Federal Reserve Bank of Cleveland

The Trime

by Michael F. Bryan

In 1851, under severe competitive pressure, the U.S. postal service lowered the postage on a one-page letter from 5 cents to 3 cents. The act changed the character of American money.

This *Commentary* tells how a confluence of two events, the expansion of steam-powered transportation and the California gold rush, created a problem of "monetary indivisibility" for the U.S. post office, the solution to which was the minting of a 3-cent silver coin, the trime. Besides being the smallest of all U.S. coins, the trime had another distinction: It was the first legal tender with a face value greater than the market value of the metal it was minted from. The trime was America's first step toward separating its money from precious metals and the eventual creation of our "fiat" money—a money that is not backed by or convertible into any commodity. That is, a money with no intrinsic worth.

Railroads, Postage Stamps, and Indivisible Money

In the early to mid-nineteenth century, the U.S. postal service, the largest U.S. commercial enterprise of the era, had a virtual monopoly on mail delivery between major cities, the large profits from which it doled out in political patronage.[1] But the postal service's stranglehold on mail delivery began to loosen with the great expansion of cheap rail and steamship transportation. Between 1840 and 1850, track in operation more than doubled to 6,000 miles, and the cost of shipping by rail fell nearly 40 percent. As travel became more routine, large volumes of mail began being carried by ordinary travelers and "express companies," which delivered pouches and boxes of mail between cities. The postal monopoly was crumbling.

In 1845, Congress cut postage rates by more than half, to 5 cents for a one-page letter delivered within 500 miles. But by the late 1840s, private express companies were delivering mail between major cities for 2 cents a letter, and the competition from the private carriers pressured government postage rates even lower. In 1851, Congress reduced the postage rate to 3 cents a letter.

The drop in postage to 3 cents created a monetary problem. Gold coins were only produced in denominations of $1 and above because smaller denominations would require coins so small that they would be impractical in trade. Silver coins, which were relatively awkward for denominations of more than one dollar because they would have been too heavy to be conveniently carried, were only produced in denominations of $1, $0.50, $0.25, $0.10, and $0.05. While copper cents and half cents were minted, the circulation of the coins was mostly limited to the major eastern cities and, even there, they were unpopular with the public.[2] Because the nation had no widely circulating money in a denomination less than 5 cents, many people would have been forced to buy the new 3-cent stamps in bundles of five or ten.

The problem confronting the United States with the drop in postage is referred to as "monetary indivisibility," and it is a common shortcoming of monetary systems in which the value of the money is tied to a particular good (a "commodity" money). The problem occurs when the smallest denomination of money is too large for people to trade effectively.

To solve the monetary indivisibility created by the new 3-cent stamp, Congress authorized the minting of a 3-cent silver coin in the same act. The coin, called the trime, had a metallic value worth only about $2^{1/2}$ cents, but was legal tender for sums up to 30 cents, making it our first money with a content in precious metal worth less than its legal value in trade (sometimes called a "subsidiary coin.") The trime was 20 percent smaller than our modern dime, and only about one-third of its weight (figure 1). While the British were on a gold standard and had been using subsidiary silver coins for small change for nearly 40 years, the trime was a decided break from the American experience.

You might not have heard of the trime, the tiny 3-cent silver coin minted in the United States from 1851 to 1873, but it may have played a big role in shaping the kind of money you carry around in your wallet today.

Why did Congress choose to reduce the silver content of the 3-cent coin? The answer to this question begins on January 24, 1848, when James Marshall, who was building a saw mill for John Sutter on the American River near Sacramento, California, found a few tiny gold nuggets. The discovery began the greatest migration of people in U.S. history, as a half-million people descended upon California. The gold rush was on.

California Gold, Gresham's Law, and Indivisible Money

Between 1849 and 1853, the amount of gold coming out of California was staggering. People of all walks of life left their jobs and their families and headed to California in search of fortune. The expansion of gold in circulation was

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spectacular. Over this four-year period, the U.S. Mint coined four times more gold than it had produced in *total* since its founding in 1792. But of course, with the flood of gold came a decline in its value, and this drop in gold prices created something of a monetary crisis for the nation. At the time, the United States had a bimetallic commodity money standard; a dollar was defined in terms of a specific quantity of silver (371.25 grains) *or* gold (23.2 grains)—a fixed ratio of 16-to-1. Because the value of gold was falling, the "dollar" cost of things was rising, what economists today might call "inflation."

