BANK OF ENGLAND

Speech

# Forecasting future banknote demand

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Less than a month ago, on 14 September 2017, the Bank of England launched a new polymer £10 note featuring the inspirational author Jane Austen. Since then the 1 billion notes produced for launch have been making their way around the country, and by 22 September 158 million notes were already in circulation. This has only been possible due to the fantastic innovation, planning and engagement of the cash industry, to whom I am most grateful.

The launch, which included a range of social media – from twitter to snapchat – alongside the more traditional methods of communication, received good coverage and generated a number of questions. These included: "For how long can the paper £10s continue to be spent?"; "Did the Bank know the quote was ironic?"; "Why are you issuing new notes when cash is in decline?" The first 2 are easy to answer: until spring 2018, with at least 3 months' notice before withdrawal; and yes, as well as working in isolation, the quote demonstrated Jane Austen's wit and insights. On one level the third question is also easy – cash is not in decline. But it is a complicated story, with as many twists as Jane Austen's own novels, and one which I would like to explore today.

As with any good book, I will start by setting the scene. We are in a world where there is an ever growing range of alternatives to cash, taking hold with varying degrees of success. Very notable in the UK is the rise in the use of contactless cards, which tripled in 2016 accounting for 7% of payments.[1] The shift in consumer preferences is also evident in online spending, where average weekly online shopping in the UK was £1.1 billion in August 2017; an increase of 16% compared with August 2016.[2] Such developments have led many commentators to predict the demise of cash.

But the numbers show a different story. In 2016 the value of Bank of England notes in circulation increased by 10%, reaching over £70 billion in the run-up to Christmas: the fastest growth in a decade. Cash remains the most widely used payment method in the UK. It accounted for 40% of all payments and 44% of payments made by consumers in 2016.[3] Cash is still the preferred payment method for many: in a recent international survey by ING, 79% of people in the UK said they would never go completely cashless, similar to the European average of 76%.[4]

A puzzle. Perhaps it is turning into a detective story. At the heart of solving it is understanding why people use cash. There are many different drivers, and these drivers are different for different people and at different times. For consumers, a key benefit of cash is its tangibility. It can be a useful budgeting tool, and it is a quick and easy payment method which works even when, for example, card terminals do not. Indeed, cash is relied on by some and valued by many: 2.7 million people in the UK rely almost entirely on cash transactions – a number that has increased by 0.5 million since 2015.[5]

[1] Payments UK (2017a)
[2] Office for National Statistics (2017)
[3] Payments UK (2017b)
[4] ING (2017)
[5] Payments UK (2017b) and Payments UK (2016)

Some people choose to hold cash as a store of value: a 2014 survey commissioned for the Bank of England estimated that 18% of people hoard cash, the primary reason being to provide comfort against potential emergencies.[6] In addition there is a strong overseas demand, for example from tourists and expats.

For retailers, cash is still the cheapest method to accept. According to the British Retail Consortium, in 2016 the average cash transaction cost a retailer 0.15% measured as a percentage of turnover, compared to 0.31% across all payment types.[7]

As a central bank, as with most businesses, it is important for us to understand what motivates demand for our product and crucially how this might change. Econometric modelling provides a helpful starting point. We have developed a model that estimates a long run relationship between the level of notes in circulation and the drivers of demand that, when tested, proved to be statistically significant. Such drivers included nominal consumption, interest rates and exchange rates. We estimate, for example, that a 1% rise in consumption led to a slightly less than 1% rise in cash demand.[8] A 1% depreciation in the sterling exchange rate was found to increase cash demand by 0.09%; the increase in demand for cash immediately following the results of the EU referendum was consistent with this finding. And unsurprisingly, higher interest rates reduce the demand for cash as the opportunity cost of holding it rises. Our model suggested, for instance, that a 100 basis point increase in Bank Rate would reduce cash demand by 2%, with the clearest effects seen by the £20 and £50 notes.

