



Alternatives to sleepwalking (or stampeding) into a cashless society

Keeping cash alive, accessible and affordable
through digital innovation

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CONTEXT

There is a sense of inevitability about our drift towards a cashless society.

Digital payment methods offer convenience and perceived security (although you are more likely to be a victim of financial crime online); they enjoy increasingly widespread acceptance. With specialist solutions being developed to cater to the specific needs of minority groups, such as the unbanked and those with special needs, it is easy to believe that the infrastructure is largely in place to support the transition to cashless.

Cash is presented as outdated, and already (more or less) dead. However, this perceived reality is not backed up by the objective facts and published statistics.

The cashless economy serves the interests of some sectors of society, but fundamental issues prevent digital payments from becoming ubiquitous for all transaction types. Until an alternative is introduced that serves all of society's needs and delivers the attributes of cash that its users cling to, physical currency will continue to be used extensively.

Much literature on the subject of cash focuses on the needs of specific, vulnerable groups within society (e.g. the old, children, the poor, the unbanked etc.). Statistics, however, show that wider sectors of society continue to use cash, and that the holding of cash is actually growing.

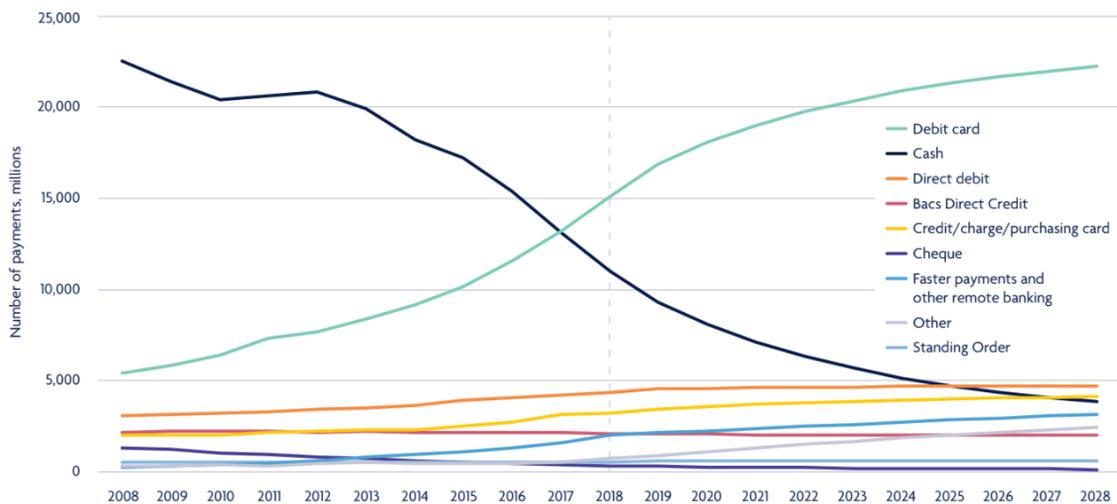
We ask why, if cash is less attractive than digital, do people continue to use it? If the modern alternatives are so much more convenient and secure, then why does cash so stubbornly remain? We consider how society and the economy as a whole is (or is not) served by the different payment mechanisms on offer today, and how society would be impacted by the loss of physical cash.

We ask if there is a viable alternative that retains the benefits of cash, fulfilling the purposes for which cash use remains prevalent, while overcoming the downsides of holding and handling physical currency.

PERSPECTIVES ON CASH

Cash is dying

The numbers speak for themselves. A total of 38.8 billion payments were made in the UK in 2017, growing to 39.3 billion in 2018. Of the 2017 transactions, 13.1 billion (34%) were cash payments, reducing in 2018 to 11 billion (28%). In 2017, cash payment volume was overtaken for the first time by spending on debit cards: there were 13.2 billion debit card payments in 2017, increasing to 15.1 billion in 2018. Around 98% of the eligible population now have a debit card, while 63% of the population now regularly make contactless payments.¹



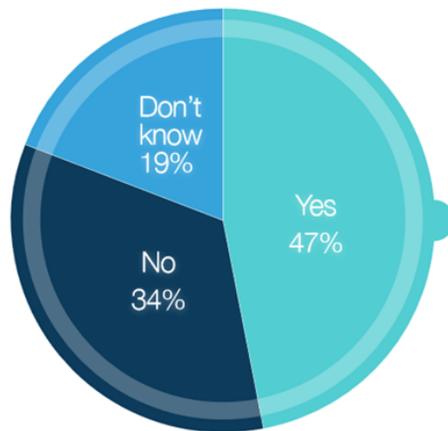
Cash payments represented 61% of the market in 2007, were 34% in 2017, and are expected to fall further to 9% by 2028. 5.4 million UK-based consumers allege that they “almost never used cash” in 2018, up from 3.4 million in 2017. It’s one-way traffic: the long-term trend is definitively downwards for cash.

¹ Data and Chart from: UK Payment Markets Summary – UK Finance 2018, 2019

Cash is here to stay

Reports of the death of cash are greatly exaggerated (and premature).² It is widely recognised that the denial of access to cash would cause widespread inconvenience, and among some sectors of the community, genuine hardship.³

Would it be problematic for you if there was no cash in society as we know it today?



14%

I wouldn't cope at all. Cash is essential to how I live my life.

22%

I don't know how I would cope. Cash is very important to how I live my life.

50%

I would cope. But losing cash would be a major inconvenience to how I live my life.

14%

I would cope. Losing cash would be a minor inconvenience to how I live my life.

Despite the very clear trend of falling cash payments, the decline is expected to slow. Cash is expected to remain the second most frequently-used payment method in the UK until at least 2025.

Against the 5.4 million UK-based consumers who almost never use cash, 1.9 million assert that they predominantly use cash for transacting. UK Finance notes that these consumers are not necessarily unbanked:

"Whilst these people prefer to use cash when paying for things, they are not necessarily unwilling or unable to use other methods of payment. The majority of them have a debit card. Nevertheless, there is great diversity in the way in which different people in the UK prefer to manage their finances and conduct their day-to-day spending".⁴

It is clear that payment behaviours and preferences are diverse, and choices run across all sectors of society.

