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Famous Myths of "Fiat Money"

The paper re-evaluates the conventional wisdom regarding the existence of moneys that supposedly circulated without any legal status or intrinsic value. Economists call these objects "fiat money." I re-examine the most famous examples of such objects from primitive societies, such as the stone money of Yap and seashells, which have been cited by some of the most prominent monetary economists. I find that actually none of these cases is an evidence of "fiat money." A general conclusion is that one needs to seriously study the society in question before making a claim that it has used "fiat money."

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"Even generations later, when no one alive had ever seen this stone, the claim to this [stone] was still valued in exchange."

(Mankiw 2003, p. 79)

Economic theories and models often feature ideal concepts such as perfect competition, complete markets, and lump-sum taxes. Such abstractions are useful simplifications of reality for many purposes. Most economists agree that these concepts are fictional. Monetary economics has an ideal construct of its own. It is what economists call "fiat money." This is an object that has no intrinsic value and is not convertible into anything. An implicit assumption in the definition is that no one is forced to use such money and that the money has no other legal status such as legal tender. Acceptance of such money is entirely discretionary and based exclusively on the expectation that others would accept it too, even though no one else is forced to accept it (Wallace 1980).

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Interestingly, monetary economists do not claim that their "fiat money" concept is fictional. On the contrary, they identify it with the modern money we use in reality. Legal scholars and laypersons call the money we actually use by the same name since "fiat" refers to its status as legal tender. Monetary economists usually ignore this status. As Wallace and Zhu (2004) explain, using the "fiat money" concept (even when money was gold or silver) "was convenient because it produced a simple and strong prediction: allocations are independent of the amount of money." Convenience aside, the literature has used various ways to justify the use of "fiat money" in models and its identification as the money we actually use in reality. First, models prove that extrinsic expectations are sufficient to get this money circulating (e.g., Samuelson, 1958, Kiyotaki and Wright, 1989). This means that legal status or intrinsic value is not necessary. Second, some of the well-behaved equilibria in these models survive when a commodity value is attached to the money (e.g., Wallace, 1981, Wallace and Zhu, 2004). Third, there are *supposedly* cases of "fiat money" used in primitive societies. The reference to these societies is needed because modern moneys do have an explicit legal status (see Goldberg, 2003b, for a detailed discussion). Such claims and allusions regarding the use of "fiat money" in primitive societies have been made by some of the most prominent monetary economists (Friedman, Keynes, Kiyotaki and Wright, Mankiw, Samuelson, Tobin, and Townsend), and the issue serves as a very rare example of consensus in the field of monetary economics. The goal of this paper is to re-evaluate this empirical evidence.

The main result of the paper is that there is no conclusive evidence that what economists call "fiat money" has ever existed. The leading problems are that some goods were intrinsically valuable to their "primitive" users, but not to us, and that scholars have ignored the laws, customs, religion, and trade relations of the money's users.

A general conclusion of the paper is that a comprehensive anthropological, historical, and legal survey of the society in question is necessary before we jump to the conclusion that this society has used "fiat money." This is important because the evidence I refute is probably not all the evidence that exists in innumerable writings about all human societies that have ever existed. If new evidence comes to light, one should keep this conclusion in mind and evaluate the new evidence accordingly.

This work is similar in spirit to Garber's work on "famous first bubbles" (Garber, 1989, 1990, 2000). Generations of economists have been raised on the belief that these episodes, such as the Tulipmania, prove the power of speculation in financial markets, but Garber claims that economic fundamentals, rather than pure speculation, can explain most of the data from these episodes. Similarly, economists have been taught that money can circulate in reality based purely on people's speculation that others will voluntarily accept it too, with the proof supposedly coming from primitive societies. I find that physical, legal, and cultural fundamentals can explain the circulation of primitive moneys.

