

The Paradox of Fiat Money

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Hal Varian is a very, very smart economist, now Professor emeritus at UC Berkeley, and chief economist at Google. For a number of years, he used to write a monthly column for the *New York Times*. In a January 2004 [column](#), he posed the question “Why Is that Dollar in Your Wallet Worth Anything?.” The first answer he considered was the one in which most lay people probably believe: that the government makes it worth something by declaring it legal tender. The problem with that answer, Varian observed, is that whatever the government says, nothing prevents people who want to from using something other than dollars to execute the transactions or discharge their debts. If people didn’t find it in their own best interest to transact in dollars, all the legal tender laws in the world couldn’t force them to keep making transactions in dollars.

Varian therefore proposed another explanation, suggesting that people accept fiat money out of social convention. In other words, the expectation that people will accept payment in dollars creates mutually reinforcing expectations, what we now call a network effect, that induce others to adopt the same expectation. Writing in the aftermath of the US invasion of Iraq, Varian cited the experience of Kurdistan, which, having achieved de facto autonomy from Iraq after the first Gulf war, continued using the old Iraqi dinar as its local currency even after Saddam Hussein introduced a new currency that became the legal and the customary currency in the non-Kurdish part of Iraq remaining under Saddam’s effective control until the US invaded in March 2003.

That column elicited a [response](#) from Frank Shostak in the *Mises Daily*, a web-based publication of the Ludwig von Mises Institute at Auburn University. Shostak made a powerful objection to Varian’s explanation of the value of fiat money.

And yet that still doesn’t tell us why the dollar bill in our pocket has value. To say that the value of money is on account of social convention is to say very little. In fact, what Varian has told us is that money has value because it is accepted, and why is it accepted? . . . because it is accepted! Obviously this is not a good explanation of why money has value.

To bolster his thesis Varian suggests that the value of the dollar is a result of the “network effect.” According to him, “Just as a fax machine is valuable to you only if lots of other people you correspond with also have fax machines, a currency is valuable to you only if a lot of people you transact with are willing to accept it as payment.”

Shostak tried a different tack, invoking the famed (well, famed, at any rate among the hard-core of the Austrian School) Regression Theorem of Ludwig von Mises, the most venerated, and most authoritative figure in the pantheon of Austrian economics. (Many outsiders erroneously assume that F. A. Hayek is the leading figure in twentieth century Austrian economics, but among insiders, Hayek is viewed with less than unequivocal admiration for having appropriated Mises’s earlier insights in business-cycle theory, for his willingness to adopt the terminology and methods of mainstream economic theory in his exposition of Mises’s theory, for his subsequent recantation of his early opposition to any form of countercyclical policy by the monetary authority, and, more generally, an insufficiently rigorous opposition to all forms of interventionist economic policies.)

According to the Regression Theorem, the demand for any money, i.e., an asset demanded because

it is accepted in exchange, not for any direct services that it provides, is contingent on its previous value. Thus, the value of any medium of exchange must have been derived from its value as a commodity before anyone ever accepted it as a medium of exchange. The Regression Theorem traces back the demand for every medium of exchange to some earlier time when it had value strictly as a commodity, not as a medium of exchange. But then, how does one explain the value of a fiat money which provides no real services and never did provide any real services that made it valuable in its own right? The Regression Theorem asserts (some theorem! But despite his extravagant claims to have created a purely deductive, apodictically certain, theory of human action, Mises did not overly concern himself with the logical rigor of his “proofs”) that every fiat money *must*, at some point, have been convertible into a real asset to have become valuable in the first place. Only then, having acquired value through its convertibility into a real asset, usually gold or silver, could the money retain any value after the link to a real asset with commodity value was severed.

More problematic than the failure of the Regression Theorem to provide a valid deductive argument for a historical conjecture about the origins of fiat money is that the Regression Theorem completely misses the point of the whole exercise. The difficult question, for which Varian struggled to find an answer, is why a fiat money, regardless of why it might once have had value, can retain any value. The Regression Theorem, as its name attests, is backward-looking. But economic problems, as Austrian economics to its credit usually recognizes, are forward-looking. Whether a fiat money once had value is irrelevant to an understanding of why and how it retains value.