Industry structure, such as the number of ATMs and local recycling machines, also has an influence. A fall in the number of ATMs per person reduces demand for cash. This might reflect the fact that the banking sector would need less cash to stock them, or that consumers withdraw less cash because there are fewer ATMs nearby. This may seem unintuitive - one might expect fewer ATMs to actually encourage consumers to withdraw larger stocks of cash each time they do use a cash machine. Consideration of industry structure is particularly pertinent to the UK, which has a relatively high number of ATMs (70,020 in 2016).[9]

The model provides a good basis for our analysis, but we need to augment it with qualitative information and views on the changing environment. Are there, for example, any major events, such as note launches or the London Olympics, which might alter demand either temporarily or structurally? Changing consumer preferences and commercial cash infrastructure decisions are also relevant.

Technological change also impacts the patterns of cash use. For example, there is an ever increasing range of different ways to pay, that are accepted in ever more places, and for ever smaller values. Some central banks are considering the merits of introducing their own digital currencies. For the Bank of England this is a

[6] Fish, T. and Whymark, R. (2015)
[7] British Retail Consortium (2016)
[8] Miller, C. (2017)
[9] Payments UK (2017b)

long term research project, and is certainly not an imminent initiative. An interesting area is charitable giving, where for many years cash has remained crucial. But that could be changing. For example, the Church of England recently announced plans to digitise its collection plates by installing contactless terminals in churches. And ATMs are providing users with the opportunity to give to charity at the same time as withdrawing money.

That said, payment innovation can increase cash demand as well as reduce it. M-Pesa, the popular mobile money development in Africa, has not reduced the demand for cash per se as users deposit cash into an account stored on their mobile phone. And cash can have a role in internet shopping too. The recently launched Amazon Top Up allows users to deposit cash into their Amazon account at participating retailers. There are also apps such as Shpock and Gumtree which allow buyers and sellers to agree on a price and then meet to make the transaction, enabling the buyer to check the condition of the item and for cash to be used. A lot of the resilience of cash to date is down to the work of the wider industry to adapt their models to meet customer demands.

JMW Turner, the ground breaking artist who will feature on the Bank of England's forthcoming polymer £20 note, reportedly said that 'it is only when we are no longer fearful that we begin to create'. This illustrates the premium of identifying issues upfront and acting when there is time to proactively shape the structure and arrangements that are desirable to meet efficiently and effectively the public's demand for cash long term.

Central banks and the cash industry need to continue to look to the future for early indicators of change and to work through the possibilities. This involves considering how much cash is used, and the availability of attractive alternatives. It also requires understanding of how cash is used. For example, a rise in local recycling where retailers replenish note-dispensing machines using notes that have been spent by customers at the checkout could impact on the rate at which notes are processed by the wholesale sector. There are also changes which might be triggered by the cash industry itself, such as altering the relative cost to retailers of cash compared with other payment types.

We know that there are many alternatives to cash and with time more people will probably move to them. But the rate of change is uncertain, and depends in part on how effectively the cash industry is able to innovate, to maximise efficiencies, and to keep the cost of cash competitive in an environment of declining transactional volumes. There are some big issues to address: ascertaining the level of demand that would necessitate a significant change in the cash centre footprint; identifying whether there are more innovative approaches to wholesale cash circulation; understanding whether greater cooperation – such as that seen in the UK with increasing numbers of the high-street bank's customers being able to access personal and business banking services in Post Office branches – could increase efficiencies in cash distribution; and considering how different the landscape would be if cash demand plummeted but everyone wanted to be able to rely on it in a business continuity scenario. The cash industry should embrace technology to help develop an infrastructure that is flexible and scalable. There needs to be capacity, for instance, to deal with

the logistics of note launches: something that is especially pertinent for the new £20, with £20s representing around two-thirds of notes in circulation.

Cash continues to play a key role for many, and a crucial role for some. It is important that we, as a central bank, and the wider cash industry continue to fulfil our responsibilities to ensure that genuine, good quality notes are available to meet public demand. Flexibility is important, as is efficiency, competition and business continuity. These factors are drivers that led to the Bank's announcement today that, following a competitive tender, the Bank has entered into 10 year contracts with both CCL Secure Limited and De La Rue to supply the polymer substrate for the next £20 banknote. The new Turner £20 note will be issued in 2020, and I look forward to working with the cash industry again to deliver this change: the next new chapter for cash.

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