Any money can be thought of as having a value based on such fundamentals, plus an extra value from the use of the object as a medium of exchange. The existence of the latter component, which is emphasized by Sargent and Velde (2002) among others, is not disputed here. My only goal is to refute claims that some moneys had only that speculative value, without any fundamental value. The fundamental values I uncover here are not negligible[1] but extremely high. The objects discussed in this paper were the most coveted ones in their societies, regardless of their use as money. Their status was equivalent to that of gold in Western societies.

The paper is organized as follows. In Section 1 I discuss the most colorful and popular myth of all—the stone money of Yap—because prominent economists have mentioned it as a classic example of "fiat money." In Section 2 I discuss shell money, also mentioned in modern monetary literature as an example of "fiat money." Section 3 provides a general discussion and Section 4 concludes. In Goldberg (2003c) I analyze dozens of other "fiat money" claims that have not yet reached the mainstream monetary literature.[2]

1. THE STONE MONEY OF YAP

A story regarding the money on the tiny Micronesian Island of Yap (or Uap) is very popular among economists. The main source is Furness (1910). Excerpts from his book, *The Island of Stone Money*, were reproduced in *The Economic Journal* (1915). Prominent economists give it as an implicit or explicit example of fiat money in various publications: Keynes (1930, p. 292) in a monetary theory book,[3] Friedman (1992) in the opening chapter of a monetary history book, Tobin (1992) in an economic dictionary, and Mankiw (2003) in a popular intermediate macroeconomics textbook. The story includes two "fiat money" claims: the money itself, and a story that a verbal claim to a lost unit of that money also functioned as money.

1.1 The Stone Money

Furness reports that the money on that island was huge round stones of no practical use. In pictures they look like simple millstones, but were never used as such because no mills existed there. Based on this description, economists jumped to the conclusion that this was "fiat money."

Typically, where the existence of something is disputed (e.g., extra-terrestrial life forms), it is expected that those who claim its existence will provide a positive proof. "Fiat money," however, is completely defined in negative terms: it is not useful, it is not convertible, and it does not have any other legal status. Therefore, given a claim of a particular "fiat money," such as the stone money of Yap, it is my task to show the existence of usefulness, convertibility, or other legal status. Alternatively, I can show that regardless of the "fiat-ness" of the object, it was not actually used

1. By "negligible" I mean that the money can be used as paper weights or burning material.

2. After giving the example of the stone money of Yap, Friedman (1992, p. 7) writes that "numerous additional [examples] could be listed."

3. Keynes refers to "the stone money of Rossel Island," but it is obvious that he means the stone money of Yap.

as money. Finally, I can show that the source of the "fiat money" claim is not credible and uncorroborated.

In this case, a careful reading of the reports of Furness and others reveals that the stones were unique and were imported from distant islands. The natives imported the stones because they considered them to have high esthetic value. Yap's official website (http://visityap.com/aboutyap/about_yap_history.html) describes the stones as "crystalline." Furness actually describes the stones as having a "white, opaque appearance, somewhat like quartz, but not so translucent nor of so fine a grain" (Furness 1910, p. 94). Other travelers, traders, and anthropologists describe the stones as "glistening," "like large crystals of quartz," "quartzose" (Gillilland 1975, pp. 4, 8, 9), and "shining … quartz-rock" (Christian 1899, p. 300). For Pacific islanders who knew no metals or precious stones, it was reasonable to attach high value to semi-precious stones. Another proof for the high esthetic value is that the largest stones were "entirely beyond price" (Einzig 1966, p. 40). Small specimens may have been used in jewelry, but the stones became more popular as big statues in the shape of a full moon (Gillilland 1975, pp. 19–20). In fact, these stones were Yap's version of gold.[4] Just as gold could barely be used for any practical purpose (it is too soft), and one of the few things one could do with it was sit on a throne made of it, the Yap stones were also used as thrones (Gillilland 1975, p. 3).

