remain India's leading BC in terms of scale and reach. Alternative models of financial inclusion in India, such as a mobile money platform like M-Pesa, face the considerable challenge of designing a simple, accessible user experience that works on low-cost cellphones while still meeting the RBI's Know Your Customer (KYC) regulations. FINO's *bandhus*, on the other hand, are often members of the community specifically trained to assist unbanked customers.

Compared to other BCs in India, FINO has the most diversified range of products to offer, ranging from simple savings accounts to remittances, credit, and insurance. Additionally, FINO continues to leverage its technical expertise to offer a number of consulting services to banks to improve and lower the cost of delivering various products to underbanked areas. FINO has secured contracts to exclusively serve public sector banks in six clusters. This secures its income stream in these areas and protects it from the threat of new entry.[65]

WEAKNESSES

A credit report by India Ratings & Research, a subsidiary of Fitch Ratings, reveals that FINO's working capital requirements are set to increase as its bank clients delay payments. As FINO seeks to increase the number of products it sells to individual customers, it will face pressure from its dealer network to improve commissions. A 2010 CGAP study notes that the average monthly profit for a FINO agent or *bandhu* is just about $23, far below what agents earn in Kenya ($130) or Brazil ($135).[66] Given that Indian BCs already face agent churn of 35-40% periodically, increasing compensation will be key, which will in turn put pressure on FINO's bottom-line.[67]

OPPORTUNITIES

Business opportunities for FINO are set to expand as the RBI gets ready to issue new bank licenses, which will increase the number of players in the market. Financial inclusion has been identified as a clear goal in this exercise, and new banks will be expected to expand access to financial services in underbanked areas. Given FINO's market-leading position, this is likely to mean improved business opportunities.

65 India Ratings & Research, Credit Update on FINO PayTech Ltd, 2013.
66 Sarah Rotman, "India's Doorstep Banking: FINO Starts Something New." *Consultative Group to Assist the Poor* (blog), 2010.
67 R. Kapoor and V. Shivshankar, *State of Business Correspondent Industry in India: The Supply Side Story*, Microsave, 2012.

THREATS

With the RBI recently allowing telecom operators to enter the BC space — ICICI Bank, one of FINO's largest shareholders, has partnered with Vodafone to launch M-Pesa in India recently — FINO faces the prospect of competition from players whose reach and brand recognition far surpasses what it has built so far. With revenues from voice services plateauing, telecom operators are looking to value added services like payments for continued revenue growth.

One of FINO's key competitive advantages has been its proprietary biometric enabled smartcards that deliver financial services while meeting RBI's KYC requirements. This has enabled it to become the BC of choice for a number of leading banks. However, the expansion of India's national unique identification program, or Aadhaar, will reduce KYC compliance costs, and with it barriers to entry, for other BCs which can link to Aadhaar to authenticate their end-users.

EKO

Jaiswal is one of an estimated 100 million domestic migrants in India who regularly send money from where they work to where their families live.[68] The value of these domestic transfers was estimated at US $10 billion in 2007-2008, with 80% of these transfers being directed to rural areas and 60% across state boundaries. Like many young men from India's northern countryside, Jaiswal moved to Delhi in search of a better life. He lives in a rented room with three other factory workers. Every month, he gets paid in cash and has to decide how much to save for himself and how much to send back to his family in the village. Keeping money in cash for any significant length of time, he will tell you, means that it will get spent quickly. This was before he heard of EKO—a financial services firm that let him open an account, make small deposits, and send money to his family back in the village, all from his local convenience store.

Before EKO, Jaiswal's options would have included formal remittance methods such as banks and post offices or *hawala* transfers, a trust-based system with no promissory guarantees that is the most prevalent informal method.[69] Despite the apparent cost advantage of bank transfers, which carry fees far lower than 1% of the value of the transfer, versus some 5% for *hawala* and 6% for postal transfers, consumers' indirect costs can account for 3% of the transfer's value.

THE EKO STORY

The Sinha brothers, Abhishek and Abhinav, co-founded EKO India Financial Services in February 2008. Abhishek was puzzled at why the industry focused on just a minuscule segment of the market and ignored the rest—the millions who had neither a bank account nor a payment card of any sort. The big idea behind EKO was that mobile phones could be a platform for all financial services, even for households considered unprofitable by the banks. EKO's initial marketing push had a simple message, "Khata kholo har darwaza kholo," a Hindi phrase that roughly translates to, "Open an account, open every door."

