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Response to Jeffrey Rogers Hummel's Review of *The Curse of Cash*

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LINK TO ABSTRACT

I welcome Jeffrey Rogers Hummel's extensive and thoughtful review (2017) of my book *The Curse of Cash* (Rogoff 2016). Although I cannot agree with all his views, spins, and analyses, one can hardly complain about such a scholarly and informed discussion. A central aim of *The Curse of Cash* is to stimulate serious analysis and research on the role of paper currency in modern economies, an extremely important role that is largely ignored in modern macroeconomics.

The Curse of Cash looks at the history and future of cash (physical currency), exploring the facts and the theory, as well as the various strands of debate. The book also deals with issues arising from the zero lower bound on monetary policy, a fundamentally different but related topic—related because the bound arises precisely because paper currency is zero-interest government debt. This is not the place to give a point-by-point response to the perspectives Hummel offers, as I think readers will find most of it covered in the book itself. But I do think it useful to emphasize some points of clarification and interpretation, and perhaps also to push back in a few places.

Let's begin by noting that the very title of Hummel's piece, "The War on Cash," is itself a polemic exaggeration. It would be more accurate to say that the book is a war on big bills (which are of little significance outside the underground economy) in advanced economies, for that is obviously the point the book argues most strongly. The book does not argue for cashless society; in fact, it explains

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why there is a need for leaving a physical currency around forever, and why any transition must be extremely gradual. The distinction between my proposal for a "less-cash" society[2] and a cashless one is fundamental, though it escapes many reviewers, who seem to believe that any change in the status quo (which, by the way, is inevitable) will lead to an Orwellian society. If advanced economies get rid of all bills, say, equivalent to $50 and above over the next two decades, what exactly kind of activities will this prevent ordinary citizens from doing that they do now? The goal is to tackle wholesale tax evasion, crime, and corruption in advanced economies. The debate ought to be one of calibration, not of all or nothing. The book gives illustrative ideas, but is hardly rigidly wedded to a single approach, as it states in many places.

Importantly, *The Curse of Cash* is about the role of cash across *all* advanced economies, and not just the role of cash in the United States. As the book discusses in considerable detail, the case for pushing back on wholesale cash use is weaker for the United States than for most other countries, first because perhaps 40 to 50 percent of all U.S. dollar bills are held abroad, and second because the U.S. is a relatively high tax-compliance economy thanks to its reliance on income taxes for government revenue. The value-added taxes that many European countries rely on are in theory less distortionary from a public finance perspective, but that overlooks the fact they are much more easily evaded. That is why typical estimates for European countries of the shadow economy (mostly consisting of otherwise legal activities where proper taxes are not being paid) are far larger than for the United States, equaling over 25 percent of GDP in Greece and Italy, and roughly 15 percent in France and Germany, versus under 10 percent in the United States. The situation is far more extreme in developing economies such as India, where less than 2 percent of the population pays tax (Rogoff 2017a)—but the book is targeted at advanced economies with their far more developed financial systems. I do believe that even for the United States, the calculus of going to a less-cash society is still compelling, but the book highlights why other advanced economies will likely move first, as some indeed are doing. Using U.S. figures as an example in several places is a way of deliberately understating the case for most other countries.

Time frame and scope is a fundamental issue, and here many reviewers trip into deep exaggeration as a scare tactic for convincing readers that the status quo is perfect. Hummel has it right that my book argues for scaling back cash, not

2. I use that exact adjective often in the book (2016, 9, 91, 98, 115, 173). In the first paragraph of the book's preface, the proposal is described as "getting rid of most cash," but, as becomes apparent, this refers to removing the high-denomination notes that account for the vast bulk of cash (in value terms) but that few ordinary people use in any of their activities, legal tax-compliant or otherwise (ibid, ix).

eliminating it, and there is a world of difference. Eliminating cash entirely would be a mistake for several reasons, especially for its impact on privacy. Timing is also important; Hummel again has it broadly right, but let me quote directly from the book:

> [T]he speed of transition needs to be slow, stretching changes out over at least 10–15 years. Gradualism helps avoid excessive disruption and gives institutions and individuals time to adapt. It puts authorities in a position to make adjustments as issues arise and as new options become available. This is an important point; obviously, over any long course of transition, new technologies and new issues will arise, and any realistic plan has to acknowledge this possibility. (Rogoff 2016, 92)

Later, in the section "Variants," the book states: "The proposal of this chapter should be viewed as illustrative only and can clearly be tweaked and changed in many dimensions, depending on the objective" (ibid., 106). As for an ultimate move to coins only (which I throw out as a very long-run idea as technology continues to evolve), it should be clear that I have in mind a time frame on the order of half a century or more, if at all.

It is true that I give a ten-to-fifteen-year clock as a plausible baseline for a transition. Let's remember, though, that this clock will only start ticking once a decision is taken, and no advanced democracy is likely to start down the less-cash road until after many years of discussion and analysis. Thus, the effective time scale is at least a couple decades in a world of ever-proliferating transactions technologies that are making cash less and less relevant in tax-compliant legal transactions. Cash now accounts for less than 10 percent of the value of retail transactions in the United States, having been 15 percent just a few years earlier, and is already under 5 percent in some countries (see Rogoff 2017a). Indeed, while cash is still the medium of choice for very small consumer transactions, it drops far down the list (behind debit cards, credit cards, electronic payments, checks, etc.) for expenditures of $100 or more.

With rapid advances in cashless transaction technology coming on many fronts, it is a good bet that the use of cash in the U.S. in legal tax-compliant transactions will be well under 5 percent ten years from now and probably only 1–2 percent twenty years from now, and that is assuming no change in government policy on cash. At the same time, the use of cash (particularly large bills of $50 or more, which constitute the vast majority of cash in most countries) is likely to remain robust, because of demand from the underground economy, which includes both otherwise legal activity that is engaged in evading taxes or regulations and outright criminal activities. For welfare analysis, this is an absolutely fundamental point, and I think most readers draw the obvious deduction. Cash has pros and cons for society, but surely the balance is tilting, raising the question of whether it is time for recalibration.

Hummel prominently asserts that I do not give proper welfare weight to individuals and businesses who may be using cash to evade taxes, but are otherwise engaged in productive and socially constructive activities; that is, my welfare analysis fails to consider the value of the underground economy. I beg to differ. Of course, one should "have given at least some consideration to the social costs of forcing what is productive unreported activity from a marginal tax rate of zero into marginal rates as high as 30 or 40 percent" (Hummel 2017, 140). But a proper public finance perspective looks not at individual activities, but at the system as a whole. If some people are evading tax, others must pay more. Yes, it is true that government's options will depend on how its overall revenues are affected by going to a less-cash society, including lost seigniorage, higher tax revenues from the shadow economy, lower costs of crime enforcement, and financial regulation (see the book's discussion of why future revenues from government electronic currency could well far outstrip today's revenues from paper currency). If overall government revenues do rise as I believe they will, the large majority of businesses will see their tax rate reduced.

In the section on "The Use of Cash to Facilitate Tax Evasion," I write:

> Tax evasion…creates what public finance economists call a "horizontal equity" problem. *When some people don't pay the taxes owed on their true incomes, it means that other people—for example, law-abiding citizens with identical pre-tax incomes—have to pay more*. By the same token, if some firms use cash payments to get around anti-pollution regulations while others don't, it gives the former an unfair competitive advantage and of course degrades the environment. When construction contractors use cash to employ illegal immigrant workers at low wages, they disadvantage both domestic workers and other construction firms that hire only legal workers and keep all payments out in the open. In addition to its distributional implications, tax evasion also hampers the efficiency of the tax system. What does that mean? If taxes can be avoided more easily in cash-intensive businesses, then too much investment will go to them, compared to other businesses that have higher pre-tax returns but lower post-tax returns. (Rogoff 2016, 59, italics added)

This public finance perspective seems to me the right way of looking at things. By the way, one cannot disregard the corrosive effects on society caused by the way cash allows a significant percentage of individuals and businesses to evade tax, and how this undermines citizens' sense of fairness.