But there was another, even greater monetary problem created by the gold rush. The falling *market* value of gold relative to silver meant, alternatively, that the market value of silver was *rising* relative to gold. In other words, it would cost the mint more than 3 cents to purchase the silver required to produce the trime at the fixed 16-to-1 ratio of silver to gold.

The market values of gold and silver were often out of alignment with their official (or "face") values, and when this occurred, coins containing the more precious of the two metals would either trade at a premium (that is, trade *above* their face value) or disappear from circulation altogether as a result of hoarding or export.[3] An "undervalued" (good) money driven from circulation by an "overvalued" (bad) money is called *Gresham's Law*. It was a major shortcoming of America's bimetallic monetary system.

In figure 2, I show the market value of gold relative to silver in the United States between 1843 and 1863. I estimate that the "export threshold" of silver was about 1 percent of the 16-to-1 ratio, which covers the cost of culling, brokerage, and transportation.[4] Below this level, the market value of silver is sufficiently more than its face value that it becomes profitable to export.

Almost coincident with the discovery of gold in California, the value of gold relative to silver fell below the export threshold, meaning that silver money was too valuable to circulate at its official 16-to-1 ratio with gold. Had the government minted a 3-cent silver coin with a silver content commensurate with the 16-to-1 ratio, these coins would likely have been exported or hoarded. Very few of them would have purchased stamps at the post office.

So in reducing the silver value of the trime to approximately $2^{1}/_{2}$ cents, Congress effectively eliminated any incentive for the public to export its silver. But in doing so, Congress also crossed into rather uncharted and controversial monetary ground by authorizing a legal tender that had value based on their say-so and not on its metal content.

Even though its small size made it awkward to use in exchange, the trime enjoyed a rather wide circulation between 1851 and 1853; almost 25 million of the coins were minted—more than three times the number of all the other silver coins combined. Yet despite its relatively large production numbers, the trime was incapable of carrying the coinage load that was being placed on it. *All* silver coins were disappearing from circulation as the price of gold fell. In 1850 and 1851, the United States exported $25 million more in silver than it imported, an amount that exceeded the nation's total silver coinage of the preceding 20 years.[5] The "bad" gold money was driving the "good" silver money from the economy, and monetary indivisibility was getting worse.

Monetary indivisibility is a consequence of the operation of Gresham's Law that is not commonly appreciated.[6] Since gold coins were of relatively large denomination and silver coins were of small denomination, the exit of silver from circulation introduced a shortage of small change. Other than the trime and the slighted cent, the smallest denomination of U.S. money minted in any significant amount in the first few years of the 1850s was the $1 gold piece, roughly the equivalent to the average worker's daily wage. In today's wages, that sum translates to a little more than $100. Imagine trying to buy things when the smallest coin in your pocket is $100 and you have little prospect of receiving change in return. The problem of monetary indivisibility was no longer about mere postage stamps, it had become a pervasive problem in the retail marketplace.

The Subsidiary Coinage Act of 1853

In 1851, retail trade heavily depended on the trime and the cent, which despite its general disfavor in the public, began being minted in much larger quantities. The only other coins that circulated with a face value under a dollar were "a motley collection of underweight coins," including "badly worn" Spanish "bits."

> *A customer who offered a gold dollar in payment for a small article would receive in exchange perhaps ten or fifteen 3-cent pieces and a half-dozen almost unrecognizable reals and medios. A Philadelphia paper refers derisively to shopkeepers scooping up 3-cent pieces with a ladle to make change for a $5 bank-note.*[7]

Retailers were paying large premiums on silver coins, and some, including the post office, began to require exact change transactions. Some merchants offered tokens exchangeable for goods and small private notes, mockingly called "shinplasters" by the public, and these were also flooding the market. On February 21, 1853, Congress settled on a solution to the coin shortage. They decided to make all silver coins denominated in values less than a dollar subsidiary coins, just as they had with the trime. The silver content of all coins under a dollar was reduced 7 percent, but they retained the same face values and would be legal tender for amounts up to 5 dollars. (Figure 2 shows the value of the silver used in these coins relative to the prevailing gold-to-silver price ratio.)

Those who favored keeping the dollar on a bimetallic standard were at a loss on how to maintain the two metals and still deal with the coin shortage. Some in Congress hoped to eventually provide for two circulating metals by adjusting the official gold-to-silver price ratio downward from 16-to-1 after the value of the two metals resumed "a reasonable degree of stability." Since the act left the silver content in the silver dollar the same, many in Congress may have believed they were maintaining the bimetallic standard for the dollar. But clearly, there were some, including House Ways and Means chairman C. L. Dunham, whose intent was to move the country away from bimetallism to a monometallic (gold) standard, similar to that used in Great Britain.