The challenge was twofold. First, to demonstrate the value of putting money—even very small amounts—in a savings account to individuals who were convinced they earned too little to be able to save anything worthwhile. And second, to build a network of retail outlets, or customer service points, in locations convenient to EKO's target demographic. EKO started slowly, opening around 10,000 new accounts a month. Even then, as Microsave points out, BCs are sustainable only "once customers start to use two or more products on an average."[70]

By 2010, EKO had shifted its focus from opening accounts to processing transfers. Abhinav candidly describes this change as a "fluke," brought about when the State Bank of India, EKO's most important bank partner, launched its 'Tatkal' scheme. This enabled EKO customers to transfer money immediately over the counter to any account-holder in the SBI network, whether they had an account or not. This was aided by significantly reduced KYC requirements for all money transfer transactions less than Rs. 10,000.

68 Jaiswal is a typical EKO customer, whose name and personal details have been changed to protect his anonymity; his story is based on a field account reported in Nandhi (2012).

69 S. Gopinath, J. Oliver, and A. Tannirkulam. "Putting Money in Motion—How Much Do Migrants Pay for Domestic Transfers?" *Center for Microfinance and IFMR* (January 2010).

70 R. Kapoor and V. Shivshankar, *State of Business Correspondent Industry in India: The Supply Side Story*, Microsave, 2012.

EKO'S ASTONISHING GROWTH CLEARLY SUGGESTS THAT THERE IS A HUGE MARKET TO BE TAPPED, ONE THAT IS GROWING ANNUALLY.

While building an initial mass of customers, EKO did not charge a fee to open an account or make deposits or withdrawals. But around September of 2010, EKO introduced two pricing plans—basic and premium. Both entailed an initial account-opening fee of Rs. 100 (US $2 at the time), and paid an interest rate of 3.5% on a balance greater than Rs. 500. The premium plan required a flat fee of Rs. 100, which enabled the customer to make as many transactions as he or she wished in a year. The basic plan, on the other hand, charged a fee of Rs. 2 per transaction—be it deposit or withdrawal. One third of the EKO clients discontinued using EKO's services after the introduction of the pricing plans.[71]

In June 2011, EKO dropped its dual pricing strategy to adopt a single variable pricing model. It has stuck with this model since then, with minor adjustments. From EKO's point of view, this was unavoidable; their pricing structure was mostly decided by their partner banks. Relying on commissions for opening bank accounts and small, irregular deposits and withdrawals was unsustainable given the fixed costs of maintaining and building a retail network. EKO's management team also switched commissions to clear on a monthly basis.

PROSPECTS AND CHALLENGES

EKO's pivot to remittances, from its traditional role as a BC that simply opens accounts for banks, has proved tremendously fortuitous. Its remittance service accounts for over 75% of its gross transactions. It processes, on average, transactions worth US $1 million to US $1.5 million daily. In total, it has served over 3 million customers through its retail network. According to its COO, Abhinav Sinha, the volume of remittance transactions EKO is processing is growing at over 100% year on year. The size of an average transaction ranges from Rs. 2,000-5,500.

EKO's primary competition in the remittance space will probably be from mobile money operators. Two of India's biggest GSM operators, Airtel and Vodafone, have launched mobile wallet services in partnerships with banks, which seem indifferent as to which channel enables them to meet their financial inclusion targets. For the local telecom shop operator, adding this service imposes little additional cost and offers another potential revenue earner. Telecom firms in India have already built a formidable retail network of over 1.5 million outlets, and are battle hardened operators in a highly competitive market that serves a subscriber base of over 800 million in a low margin-high volume environment.

EKO's astonishing growth clearly suggests that there is a huge market to be tapped, one that is growing annually. Given the size and diversity of India's market, there is reason to believe there will be enough of the pie to go around for competing models. EKO's task going forward will be to build on the value proposition it offers its customers, who recognize and value its unique brand of service. EKO's goal is to be wherever the migrant is who needs to send money home. EKO's transformation from traditional BC, one that the RBI would like to see establishing banking channels in disparate villages, into almost entirely remittance focused player, a Western Union of sorts for the Indian domestic market, seems complete.

71 M.A. Nandhi, *Impact of EKO's SimpliBank on The Saving Behaviour and Practices of Low Income Customers: The Indian Experience*, Center for Microfinance and IMFR, 2012.

