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The Curse of Cash

by **Kenneth S. Rogoff**

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On the very first page of the book Rogoff lays down his academic cards, specifying that paper currency, cash for short, is the devil at the very heart of some of the most intractable public policy problems, not only public finance and monetary problems, but also security issues, crime and, even more unexpectedly, contagious diseases. Global warming is not mentioned. Rogoff is straightforward: getting rid of cash, most of it, coins should be spared, “could help, more than you might think” (p. 1).

This is a surprising beginning of this rather concise book (283 pages, including index), especially for those readers who do not believe in economic magic wands and miraculous radical moves in public policies that create many benefits with no costs. Being aware of that, Rogoff starts at earnest to build his case in Part I of the book: “The Dark Side of Paper Currency: Tax and Regulatory Evasion, Crime and Security Issues”. A brief history of coinage and paper currency, which is the topic of the opening chapter of this part of the book, provides the basis for three main points on which Rogoff later builds his proposal. First, the history of money is anything but static. Second, although a great many items can serve as money, the best technology tends to win out, eventually with a caveat that there is nothing in modern economic theory of money that precludes electronic currency. Referring to the technology, the chapter is predominantly a success story of paper money, ending with the advent of pure fiat paper currency. Third, in many instances currency innovations begin in the private sector and are then appropriated by the government. Rogoff points out that the government has a huge advantage in providing a safe guaranteed asset, “if only because any private money is ultimately vulnerable to government interference” (p. 16). These are very valuable insights, unlike the flimsy speculation that “...without paper money, there might have been no German hyperinflation, and perhaps no World War II” (p. 15).

Quite consistently, after the historiography, although one in which the qualities of cash (including, according to *The Economist*, anonymity, instant clearing, universal acceptance, and a relatively tech-free mechanism) are somewhat played down, there is a snapshot of cash circulation today, with cash demand at slightly above 7% of the GDP in the US and slightly above 10% of the GDP in the Eurozone. A substantial part of the demand for cash of these two currencies, roughly around 50%, comes from abroad. The variance in demand for cash (in terms of the percentage of the GDP) is substantial: from Norway’s 1.45% to Japan’s 18.61%. In between, close

to Norway, are countries with huge inflation and incentives for the people to get rid of cash (Nigeria, Argentina, Indonesia, etc.). The estimate of the foreign holdings of a national currency, apart from flaws prone official statistics in the import and export of paper currency and sophisticated “biometric” methods (Richard D. Porter and Ruth A. Judson 1996), is a simple rule of the thumb – comparing two comparable countries with similar financial systems, with one having currency that is not used abroad. Canada is a pair for the US and the USD, Austria was a pair for Germany and the DEM. These simple tests provide the result, confirmed by sophisticated methods, that more than 50% of USD paper money is in circulation outside of the US (some estimates are close to 60%), and slightly more than 40% of EUR is in circulation outside of the Eurozone.

Rogoff starts his case for getting rid of cash with the research of holdings and usage of paper currency in the domestic, legal, and tax-paying economy, focusing on the US and Europe. Though Europe is more cash-intensive than the US, both in terms of holdings and especially of usage, the overall results of the research, according to Rogoff, is that the legal economy accounts for only a modest fraction of all cash holdings and that there is still a high demand for small bills for use in retail transactions. Furthermore, Rogoff interprets the results of the survey on the domestic use of the EUR in such a way that concludes that the large-denomination notes must be almost entirely floating around outside of the legal, fully-taxed economy.

Therefore, Rogoff’s next hypothesis is quite expected: most of the demand for cash comes from the underground economy, divided into two main sectors, tax evasion and outright criminal activities, though it is common knowledge that tax evasion beyond a certain threshold is a criminal offence. Tax evasion in the US at all the levels (federal, state and local) is estimated to be more than 3% of the GDP annually. Rogoff’s conjecture, based on IRS data on the structure of fiscal revenues, is that at least 50% and probably more of tax evasion derives from cash-intensive areas. There is no comparable estimate for EU countries, although Rogoff’s conjecture is that tax evasion in Europe is greater, due to it being more cash-intensive than the US, the dominance of VAT as the main generator of fiscal revenues, and the informal economy being significantly bigger than in the US.