At one point, Hummel approvingly quotes a review saying that any economist wanting to do normative analysis should "attach the same weight to a foreigner's welfare as to a national's" (Lemieux 2017, 51; quoted in Hummel 2017, 144). Really? The Federal Reserve and U.S. Treasury, not to mention U.S. Congressional decisionmakers, certainly do not directly take into account foreign welfare. The long-established approach to studying international trade and finance issues has always assumed that national authorities take into account national welfare, and that coordination and cooperation are needed to achieve a global social optimum. This is the right way to think about the problem, and my discussion is completely consistent with it. We can separately debate whether the international welfare spillovers from foreign use of the U.S. dollar and the euro paper currencies are positive or negative, and of course the book does this. Let me only summarize by saying that while there are many reasonable uses of the $100 bill abroad, it is indisputably popular with Russian oligarchs, Mexican drug lords, illegal arms dealers, Latin American rebels, corrupt officials, human traffickers, etc., and of course North Korean counterfeiters. In the book, I argue (conservatively) that foreign welfare should be thought of as a wash, but it is hardly ignored.

Hummel suggests that I exaggerate when I present the cost-benefit analysis of seigniorage versus other government revenue gains (and crime reduction). Of course, there are substantial uncertainties, but I generally attempt to overstate the seigniorage losses and understate the revenue gains and secondary benefits. (And let's set aside that I focus the most on the United States where, as already emphasized, tax compliance is relatively high and foreign holdings much more important.) My seigniorage calculations are based on the assumption that *all* cash disappears, but in fact since small bills are retained (whether the lowest be a $10 or even a $20), demand for cash will hardly go down proportionally to current holdings of $100 bills and $50 bills; there will be substitution into the less convenient smaller bills. As for whether the growth rate of cash will fall if large notes are removed, my guess is that it will be fairly similar from a smaller base since hoarding will still be important, and since cash needed for low-value transactions will still account for a small share of the stock. And by the way, I don't include at all the likely possibility that after years of outsize currency seigniorage due to exceptionally low interest rates and inflation, there is every chance that the demand will for currency will grow far below normal (or quite possibly shrink) as inflation rates and interest rates normalize. That is, there will quite possibly be years ahead where the Fed is soaking up dollars and earning negative monetary seigniorage on its cash business—which could prove politically awkward, although it shouldn't. If we instead assume a baseline where global real interest rates do not rise in coming years, the cost of carrying ordinary debt instead of cash will be very small (all this is in the book). Lastly, a point emphasized in the book, which Hummel does not discuss, is that there is every reason to believe that government profits from seigniorage on electronic currency instruments will rise significantly in coming years. The growth will be greater if large-denomination notes are phased out, because bank reserves will increase, but regardless the likely future role of the government in electronic currency (if only for wholesale clients) could add dramatically to government seigniorage revenues.[3]

Second, in guessing that tax evasion would be reduced by 5–10 percent, I think I am being quite conservative, especially given IRS estimates of the share of tax evasion that derives from cash-intensive businesses, and experiences of other countries with finding ways to make using cash to evade taxes more difficult. Hummel again feels I am being biased when at one point, I mention that U.S. tax evasion accounts for close to 3 percent of GDP without saying for the umpteenth time that reducing cash usage will not eliminate all tax evasion; there is always a balance in writing any article about whether after stating an assumption *n* times, the reader requires it stated *n*+1 times.

Of course, other techniques such as recording of cash-register transactions can be brought to bear to reduce tax evasion through cash use. Hummel expresses discomfort with idea, but I see no reason cash registers should be any less subject to audit than other tax records.

It is true that I do not give any quantitative estimates of the welfare effect of reducing crime; that would be difficult given that there are no reliable estimates of the overall welfare cost of crime in general. But yes, my guess is that the benefits to the general public of reducing crime even by a few percent are quite significant in welfare terms, and even the government should in principle be able to save funds through lower law enforcement costs; obviously much of the benefit will be at the state and local level. The United States could certainly do more to collect information on the use of cash in crime, and the results of the United Kingdom's SOCA studies, discussed in the book, ought to be sobering. As the book emphasizes, there are many substitutes for cash in criminal transactions, but nothing is nearly as universally liquid or as widely accepted: There are good reasons why cash is king.