Citrus

Online retail payments have yet to capture the consumer market in India. This is primarily because Indians are uncomfortable with shopping online—they like to see what they are buying, know who they are dealing with, and whenever possible, pay in cash. A study by the Internet and Mobile association of India (IAMAI) reveals that 33% of India's internet users just do not trust the internet for their shopping needs, while 32% of those users who do shop online report Cash on Delivery (CoD) to be their most preferred form of payment for an online purchase.[72] On average, only six or seven out of every ten transactions succeed.[73]

Citrus is a startup payments company based in Mumbai that is trying to change all of this. Sun Direct, a prominent satellite television (DTH) operator in South India, brought Citrus on board as one of three payment gateway providers they used on their website to process customer payments. Within a few months, Citrus was processing over 90% of Sun Direct's transactions.[74] A senior executive at Sun Direct credits Citrus with reducing failure rates for online payments to Sun Direct from 30 to 40 percent to less than 25.[75] In revenue terms, this can be huge for companies that depend on online payments.

IMPROVING TRANSACTION COMPLETION RATES

Online payments transactions typically fail in India due to two distinct sets of reasons. The first is user abandonment; this could be due to anything from a patchy Internet connection, a clunky interface, to just loss of interest. The second is that banks, which provide acquiring services in any payment transactions, tend to have poor IT systems. According to Jitendra Gupta, CEO and co-founder of Citrus, bank systems in India can be down for anywhere up to four to five hours at a time, which makes the experience extremely frustrating for customers.[76]

Citrus approached the problem of improving transaction success rates in two ways. The first had to do with a set of innovations targeting user experience (UX) interface. A customer using a Citrus gateway to make an online payment faces fewer 'hops' to complete the process, usually less than three. In a country like India where Internet can be unreliable even in major cities, this reduces the time it takes to complete a transaction, thereby improving chances of completion.

Citrus also incorporated a retry function—even if a transaction fails, the customer does not have to start again. Instead she is taken to the previous payment information page with all the inputs filled in, decreasing the chances of her abandoning the transaction. Each user also had the option to create a profile with Citrus that securely stored a user's payment information so that the next time she could complete a transaction in just one click.

The second part of the Citrus solution involved designing sophisticated back-end software that used a system of logic gates to continuously evaluate acquiring bank servers to determine which had the highest probability at any given time of successfully completing a transaction. In Mr. Gupta's assessment, Citrus'

72 Internet and Mobile Association of India, *The Road to Less Cash*, 2013.
73 Talisma Khan, "Battle at the Gate," *Business Today*, July 2013.
74 Ibid.
75 Ibid.
76 Interview.

technical success rate is close to 100%—that is, holding all other factors constant, Citrus' software will rarely fail. Nevertheless, he estimates that the overall failure rate for transactions processed by Citrus is about 20%. Of this, he categorizes 16-17% as being due to user abandonment and 3-4% due to card rejections.

In addition to payments processing, Citrus also offers its clients an analytics dashboard to track spending across various categories—an extremely useful tool for smaller online merchants.

THE CITRUS STORY

Jitendra Gupta and Satyen Kothari started Citrus after spending eight years at ICICI bank, India's largest private bank. When Gupta left, ICICI had close to 50% of the online payments gateway market through its own in-house solution. However, despite all the improvements in consumer banking the company had pioneered in India since private banks were authorized by the government in the 1990s, Gupta was unsatisfied with the user experience offered for online payments. A big bank like ICICI, according to Gupta, was not a particularly conducive place for fresh thinking on technology investments, particularly in an area like payment gateways.

He launched Citrus in April 2011. Sequoia Capital, a venture capital fund, came onboard with Stage 1 funding in September of that year, and Citrus processed its first payment in December. In the beginning, Citrus' offering was nothing more than the market standard payments processing solution, practically indistinguishable from similar offering by other payments gateway providers. This is what merchants were comfortable with and a necessary strategy to get an initial toehold in a fast growing market.

Then, in August of 2012, Citrus launched a revamped payments gateway that prominently featured their brand name and logo with a completely reengineered back-end. The switch to a Citrus branded portal soured relations with several key clients, however. Redbus.in, India's premier bus tickets portal, and one of Citrus's most important clients, terminated their relationship with Citrus.

Despite these challenges, Citrus has soldiered ahead with its branded strategy, determined to make its name synonymous with safe and effective online payment processing. As of July 2013, it has a client list of over 400 and processes 35,000-45,000 transactions daily, with an average transaction size of Rs 1,000 (US $16).[77] After fees that it pays banks and credit card associations, Citrus earns 40 to 50 basis points on each transaction. In a country where online purchase of goods and services is becoming increasingly prominent, growth has been especially good. It has consistently recorded greater than 30% growth in both total volume and value of transactions processed in 2013. In the month of June 2013, both volume and value of transactions processed grew by over 60%. Citrus expects this growth to continue for the foreseeable future as more Indians get comfortable with the idea of paying for things online.