The stones were also acceptable for tax payments, and that makes them partially analogous to our concept of legal tender.[5] Possessing them allowed one to avoid being punished by the government for non-payment of taxes, and that was enough to make the stones valuable. In addition, strict norms were established over time regarding the mandatory use of the stones for payments on special occasions such as festivals, weddings, and chiefs' funerals (Gillilland 1975, pp. 11–2). According to the island's official website (http://visityap.com/aboutyap/index.cfm) they are still in such use today, as well as for land purchase, side by side with the official currency (U.S. dollars). The money was therefore forced on both buyers (what we call "cash in advance constraint" in models) and sellers. Its acceptance is therefore not surprising.

Finally, the stones had a religious value. One local legend says that the bodies of the islanders' ancestors, which were half-human and half-divine, have become the oldest stones (Gillilland 1975, p. 19). Another legend says that the Fairy Godmother of Yap chose which stones would become money, and the stones' shape was also approved by her (Christian 1899, p. 300). Regardless of the latter legend, it is known that the full moon shape had a religious significance. The importance of such a religious value is that a believing seller may be too afraid to reject such a sacred object as payment.

4. Friedman (1992) also claims that gold and the Yap stones are equivalent, but he does that by ignoring the esthetic value and legal tender status of both.

5. This refers to regular taxes by chiefs (Einzig 1966, p. 39), and even by the German colonial regime (Furness 1910, p. 99). Our concept of legal tender refers to debts and taxes, but not to spot commercial transactions. For details, see Goldberg (2003b).

1.2 The Lost Stone

The story that one stone was forever lost at sea, and yet a claim to it retained its "purchasing power" (as Furness put it, p. 98), is a separate "fiat money" story: a verbal claim to a lost asset is used as money. It is emphasized by Keynes, Friedman, Tobin, and Mankiw. A careful reading of the story reveals that it is not a case of "fiat money" at all. On p. 97 Furness tells us about the owners of the claim to the lost stone: "A family whose wealth was unquestioned—acknowledged by everyone." The stone was lost "two or three generations" before Furness' visit, and the original owner of the stone was "an ancestor of *this* family" (my italics). This means that the claim to the lost stone remained with the same family for two or three generations without being used in trade. Therefore, it cannot be considered a medium of exchange.[6] The claimed acknowledgement of everyone in that family's wealth may have affected its social status, but did not realize in trade. There is no documentation of any transaction actually made with the claim to the lost stone.

Another problem hides in the story: Furness (pp. 97–8) says that the family's ancestor shipped the stone to Yap and on the way to Yap the stone was lost at sea during a storm. When the sailors came back to Yap "they all testified" that the owner was not guilty of its loss, and "thereupon it was *universally conceded* in their simple faith that the mere accident ... ought not to affect its marketable value" (my italics). This description of the testimony and the universal conceding that the value of the lost stone remains, implies a public event in which all the natives made a centralized decision. This is entirely equivalent to modern legislation that declares that some object *must* be accepted as payment; such an object is much stronger than the "fiat money" of monetary models.

Finally, the story's credibility is doubtful. Furness was the only outsider who heard it from a native. That native, named Fatumak, was not the owner but a man who lived in a nearby village. He was the local fortune-teller and exorcist, and his credibility as a storyteller is mocked by Furness elsewhere (Furness 1910, pp. 126, 143–6, 154).

Overall, I believe that the arguments I raise here prove that both the stone money and the lost stone are not the "fiat money" of monetary models.

2. SHELLS

Shells of many types—especially seashells—were among the most common forms of primitive money.[7] They were used in most parts of the world as both jewelry and money, to the surprise of Europeans who thought they were intrinsically useless. Shells are sometimes mentioned as examples of "fiat money" since they are supposedly as intrinsically useless as small pieces of paper (Samuelson, 1958,

6. This is the only aspect of money that I am interested in, since the motivation for this paper comes from the use of "fiat money" as a medium of exchange in modern monetary models.