While the number of cash transactions is falling in absolute terms, and as a proportion of global transaction volume, the demand for cash and the amount of cash in circulation in many major economies is actually increasing. In a recent study, The Bank of England highlighted the continued popularity of cash despite the rise of contactless cards and other new payment methods - and this is reflected in the volume of cash in circulation. Compared to ten years ago, the value of cash circulating within the UK has more or less doubled, and now stands at around £70 billion.⁵

² Misquoted from The Journal – Mark Twain 2nd June 1897

³ Survey from Access to Cash Review – Cash Essentials 7th March 2019

⁴ UK Payment Markets Summary – UK Finance 2019

⁵ Will Cash Die Out? – Bank of England 25th July 2019

This pattern is repeated in the USA, where currency in circulation stood at around \$1.76 trillion in September 2019, according to the Federal Reserve. This represents around 8.2% of GDP, which is very substantially higher than the 5.6% of GDP that prevailed before the 2008 financial crisis: it is close to its highest level in the last 36 years.⁶

While there are exceptions (for example Sweden has only 1% of GDP in circulating currency), global measures reinforce the theme, and suggest that the trend is widespread: physical money now accounts for 9.6 per cent of global GDP, up from 8.1 per cent in 2011.⁷

There are economic and trust reasons that explain an increase in the retention of cash. The very low interest rate environment makes it unattractive to deposit cash with the bank. Where interest rates are negative, deposits are actively penalised. To compound the lack of incentive, the very low levels of trust in banks, following the financial crisis, make people more disposed to retain their cash than entrust it to a bank for safe-keeping.

There are business sectors where cash is still dominant. 76% of convenience store customers in the UK pay by cash, even though 96% of convenience stores accept debit cards, and 80% accept contactless payments.⁸ The average spend per transaction in convenience stores in the UK is very low, at £6.38.⁹

Across the European Community, the average value of a cash transaction is only €12.38.¹⁰ Consistently, the British Retail Consortium puts the average value of UK payments made in cash at around £10, while the average transaction made by credit card is over three times higher, at £31.71; this differential is growing.¹¹ Within the cash statistics there is a high proportion of micropayments.¹²

The number of specialist and convenience stores in the UK is modestly increasing, despite the depopulation of the high street by chain stores. Between 2017 and 2018, the number of convenience stores across the UK rose slightly from 46,262 to 46,388, following a decline from 49,888 in 2013, according to the Association of Convenience Stores.¹³ Specialist retailers and service outlets are growing as a sector too. Year on year revenues from convenience stores have grown steadily, and in excess of inflation, at 5% per annum over the same period from 2013, to £40.3bn annually. So the cash-dominated, micropayment-heavy component of the market is pretty stable, and shows no sign of disappearing.

An analysis of the UK payments market from UK Finance concludes that “rather than the UK becoming a cash-free society over the next decade, it is transforming to an economy where cash is less important than it once was, but remains a payment method that continues to be valued and preferred by many”.¹⁴ Cash is not going away.

⁶ So Much for a Cashless Society: Currency is Popular Again – Leonid Bershidsky and Mark Whitehouse (Bloomberg) in Los Angeles Times 27th October 2019

⁷ “We Don’t Take Cash”: Is This the Future of Money – Patrick Jenkins in Financial Times May 10 2018

⁸ Access to Cash Review – Cash Essentials 7th March 2019

⁹ The Local Shop Report – Association of Convenience Stores 2019

¹⁰ Cash Versus Cashless: Consumers Need a Right to Use Cash – BEUC (Bureau Europeen des Unions de Consommateurs) 25th September 2019

¹¹ Payment Review – British Retail Consortium 2019

¹² Micropayments’ - Definitions differ, but they are often defined as transactions of up to \$5 / £5 / €5

¹³ The Local Shop Report - Association of Convenience Stores 2019

¹⁴ UK Payment Markets Summary – UK Finance 2018

Cash is bad

Cash is seen as dirty: it is inconvenient, handled by multiple people without control or decontamination, and is consequently a health risk through the transmission of disease by contact.

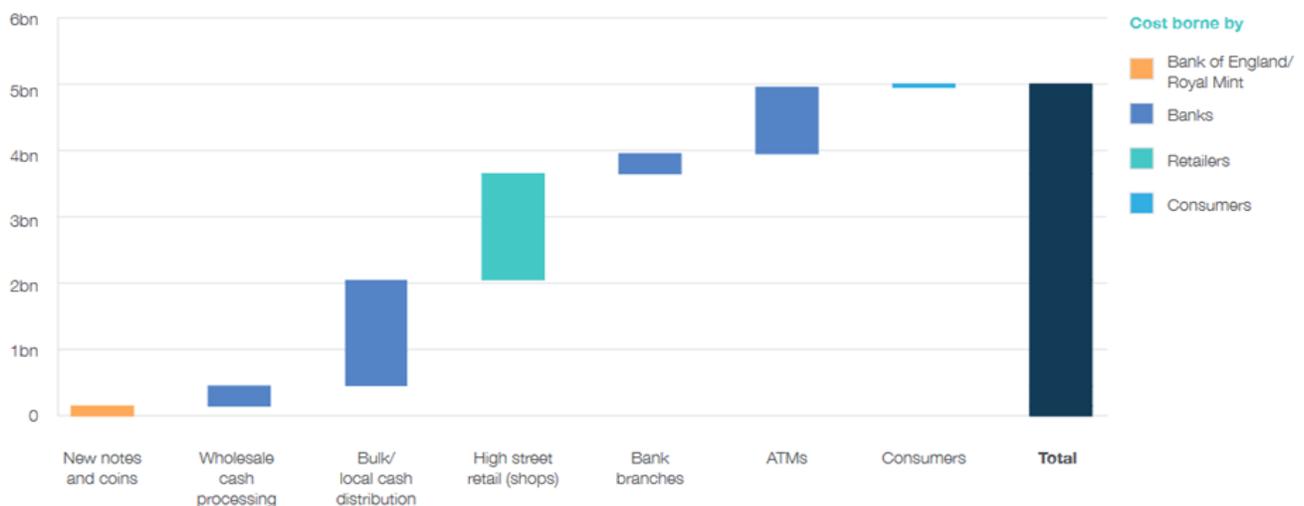
Cash is considered dirty in a societal context too. Crime and tax evasion are often cited as justifications for the elimination of cash. Almost 80 per cent of all US cash is denominated in \$100 bills, of which over two-thirds are held outside the United States. A proportion of that money is presumed to be supporting crime and the grey economy, and this leads commentators to ask “why not just get rid of paper currency?”¹⁵ The €500 note was eliminated in Europe, following the peak of terrorist incidents in Paris, and evidence that the perpetrators exploited large denomination notes in their funding channels.