There is no doubt that a chunk of the demand for cash comes from those who would like to evade some of the tax burden by operating with cash. Nonetheless, the essential question is what are the effects of tax evasion on social welfare. Rogoff points out that tax evasion creates the problem of horizontal equity, but this is not an efficiency issue, meaning that individual welfare is only redistributed, perhaps in the unfair way. As to the efficiency issue, Rogoff’s argument about the distortion of the competition and investment structure is quite correct, but its significance should be considered within a framework of various and substantial distortions of resource allocation due to public policies. One should also add distortion due to the enlarged tax administration, because tax evasion department, i.e. inevitable allocation of resources for activities that do not add value.

The outright criminal activities that are, according to Rogoff, most cash intensive are: drug trade, political corruption, human trafficking, and exploitation of migrant workers. For Rogoff, all these activities would be stopped or at least reduced

with the elimination of cash as their transaction method of choice, because that would create a logistical headache for villains. But it is Rogoff who is sceptical in the first place. “Eliminating cash would hardly eliminate drug cartels. Nevertheless, it would be a significant blow to their business model at many levels” (p. 69). If criminals, being organised in cartels or not, are good at something, they are good at adjusting to new challenges. Their entire professional life is precisely that: constant adapting to various and changing law enforcement measures. Hence, they would change their business model, and it would not be the first time that they did so: they would use something else instead of cash. It is Rogoff himself who specifies some of them: prepaid debit cards, crypto currencies, e.g. gold and uncut diamonds, or many other items that are not mentioned in the book, but would probably be used due to innovations of the criminal sector entrepreneurs. “Obviously, corruption predates paper currency and will live long after it is gone” (p. 72) – Rogoff could not be more right. In the case of migrants and illegal workers “anonymous payments can be made in other ways than cash, from prepaid cards to Amazon credits to virtual currencies” (p. 76) – again, Rogoff undermines his own case for elimination of cash in order to prevent criminal activities.

One thing is sure, and Rogoff is right about it: elimination of cash would increase transaction costs in many criminal activities.¹ His point is well taken: criminals can use transaction technologies that circulate completely outside the legal economy, but if the government blocks the doors to legal economy, it can undermine the liquidity of black market transaction media and dramatically increase the costs of them compared to cash. The only problem is that there is no insight whatsoever into what is the relative magnitude of these costs compared to the expected gain from crime. Without that information, which cannot be found in the book, there is very little ground on which one could consider the impact of the elimination of the cash to criminal activities. In short, there is no clue about the consequences of the elimination of cash, not even the conceptual framework for consideration of the issue. This framework is provided by economic theory of crime and its workhorse model (Garry S. Becker 1968) with all its improvements and modifications – the framework of expected utility which encompasses the expected transaction costs, which are far below the major cost due to disutility of expected value of punishment. Such a framework has not been mentioned in the book in which the main motive for the elimination of cash is combating criminal activities. Although Rogoff points out that the costs of crime, “although far more difficult to quantify... are potentially far more important than tax evasion” (p. 217), comprehensive academic contributions in the field have not been mentioned, including David A. Anderson (1999) and his calculation that the total cost of crime in the USD in 1998 was 12.5% of the GDP. Nor does Rogoff mention Paul Collier (2013) and his thorough conceptual framework for considering international migrations, including human trafficking. There are many more public policies that should be applied for combating crime, save the elimination of cash.

¹ However, Peter Garber (2016) points out that a substantial increase of these transaction costs can be achieved by reintroducing physically larger cash, like the US banknote before 1929 which were physically 40% larger than they are now. The transaction costs of hoarding and manipulating cash are proportional to its physical size.

Rogoff mentions none of them. He is no doubt aware of the weaknesses of his case as he explicitly emphasizes “the goal here is not a quixotic attempt to stamp out all illegal activity and tax evasion [as if it is not illegal – B.B.] but to make it more difficult and expensive to conduct these activities anonymously” (p. 93), as if the villains never adjust. Perhaps such a goal is not quixotic, but is the proposed method that will inevitably and considerably change a society, without any specific notion about the benefits that will be accomplished.