Hummel also gets exercised that I (twice) note that there are 34 $100 bills for every man, woman and child in the United States, without each time reminding the reader that our best guess is that perhaps half (in the range of 14 to 20) of these are held abroad. Given how much the book talks about foreign holdings, it seems an exaggeration to say I am trying to exaggerate. In any event, the first occurrence of the 34 $100 bills statistic occurs on page 3 before the book has had a chance to launch into its extensive discussion of alternative approaches to estimating foreign holdings of currency (one of my favorite sections, by the way). The second occurs

3. For example, see the book's discussion of the "Chicago Plan" and its relation to electronic currency (Rogoff 2016, 86, 213–214).

shortly after the foreign holdings section, where I had thought the point should still be very fresh in the reader's mind. It arises in the context of surveys showing that 95 percent of people report to never holding any $100 bills, with most of the rest claiming to hold only one or two on occasion. Just in case some reader has skipped to the page or forgotten the preceding discussion, I will add a qualifier in the second edition. Again, let's remember this is not a book just about the United States; large-denomination notes comprise the bulk of currency in value terms across all advanced economies, even the vast majority whose notes are almost entirely held domestically, and only a very small share is held abroad.

The Curse of Cash went to press in June 2016, well in advance of India's remarkable November 2016 experiment in demonetization. The newer paperback edition has a chapter that discusses India among other recent developments (Rogoff 2017a). Although the hardcover does give statistics for some emerging markets, and discusses some of the creative approaches to reducing cash use that India has taken, I do state that "for most [emerging markets and developing economies], it is far too soon to contemplate phasing out their own currencies" (2016, 204).

Negative rates, the topic of part II of the book, is a related but distinct issue. As the book emphasizes, it is perfectly possible to (A) phase out physical currency completely (which yet again I absolutely do not argue for), but at the same time install a regulation that prevents the central bank from (B) setting negative interest rates. So (A) does not have to imply (B). At the same time, the book discusses some clever ideas that have been proposed to engage in effective negative interest-rate policy without phasing out large bills or indeed making any effort to move to a less-cash society (this is another favorite part of the book for me). So (B) does not have to imply (A).

It is curious that Hummel is skeptical whether the zero bound will ever be a problem again, since in fact, the overwhelming view among central bankers and most monetary economists is that it remains a sword hanging over their heads (Rogoff 2016; 2017a; b). Hummel seems to confound the question of whether negative nominal interest rates might be needed in the next deep recession with various explanations of why real growth and real interest rates seem to be so low. Yes, there are manifold reasons for today's low real interest rates and these are discussed at length (again, a section I hope readers of the book find interesting). But the case for finding a way to decisively break the zero bound in monetary policy does not hang on whether the cause of today's low real rates is demographics, emerging markets' thirst for safe assets, slow productivity growth, et cetera. The case for freeing monetary policy from the zero bound is simply that there will inevitably be another deep recession or financial crisis. Given today's extraordinarily low general level of interest rates, it is quite likely that monetary policy will again be paralyzed. Yes, there is academic debate about whether alternative instruments obviate the need for negative rate policy, and I try to present all the debate in a balanced way that is easy to understand. My read of professional opinion overall is that most economists, while appreciating all the various end-arounds central banks have tried, view these as only modestly effective, and that the zero bound is likely to be a major problem again sometime in the next couple decades, if not much sooner.

By the way, Hummel seems to suggest that helicopter money would do the trick if applied with determination. This view is a popular interpretation of some of Bernanke's early writings; but it is naive at best. For starters, helicopter money adds exactly nothing to the existing range of macroeconomic tools. It is simply a combination of fiscal policy and monetary policy, and countries such as Japan have effectively already done it, with very limited success. It is important to understand that the central bank does not have license to make transfers and, if it did, politicians would quickly rein in any semblance of independence. Of course, fiscal policy should be leaned on more heavily when monetary policy is paralyzed, but this is very much a second- or third-best solution with many well-known attendant problems. In an ideal world, monetary policy would be unfettered by the zero bound, and fiscal policy would support stabilization accordingly. Helicopter money, even if it were possible, is a second-best approach that cannot replicate the equilibria achievable with an optimal combination of fiscal and monetary policy (if negative-rate policy were feasible.)

