



Share This Like 0



FINANCE
DEVELOPMENT
A quarterly magazine of the IMF

March 2002, Volume 39, Number 1

Straight Talk—A regular F&D column by Kenneth S. Rogoff

The Surprising Popularity of Paper Currency

Will the global underground economy be the prime destination for those large euro notes?

Search Finance & Development

Search

[Advanced Search](#)

[About F&D](#)

[Subscribe](#)

[Back Issues](#)

[Write Us](#)

[Copyright Information](#)

Free Email Notification

Receive emails when we post new items of interest to you.

[Subscribe](#) or [Modify](#) your profile

The introduction of shiny new euro notes and coins at the beginning of this year was indeed an exciting event. But one has to wonder. Why hasn't paper and metal currency already gone the way of the horse and buggy? With credit and debit cards, online banking, and so on, why isn't the demand for currency steadily shrinking to zero?

Curiously, all prognostications about Internet money to the contrary, there is not a shred of evidence that the public is about to give up currency in the United States, Europe, or Japan. Indeed, evidence of the reverse is stunning.

Let's start with the United States. At the end of 2001, currency per capita (held by the public) exceeded \$620 billion, or roughly \$2,200 for every man, woman, and child. I don't know about you, but I usually don't carry one-tenth that much currency in my wallet, nor does my brother Harry. Moreover, over 65 percent of it was held in \$100 bills (the largest denomination), which means that the typical American family should be holding sixty \$100 bills. Yet Federal Reserve Board surveys find that, on average, the typical American family does not hold even a single \$100 bill!

Where is the missing money? Some of it can be found in obvious places like supermarket cash registers, but only a very little, according to extensive government surveys. In fact, surveys of domestic households and businesses can account for only 5 percent of the U.S. currency in circulation. Where is the rest, the other 95 percent? A big chunk is probably held abroad, though estimates vary wildly from 30 percent to 75 percent (my 1998 *Economic Policy* article estimated 50 percent). Even if the number is at the high end, say, 75 percent, that still leaves \$2,200, held domestically within the United States, for every family of four. Economists presume that most of this cash can be found in the "underground economy." The term brings to mind gangsters and drug dealers, but, quantitatively, the underground economy consists mostly of small businesses and entrepreneurs (and their customers) who are avoiding various forms of taxation.

The mystery only deepens when one turns to the other industrial countries. Currency per capita is significantly larger in Japan (more than \$4,000 a person) than in the United States, even though most studies suggest that holdings of yen outside Japan are relatively small. Moreover, over 85 percent of the total value of yen currency is held in ¥10,000 (roughly \$75) notes, the largest denomination. Per capita holdings of currency in Europe are a bit lower than in the United

States. Still, at the end of 2000, before the introduction of euro notes and coins, the stock of local currency per capita (for example, those old deutsche mark and French franc notes) exceeded \$1,000 in most countries, with Germans and Austrians holding over \$1,800 a person. (I am, of course, converting local currency to dollars at prevailing exchange rates.) Even France, which is on the low end, had currency holdings of \$3,000 for every four-person family. Is it any surprise that the currency in circulation in Europe actually shrank by roughly 20 percent in the last months of 2001, as people worried that they would get into trouble for trying to convert large hoards of old notes into euros?

Could electronic money, central bank-issued or otherwise, ever supplant paper money? E-money wouldn't necessarily be a big obstacle to effective monetary policy. Today, most industrial country central banks manipulate interest rates by buying and selling treasury bills on the open market, with the aim of affecting the quantity of reserves available to banks and, thereby, the general availability of loans and liquidity in the economy. The public's demand for currency is of only secondary importance from a macroeconomic perspective, so central banks fully accommodate fluctuations in currency demand. But, although having demand for currency outside banks may not be essential to the conduct of interest rate policy, it is very important for central bank balance sheets. In both Europe and the United States, currency accounts for roughly 95 percent of the over \$650 billion supply of high-powered money. If the demand for currency were suddenly to evaporate in the United States, the Federal Reserve would have to part with over \$600 billion in assets (mostly government bonds) to soak up the unwanted notes and coins. Put another way, a sudden collapse in currency demand would force governments to replace non-interest-bearing debt (paper money) with interest-bearing debt, an expensive proposition. What would happen to the shiny new euro notes? Well, hopefully, they could be recycled into wallpaper.

Will the public's appetite for currency disappear any time soon? I am not an expert in cryptography, but I think it may take quite a while to devise an electronic money that guarantees anonymity to the holder in the same way that cash does. Even if such a technology is devised, governments may try to limit its use so that smuggling currency does not become any easier than it already is. Of course, technology marches on. Even if governments manage to keep one step ahead of counterfeiters, one day, DNA-tracing techniques may allow law enforcement officials to identify recent holders of currency. If that ever happens, currency might suddenly become a lot less popular. Or, perhaps, money laundering will take on a whole new meaning if criminals and tax evaders always need to wash cash and take care to handle it with gloves.

But let's step back for a second. If paper currency is in fact used mainly by the global underground economy, should governments be working so hard to promote its use? Are governments penny-wise and pound-foolish to go to such lengths to ensure the popularity of their currencies? To the extent the euro competes with the dollar in developing countries, it is probably a very good thing for Europe (because it can borrow interest free); whether it is good for developing countries is a more complex question. However, most of Europe's pre-euro currency supply was probably held within Europe and, presumably, for some time to come, most physical euros will be held in Europe as well. If cash facilitates illegal activities and tax evasion, it might, in theory, generate expenses and tax losses that could significantly offset any seigniorage revenues (the money governments make from printing money). Then again, some libertarians would argue that the underground economy functions as a safety valve, keeping bloated welfare and tax systems in check.

There is a great deal of talk about competition between the euro and

the dollar, most of which is nonsense, because global monetary policy is not a zero-sum game. But there is some competition in courting global underground demand for currency, and, on that score, the euro has a distinct advantage: it comes in a €500 note (approximately \$450 at January 2002 exchange rates) as opposed to the largest U.S. note, a \$100 bill. In the short run, this may not matter, but given that most currency is held in large-denomination notes, this may be quite an advantage in the years ahead. (Anticipating the popularity of the €500 note, 29 percent of the value of the first printing of euro notes is in 500s.) After all, \$1 million worth of \$100 bills can easily fit into a standard briefcase. But \$1 million worth of €500 notes can fit into a purse! Filmmakers should take note. So, too, should policymakers. In today's world, does it still make sense to issue very large denomination notes when the main consumers seem to be in the global underground economy?

References:

Brian Doyle, 2000, "Here Dollars, Dollars . . .": Estimating Currency Demand and Worldwide Currency Substitution, International Finance Discussion Paper 657 (Board of Governors of the Federal Reserve System).

Mathias Drehmann, Charles Goodhart, and Malte Krueger, forthcoming, "The Challenges Facing Foreign Currency Usage: Will Traditional Transactions Medium Be Able to Resist Competition from New Technologies?" Economic Policy.

Kenneth Rogoff, 1998, "Foreign and Underground Demand for Euro Notes: Blessing or Curse?" Economic Policy, Vol. 26 (April), pp. 263-303.

Kenneth S. Rogoff is IMF Economic Counsellor and Director of the IMF's Research Department.