77 Interview.

OUTLOOK

Citrus has set its sights on becoming a recognizable brand for payments in India, akin to Paypal. It has recently received approval from the RBI to offer an open loop online wallet with a cap of Rs 10,000 (US $166), and plans on launching a mobile app in the near future that will facilitate peer-to-peer transfers between two users of such a wallet.

Furthermore, the RBI has allowed Citrus to offer this product without having to fulfill onerous KYC requirements that would otherwise have sunk the project. Citrus also stands to earn interest on 50% of the float value of its wallets. Gupta describes the RBI's regulatory approach to payments in India as being "very fair." While it did take the RBI almost a year to process Citrus' proposal to offer an online wallet, he describes this process as being meticulous and transparent.

Very few competitors in India exist in this new space that Citrus has entered. Gupta identifies Paytm, an online mobile recharge vendor that currently only offers a semi-closed loop wallet to its customers, as potential competition. Nevertheless, with the size of the pie expanding rapidly every day, Gupta is confident that there is enough opportunity for everyone to grow. One such lucrative growth segment that Citrus is actively pursuing is P2G (people to government) payments, which is set to expand rapidly with a central government mandate that all such payments move online by 2015.

M-PESA

FROM VOICE TO PAYMENTS: A BET FOR THE FUTURE

Vodafone, India's second largest mobile operator, faces unique problems in India. While its revenues are growing, operating margins are down. Average revenue per user (ARPU) was down 36% in the first quarter of 2013 from the corresponding period in 2009, a secular trend across all mobile operators. Yet teledensity—the number of mobile subscriptions for every 100 people—reached as high as 140-150 in India's major metropolitan regions.[78] Vodafone already has the largest rural subscriber base, 82.24 million as of March 2013, among all of India's mobile operators.[79]

It is in this backdrop that Vodaphone embarked on replicating the runaway success M-Pesa has enjoyed in Kenya, where it captured 85% market share and turnover equivalent of 43% of Kenya's GDP.[80] It has partnered with ICICI Bank to allow customers who are able to produce requisite KYC documents to start an open loop wallet from which they will be able to deposit, withdraw, and transfer at will. The recipient of an M-Pesa transfer needn't even be a Vodafone subscriber—she receives a transaction ID by SMS and the sender also passes along a secret code by, say, giving her a call. Upon presenting both these pieces of information to a local Vodafone retailer, she can withdraw her money—completing a two-factor authenticated transaction without either a card or biometrics.

CAN MOBILE OPERATORS DO FOR PAYMENTS WHAT THEY DID FOR VOICE?

Until very recently, the RBI has been very skeptical of the ability of mobile operators to change the status quo in India. While it has identified financial inclusion as a key priority, the RBI has been of the view that banks, via financial intermediary firms or business correspondents, are the proper channel through which essential financial services can be delivered to India's unbanked.

In speech delivered in 2009, Dr. KC Chakrabarty, RBI's Deputy Governor, identified four issues that lie at the heart of RBI's ambivalence about letting mobile operators enter the traditional realm of banks:[81]

Mobile operators will not be able to deliver a comprehensive range of financial services that the RBI sees as essential to financial inclusion, namely, a savings account, remittance services, a pure savings product, and entrepreneurial credit in the form of, say, a credit card.

RBI's preferred channel for financial inclusion—the bank-led model of appointing BCs to offer last-mile services—has only been rolled out in 2006; its success or failure, therefore, cannot yet be assessed.

Adequate authentication is a problem in the telecom-led model. Unlike in Kenya, India does not yet have a comprehensive national ID scheme, making it difficult to verify the individual at the ends of a mobile transaction.

According to the RBI, transaction costs on the M-Pesa network in Kenya are much higher than what anyone with a bank account in India would pay.

78 Rajesh Kurup, "For Vodafone India, Growth Comes from Rural Markets," *The Hindu Business Line*, May 6, 2013.
79 Ibid.
80 Kurt Eilhardt and Johnathan Brookfield, "SAFARICOM: Managing Risk in a Frontier Capital Market." Working Paper 10-10-001, The Fletcher School of Law and Diplomacy, Tufts University, 2008.
81 K.C. Chakrabarty, "Mobile Commerce, Mobile Banking - The Emerging Paradigm," Paper presented to the India Telecom 2009 Conference, New Delhi, 4 December 2009.