Governments do not like cash: it facilitates tax evasion, enables crime and contributes to the funding of terrorism. Cash dilutes the ability of central banks to stimulate and control the economy. Governments may particularly dislike large denomination notes, but they do not like coins much either: they are expensive to mint, expensive to transport and distribute, and are relatively easy to counterfeit. Before moving to the 12-sided pound coin in October 2017, there were around 1.6 billion round pound coins in circulation in the UK. The Royal Mint estimated that 2.55 percent of them, valued at about £40 million, were fake.¹⁶

Banks do not like cash, and especially coins: they are expensive to handle, bulky and heavy to transport and store, and represent a security risk. Banks charge for accepting cash from businesses, but the cost of cash transactions and cash handling is high. In the US, Bank of America estimates that it alone spends \$5 billion annually processing cash and cheque transactions and servicing ATMs.¹⁷ In the UK, the handling of cash costs the economy around £5 billion per year in total, paid for predominantly by the retail banks and retail outlets.¹⁸

Retailers do not like coins, for some of the same reasons that banks do not like them. Coins must be held as a float for change, they have to be physically handled and counted, and they must be carried physically to a bank to be deposited: these all represent both a cost and a security risk to the retailer.¹⁹

Cash Value Chain



¹⁵ The Curse of Cash – Kenneth Rogoff, Harvard 2016

¹⁶ Sebastian Anthony in Ars Technica 28th March 2017

¹⁷ “We Don’t Take Cash”: Is This the Future of Money – Patrick Jenkins in Financial Times May 10 2018

¹⁸ Access to Cash Review – Cash Essentials 7th March 2019

¹⁹ Image – The Consumer Council

The Access to Cash Review²⁰ highlighted that:

“The costs of handling cash for retailers, charities, merchants and service providers...include costs to deposit cash at the bank, ... the time and effort to travel to the bank, costs of paying staff to cash up at the end of the day, costs of insurance, and more. ... many of these costs are rising, not falling...As bank branches have closed, journey times have risen, along with staff costs and fuel costs. This has led many merchants to hold cash for longer, raising insurance costs”.



This concern is echoed by the Federation of Small Businesses, which reports that businesses are finding it more expensive to handle cash. Issues faced by retailers (and other SMEs) include rising bank costs and bank branch closures, meaning it takes longer to travel to a branch to pay in cash.²¹

Retailers would be delighted to lose these costs and risks, and some have declared themselves cashless. One who has done just that explained that:

*“Banning cash not only chimes with the feel of the place, it has saved time and money - a 45-minute bank run two or three times a week. Crucially, it has also made <the business> safer: we had four break-ins within two months, where thieves targeted our cash takings. That was the driving force for this: security”.*²²

Retailers have got away with this in some jurisdictions (like Sweden), but in others (like California), legislation has forced them to accept the dreaded cash.

²⁰ Access to Cash Review – Cash Essentials 7th March 2019

²¹ Locked Out: The Impact of Bank Branch Closures on Small Businesses – FSB October 2016

²² “We Don’t Take Cash”: Is This the Future of Money – Patrick Jenkins Financial Times May 10 2018

Cash is good

While a dominant impression may be that cash is for the old, the young and the poor, the reasons why consumers want to hang on to cash (or at least to what it represents) remain relevant across society.

The Bank of England (BoE) recognises that cash is here to stay, and that there are identifiable reasons why people like it. They acknowledge that:

“Many people will continue to use cash in their daily lives. Many people say that they like cash because:

- *It is a fast and convenient way to pay*
- *It is very widely accepted*
- *It is helpful for budget management*
- *Some people also like the fact that cash payment is entirely anonymous.”²³*

The first two points are commonplace. The third point, on budget management, may sound fanciful, but it is backed up by statistics: there is a relatively high correlation in global markets between high proportions of non-cash payments and high levels of household debt.²⁴

The BoE’s final point on anonymity is a major consideration to the adherents of cash, and speaks to a rising societal concern over the monetisation of personal data. It is very difficult indeed to harvest user data from a cash payment, but very easy indeed from a conventional digital transaction.

The BoE’s view of the cash upsides overlaps with the benefits of cash put forward by the European Consumer Group, BEUC. They assert²⁵ that:

“Cash has several features which cannot be matched by electronic payment services:

- *It guarantees the consumer’s privacy*
- *It also ensures the financial inclusion of people who don’t have a bank account*
- *It is also independent from energy outages or from information technology failures*
- *Finally it contributes to a more competitive retail payments market by preventing market domination by a few payment card companies.”*

The BEUC is clearly concerned about competition and the semi-monopolistic position of the card and network providers. Elsewhere the BEUC makes a strong point too about public versus private control of money; it asserts:

“Cash is the only public means of payment (issued by central banks) as opposed to electronic payment solutions issued by commercial entities”.

The implication is that, without cash, we are wholly exposed for our payment infrastructure to large commercial businesses: money is being privatised. The BEUC concludes: “Cash needs protecting”.

