



**Transcript of IMF podcast:**

## **Miles Kimball and Ruchir Agarwal on Electronic Money and Inflation**

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Bruce Edwards:

Last time on the IMF Podcast.

Miles Kimball:

If you're willing to admit that paper currency is becoming secondary, then your paper currency problem goes away and you could do deep negative rates.

Ruchir Agarwal:

So what we are proposing is a robust, negative interest rate policy by moving to an electronic money standard will allow central banks to move rates quickly in both directions, down and up, such that they don't end up being caught behind the curve in the future.

Bruce Edwards:

So what is the electronic money standard all about? And what's it have to do with inflation? That's coming up in part two of our special series on inflation featuring-

Ruchir Agarwal:

Ruchir Agarwal, an economist at the IMF.

Miles Kimball:

I'm Miles Kimball and I'm a professor of economics at the University of Colorado Boulder.

Bruce Edwards:

And I'm Bruce Edwards. Welcome back to the IMF Podcast. In part one of the series, we talked about how using negative interest rates would help central banks stabilize the economy in a low-interest rate environment. Today, we look at how moving away from paper currency is instrumental to that process.

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Bruce Edwards:

Can you explain just how electronic money standards fit into this inflation targeting story?

Miles Kimball:

So this has to do with really just solving the paper currency problem, which is the following that if you continue to have paper currency, essentially giving people a zero interest rate, and then you have kind of the nominal amount of money shrink if people had money in the bank or in treasury bills or something, then you might have large scale storage of paper currency, but much more importantly, the paper currency problem has to do with our current paper currency policy.

Miles Kimball:

Paper currency policy is not set in stone. It's a matter of custom and tradition. Paper currency policy is even less determined by law than many people think. And so all that a central bank needs to do is to change its procedures and rules for what happens when you deposit paper currency in exchange for reserves, or you say I'd like to withdraw some paper currency.

Miles Kimball:

And so in particular, if you have a paper currency deposit fee that changes over time, there's no longer a paper currency problem. It's no longer attractive to store large amounts of paper currency. And the reason we call this an electronic money standard is that we are admitting that paper currency is becoming secondary to the economy. It's secondary to the electronic money. Where by electronic money, we mean a very broad set of things. Money in the bank is really a number in the computer so money in the bank is electronic money. If you buy things with credit cards or debit cards, that's electronic money. If you use a check or if you do an electronic funds transfer, that's all electronic money.

Miles Kimball:

Basically everything except for paper currency, including coins is electronic money. And by far, most of the transactions in the economy are done in electronic terms. Now, regular people are doing most of the cash transactions but business to business transactions or transactions in the stock market are almost entirely electronic already. So we probably already in some sense have an electronic money standard. If you're willing to go a little further and admit that paper currency is becoming secondary and actually nudge things in that direction, then your paper currency problem goes away and you can do deep negative rates.

Bruce Edwards:

Ruchir maybe you can explain how this fits in to what you're talking about in terms of trying to better manage inflation.

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Ruchir Agarwal:

Right. So let's start with where we are today in terms of the monetary system. Around us, we are using electronic money cards for much of our transactions, but we are still not fully into an electronic money standard.

Bruce Edwards:

Just so we're clear when you say electronic money so if I make a transaction with my credit card... For every dollar that I spend on my credit card, there is a dollar in the bank somewhere. Is there not?

Ruchir Agarwal:

Yes.

Miles Kimball:

An electronic dollar in the bank?

Ruchir Agarwal:

Yes.

Miles Kimball:

Most of the dollars in existence are electronic dollars rather than paper dollars. So metaphorically, we say that the Fed prints money, but it doesn't really. The main way the fed creates money is by changing numbers in a computer.

Ruchir Agarwal:

Yeah. Perhaps I can just make something simple, which is what is the paper currency standard? The idea is, today the central bank or the government effectively guarantees a 0% return on your paper currency. So if you hold a hundred dollar bill today it's going to be worth in face value a hundred dollars tomorrow. And the central bank is standing ready to issue it in unlimited quantities in exchange for money in the bank. And so the problem of that, Bruce, is because of that commitment, it really is hard for interest rates to go below 0% because paper currency always guarantees a nominal interest rate of 0%.

Miles Kimball:

As it stands.

Ruchir Agarwal:

As it stands. Exactly. And so that's the paper currency standard and what we call the paper currency problem.