THE M-PESA MODEL OFFERS A FAR MORE COST EFFECTIVE METHOD FOR DELIVERING FINANCIAL SERVICES TO THE BOTTOM OF THE PYRAMID IN HARD TO REACH AREAS THAN THE TRADITIONAL BC FIRM.

FROM KENYA TO INDIA: WILL IT WORK?

India's first mobile money offering from a major mobile network only launched in 2012—when Airtel, India's biggest mobile operator, launched Airtel money in partnership with Axis Bank. Vodafone launched M-Pesa in India on November 27, 2012 with ICICI Bank, India's largest private bank, in a "business arrangement" where the two forms share costs and revenues.[82] Legally, M-Pesa in India is operated by Vodafone India's wholly owned subsidiary, Mobile Commerce Solutions Limited (MCSL), in partnership with ICICI Bank. MCSL, which has been authorized by the RBI under the Payment Systems Act of 2007 for setting up and operating payment system in India, is also a business correspondent for ICICI Bank.

An M-Pesa customer in India signs two separate agreements, one with Vodafone, and the other with ICICI Bank. It is only once the documents submitted by the M-Pesa applicant are verified to be KYC compliant by ICICI Bank that the M-Pesa account becomes an open loop wallet from which the customer can make withdrawals and send money to mobile numbers outside the M-Pesa network. On the back-end, ICICI Bank opens a savings account for the M-Pesa customer who uses the Vodafone interface to make deposits, withdrawals, and transfers. The maximum balance a customer can hold in her M-Pesa account at any given time is Rs. 10,000 (US $160).

Abhishek Jain, M-Pesa product manager at ICICI Bank, has described the partnership as a "bet" for the future. If successful, he says, the M-Pesa model offers a far more cost effective method for delivering financial services to the bottom of the pyramid in hard to reach areas than the traditional BC firm. Apart from being less expensive from a distribution point of view, the M-Pesa model is cardless, and with sufficient penetration, even offers the possibility of displacing cash from a variety of daily transactions. Compared to a traditional BC, which relies on biometric enabled smartcards and micro-ATMs, and agent assistance, the M-Pesa model is almost completely self-assisted and requires nothing more than a cellphone.[83]

WAIT AND WATCH

Despite M-Pesa's goal of converting every account into a fully functional open loop savings account, Jain identifies KYC norms as being a barrier, though Aadhaar has the potential to ameliorate this. For now, ICICI does not plan on extending other financial services to M-Pesa customers; it will wait and see how the product evolves and gains traction in the Indian market.

M-Pesa's success in India will depend on a lot of groundwork necessary to mold the product to Indian realities. The product has to be very simple as many customers are numerate but illiterate. The service needs to be multilingual even though phones are not, making customer support in native languages necessary. Educating agents in the distribution networks is also needed.[84] Michael Joseph, currently director of mobile commerce at Vodafone, and formerly Safaricom's boss until 2010, is circumspect when asked about M-Pesa's prospects in India: "There have been about 200 of these experiments around the world, and maybe only four or five have been successful. India is unique at the moment, we aren't in any other market as big."[85]

82 Interview.
83 Ibid.
84 Rekha Menon, " India's Strong Mobile Signal." *The Banker*, April 2013.
85 James Crabtree, "M-PESA's Cautious Start in India." *Financial Times*, December 28. 2012.

Sub-K

India is the second largest milk producer in the world. Its total production of liquid milk was 54 million metric tons in 2012, behind the United States and ahead of China.[86] Gujarat Milk Marketing Federation (GCMMF), the biggest player in the dairy industry, procures milk from rural areas through its affiliated Village Level Cooperatives Societies (VLCS). In 2013, the 16,914 VLCS across the country procured around 13 million liters per day and 4.66 billion liters of milk from 3.18 million dairy farmers.[87] Daily cash disbursements amount to some Rs. 24 crores, of which 4-6% goes to fees, audit costs, fraud, and abuse.[88]

Sub-K iTransactions, a business correspondent start-up, has implemented a pilot project on dairy payments with village cooperatives of GCMMF. It intended to migrate cash payments by cooperatives to farmers onto an electronic payment platform, with a view to providing cash access points at convenient locations, promoting financial inclusion among farmers, and reducing the costs related to cash payments for cooperatives.