The chapter on the seigniorage is rather puzzling. Rogoff points out that the strong reason for keeping cash in the circulation is preserving governments’ profit from printing paper money. As to the scale of that profit, he points out that the US government earns 0.40% of the GDP annually and the European Central Bank (ECB) earns 0.55% of the Eurozone GDP per year. Only few sentences later, nonetheless, Rogoff warns that this calculation does not include seigniorage from electronic bank reserves, which will inevitably increase in order to compensate for paper currency that is phased out. Of course, for the monetary base (high-powered money) to remain unchanged, the decrease of cash must be compensated by the increase of electronic bank reserves. Naturally, the concept of seigniorage, either “monetary seigniorage” or “opportunity cost seigniorage”, should include electronic money, i.e. borrowed electronic bank reserves that create interest income for the government.² In the very example of the three-stage operation mechanism of seigniorage in the modern times that Rogoff gives in the book, there is no cash, unlike the monarchs in the Middle Ages, inferring that the end of cash would not mean the end of seigniorage.

There are, however, the costs of phasing out paper currency, as the government would have to issue interest-bearing debt to buy back the currency it is retiring. As to the government debt, the calculation for the US is that since currency in circulation is 7.4% of the GDP, the US sovereign debt would increase for the same amount. As to the costs of servicing that (additional) debt, that depends on the interest the government would pay to the owners of the securities that substituted the cash, the interest that the government charges banks for the (additional) borrowed reserves, needed to compensate for the cash, and the inflation rate. Hence, the stock on which government pays interest would inevitably rise (as cash is a non-interest asset), nonetheless, it is not possible to specify what would be the consolidated outcome in terms of flow.

The suggested plan for phasing out paper currency has three guiding principles. The first is that the ultimate goal is to make it more difficult to engage in anonymous untraceable transactions repeatedly and on a large scale. The second is that the pace of the operation of phase out paper currency should be slow, stretching the changes out over at least 10-15 years. Third, it is essential that poor and unbanked individuals have access to free basic debit accounts or their future equivalent. Although it is not spelled out, the proposal is tailor-made for the US. The operative aims are to

² Willem H. Buiter (2007) provides very useful taxonomy of the notions of seigniorage. Electronic money is included even in the case of the most restrictive definition of seigniorage. Furthermore, for the purpose of considering the consequences of phasing out cash, the definition provided Malcom F. McPherson (2000) that “seigniorage is the real rent from issuing reserve money, defined as currency in circulation plus reserves of the banks held by the monetary authority” seems the most appropriate.

phase out all paper money and for small bills (those of 1 and 5, perhaps 10 USD) to be replaced by coins, to provide universal financial inclusion (currently 8% of households are unbanked), to abolish privacy for the making of large-scale payments (though large scale is not specified), and to provide for real-time clearing. The chapter is dedicated to the details of the operation of phasing out cash, mentioning some of the possible issues, such as emergencies and security, and then simply refuting them. There are a lot of technical details in the chapter that focuses on the plan for phasing out cash, giving perhaps the false impression that the plan is well-elaborated, but very few are intellectually challenging controversies, debates about pros and cons of specific solutions, making this chapter rather boring.

Nonetheless, Part II of the book, “Negative Interest Rates”, definitely provides more food for thought, focusing to the somewhat strange phenomenon of interest rates below zero: a new topic in the academic debates. Rogoff compares the interest rates zero bound in macroeconomics to a black hole and reminds that the laws of physics are upended when an object approaches a black hole. One would definitely welcome a book with the title of Part II, but it is unclear what is the rationale to have this topic in the book proposing the phasing out of paper currency. Rogoff specifies that: “facilitating negative interest rate policy is not the main reason for phasing out paper currency, especially large-denomination notes” (p. 115). Hence, this is a kind of collateral benefit of the elimination of cash, perhaps providing some additional, though not substantial, evidence for the case of cash elimination.

The main point is that in times of deep recession optimal real interest rate policy, according to the Taylor rule, either in original or modified formulation, e.g. Yellen’s formulation, can be negative. Rogoff explains that “in theory, negative rate policy works pretty much the same way interest rate cuts when rates are at positive level” (p. 126), followed by standard textbook examples of demand management, i.e. increased aggregate demand due to interest rates cuts. But then, there is a question: where is the (macroeconomic) black hole? The one Rogoff mentioned just a page before.