7. Shells of snails, turtles, ostrich eggs, and coconuts, were also used (Einzig 1966, p. 555).

Kiyotaki and Wright, 1991, 1993). Here I discuss in detail only the famous cases of American seashells and those of the Pacific Kula Ring.

2.1 American Shells

Two types of seashells were popular among Native Americans: wampum on the East Coast and dentalia on the West Coast. Similarly to the stone money of Yap, the Native Americans thought the shells had high esthetic value. They put great effort into polishing and piercing them with their stone-age tools, and then strung them. The mere fact that the shells were strung is obvious evidence that they were used as jewelry at one point.[8] Native Americans did not know how to process precious metals, so this dual esthetic–monetary use of shells should not be surprising. While the use of wampum as jewelry is undisputed among those who have studied it, Einzig (1966, p. 172) claims that the monetary dentalia were not used as jewelry. His source (Kroeber 1953) indeed says that only strings of complete big shells were money and only strings of broken and small shells were jewelry. However, Kroeber makes it clear that the monetary strings were not used as jewelry not because they were considered esthetically worthless. On the contrary, they were much too valuable to be used as jewelry on a regular basis,[9] just like expensive modern jewelry that usually stays in a safe. Besides, if small and broken shells were used as jewelry, then it is obvious that the large ones were considered esthetically valuable.[10]

The shell money's legal status was stronger than our concept of legal tender. It was acceptable in payments of debts, fines, blood-money, ransom, tributes, and bride-money, and was usually the only object acceptable for such payments (Einzig, 1966, pp. 165–6, 172–3, Tylor, 1881, p. 445). Both types of shells also had a religious use: they were buried in graves and burned in funeral pyres (Einzig, 1966, p. 172, Ingersoll, 1883, p. 479). This necessity of using them in religious rituals provided an independent, and very powerful, source of demand. The dentalia also had a religious value, as in mythology there was a character named "Great Dentalium," who was sometimes considered semi-divine and even as The Creator (Kroeber 1953, pp. 25, 74). All these uses and values guaranteed the shells' value even when the Europeans brought with them precious metals that could have replaced the shells in their original esthetic use.

While the European settlers did not see any esthetic value in the wampum, they nevertheless used it as money because the natives were always willing to trade skin and fur for it (Ingersoll 1883, p. 471). Since the settlers knew that they could always convert wampum into fur, even though the natives did not commit to do it, we can call this "voluntary convertibility." Later the settlers themselves made the shells legal tender in some Colonies (Ingersoll 1883, p. 472), and even demanded the

8. Indeed, strings may be easier to handle than single shells, but the effort of piercing them and obtaining chords in a stone-age society is not worth it.

9. A string of the largest dentalia could buy a wife to a famous man; two such strings made a man famous, and no commodity or wife was worth two such strings (Kroeber 1953, pp. 23–4).

10. They were at the very least a raw material, as they could be broken and then used as jewelry.

natives to pay them taxes in shells (Einzig 1966, p. 173). Eventually, the large decline in the number of Native Americans and the demise of their culture made the shells inconvertible and their monetary use indeed ceased.

2.2 The Kula Ring

In the founding book of economic anthropology, Malinowski (1922) describes a system of international trade near New Guinea. This system, called the Kula Ring, looks superficially like a modern monetary model, as cautiously noted by Townsend (1988). Many villages on many islands are arranged along a circuit. Each one trades only with its neighbors on each side in fixed intervals of time. Every trade meeting involves the transfer of at least one of two types of seashell ornaments, called the Kula shells: necklaces and armlets. The former always travel in the circuit clockwise from one village to another, while the latter travel counter-clockwise. The problem is that most armlets are too small to be worn "even by young boys and girls" (Malinowski 1922, p. 88).