A list of ten positive points for cash is put forward by Guillaume Lepecq of Cash Essentials.²⁶ The list is aimed at banks, rather than at individuals, but is inclusive and most of his points are applicable beyond the banking context.

²³ Will Cash Die Out? – Bank of England 25th July 2019

²⁴ ‘We Don’t Take Cash’: Is This the Future of Money – Patrick Jenkins in Financial Times May 10 2018

²⁵ Cash Versus Cashless: Consumers Need a Right to Use Cash – BEUC (Bureau Europeen des Unions de Consommateurs) 25th September 2019

²⁶ Ten Reasons Why Banks Should Embrace Cash – Guillaume Lepecq, Cash Essentials 13th August 2019

He too echoes the importance of privacy, emphasises the popularity of cash, and points to its widespread acceptance. However, he also introduces some other valuable perspectives, including:

"Cash sets a floor to negative interest rates;

Cash provides a differentiator against tech giants which are entering the digital payment market; and

Cash provides business continuity when payment systems break down".²⁷



The point on business continuity, and the importance of cash as a back-up to insecure and unstable technology, comes up frequently. For example, the Access to Cash Review puts it strongly: "Cash isn't just a contingency for consumers who keep cash 'just in case'. It's also a systemic contingency for IT systems".²⁸

There are some very good reasons why users like cash, which make its users want to hold on to it, and which make the inexorable drift to digital payments a worrying phenomenon.

²⁷ Image – BBC.co.uk

²⁸ Access to Cash Review – Cash Essentials 7th March 2019

Are notes the problem, or are coins the problem?

The Access to Cash Review specifically focuses on the threat and challenge of coins as a component of cash. It says:

"Any review needs to include the views of the many commercial players and should consider notes and coins. If anything, the issues facing coins are more pressing, but they're both essential to sustain cash overall".²⁹

Notes, because they are higher value, are much more attractive as a vehicle for crime and the funding of terrorism. The grey economy is not fuelled by coins. Fraud and counterfeiting are more profitable at the higher end of denomination too, so although coins are faked, the impact and value of fake notes are obviously higher.

Cards and other digital payment instruments are well established, and are used and accepted increasingly for larger payments. So the digital competition for cash at the high end of denomination is real and growing. At the micro-payment end of the market, however, cash remains dominant, and this is the level at which coins are ubiquitous. The cost of handling coins is high: their transportation, storage and safe-keeping are onerous and expensive in absolute terms. In relative terms, and as a proportion of their value, their handling costs are stratospheric.

For the competitors to cash, the micropayments space is problematic. There is little room for account or transaction fees in a micro transaction, and a significant proportion of micropayments are made by people who are unable to transact through a bank account anyway. Others may have a bank account (or another chargeable account), but are unwilling to use it for small payments. It is the hard end of the cashless society project, and the hard end of the business for the payment networks. Big payments are the low hanging fruit; micropayments (and coins) are the toxic waste.

Increasing concerns over access to cash

Concerns about access to cash, and the cost of accessing it, have become prominent over the last two years. These concerns are voiced, predictably, by the consumer lobby and special interest groups. However, they are also echoed in central government and the central banks. In different contexts, the Bank of England, the Central Bank of Sweden and the European Commission have all made strong statements on the need to protect cash as a low-cost means of transaction.

The demand for access to cash in the UK is strong. There are over 45,000 free-to-use cash machines, and there were 2.4 billion cash withdrawals from UK ATMs in 2018.³⁰ The overwhelming demand for free-to-use cash machines contrasts with a negative public reaction to the increasing proportion of ATMs that charge for withdrawals, and the reduction in the free-to-use population.

In the first half of 2018, cash machines around the UK were closing at a rate of 300 every month.³¹ Nearly 1,700 ATMs started charging for withdrawals in the first three months of 2019.³² A recent Link scheme to provide free-to-use ATMs in areas with thin availability was oversubscribed by 100%: 100 areas applied to the scheme, against a funding for 50 new locations made available by Link.³³

²⁹ Access to Cash Review – Cash Essentials 7th March 2019

³⁰ Will Cash Die Out? – Bank of England 25th July 2019

³¹ Hundreds of Cash Machines Close as UK Turns to Contactless Payments – Patrick Collinson in The Guardian 29th June 2018

³² 1,250 Free ATMs Started Charging Fees in Just One Month – Josh Robbins in Which 1st May 2019

³³ Kevin Peachey on BBC News 31st October 2019

The Access to Cash Review³⁴ points out the risk of a spiral decline in ATMs:³⁵

"Many consumers are reacting <to charging for cash withdrawals> by paying more and more by card which decreases the use of ATMs and encourages banks to close more ATMs. This is a vicious circle because we will be sleepwalking into a disappearance of cash: when the authorities wake up it will be too late – the network will be gone."



Sweden has moved faster towards a cashless society than almost all others. If the UK is sleepwalking, the Swedes have stamped. The result has been exactly the consequence forecast by Cash Essentials: a lack of access to cash, and the lack of retail acceptance of cash is now endemic in Sweden.

This is causing a counter-movement, supported even by the Central Bank of Sweden. The Deputy Governor, Cecilia Skingsley, presented a paper³⁶ to the World Economic Forum, ominously entitled "Why Sweden's Cashless Society is No Longer a Utopia". She points out that "if cash stopped working, it would leave all individuals to rely on the private sector for access to money and payment methods. It would be a historical change without precedence". The Central Bank is now considering what it can do to mitigate the consequences of a hasty move to a cashless world.