Bruce Edwards:

Okay. That's an excellent explanation there because that accounts for this reluctance to go into negative interest rates, which has been a bit of a mystery for me and a lot of folks out there.

Miles Kimball:

Yeah. So just to be clear, if you have money in your account with the central bank in a reserve account you can take all of that money and ask for that as paper currency. So if you have a billion dollars, you want to take out of your reserve account, you get a billion dollars worth of paper currency, you can go store that, and then three years later, you can go back to the Fed and say, "Hey, I've got this billion dollars worth of paper currency. Please turn that into a billion dollars in my reserve account."

Miles Kimball:

And that gave you a zero interest rate on the paper currency, which then makes it difficult to have other interest rates go very far negative. So really, the paper currency problem comes from people taking advantage of a central bank and its operations at the cash window, because every bit that people would get from storing paper currency over and above what prevailing negative interest rates are, is at the expense of the central bank's own balance sheet. It's just not reasonable to allow people to take advantage of central bank's rules like that to make a profit on storing paper currency.

Bruce Edwards:

Excellent. So what about CBDCs, central bank digital currencies, that we're hearing so much about these days? Would CBDCs help move us off the paper standard, like off this paper currency?

Miles Kimball:

Absolutely. The biggest thing is actually the political problem. So the less regular people deal with paper currency, the less shocked they'll be when you change paper currency policy. So the more that the average person feels that paper currency is something they hardly ever use and is really secondary, the easier it's going to seem to the central banks to switch up paper currency policy in ways that allow us to stabilize the economy and lower inflation.

Miles Kimball:

And so CBDCs are a big part of that. You really want to make it very convenient for people to do things electronically. There's really some wonderful software already that I just like to be able to use in more ways... Like there's great ways now to transfer money between, between you and your friends electronically. I'll try to avoid mentioning a specific brand, but I wish I could do that at the store too.

Miles Kimball:

And the government can do a lot to accelerate electronic transactions and to help along FinTech. The big trouble with doing new payments technologies, which an awful lot of people in Silicon Valley are interested in is getting a big enough network. And so the more the government can kind of provide the backbone of a big network, the more we'll see this wonderful blooming of convenient ways to do payments. And if other ways of paying become more convenient compared to paper currency, most of the intersection of the paper currency problem and the political problem goes away because people are less emotionally attached to paper currency.

Ruchir Agarwal:

So perhaps I can say one malting to the CBDC point that it'll be important that these central bank digital currencies are also interest rate bearing. Otherwise, they will just become another digital lower bound by guaranteeing the 0% interest rate. So it must have an interest bearing component to avoid the problem we currently face with paper currency.

Bruce Edwards:

So how do we get to this place that you guys are suggesting we should be in, moving away from this zero lower bound approach? Like how do we get there?

Ruchir Agarwal:

So a key point we are making is the more we can make the mechanisms that we've laid out, the electronic money standard a reality, the more central banks can stop worrying about the zero lower bound and that will allow them to move their inflation targets lower from the 2% and reduce the cognitively costly inflation faced by households.

Ruchir Agarwal:

Now, the one important issue here is even the willingness to use negative interest rates can have a big impact because it just signals to the market that the central banks have all the necessary fire power to cut rates deeper into negative territory when needed, and also raise rates quickly when they need to raise rates exposed. So-

Miles Kimball:

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Yeah. Well, they could demonstrate they're willing to raise rates quickly by doing it right now, and there's no complications with that. They just need the will to do it. And we say in one of our papers, that one very powerful way to demonstrate the willingness to use deep negative rates is to show that you're willing to modify paper currency policy. In particular, if just to demonstrate that you have the capability, if a central bank were willing to modify how it treated paper currency by just a 20th of a percent per year for a couple years and then reverse that, it would be an incredibly powerful demonstration that there is no lower bound except by custom.

Miles Kimball:

A lot of people talk as if the zero lower bound is a law of nature or that some lower bound like minus 1% is a law of nature. It isn't. It's custom. It's tradition. It's the particular rule central banks choose.

Miles Kimball:

Let me address another issue. So you asked why central banks have chosen an inflation target of 2%, and there is one other reason besides their worrying about the zero lower bound. People hate wage cuts as you might suspect. But the strange thing is that people don't seem to hate their wage falling behind inflation. So there's a fair bit of evidence for this, but economists have worried that if you have zero inflation, then any decline in the wage has to be explicit. Whereas if you have 2% inflation you can gradually reduce wages relative to prices, we call those real wages by 2% per year, just by not having raises and letting inflation eat into the real wage. And strangely enough people get less upset about that than if you explicitly cut their wage with a lower inflation rate.