Nor is the argument that negative interest rates are an administrative instrument, rather than a market-based instrument such as open-market operations, a terribly persuasive concern. There is a strong correspondence between using quantity and price instruments. There is already considerable experience with paying interest on excess bank reserves in many countries, even if the United States was a latecomer to this game (see, e.g., Bowman, Gagnon, and Leahy 2010). Although much of the experience has been with paying positive interest rates on reserves, the recent experience also includes negative interest-rate policy in Japan and Europe. By the way, it is important to emphasize that the transmission mechanism for negative rate policy to work does not require a banking system, as is easy to see in neo-Keynesian models with no banking sector, including literature cited in the book.

The Curse of Cash does cover a broad range of related issues which may seem tangential but are in fact either subtle and genuinely important (such as price-level determinacy, as analyzed in a technical appendix) or necessary to answer naive popular misconceptions. I am grateful that Hummel comments on some of this. For example, chapter 12 takes up the idea, popular in some circles, that the prewar gold standard era was a period of sheer monetary bliss. Gold standard advocates tend to forget that the era was marked by recurrent financial crises and deep recessions worldwide. Hummel notes that the NBER dates the recession of 1893 as having lasted only two years. But as Carmen Reinhart and I (2014) emphasize, the NBER approach is not well tuned to deal with the kinds of severe recessions that tend to be associated with deep systemic financial crises, in part because recovery is so slow and in part because there are often 'double dips' as was in fact the case with the 1893 U.S. recession. But much more to the point is the fact that the U.S. economy during the gold standard era was akin to China today: a surging behemoth that was enjoying outsized growth due to a broad range of factors. As Barry Eichengreen (1996) and others have documented, the gold standard played an essential role in the international transmission of the Great Depression.

The last part of *The Curse of Cash* looks at international policy dimensions and the future of cash. Hummel seems bothered by the fact that I believe that the government ultimately has to act to regulate pseudonymous transactions technologies such as Bitcoin, at least to the extent they filter through the banking system and retail transactions. Of course, the ideas embedded in Bitcoin and related distributed-ledger technologies are extremely important and potentially transformative, not just in the financial system but in many walks of life. Governments have been right to let their development flourish, as the book emphasizes, though admittedly ransomware asking for payments in Bitcoin has become a growing problem. However, if governments stand by and allow a great majority of transactions to become completely untraceable and anonymous, they will no longer be able to collect taxes and will cease to function. That may suit the libertarian streak in some, but that initial wave of enthusiasm will no doubt pass the first time a foreign country invades, a natural disaster happens, or there is a financial crisis arising out of the cryptocurrency sector.

Relatedly, Hummel asks why I have not given more attention to the possibility that private monies could compete with, or even replace, government money. This is, in fact, discussed in the book, but let's not confuse general transactions media with anonymous payments mechanisms. There are already a plethora of private options and technologies for making transactions without cash; that is of course precisely why cash is disappearing gradually in the legal economy outside small transactions. In the modern world, the big issue for the government is constraining large and completely anonymous transactions, not in dominating transactions.

The debate over cash should not be portrayed as a bimodal decision between going cashless or keeping things exactly the way they are now. Over time, cash has become increasingly less important in the legal, tax-compliant economy, especially as technology has created other options, yet its use in the underground economy continues to grow. It seems reasonable to ask, as I do, whether there is a case for recalibration.

Erudite reviews from careful readers such as Hummel help bring out ideas and advance the debate, and one can only welcome them. It is very hard to begin to answer all the questions in this short article, though, which is precisely why I felt the topic merited a book-length treatment, and I hope the interested reader looks there for much more complete discussion and fully nuanced portrayal of the issues.

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