The Access to Cash Review puts the potential decline in access to cash and ATMs in the context of the lack of preparation by the wider population for a wholly cashless future. It concludes: "The UK is not ready to go cashless", and suggests that "cash is an economic necessity for approximately 25 million people (47% of the population)". For some, it is more serious still: "17% or 8 million adults would struggle to cope in a cashless society". The UK's central bank also recognises the social importance of cash. Victoria Cleland, the Bank of England's chief cashier, is quoted in a recent speech, saying "Cash is vital in supporting financial inclusion".³⁷

It is not just in the UK and Sweden that there is concern over the future of cash. In Ireland, Dermott Jewell, a policy adviser at the Consumers Association of Ireland (CAI), quoted in the Irish Independent, warned that:

"Full-on moves to a cashless society will negatively affect Irish consumers, denying them choice and promoting and maintaining an unacceptable regime of fees and charges".³⁸

This feeling of unease at the move towards a cashless society is reflected across Europe. BEUC listed the consequences: "A cashless society would mean: financial and social exclusion of all those who, for one reason or another, are excluded from the digital society; lack of an alternative to electronic payments and limited consumer choice; complete loss of personal privacy, since a cashless society is a fully traceable society; full dominance of the commercial sector in the payments market, since cash is the only public currency issued by the authorities; increased vulnerability of payment systems to IT system failures or cyberattacks".³⁹

The views of the BEUC are not unrepresentative of the establishment in Europe. The European Commission itself concluded that "Restrictions on cash payments are a sensitive issue for European citizens, many of whom view the possibility to pay in cash as a fundamental freedom, which should not be disproportionately restricted".⁴⁰ As a result

³⁴ Access to Cash Review – Cash Essentials 7th March 2019

³⁵ Image – Plymouth Herald

³⁶ Why Sweden's Cashless Society is No Longer a Utopia – Cecilia Skingsley at World Economic Forum 10th Nov 2018

³⁷ "We Don't Take Cash": Is This the Future of Money – Patrick Jenkins in Financial Times May 10 2018

³⁸ Hands off Our Cash: Move to a Cashless Society Would Lead to Unacceptable Fees – Charlie Weston in Irish Independent 29th October 2019

³⁹ Cash Versus Cashless: Consumers Need a Right to Use Cash – BEUC (Bureau Europeen des Unions de Consommateurs) 25th September 2019

⁴⁰ Report from the Commission to the European Parliament and the Council on Restrictions on Payments in Cash – European Commission 12th June 2018

of this view, the European Commission abandoned a controversial initiative aimed at imposing maximum thresholds for cash payments.

Public suspicion of the security of digital cash is prominent, and underlined by a distrust of the commercial banks that run the payment networks. According to commentators from Bloomberg, before entrusting more of their assets and their transactions to the digital world, “people have to believe that electronic money will be safe from mismanagement, man-made disasters, hackers and even confiscation”.⁴¹ They don’t.

⁴¹ So Much for a Cashless Society: Currency is Popular Again – Leonid Bershidsky and Mark Whitehouse (Bloomberg) in Los Angeles Times 27th October 2019

CASH ECONOMICS

How much do payments cost?

We have already seen that, in the UK, the handling of cash is thought to cost the economy in total around £5 billion per year, paid for predominantly by the retail banks and retail outlets. Government and consumers pay a proportion too. Given that there is around £70 billion of cash in circulation, this means that handling cash costs over 7% of its value, year-on-year.⁴²

Studies that compare the costs of cash and digital transactions disagree in their analyses and differ in their methodologies.

The British Retail Consortium (BRC) says that cash remains the most cost-effective way of accepting payments for retailers, with cards costing materially more to process: credit card fees amount to 0.49% of sales, more than three times the cost of a cash purchase, at 0.15%.⁴³

BRC highlights the continuing increases in the cost of card payments: UK retailers spent £1.3 billion in 2018 on third party services in card infrastructure and processing. This is £70 million more than in 2017. Each card transaction costs retailers an average of 5.85 pence, representing an increase of 17%. BRC says that “these additional costs are largely driven by the fees paid by businesses to credit and debit card companies, that increased by over 50% in 2018”. The BRC are calling for action to improve regulation of card payment fees.

According to the Financial Times⁴⁴, this analysis may be superficial. They cite research from IHL Group⁴⁵, whose president, Greg Buzek, observed:

“Much has been made about the cost of credit and debit transactions, but the real cost of cash ranges from 4.7% to over 15% for some retail segments. These costs are often hidden as they are part of a manager or supervisor’s job rather than their complete focus”.

IHL’s methodology included assessment of direct costs and fees, but also quantified the time taken to open and close cash tills, to provide change, to count cash, to take cash to the bank, and to pay companies to transport cash. Buzek concludes that:

“Optimising these processes through targeted automation can provide hundreds of labour hours per month to stores to improve the overall customer experience.”

A recent international study⁴⁶ compares the cost of cash and debit cards to retailers and consumers across 52 countries. It too includes direct fees and operational costs in its analysis. By contrast to the IHL study, it concludes that the unit cost of processing global debit transactions is 2.8 times higher than the cost of processing cash. It claims that this proportion is consistent with other public and independent studies globally, which suggest that cash remains the cheapest payment instrument for small denomination transactions.

⁴² Access to Cash Review – Cash Essentials 7th March 2019

⁴³ Payment Review – British Retail Consortium 2019

⁴⁴ “We Don’t Take Cash”: Is This the Future of Money – Patrick Jenkins in Financial Times May 10 2018

⁴⁵ Cash Multipliers: How Reducing the Costs of Cash Handling Can Enable Retail Sales and Profit Growth – IHL January 8th 2018

⁴⁶ An International Approach to the Cost of Payment Instruments: The Case of Cash – Santiago Carbo-Valverde Francisco Rodriguez-Fernandez May 2019

The underlying numbers show that, globally, the average cost of a cash transaction is 0.94%, while the average for debit card transactions is 2.59%. The cost of cash transactions in Europe is slightly less, at 0.87%, while debit card payments cost slightly more, at 2.69%. Surprisingly, the report asserts that transaction costs in North America are almost double those levels for both cash and cards. Retailers share the cash costs with consumers in a proportion of roughly 5 to 4, so globally a cash transaction costs the consumer around 0.4% and the retailer 0.5%. Debit card costs are shared 6 to 5, so the consumer pays 1.2% and the retailer 1.4%.