Miles Kimball:

And so Ruchir and I have recognized this as a definite problem, but we think there's a solution. You can deal with this problem of downwardly sticky nominal wages, as it's called, by trying to encourage firms to have more of compensation in annual bonuses. And Japan actually does a lot of this. They've had a lot of problems from the zero lower bound, but Japan has had surprisingly few problems resulting from downwardly sticky nominal wages in their low inflation environment, because they do have a substantial amount of annual compensation being in an annual bonus.

Miles Kimball:

So in other words, yes, there are reasons why central banks have a 2% inflation target, but they're problems that we think can be better solved in other ways. Inflation is costly enough. Let's not solve those problems by inflation. Let's solve them by being willing to change paper currency policy and use robust negative interest rate policy, and by encouraging firms to have a bigger share of compensation in annual bonuses that people know will go up and down as market situations change.

Bruce Edwards:

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Do you think there is an element, a demographic element to this problem? If the more advanced economies of the world had a younger population, do you think that they'd have less issue with losing the paper standard and moving into this new world?

Ruchir Agarwal:

Actually, I think that's a great question because the politics of interest rate is really fascinating because when central banks cap interest rates, it has two opposite wealth effects. The borrowers can borrow at a lower cost and so their wealth goes up, but the savers, they have a negative wealth effect because their interest rates are lower.

Ruchir Agarwal:

In a country where you have a greater population that are older and are in the saving category, then the wealth effect is going to be tilted towards the savers compared to the borrowers. And often the politics, the special interest groups tend to be better represented by savers than borrowers. So part of the trick and the difficulty of having a robust negative interest rate policy has also been the reality of the politics. So the younger, the population, the more well represented their interests are in politics the path towards more robust negative interest rate policy will be clearer and easier.

Miles Kimball:

Yeah. I want to add something to that. This is, I found it very interesting how the politics of interest rates, how much is moralized. So there's this notion of the noble saver, but there are also noble borrowers. People who start out their life low on the ladder and are trying to make their way up and have some mobility they might need to borrow to go to college, they might need to borrow to start a business, maybe to get a mortgage on a house. People who are trying to struggle upwards often have good reason to borrow.

Miles Kimball:

And so let's not just have stories of noble savers. Let's have stories of noble borrowers too. And in macroeconomic sense, when we have a boom, when inflation is rising, it's really noble to save in those situations. And we should represent the fact that it's noble to save when the economy is overheated by having high interest rates, which is why we think many central banks should have 7% interest rate now. But if you're in a deep recession, like the great recession, it's not noble to save at all. You're tanking the economy by saving. You should be spending more. And so it's noble to borrow and spend on worthy things. Obviously, there are many things to spend money on that are not worthy, but there are many worthy reasons to borrow.

Ruchir Agarwal:

Maybe one thing I can clarify, Bruce, just to build on what Miles is saying, our research, we are advocates of vigorous and large use of interest rates in either direction. So what we're saying is when things are bad, when the economy falls into a recession, the central bank should cut rates enough as much needed to stimulate the economy. And now when there is overheating, the central bank should raise rates enough to bring inflation under control.

Ruchir Agarwal:

Part of the reluctance to raise rates also is that central banks are not often confident that if they were to then end up in a recession, will they be able to get out of it quickly? So the more they can restore the monetary policy fire power to end recessions and end booms quickly, the more we will be able to not face these such high inflation episodes and these long, deep recession episodes.

Miles Kimball:

Let me say one thing about that too. So Ruchir was just talking about how we think you should be ready to raise rates quite high and lower rates quite low, to stabilize the economy. And those two things go along with one another. There's a promised land that you get to if you're willing to do that, because if you're willing to use a robust interest rate policy, first of all, we understand robust interest rate policies, because when the long run real interest rate was higher, we had the great moderation. So that's part of the promised land.

Miles Kimball:

The other part that was there to important extent during the great moderation is that aggregate demand no longer becomes scarce. And so it doesn't have to be... There are a lot of difficulties with fiscal policy. One is using fiscal policy- during the pandemic we've raised our national debt a lot, and we raised our national debt a lot to try to deal with the great recession. We wouldn't have had to raise our national debt as much if we'd had a robust interest rate policy where we could go to deep negative rates.