First, it should be noted that the shells do *not* actually function as money in the Kula Ring. Their exchange is always strictly separate in time from the actual trade of other goods. There is never a quid pro quo trade of a shell for another commodity in this trade system (Malinowski 1922, pp. 210–1, 363). The exchange of shells is parallel to the real trade, and essentially it is nothing more than a sporting event, with the Kula shells being the trophies. The sport is trying to get one's trading partner to give him as a gift the best shells, and the participants attribute their entire success in this endeavor to their success in magic that they perform and is supposed to make their trading partner generous (Malinowski 1922, pp. 281, 335–6, 392). It is then like a chess contest, a sport of mental skills, but—as in the soccer World Cup—the trophy passes on from one winner to the next after a while. It is also similar to the Olympic games in that it promotes peace, which in turn facilitates the parallel real trade (Malinowski 1922, p. 274). The shells' value as trophies can be called a "showing-off value": people compete with their fellow villagers in the form of public displays of the shells they got. The losers suffer great shame, while winners become famous and are admired (Malinowski 1922, pp. 94, 375).

Moreover, participation in the Kula Ring and all the associated customs are mandatory (Malinowski 1922, pp. 187, 209, 325, 423, 457–9). Rejection of shells that are unfit as jewelry is not an option, and the protocol actually gives such inferior shells a special role as intermediary gifts (Malinowski 1922, pp. 355–6).

The shells *do* function as money in non-Kula normal intra-island trade, and their acceptance as such is also not discretionary. One has to give food to whoever brings him these shells, and even the price level is fixed by custom (Malinowski 1921, pp. 9–10, 13–4). The shells are also legal tender in the payment of debts (Malinowski 1922, p. 180), and they have a religious use since they qualify as offerings to important supernatural forces (Malinowski 1922, pp. 76–7, 512–3).[11]

11. The case of the Kula shells—deformed specimens of intrinsically valuable goods—was not unusual in the Western Pacific. There are other cases in that area where an object was originally considered esthetically valuable or practically useful, and by the time it lost these values and uses to superior materials or changing tastes it had already made it into the local laws, customs, and religion. Once achieving such statuses, it was no longer necessary to bother making that object in a usable form. Then deformed specimens, like the Kula shells, also functioned as money.

3. DISCUSSION

The "fiat money" claims reviewed above are, to the best of my knowledge, the only ones that made it into modern monetary literature. They cover almost all of the categories of ways to show why a "fiat money" claim is wrong (the money has esthetic value, it is legal tender, it has a religious use, etc.). There is only one such category not covered by these examples, and it is the convertibility of the money into goods. Some "primitive moneys" (defined by Einzig, 1966 as moneys that are neither paper nor coin) were indeed issued under such promise, most notably emergency leather moneys that were issued during wartime in Medieval Europe (Einzig 1966, p. 259). They were the forerunners of the wartime paper money that was popular in the 19th century.

The classic reference on non-modern money, and one which I use extensively above, is Einzig (1966). It is a comprehensive and detailed list of all primitive moneys that were ever used anywhere (regardless of their "fiat-ness"). Einzig's monumental survey mentions dozens of other moneys that seem intrinsically useless to a modern Western lay person.[12] Detailed discussion of them is available in Goldberg (2003c). There I show that all of these moneys are actually not "fiat moneys," or—where information is scarce—I show that it is more likely than not that they are not "fiat moneys."[13]

While the famous cases reviewed above stem from inaccurate or partial reading of the correct facts reported by anthropologists, there are other ways in which wrong "fiat money" claims are born. Some evidence comes from people who are not anthropologists, namely travelers, missionaries, and diplomats. Travelers tend to provide anecdotal evidence, whereas money is a *general* medium of exchange. Unlike anthropologists, they can be very narrow-minded and ethnocentric, thinking that anything that does not fit their Western standards is useless, even if the natives think it is useful. Missionaries are more systematic in their observations as they spend many years in the same place, but some ethnocentrism seems to be inherent in their job.[14] Diplomats are somewhat detached from the society they live in and often lack real interest in the local culture. In addition, none of them are economists, and what they consider as money may differ from what economists think of as money. See Goldberg (2003c) for examples.