Why should a fiat money not be able to retain value? Well, consider the following thought experiment. For a pure medium of exchange, a fiat money, to have value, there must be an expectation that it will be accepted in exchange by someone else. Without that expectation, a fiat money could not, by definition, have value. But at some point, before the world comes to its end, it will be clear that there will be no one who will accept the money because there will be no one left with whom to exchange it. But if it is clear that at some time in the future, no one will accept fiat money and will then lose its value, a logical process of backward induction implies that it must lose its value now.

I first heard this backward induction argument from Earl Thompson in his graduate macroeconomics course at UCLA (in those days both Axel Leijonhufvud and Earl Thompson taught graduate macro, and having taken Axel’s course for credit in my first year, I audited Earl’s course in my second year). To say that not everyone was willing to accept the backward induction proof that fiat money must be worthless would be an understatement, and for a long time, I, too, tried to resist. But eventually, I had to yield to the force of logic that seemed compelling.

Since I have found that the backward induction argument rarely convinces anyone that fiat money can’t have value, perhaps I should try to explain the process that led me to accept it despite my initial qualms. While still an undergraduate at UCLA, I took Ben Klein’s course in money and banking. Ben had just arrived at UCLA, Ph. D. not quite in hand, from the University of Chicago. His dissertation on the Competitive Supply of Money ([a portion of which](#) was published under that title in the *Journal of Money Credit and Banking*) made a historic breakthrough in modeling the behavior of banks in terms of the standard theory of the firm, instead of the usual ad hoc derivation

of the money multiplier, disproving in the process, Milton Friedman's oft-made assertion that free competition in the supply of money would force the value of money down to its zero marginal cost of production. Ben pointed out that the argument works only if banks produce indistinguishable monies and are forced to redeem each other's monies at par. Rather than competing to increase the amount of money they issued, banks would compete to increase the demand to hold their monies by paying interest to depositors. Ben started a theoretical revolution in the analysis of banks and the money supply, unfortunately still not fully incorporated into modern money and banking theory.

As yet unknown to me, Earl Thompson had also developed a similar [theory](#) of a competitive money supply, except that in Earl's model bank money was convertible into a real asset, gold. The theoretical difference between Ben's model and Earl's model was that Earl argued that only through convertibility into a real asset could a private bank make its money valuable while Ben held that, even without a convertibility commitment, a bank could invest in brand name capital by incurring sunk costs that would be forfeited should it later depreciate its money.

So there the argument stood until the spring quarter of my second year as a graduate student, when I took Armen Alchian's seminar in applied price theory. The seminar involved Armen discussing some current event or issue in the news or some problem for a journal article, working the problem out with us by applying the logic of economic theory. I have never seen another economist who, using only chalk and a blackboard and elementary economic theory, could provide such a deep and empirically meaningful analysis of any problem that he put his mind to. One of the papers that we discussed in Armen's seminar was Ronald Coase's [paper](#) "Durability and Monopoly" which had just been, or was about to be, published in the *Journal of Law and Economics*.

Coase posited a monopolist over a durable good, and asked the question: what price can the monopolist charge for the good. The surprising answer that Coase arrived at was: the competitive price. And the reason was that if the monopolist tried to set the price any higher, then no one would buy the good, because each prospective purchaser would assume that after selling as much as he could sell at the monopoly price, the monopolist would then try to sell additional units of the good at a lower price inasmuch as the incremental sales at that price would still exceed the incremental cost. And after selling as much as he could at the lower price, the monopolist would have an incentive to cut price yet again to sell additional units, selling the last unit at a price equal to marginal cost. Anticipating that the monopolist would eventually sell at a price equal to marginal cost, no purchaser would be willing to pay more than marginal cost in the first place. After going through that argument, Coase then reasoned that to avoid having to sell at a price equal to marginal cost, the monopolist could offer either to rent rather than sell the durable good, or, alternatively, could offer to sell the durable good with a buy-back option if the price were reduced below the initial selling price. Either way, a renter or a purchaser would be protected against a capital loss on his purchase in case of opportunistic sales by the monopolist.