BUSINESS CORRESPONDENT MODEL AND FINANCIAL INCLUSION

Sub-K is a business correspondent (BC) partnered with Axis Bank, a commercial bank, which uses the agent network model and a technology platform called 'ViTranSP'. The combined equipment, referred to as a 'mobile ATM kit', is a low-cost mobile phone and printer set that uses GPRS/GSM mobile service and biometric information (fingerprint) for authentication. Sub-K's technology facilitates interoperability with banking and non-banking companies' systems, and offers online reconciliation and cash management.

It selects trusted local small business owners as its agent and provides them with the equipment, training, and to some extent cash for liquidity management. Sub-K is in the process of expanding services such as mobile phone top-ups, remittances, and dairy payments in order to be a one-stop point for various banking/transactional services and thereby increase its revenues.

INTERVENTION IN DAIRY PAYMENTS

In early 2011, Sub-K initiated a pilot project to test its dairy payments solutions in the state of West Bengal with GCMMF. VLCS are independent cooperative firms with a typical staff of four and daily volume of milk procurement ranging from 1,000-10,000 liters. A VLCS procures milk from individual farmers and provides veterinary services, cattle feed, basic health services, and a range of other items. Cash payments to farmers are done after deductions for services provided. GCMMF uses an MIS (Management Information System) called Automatic Milk Collection Unit Systems (AMCUS) that is focused on supply chain management. It captures information on accounting and the procurement operations (quality, amount of milk, member information and amount payable) up to the individual farmer level. However, AMCUS doesn't allow for direct transfer of payments to the individual farmers.

86 Food and Agriculture Organization of the United Nations (FAO), *FAOSTAT*, 2014.
87 Gujarat Cooperative Milk Marketing Foundation, "Organization::Amul—The Taste of India," Website, 2014.
88 Interview.

SUB-K'S SOLUTION AND DEMISE

Sub-K appointed Basic Convenience Outlets (BCO) to provide basic banking services such as account opening and cash withdrawal/deposit. These agents are usually the local small business owners who are well known among the villagers and have shops in prominent and accessible locations in the local market. BCOs can also service non-dairy transactions, such as EBT payments, to workers under the public employment guarantee scheme. The prospects of economies of scale and scope were thus improved for BCOs that generally struggled to earn enough commission through the number of transactions.[89]

From the cooperative's perspective, the electronic payment streamlines operations. It greatly reduces staff, audit, and management needs around disbursements to farmers, while improving cash and liquidity management. Farmers thus see greater transparency with regard to payments and a degree of choice over the point of access. The card payments also provide an electronic history of income that could document creditworthiness. Banks increase assets without the need for new infrastructure, and have the opportunity to cross sell new financial services, such as credit and insurance, without the fixed cost of customer acquisition.

However, the Sub-K business model could not surmount low financial literacy and poor rural infrastructure challenges. The displaced network of agents that previously earned commissions of some 3% to disburse cash payments to farmers exercised political influence to help kill the business.

CURRENT STATUS AND LESSONS LEARNED

The pilot project on cashless payments to dairy farmers could not be replicated and scaled up for several reasons.

The Sub-K process was designed for online operations only. Whenever the mobile ATM kit malfunctioned, the BCOs conducted payments and deposits offline without customer identification. This created reconciliation and settlement issues at the bank end, and farmers had to come back to authenticate transactions, while BCOs struggled with liquidity.

Banks charged a onetime amount of Rs. 28 as a service charge for opening accounts, but the BCOs did not communicate the benefits clearly to the farmers, which created confusion. As first time bank account users, farmers were not sure about the benefits of a savings account; for example, as a safe store of money that can be conveniently accessed.

There was disagreement between GCMMF and Sub-K over process. The model required GCMMF to introduce changes in its cash disbursement processes, including removing agents from the process, but GCMMF was not willing to give up control over the final payments.

The nail in Sub-K's coffin was the network of dairy cash disbursement agents. The agents stood to lose business due to the new technology and business model, and used the initial shortcomings to convince farmers about the futility of the new system and blamed Sub-K.

89 Kapoor, R., and V. Shivshankar. *State of Business Correspondent Industry in India, 2012*.

Image via Creative Commons courtesy of genequezada

Due to a combination of network effects and technological progress, wider access to electronic payments would drive both profits and wages.

IMPLICATIONS

India can no more mandate universal financial access than it can mandate that people live in brick houses, go to the doctor, or study at a university. All are laudable goals, but each requires substantial investment of scarce household resources and a supporting ecosystem of services and infrastructure. The Reserve Bank of India has made a number of decisions that greatly reduce the barriers to financial access, mostly on the supply side. Due to a combination of network effects and technological progress, wider access to electronic payments would drive both profits and wages.