It seems, according to the evidence provided by Rogoff himself, that the zero bound is much more like a sound barrier than a black hole. When the zero bound is broken, i.e. when interest rates become negative, a sound boom occurs, but after that moment the laws of aerodynamics (economics) operate in the same way as they operate on the sub-sonic speeds (positive interest rates). The review of the recent literature provided by Rogoff demonstrates that the optimal interest rate in the US in the aftermath of the 2008 financial crisis should have been -5%, while these rates for the UK and Eurozone should have been -2% to -3%.

Before cash, or rather the its elimination, is introduced back into the debate, the issue of frequency of negative interest rates as optimal monetary policy should be visited. The Rogoff’s review of the recent contribution to this field demonstrates that zero bound episodes are likely to be infrequent, even if they occur they are short-lived, and relatively mild in the sense that zero rate would not be far above the optimal interest rate. This academic field is under vibrant development and new contributions can be expected, perhaps challenging conventional wisdom, but it is evident that negative interest rates as optimal monetary policy is not something common in the central banks toolboxes.

Back to the cash! The conjecture is that with negative interest rates on deposits, all economic agents will switch to holding cash. This is intuitive insight, based on the simple fact that relative interest received is bigger in the case of cash. Nonetheless, it is the experience of some countries, like Switzerland, which has introduced negative interest rates, is that there was no cash rush since holding cash entails certain costs that electronic deposits do not create. In other words, negative interest rates *per se* are not a sufficient condition for cash run. It is indisputable that a run for cash, if it occurs, would substantially undermine the effects of negative interest rates and monetary policy, hence the reason for negative interest rates, moving the economy out of recession, would not be achieved. Rogoff's main hypothesis is that an effective negative interest rate monetary policy is feasible only if cash is phased out.

This hypothesis is tested through the exploration of various substitutes, alternatives for nominal negative interest rates, starting with brilliantly and concisely explained quantitative easing, considered only as a short-term solution, though it can be effective if it is enforced with vigour ("whatever it takes" in the words of Mario Draghi, the President of the ECB), and not a proper substitute for a monetary policy. "Forward guidance", a credible promise of the central bank not to raise interest rates before output and inflation projections become stronger, follows, being considered as an inferior solution. Special attention is paid to higher inflation targets, as an option for decreasing real interest rate below zero with positive nominal interest rates. Effectively, that means targeting higher inflation, and Rogoff explores moving target from 2% to 4%. There are three main reasons against such a move. First, according to Stanley Fischer, who has extensive experience working in high-inflation countries, when inflation hits 4% people not only start changing prices more often, but they start indexing, making monetary policy less effective. Second, such inflation potentially creates greater random dispersion among relative prices and wages, producing welfare reducing distortions in resource allocation. Third, and perhaps the greatest problem with inflation target shifting is the undermining of central bank's credibility. After one shift, another can be expected. Painstakingly built credibility is wasted. Hence, this is not a good option for introducing real negative interest rates.

Some other alternatives for nominal negative interest rates are mentioned. Targeting nominal GDP instead of inflation, a rather old and theoretically sound idea, but with so many obstacles to be effectively enforced that it is not an option. Perhaps, the most interesting option is increase consumer spending and speeding up inflation by substitution of income tax with the introduction of VAT, which should be done in stages, quarter by quarter, taking into account to be revenue neutral. This is what Martin Feldstein proposed for how Japan to move its economy out of recession. Apart from many other weaknesses of this interesting mechanism, mentioned by Rogoff, perhaps the biggest is that it is a one-off mechanism – it cannot be repeated in another recession.

With all these options thoroughly considered and rejected, it is now time to explore other paths to achieving negative nominal interest rates, apart from phasing out paper currency. The first is, as usual, to do nothing. This is exactly what some countries (e.g. Denmark, Switzerland, and Sweden) have done. Switzerland introduced a policy interest rate of -0.75% in January 2015 and no run for cash occurred.

Rogoff considers that this negative interest rate was not too aggressive and that deeper cuts would produce such a run. He discusses public policies of government ban or tax on storage of cash over a certain amount. It is, though, unknown how such a ban or tax would be enforced.