The retailers' costs of cash management are familiar: cash in transit, maintaining a float, time spent handling, counting and depositing cash, and the costs of infrastructure, security, and crime. For consumers, the cost of cash is primarily driven by the cost of access: i.e. ATM and cash withdrawal fees, with a small weighting to time and fraud. The cost of debit card transactions to retailers is a combination of payment network fees, infrastructural and operational costs, and a small weighting to security. The card cost to consumers is primarily the card fee, whether that is explicit or bundled with other bundled current account service charges.

The study also shows that, despite falling numbers of ATMs and an increasing proportion that charge for withdrawals, ATM revenues exceed ATM costs at banks: the view that cash transactions are subsidised by the banks is dismissed as a myth.

The Access to Cash review refers to research in the small, but growing, trend for retailers to refuse to accept cash at all. This research shows, unsurprisingly, that the biggest drivers of the trend are among the (high and increasing) costs referred to above: handling, counting and depositing cash. These costs are driven up by underlying, basic economics. The review explains that "as cash use has gone down, the unit costs of cash handling have gone up for banks, and many of these costs have been passed on".⁴⁷

Leaving the cash infrastructure and process model as it is will simply allow the unit cost to continue to grow, until cash is driven out of the transaction space by its own unsustainable costs.

Access to Cash considers that:

"The best way to preserve consumers' ability to pay with cash is to make it affordable for retailers, charities and service providers to accept cash. <The> whole process for notes and coins <needs> to ensure the cash infrastructure is sustainable and can work for the next 15 years and beyond".⁴⁸

Given current trends, it is not sustainable and will not be affordable.

The review concludes that "the system must be efficient, effective, resilient and sustainable.

As cash use falls, we need to change the underlying infrastructure costs". In the sections below, we consider if it is possible to deliver that change through emerging platforms, services and technology.

⁴⁷ Access to Cash Review – Cash Essentials 7th March 2019

⁴⁸ Ibid

Who would benefit from a cashless society?

Since there is such a strong drive towards cashlessness, it is reasonable to ask who is driving this, and who will be the primary beneficiaries.

Governments would benefit from a cashless society through transparency of digital wealth and digital transactions. The grey economy would shrink, tax takes would increase and funding of crime would reduce. However, financial crime itself may increase, as online fraud becomes more sophisticated and pervasive. Government would no longer have control over a means of transaction, unless it chose to nationalise a payment network.

Retailers would benefit from the elimination of cash through a reduction in manual cash handling, lower costs of float, and improved physical security. However, they would be exposed to commercial operators for every transaction, and would have little influence if the dominant card schemes wanted to change their terms, fees and services. Payment network outages could have a very significant impact on their businesses.

Similarly, consumers would have no choice but to transact through commercial networks, would have to participate in (and pay for access to) those networks in the way that they dictate, and would be exposing their every transaction to the network carrier. Legislation and regulation would dictate the extent of privacy: the anonymity of cash would be lost.

A network outage could prevent the consumer from completing key transactions, and may even result in a negative impact on personal credit ratings. On the upside, it may be pointed out that consumers could stop visiting ATMs, stop paying ATM fees and withdrawal charges, and stop carrying physical cash around with them. However, these benefits are available now, to those who choose to go cashless.

The major beneficiaries of a cashless society, and those for whom there is no downside, are the payment networks, the dominant card schemes and the banks. BEUC identify this group as the most effective and committed lobbyists “behind this push towards a cashless society...The card schemes are the main beneficiaries of the society without cash. They are at the origin of this movement. In some countries, they even create pseudo consumer associations for the promotion of cashless society”.⁴⁹

So it is quite clear where the cashless drive comes from, and who orchestrates it.

⁴⁹ Cash Versus Cashless: Consumers Need a Right to Use Cash – BEUC (Bureau Europeen des Unions de Consommateurs) 25th September 2019

What do we need to do?

The market is clear that it wants to retain cash, or at least the attributes of cash, for consumers. Social and financial exclusion, and the removal of a choice of payment types that many see as a right, is too high a price to pay for the mixed benefits of cashlessness. Rather than waiting passively for the level of cash transactions to drop further, while the costs of cash transactions rise to unsustainable levels, we should seek actively to develop a solution that protects and perpetuates access to cash, while delivering sustainable low-cost cash transactions.

More of the same is not a solution, as the current physical disposition of cash, combined with a fixed cost infrastructure and reducing volumes, will inevitably cause cash to become inaccessible. In accordance with the conclusions of the Access to Cash Review, we need radical thinking, to deliver a solution that “must be efficient, effective, resilient and sustainable”.

In an ideal situation, society would retain the attributes of cash that make it attractive to the consumer, while mitigating the attributes that are unattractive to retailers, banks and government. Positive attributes of cash to be retained should include:

- Widespread acceptance;
- Zero cost to the consumer at the point of spend;
- Insulation from the charging and conditions of commercial card / network providers;
- Hedging against negative interest rates;
- Resilience to failures in centralised technology; and
- Privacy / anonymity.

Less positive attributes cash to address include:

- The unhygienic nature of physical coins and notes;
- The need for manual handling and counting;
- The need to hold a physical float, and the security implications of that;
- The requirement for transport and storage of large numbers of heavy coins;
- The ease of counterfeiting; and
- The facilitation of tax evasion and crime and the funding of terrorism.

With the exception of the last attributes in each list, which essentially capture the issue of privacy versus transparency, these are in no way incompatible attributes or objectives. They are just very hard to deliver to if we insist on hanging on to the physical aspect of cash as well as to its practical consequences. A digital alternative to notes and coins, delivering cash-like characteristics without the downsides of physical cash, has to be a constructive starting point.

ALTERNATIVES TO CASH

Digital payment networks

Digital payments work well for larger transactions, and have come to dominate the higher end of the payments market. This is large-scale centralised infrastructure, generally operated by large commercial concerns with global profile.