Begin with payments. As a matter of strategy, payments are the natural starting point for financial services. They function as a sort of virtuous gateway drug into financial services, by changing perceptions about the advantages of electronic money. Even people that have no funds to leave on deposit, and whom the bank considers poor credit risks, can still take advantage of payment services with meaningful benefit. Electronic payments, even when most are immediately cashed out in full, remain an important step in creating demand for financial services. When people get and spend all their funds in cash, any funds deposited in a bank account are *ipso facto* set aside for another day. They are naturally seen as resources earmarked for saving, borrowing, risk pooling, investment, and insurance. In the all-cash payments economy, money must be converted to cash before it can be spent. The same is not the case when households spend and receive money electronically. Households with noncash income see more nuanced tradeoffs between holding cash vis-à-vis other money, whether as a bank deposit, mobile money or stored value card. Electronic money can be money for today as well as tomorrow. Each time a payment is received, they decide how much to withdraw and how much to leave in the account. Household income payments are especially powerful in transforming perceptions about the risk, value, and convenience of electronic payments. Transactional balances, and not just savings, can be split between cash and deposits.

BEGINNING WITH PAYMENTS IS EASIER SAID THAN DONE. WINNING INDIVIDUAL PAYMENT MARKET SEGMENTS IS NOT A FOREGONE CONCLUSION.

However, beginning with payments is easier said than done. Winning individual payment market segments is not a foregone conclusion. Payment markets display heavy inertia. It takes time for households and businesses to learn new financial processes. Many people will only test out new payment methods once a critical mass of neighbors and competitors have tested out the new system. That is a time-honored strategy to identify clear benefits of cost, risk or convenience. The Reserve Bank's strong focus on consumer protection, cost control and simplicity are all important features of an inclusive financial services industry. With appropriate infrastructure and financial product design, many different payment segments are amenable to achieving critical mass. Sub-K's failed entrance into dairy coop points to other factors that can influ-

GROWING INFRASTRUCTURE FOR ITS OWN SAKE WILL NOT PUT FLEDGLING NONBANK FINANCIAL INSTITUTIONS ON A PATH TO SUSTAINABILITY.

ence the choice of payment method in a one-to-many distribution channel. New ventures in the payments sector can shipwreck on many shoals: one-time enrollment costs; insufficient investment in infrastructure; poor outreach and financial literacy; and entrenched interests such as payment officers.

Growing infrastructure for its own sake will not put fledgling nonbank financial institutions on a path to sustainability. The experience of FINO PayTech demonstrates that payments alone will not necessarily lead to sustainability in the last mile of India's financial services. Investments in robust and appropriate technology for connectivity, authentication, encryption, and accounting must be compensated with revenue. The experience of EKO puts an even finer point on this issue. Confronted with an existential challenge, a young company pivoted from cash services to money transfer, literally following the profits onto a path of growth. That is where the hidden hand of the market excels.

Enable innovation to tailor bundles of financial services to suit local needs. Competition will be fierce. Not all entrants into the market will find success. But it is a virtual certainty that price caps and restrictions on service models will ultimately constrain investment, raise risk, and choke off innovation. In order for the Reserve Bank's strong consumer protections to marry with a vibrant and omnipresent infrastructure, no-frills products must be available alongside higher value-added services. Strong limits on no-frills savings and payment accounts for new customers are vital to financial education and public acceptance of noncash payments. But similar dirigisme in the design of all financial products is an error. The Reserve Bank should instead mandate standards for disclosure, eliminate predatory business practices, and encourage competition. Moreover, there are no magical thresholds of scale that must be crossed before the market will reward innovation. When price signals are clear, an upstart payment gateway such as Citrus can compete even in a nascent online payments market such as India's. Provided new technology delivers real value, innovators will capture some of the value, reinvest, and drive growth.

All stakeholders will benefit from electronic payments. The benefits of widespread financial inclusion appear to be clear-cut. Noncash payment systems promise operational efficiencies, reduced risks, and easy wins for fraud and corruption. The main difficulties facing early adopters of deposit accounts and non-cash payments systems today have to do with the limited access afforded to depositors and payees today. Some combination of ATM, branch, agent, correspondent and microATM networks is necessary for consumers to be able to withdraw funds from financial institutions at reasonable cost and promptly. That infrastructure is not free to the operators; and it need not be free in order to enjoy widespread public use. But there is a clear difference to the depositor between a balance that can be withdrawn at any time, and a balance that can be withdrawn on the next visit to the nearest city.