At some point, I had a eureka moment realizing that Coase's argument was simply an informal version of the backward induction argument for the worthlessness of fiat money that Earl Thompson had used. So, after Armen's seminar one day, I suggested to him that if Coase's reasoning about durability and monopoly was right, Ben Klein's argument that investments in brand name capital would enable a competitive supplier of money to maintain a positive value for its money, even without convertibility, could not be right. I don't know if Armen had already seen the

connection, but he responded that Klein had also discussed a case in which competing money suppliers made their moneys convertible into what Ben called a “dominant” money. The motivation for that case, it now seems to me, had more to do with a recognition of what would now be called the network effects of a single monetary standard than with the logic of backward induction or Coase’s durability and monopoly argument, but Alchian’s response persuaded me that the backward induction argument was more than an application of esoteric and possibly dubious game-theoretic reasoning, but was well grounded in basic price theory.

So if the argument that fiat money is worthless is as strong as I believe it to be, how does one answer Hal Varian’s question why is a dollar worth anything? There are two possibilities. First, the real world could be less rational than pure economic logic would suggest. I no longer would dismiss this possibility out of hand, as I once did. But we should at least recognize that a positive value for fiat money may involve an element of irrationality. A positive value for fiat money may be no less a bubble than tulips in 17th century Holland, or houses in 21st century America. People may be accepting money in the false expectation that they will always be able to find some other sucker willing to accept it. If so, everyone will eventually realize what’s going on, and the game will be over.

The other possibility, the one proposed by Earl Thompson, is that fiat money actually does provide a real service, which is that governments accept it as payment to discharge tax liability. By making fiat money acceptable as payment for taxes, the government ensures that there is another source of demand for money aside from its use as a means of exchange for private transactions, which is all that is necessary to avoid the backward induction argument. That the US government accepts other currencies than the dollar in payment of the taxes that it imposes does not mean that there is zero demand to hold dollars with which to discharge tax liability. Similarly, just because most people hold money for reasons other than paying taxes does not prove that acceptability in payment of taxes is not a necessary condition for dollars to have positive exchange value. Under a gold standard, most people did not hold gold for the real services it provided. But without those real services, gold could not have rendered any services as a medium of exchange.

Earl Thompson wasn’t the first economist to offer this explanation for the value of a fiat currency. [Abba Lerner](#) suggested it in the 1940s. But the most famous source is the German economist G. F. Knapp in his *State Theory of Money*. This doctrine was dubbed by Keynes as chartalism. I believe that at least some of the bad press that chartalism has gotten over the years is due to the hostile and dismissive treatment Knapp’s theory received at the hands of Ludwig von Mises in his *Theory of Money and Credit*, which grossly misrepresented what Knapp was trying to say. Offering few specifics, Mises heaped scorn on Knapp’s work, unjustly accusing Knapp of a complete lack of understanding of economic theory. However, 15 years before the *State Theory of Money* was published, P. H. Wicksteed, in his magnificent [Common Sense of Political Economy](#) (1910), the most elegant and most comprehensive verbal presentation of neoclassical economic theory ever written, a work subsequently embraced by [Austrian economists](#) as one of their own despite the lack of any interaction between Wicksteed and the Austrian economists, based his explanation of why inconvertible paper money had a positive value squarely on its being made acceptable by the government for the payment of taxes (volume 2, pp. 618-22). So any notion that chartalism is at odds with orthodox economic theory, as Mises alleged, is utterly unfounded.

Recently Scott Sumner has been engaged in some pretty acrimonious [debates](#) about whether the Fed or central banks in general have the power to control the price level with supporters of what is called [Modern Monetary Theory](#). One of the main tenets of Modern Monetary Theory is chartalism. On my, possibly biased, reading of those debates, I think that Scott has gotten the better of those exchanges. But it seems to me that the opinion one has about why fiat money has positive value is independent of whether one thinks that central banks really can control the price level. Perhaps I will have more to say about that in a future posting.