Conventional payment networks operate from conventional banking relationships: current accounts, e-wallets, debit cards and credit cards may be the sources of payments, and access includes cards (chip & pin and contactless) and mobile media. All require account identification, and in consequence have implications of KYC, credit checks and anti-money laundering measures. Transactions are processed through centralised infrastructures, and account and transaction history is comprehensive.

Digital payments offer solutions to many of the shortcomings of cash. They are hygienic, transparent, secure (usually), and require no manual handling, sorting, counting, transport or storage. While open to fraud, they are immune to counterfeiting, and provide poor cover for criminality, tax evasion or terrorism.

However, digital payments do not deliver to the upside of cash. The business models of digital payment networks are driven by subscriptions, by transaction fees, by monetising their user's data or by a combination of these. Cash, once accessed free, has none of these costs to the consumer. The existence of these costs, and the high cost of the payment infrastructure which they fund, makes digital a poor medium for micropayments. Driving digital downscale looks hard: cash is ideally suited to the bottom end of the market, and for P2P and micropayments, cash is still king.

Payments through digital are the basis for transparency into the account holder's business history, which positions digital as far as it is possible to be from the anonymity of cash. The ability to transact for the merchant and the consumer depends on the continuous availability of the central technology; cash does not. When choosing to pay digitally, consumers and merchants are exposed to the charging and terms imposed by a large commercial enterprise; for cash trades they are not.

Digital payments are an obvious, successful and growing alternative to cash payments, but a very different alternative which does not exhibit cash-like attributes. Precisely the point of the Access to Cash Review was that cash needs to be preserved, because it is a real alternative to digital.

Crypto-Currency

The best-known cryptocurrencies (Bitcoin, Ethereum, Ripple...) were not primarily developed to play in the mass payments market, let alone to deliver a solution to micropayments.

Libra, Facebook's proposed medium, is the best-known cryptocurrency focused on consumer payments. Its mission⁵⁰ is to "enable a simple global currency and financial infrastructure that empowers billions of people". We will take Libra as a key example of crypto.⁵¹

Libra is account-based, and requires disclosure of the identity of the participants. Facebook says that:

"An additional goal of the <Libra> association is to develop and promote an open identity standard. We believe that decentralized and portable digital identity is a prerequisite to financial inclusion and competition."



This contrasts with cash, which is anonymous and bearer-based. It also contrasts with the primary cryptocurrencies, which support anonymous peer-to-peer transaction.

Facebook talk about Libra making the process of "moving money around globally... easy and cost-effective", and "facilitating frictionless payments". While these are laudable objectives, it is clear that the focus of Libra is as a payments platform, and not as a cash / coin replacement or micropayments solution.

Facebook say "With the proliferation of smartphones and wireless data, increasingly more people will be online and able to access Libra through these new services". Libra users will need devices, not just cards, and access will be through web-based services.

Cryptocurrencies do not offer the stability of a fiat-backed currency, and Libra has its own value, based on a pool of assets. Facebook confirms that "the assets in the Libra Reserve will be held by a geographically distributed network of custodians". The supply of Libra is controlled by the governance of the Libra community: Libra coins are minted and burned. Facebook say that: "The <Libra> association is the only party able to create (mint) and destroy (burn) Libra."

Keeping the value of the assets aligned with the value of any particular currency (or not) will require an independent market mechanism. Facebook acknowledge that "Libra is not a "peg" to a single currency". There is therefore currency risk inherent in participants holding Libra, and it is a poor hedge against negative interest rates. There is inflation risk, but no currency risk in holding your own currency, physically or otherwise.

Facebook acknowledge that Libra will attract transaction fees, albeit low. They say "Interest on the reserve assets will be used to cover the costs of the system, ensure low transaction fees". Cash has no transaction fees, so long as access to cash is free. Interest on reserve assets may not be the only way in which Facebook benefits from Libra: it seems inconceivable that a social media company will not farm and monetise a user's data and spending profile.

While crypto-currencies, and Libra in particular, will take a part of the payments space, they are not a cash replacement per se. Their appeal is to users who want independence from fiat currencies, and are prepared to take currency risk (or speculate) into their home currency as a result. This is unlikely to be a majority of users, unless Libra becomes globally dominant as a currency in its own right. At the moment it isn't.

⁵⁰ An Introduction to Libra White Paper – Libra Association Members June 2019

⁵¹ Image – entrepreneur.com

E-Wallets / P2P solutions

E-wallets are a mechanism to centralise an individual's payments (to other individuals or businesses). They avoid the need for the individual to maintain multiple payment accounts with regular business payees, or to enter payment details into a wide range of websites when purchasing. Most have the ability to take inbound payments too, albeit often with significant fees attached.

The largest of the e-wallets (PayPal, ApplePay, SamsungPay, GooglePay...) have gained some market penetration. In 2018, 708 million payments were made in the UK using these, or other alternative wallets, representing 1.8% of total transactions.⁵² UK Finance expects these platforms to grow strongly, but in 10 years' time they are projected still to be insignificant compared to debit cards, and still only around half the level of the remaining cash transactions.

Despite their advantages in data entry and security, the penetration of e-wallets has been slowed by the relative inconvenience of setting-up and topping-up a wallet, and because they add an extra layer of cost to the transaction structure. As their source of top-up is often a credit or debit card, the e-wallet fees are incremental to those already borne by the account holder. Those fees can be substantial; the consumer site Money Transfer Comparison asserts:

"Digital wallets are notoriously expensive when it comes to fees. From withdrawals to deposits, and currency exchange fees, it can add up".⁵³

E-wallets are now part of the payments landscape, but their additional costs make them unlikely candidates at the micropayment end of the market, and an irrelevance to coin replacement: if the conventional payment networks find it hard to deliver economically to small transactions, then e-wallets have no chance.

⁵² UK Payment Markets Summary – UK Finance 2019

⁵³ A Comparison of the Major eWallets: Which is the best eWallet? – Money Transfer Comparison 19th November 2019

Real alternatives to coins

Swish

The lack of access to cash in Sweden has been partly mitigated by a mobile app, Swish. Swish was a necessity, as a result of Sweden's headlong rush to cashlessness, and its implementation was a reaction to the problems caused by a widespread lack of access to cash. Swish was launched by a consortium of Swedish banks, under the sponsorship of the Central Bank of Sweden.