Demand will follow acceptance. Whether electronic balances are good for anything other than money transfers, which are a very specialized, peer-to-peer payment segment, depends largely on a socially coordinated outcome: acceptance of non-cash payments. If payments are rarely accepted, households rationally keep transactional balances in cash.

Perceptions will follow adoption. Research shows that non-users of debit and credit know extremely little about the features of these accounts. Given the abysmal acceptance of noncash payments at the point of sale in India, most individuals rationally remain ignorant of the costs and benefits of noncash payment methods. Instead, they use cash for daily life and don't worry too much about how the other half lives. Once people notice friends and neighbors using electronic payments to save time and money, they will seek out opportunities to do the same.

In the interim, cash infrastructure can substitute for point of sale terminals. Electronic payment cards are not the only path forward. With ubiquitous cash infrastructure, consumers can convert balances to cash on the spot—but this requires running cash infrastructure and payment media in parallel. The consumer processes one sort of electronic payment to obtain cash from a financial institution, and then settles purchases and bills in cash over the counter.

India has made admirable progress in supply side innovation. One set of innovations (universal ID cards, protocols, servers, and related KYC regulations) serves to lower the financial institutions' cost of enrolling new customers. RBI has a separate set of circulars governing product design and regulatory compliance for consumer protection. Standardizing financial product design may ultimately squeeze margins but it should drastically lower the cost of new customer acquisition. A third has to do with the networks used for financial operations, including currency distribution, ATM service, currency chest operations, and payment systems. These systems are designed with important benefits in mind: to increase the geographic reach of financial infrastructure, to increase the market penetration of electronic payments, to lower the price point for merchant payment gateways, and to lower the unit cost of serving cash.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ACKNOWLEDGMENTS

The authors owe many debts of gratitude to friends in the United States and India, without whom this report would not have been possible. Our student research team did much of the heavy lifting with regard to policy research and analysis, partnerships, and operations. In particular Ruben Korenke and Nikhil Joseph, who were much more than research assistants--they were the entire field operation in Delhi. All students authors are accomplished researchers in their own right and made important contributions to the final product: Ashirul Amin, Siddharth Durgavanshi, Cory Felder, and Shalini Sharan. We are grateful to Director Allen Pereira of National Institute for Bank Management recognized the opportunity and introduced us to the perfect faculty colleagues in Professors K. Ramesha, Dhananjay Bapat, and Deepankar Roy. For countless key introductions and great hospitability on behalf of the Indian School of Business (ISB), we thank Professor Rajesh Chakrabarti of ISB-Mohali, who is Executive Director of the Bharti Institute of Public Policy. The Indian Statistical Institute kindly opened their doors to our scholars, through the kindness of Professor Bharat Ramaswami, and Satya Das, Head of the ISI Delhi Centre. We learned a great deal from our collaboration with co-authors Rama Bijapurkar and Rajesh Shukla. Many executives, thought leaders and civil servants graciously gave of their time and expertise in furtherance of our research: Bhuvana Anand of Micropension, Rajesh Bansal of UIDAI, KV Eapen at the IMF, Jitendra Gupta at Citrus Pay, Jatinder Handoo of Fino PayTech, Abhishek Jain at ICICI, Ajay Koushal at Billdesk, Suyash Rai of NIPFP, Ari Sakrar and Yuwa Hedrick-Wong of MasterCard, D. Sattaiah and P. Sheshagiri Prasad of Sub-K, Abhinav Sinha of Eko, and Gynedi Srinivas at the World Bank. (Several affiliations have since changed) Our surveys were only possible with the participation of thousands of unnamed consumers, for whose time we are immensely grateful. We also thank the bank executives that participated in the NIBM focus groups, surveys and cost analyses on cash operations and community chests. Our market research was conducted by an outstanding firm, Impetus Research, Ltd. We are privileged to work with the staff of the Institute for Business in the Global Context, who supported this research in countless ways from concept to completion, including Ravi Shankar Chaturvedi, Jamilah Welch and Dan Popko. Many faculty and friends at the Fletcher School have provided invaluable advice and critiques to the Cost of Cash, including Harsha Singh, Nicholas P. Sullivan, Christopher Tunnard, Kimberley Wilson and Ibrahim Warde. Any errors or omissions that remain in this work are entirely our own. Finally, thank you to our families for their constant support.

Report design by Opus Design

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