The other option is devaluation of cash through Gessell's tax stamp – an idea of “stamp money” circulated in early 20th century, where the owner of the banknote periodically has to buy stamps and place them on the currency to maintain their value. Effectively, this is a negative interest rate on cash imposed by a specific tax burden. The idea was rejected as impractical, but Rogoff explores the possibilities of new and future technologies solving the issue, though the odds are not promising. The message is clear: it is better to withdraw cash than to stamp it.

Finally, a dual currency system, an idea with a substantial history, is considered in its latest version. The idea is to have both electronic and paper currency and that central bank is ready to trade it, not like today, at a one-to-one exchange rate, but at a rate that would undervalue paper currency. All the currency notes would be traded with the same discount to the electronic currency, producing an effective negative interest of holding cash. Rogoff considers this complicated scheme (with its various versions) only as a step towards the complete phasing out of cash. Perhaps another much simpler solution could be considered – a shortage of cash produced by central banks by stopping printing paper currency, with the advent of negative interest rates. If that is the case, due to a limited supply of paper currency, any additional demand for banknotes generated by the run for cash from electronic deposits (on which negative interest rates are charged) would create a premium that cash holders would require to swap their banknotes to electronic deposits, effectively a premium price that buyers of the cash would have to pay. That is nothing but effectively an *ex ante* tax that is paid, i.e. negative interest rate that is charged for the cash.

Rogoff is aware that “many people will likely regard negative interest rates as a violation of the trust citizen place in their government by giving it a monopoly over the currency supply” (p. 182). But he is swift to dismiss this concern by rightly pointing out that inflation is effectively a real negative interest rate applied to cash. Yes, people are suffering from what economists call “money illusion”. Yes, people are not perfectly informed and their perception is not always quite accurate. But it is these people who provide (or do not) political support for a given public policy. Inflation is something that could be compared to real adjustment of wages, without nominal adjustment but rather by depreciation of the exchange rate of the national currency. No political economy issues arise in this case. Nonetheless, if there is no possibility for depreciation of the exchange rate, for example if the country is a member of monetary union, like Greece today, that nominal adjustment is the only way to adjust wages and gain competitiveness. The decrease in nominal wages, nonetheless, has proven to be much more difficult in terms of political economy. Nominal negative interest rates can be compared to the nominal adjustments, and that is the insight one should keep in mind when considering political economy.

Much more interesting is Rogoff's debate on the issue of whether negative interest rates undermine rule-based monetary systems. The balance between rules and discretion in the central banks decisions is a topic of a long debate, with most of the

arguments favouring rule-based decisions. Rogoff does believe that the modern system of independent central banks run by technocratic central bankers has worked far better than anything else and that it is a solid barrier for any discretion in decision making. Interestingly, as a part of this debate Rogoff addresses the gold standard re-introduction proposal, under the pretext of establishing strictly rule-based monetary policy. His main point is that "...the idea that the gold standard produced spectacular stability is a fantasy and a false image of what the gold standard was really like" (p. 193), accusing the gold standard of prolonged recessions in the past. Doubtless, his main point is well taken: governments once abandoned gold standard and that they can do it again, at least economic agents can expect it, and precisely that undermines the credibility of such a monetary regime.

The main point about negative interest rates is that optimal policy interest rates of that kind are a rather infrequent and unsustainable phenomenon: they may be required in certain special recession situations and will not last long. Even if everything works as expected, that would only provide an initial push, a kick-start for the economy through radical demand management. But negative interest rates are not a panacea; they do not address some of the most important supply side issues of slow long-term economic growth of developed countries, such as the sluggish growth of the total factor productivity. Hence, the relevance of the negative interest rates for economic growth is very limited. It is greater in the case of business cycles management, but it seems that fiscal policy in that area is of primary concern.

Part III of the book is quite unnatural and to a great extent an unnecessary combination of the two topics Rogoff decided not to disregard. One of them is even interesting: digital currency. The other is international cooperation in the elimination of cash. The main conclusion is that it would be helpful, but it is not essential, let alone a necessary condition for cash elimination in one country – a conclusion that hardly deserves a chapter.