Miles Kimball:

And the other trouble with fiscal policy is it inevitably gets tangled up with politics. So many advanced economies have pretty much gotten to a consensus that they ought to have independent central banks to stabilize the economy. But I'm not aware of any country that has set up an independent, short run fiscal policy authority... that's logically possible. But we've already developed institutions to have central banks, somewhat insulated from politics to stabilize the economy, and they can do that if they get rid of the myth that they're subject to a zero lower bound.

Miles Kimball:



And there's another kind of related myth... Is that you have to eliminate paper currency to get rid of the zero lower bound. That isn't true at all. You can keep paper currency in the system and just mildly change paper currency policy and you're fine now, it's true that changing paper currency policy makes paper currency less central but you can do it in a mild enough way that although people will have a lot of fears that in fact, their daily round of using paper currency will be affected only mildly at most.

Bruce Edwards:

But this idea of walking into the bank and handing over your \$1 bill and getting 96 cents back, I think would be a hard sell for most people.

Miles Kimball:

Oh, it's a change, it's a change. But-

Ruchir Agarwal:

But at the same time, actually, that's a very important point Bruce. One of our central features of our proposal is exactly to make sure that regular households are protected from negative rates. So in our proposal, what we have is for up to say, \$10,000 in your bank account, the central bank basically gives a subsidy to commercial banks to ensure regular households don't see negative rates for up to say \$10,000. That can vary country by country but most people don't have that large sums of money in the bank accounts.

Miles Kimball:

And as far as paper currency goes, as long as you spend the paper currency within a month or so, you're hardly going to notice. So remember, one of the things that's important to realize is at the point where I suppose you got... You probably wouldn't get this far, but even if you got as far as a paper dollar being worth 90 cents, then you'd get more paper dollars when you withdrew your money from the bank as well. So you'd get extra paper dollars and then they wouldn't go quite as far at the store.

Miles Kimball:

So it's not all a one sided thing. People get used to the idea that a Canadian dollar is typically worth somewhat less than a US dollar and they could get used to the idea that a paper dollar in some periods of time was worth a bit less than other things.

Bruce Edwards:

But you're also going to get used to a toothache, if you have to. (laughter)

Miles Kimball:

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I don't think this is that painful, not in the end.

Ruchir Agarwal:

But at the same time Bruce, the whole idea here is to interrupt arbitrage from folks taking advantage of the system. For regular households not much would change at all in fact, if anything. So the whole idea of the electronic money standard is to allow regular households to operate the way they are keeping electronic money as the primary mode of transaction and moving paper currency to a secondary status. So it's much less painful than a tooth take.

Bruce Edwards:

Well, let's hope so. (laughter)

Miles Kimball:

Yeah. You get extra money. You get extra paper dollars when you go to the bank.

Ruchir Agarwal:

Bruce, the alternative we have is living with deep, long recessions. It took seven, eight years after the great recession for unemployment to go back to its natural rate. And the other cost we are facing now is because of their inability to use negative rates, central banks tied their hands up, do not raise rates fast enough and inflation came. So we are facing much higher inflation than we would have if central banks could move interest rates freely in either direction.

Miles Kimball:

Absolutely. And the cost of inflation, we would argue, are way worse than the cost of occasionally having an exchange rate between paper currency and electronic money. Think with inflation every year, you got to think about all of your dollars as being worth a different amount than the previous year. So that's way more confusing than having a well defined exchange rate in deep recessions between paper currency and electronic money and having the electronic money always worth pretty much the same amount in terms of what you can buy.

Ruchir Agarwal:

That's the future. The possibility we lay out in our third piece, that a future where one can imagine a world with zero inflation and very short lived recessions. That's the electronic money standards promise.

Bruce Edwards:

Well, there we have another interesting discussion on the inner workings of inflation. Thanks to you both.

Miles Kimball:

Thank you.

Ruchir Agarwal:

Thank you very much, Bruce. Always a pleasure to talk to you.

Bruce Edwards:

Miles Kimball is Eaton professor of economics at the University of Colorado Boulder, and Ruchir Agarwal is a senior economist in the IMF research department. This podcast series is based on their Inflation Trilogy, published in finance and development. Check it out at [imf.org/fandd](http://imf.org/fandd).

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