12. The list includes feathers, skulls, pigs' tusks and jawbones, teeth, broken rice, bitter almonds, poisonous seeds, rubber balls, intentionally ruined metal, dust, salty clay, and seemingly useless specimens of skins, cloths, cattle, axes, arrowheads, and glass.

13. In some cases the only source that reports on the use of the money fails to provide enough information on the society that used it (their laws, religion, fashion, etc.). As seen above, this information is critical for disproving "fiat money" claims. In other cases the claims are purely speculative, based on archeological findings of objects that defy standard explanations or remind the archeologists of stashes of money.

14. Stocking (1987) provides a critical look by a historian of anthropology on the anthropological reports of such 19th century amateurs.

4. CONCLUSION

Has "fiat money"—as defined by economists—ever existed? It is impossible to prove that it did not. Every book and article ever published in economics, anthropology, history, geography, archeology, sociology, and other fields, can include a claim that some object—intrinsically useless, inconvertible, and lacking any other legal support—functioned as money. Also, many societies have disappeared without leaving any evidence on the monetary aspects of their cultures.

The immediate goal of this paper was to refute the famous "fiat money" claims that have made it into modern monetary literature. These claims have been used to justify the fact that monetary models typically ignore the legal status of money. I believe I have proven that these claims are false. In Goldberg (2003c) I provide a similar analysis regarding all the dozens of other claims collected by Einzig (1966).

More generally, I show here how extremely easy it is to focus on the monetary object itself, take it out of context, ignore laws, customs, religion, trade relations, subjective cultural tastes and fashion, and declare: "We found an example of 'fiat money'!" I then show that with a little digging for facts it is not so hard to disprove "fiat money" claims.

In this sense the main contribution of the paper is to raise the burden of proof on "fiat money" claims, as there are probably more such claims out there. "Fiat money" is defined by the absence of properties: intrinsic value, convertibility, and other legal support. Proving that these properties do not exist is perhaps impossible, but anyone who makes a "fiat money" claim must at least carefully look for them. More specifically, this paper shows examples of the ten categories of reasons other than pure speculation that can create positive demand for an object, independently of its monetary use: practical use, esthetic value, showing-off value, religious value, religious use, legal tender status, forced on buyers, forced on sellers, convertibility, and voluntary convertibility. If an object has at least one of these properties then it is not "fiat money." In addition, it needs to be verified that the object is indeed a general medium of exchange, and that the source of the claim is credible.

With the evidence from primitive societies refuted, what remains of the justification for using the "fiat money" concept? The main theoretical justification—models prove that this money can circulate based purely on speculation—has been challenged elsewhere. In Goldberg (2003a) I show in a search model that these models lose most of their predictive power once a large number n of potential "fiat moneys" are allowed to exist, because then there are 2^n stationary equilibria, all with different combinations of "fiat moneys" circulating. Prescott and Rios-Rull (2004) go further by pointing that in an overlapping generations model no monetary equilibrium exists under such conditions. This is because if I pick up, say, a useless nutshell and try to use it as "fiat money" to buy goods from you, then your optimal response is to pick up a different nutshell, or a fallen leaf, and try to use it as a different "fiat money" to buy goods from the next generation.

The strongest justification then for using the "fiat money" concept is that some of the well-behaved "fiat money" equilibria survive the generalization to moneys with a commodity value or legal status. Wallace (1981) and Obstfeld and Rogoff (1983) examine the implication of a promise to convert money into a commodity in an overlapping generations model and a money in utility function model, respectively. Wallace and Zhu (2004) examine the implication of a small commodity value in a Bewley model and in a search model. Goldberg (2003a) examines the implication of allowing agents (or forcing them) to use money for tax payments in a search model. The implications of other forms of legal support for money, such as making it legal tender in debt payments, have not been fully examined yet. Therefore the modeling implication of the current paper is that more research should be directed at checking the robustness of "fiat money" models to such realistic assumptions about moneys.

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