The elimination of cash, as proposed by Rogoff, is a top-down radical institutional reform that deals with day-to-day life of every individual. It is not comparable, though Rogoff disagrees, to the abolishment of the gold standard or fixed exchange rates. Precisely because of its impact on individuals it is very important to specify what would be the gains for the society and eventually to these individuals. As to the primary motive for phasing out cash, combating crime, the prospects of any decrease of the crime level due to the cash elimination are very vague, because the basic mechanism of incentives for criminals are not considered and villains' capacity to adapt is not taken into account, or is underestimated at the very least. As to the secondary motive for phasing out cash, enforcement of nominal negative interest rates, elimination of cash hardly has proven to be a necessary condition for such rates and, furthermore, those rates, even being effective are not the central solution for the sluggish economic growth of the developed world. And the phasing out of cash would be permanent, while the need for negative interest rates is infrequent, occasional, temporary, and short-lived.

Hence, benefits of the proposed institutional change are vague and uncertain, while the impact on the privacy and liberty of individuals is very certain and it is "a clear and present danger", in the words of justice Oliver Wendel Holms. The former

ECB board member and chief economics Otmar Issing points out that paper currency is “coined liberty”, a nod to Dostoyevsky’s *House of the Dead*, implying that elimination of the cash would undermine liberty by weakening barriers against government violation of the privacy of individuals. Rogoff dismisses those concerns, pointing out that it borders on the absurd to “draw an analogy between life in Tsarist prison and life in modern liberal state” (p. 64). The collective memory of Europeans, like Otmar Issing, of their rampant governments is obviously still very strong, hence the metaphor of “coined liberty” resonates strongly. The issue is not whether the position of individuals in modern developed countries is the same or similar to the status of exiled persons in Tsarist prison in 19th century Russia³, the issue is what are the barriers to the government’s intrusion on an individual’s liberty, what are the constraints that every, even a democratically elected government face. Perhaps the rise of the ubiquitous and unchecked NSA will convince people who spent substantial time in central banks that cash provides some barrier to the intrusion on liberty, and that the cashless world is much closer to Orwell’s 1984 – just a modern, unbounded, tsar-less and wholesale version of the world from *House of the Dead*.

Rogoff simply disregards the concern that the elimination of cash is an assault on the freedom and free choice of those honest and law-obeying citizens whose preference is cash, who do not trust banks, governments, who just want that their transactions for whatever reason be hidden from Big Brother. They do not want to change their lives in that respect, they do not want to behave in violation of their preferences, and reformers like Rogoff call that inertia. Nonetheless, this is a legitimate concern that should be considered.

Undoubtedly, Rogoff is a bit sarcastic specifying that “late twentieth-century notions of privacy already seem quaint” (p. 101). His concern about privacy is only alive when small amounts of money are in question and he specifies that in theory, a government can offer debit accounts that are guaranteed to be private. But then, a realist Rogoff speaks: “given governments’ past behaviour, who could take such a promise seriously?” (p. 101). Cash is that barrier for the government, which does not depend of the will of decision-makers. The notion of coined liberty is universal, irrespective of who and in the name of what – faith, order, security, or democracy – would like to undermine an individual’s liberty.

A reader, agreeing with Rogoff recommendations or not, must admit that this is very well written book, extremely readable, with simple and succinct explanations of complex monetary mechanisms, some of them fetishized, such as quantitative reasoning. The book is, though, very opinionated, with too many too strong opinions and too few well balanced arguments. Evidence that is in favour of the main recommendations is boosted and the evidence against played down or disregarded. No doubt, this is a thought-provoking contribution, but the open question is whether this book is a contribution about a truly relevant issue. In the academic world, being thought-provoking in itself implies being relevant, but that is not enough for public policy makers and the public.

³ Daniel Beer (2016) provides a comprehensive and very detailed review of human condition created by the exiles to Siberia in Tsarist Russia. In the literary field, Dostoyevsky’s contribution is, of course, unavoidable.

Since Rogoff references a literary heavyweight in his book, perhaps the concise description of the impact of this book could use a slightly reformulated title of a piece by another literary heavyweight: it is definitely not “Much Ado about Nothing”, but rather “Much Ado about the Negligible”.

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