Swish is a genuine cash-replacement, targeted at transactions that would previously have been settled overwhelmingly in cash. Starting as a P2P-only service, its success led to the early inclusion of small organisations, including market stalls, charities, churches and sports clubs. Swish is now available for online transactions, and is proving successful in that space too.⁵⁴

Swish avoids the need for card infrastructure, so merchants can use mobile phones to take (and make) payments, rather than having to install card readers. Payment is simple, and can be driven by key entry or scanning a QR code. Card fees are avoided too, to the benefit of both parties to Swish transactions. The mechanics of Swish are rooted in the mainstream banking infrastructure, and settlement takes place through the Central Bank's real time gross settlement system.

Sweden has good attributes for innovation: it is relatively small, and embraces new technology and new media. Swish has gained rapid acceptance. More than half the population has downloaded the app, and instant payments through Swish are widespread. Users like the simplicity of the app, and the instant confirmation of transactions: the service is the opposite of the conventional bank account and periodic statement model.

Cecilia Skingsley, Central Bank of Sweden Deputy Governor explains Swish:

"By connecting a bank account in any bank with a mobile phone number, Swish has become a popular way to share a restaurant bill, distribute pocket money to children, collect money for a birthday gift at the office and to pay for goods at street markets. To 'swish' money has even become a verb in the Swedish language".⁵⁵

E-Krona

As a further mitigation of the consequences of the stampede into cashlessness, the Swedish Central Bank is proposing to launch a digital equivalent of the moribund physical krona.⁵⁶ The new digital currency will be known as 'E-Krona', and the design is based on a genuinely distributed ledger approach: value in E-Krona can be held in an account, stored in the app, or held on a card. E-Krona will have a fixed 1-to-1 conversion rate with conventional Krona.

The Central Bank of Sweden will build an E-Krona payments infrastructure, with APIs to enable payment service providers to integrate E-Krona payments into their conventional payment platforms, or to build new services dedicated to the digital currency.

⁵⁴ What is Swish? The Mobile Payments System Used by More than Two-Thirds of Swedes – Andrew Fawthrop in NS Banking 15th July 2019

⁵⁵ Why Sweden's Cashless Society is No Longer a Utopia – Cecilia Skingsley at World Economic Forum 10th November 2018

⁵⁶ Ibid

Shrap

A third example, but this time not sponsored by a central bank, but independent and UK-based, is Shrap. Shrap is a digital replacement for coins, not a payments platform; it is focused on the micropayments end of the market, and its target is firmly in the 'toxic waste' that conventional payments platforms find impossible to service economically. It addresses the hard end of cash. Shrap is currently in a live trial within the FCA Sandbox.⁵⁷



Shrap is digitised coinage, not a crypto-currency. Its value is not defined by any underlying asset pool (or gold standard), and its only underlying asset is the coinage that it displaces.

Shrap is not issuing its own currency, and has no concept of minting and burning coins, except the bi-directional exchange of fiat currency for Shrap. Each currency instance of Shrap is tied one-to-one with that host currency, so there is no currency risk in holding Shrap. Inflation risk is shared with the host currency.

Shrap offers a model which delivers cash without coins, and addresses many of the negative issues with coins. Access is via card and app, and so is relatively hygienic. There is no need for manual handling and counting, and it removes exposure to the insecurity of a physical float and a cash till. The requirement for transport and storage of coins does not exist, and counterfeiting can be countered through cryptographic methods.

Shrap also retains many of the key benefits of coins. It delivers to the privacy of cash, that is highly valued by its adherents: it is anonymous and bearer-based, through the value held on the card or mobile app. Like cash, Shrap has no transaction fees. It is free to use for consumers and retailers, and makes its money from the pool of cash deposited and converted into Shrap by retailers. There is also a small withdrawal fee, for converting Shrap into fiat currency.

As Shrap is tied to fiat currency, it is a hedge against negative interest rates, albeit a small one because of its focus on coins. It is independent of the large payment mechanisms, and Shrap's users will not be exposed to the charging and conditions dictated by the dominant commercial card networks. While Shrap, like any digital solution, is dependent on technology, its infrastructure is light and distributed, and Shrap users will also be independent of central banking infrastructure. They will be able to continue to transact when that central infrastructure fails.

What Shrap needs is to achieve widespread acceptance, as cash now has in the UK, and as Swish has in Sweden. It takes time for UK consumers to accept new transaction methods. The now very widespread acceptance of contactless payments took a substantial time to achieve, and resistance was significant. It is likely to take some time before consumers are prepared to dissociate the physical existence of coins from the uses and attributes of cash. However, the benefits of doing so would be very substantial.

⁵⁷ Image – shrap.co.uk

CONCLUSION

The business models behind current digital payment solutions are generally incompatible with the societal needs currently served by physical cash. They eliminate some of the negative attributes of cash, but fail to retain the positive attributes of cash which lead to its enduring popularity.

The Access to Cash review diagnosed that “as cash use falls, we need to change the underlying infrastructure costs”. It set out the objective of preserving consumers’ ability to pay with cash by “making it affordable”, and by “ensuring that the cash infrastructure is sustainable and can work for the next 15 years and beyond”. They mandated a solution that “must be efficient, effective, resilient and sustainable”. If the Shrap model (or something like it) succeeds, then these objectives become achievable, at least at the micropayment end of the market.

If we are going to get close to an ideal solution to the problem of cash, then we need to do something smarter than build a better machine for counting coins. The key is to separate the attributes of cash from its physical form, and to deliver a digital solution which retains the best of those attributes, while eliminating the worst.

Rather than sleepwalking, or stampeding, into cashlessness, we must implement a digital cash replacement before access to cash becomes excessively restricted, and the cost of handling physical cash becomes unsupportable.

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