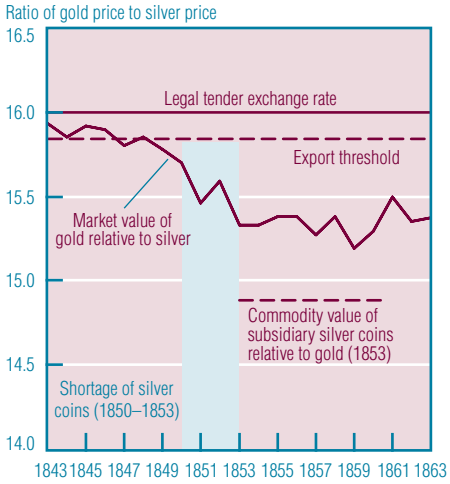
> *We intend to do what the best writers on political economy have approved, what experience, where the experiment has been tried, has demonstrated to be the best, and what the Committee believe to be necessary and proper, to make but one standard of currency and to make all others subservient to it. We mean to make gold the standard coin…*[8]

Even those who voted in favor of the measure may not have fully appreciated

FIGURE 1 THE 1851 TRIME

front *back*
(actual size)

FIGURE 2 U.S. COIN SHORTAGE OF THE EARLY 1850s



SOURCE: Carothers (1930) and author's calculations.

the significance of creating subsidiary coinage. Some, including Andrew Johnson, wondered scornfully how the government, by a simple decree, could cause the value of small coins to be 7 percent more than their value in silver.

> *I look upon this bill as the merest quackery—the veriest charlatanism—so far as the currency of the country is concerned. The idea of Congress fixing the value of the currency is an absurdity, notwithstanding the language of the Constitution—not the meaning of it… If we can, by law, make $107 out of $100, we can, by the same process, make it worth $150. Why, Sir, of all the problems that have come up for solution, from the time of the alchemists down to the present time, none can compare with that solved by this modern Congress. They alone have discovered that they can make money—that they can make $107 out of $100.*[9]

In 1853, almost 62 million subsidiary coins were minted, and before the year's end, there were enough small coins in circulation to satisfy the demands of commerce. The coins traded at their face values, and the monetary crisis was over.

On the Road to Fiat

Over time, the goal of the gold-standard advocates was realized. Less than a decade after the creation of subsidiary coinage, the U.S. Civil War brought a shortage of all metals, including copper and gold. Shinplasters again flooded retail markets. The federal government accepted postage stamps as money for values up to $5 (1862), issued paper notes in fractional amounts (1863), and suspended the convertibility of large-denomination notes for gold (1862). After the Civil War, the Coinage Act of 1873 omitted the silver dollar from its list of coins, and when the convertibility of large notes for metal was resumed in 1879, convertibility was in gold only. The dollar was officially on a gold standard.

But the "absurdity" described by Andrew Johnson, that the government could simply decree a value for its money that was disconnected from its metallic worth, would also eventually come true. In 1933, during the financial crisis brought about by the national depression, and faced with huge foreign outflows of gold, President Roosevelt nationalized the monetary gold owned by U.S. citizens and abrogated contracts that specified payment in gold. Only foreign central banks could convert dollars into gold.

Between 1946 and 1971, much of the world operated under the so-called Bretton Woods system, which pegged foreign currencies to the dollar, while the United States promised to redeem central banks' holdings of dollars for gold at a fixed price of $35 per ounce. But persistent balance-of-payments deficits during the 1960s once again drained U.S. gold reserves and on August 15, 1971, President Nixon announced that the United States would no longer redeem dollars held by foreign central banks for gold. This act severed the last thread connecting the value of the dollar to a precious metal.

Today, the U.S. dollar, like the money of virtually every other nation, is on a "fiat" standard, which means that it is not backed by or convertible into any commodity.[10] Its value is determined *only* by a merchant's willingness to accept it in trade. The record of these monies in being able to maintain their purchasing power has been mixed. Most nations experienced a turbulent period of recurring inflation in the 1970s and 1980s as their central banks allowed the expansion of their monies to greatly exceed demand for them. Today, most nations are providing greater stability to the purchasing power of their money. Some nations have gone so far as to require their central banks to achieve specific inflation targets, while others have joined monetary unions, and some have even adopted a more stable foreign money as their own (an arrangement called "dollarization.")

In 1977 and 1978, Congress made price stability a long-run objective of the Federal Reserve, so even though the country no longer ties its money to a precious metal, the central bank is expected to limit the expansion of our money to match the trade needs of the nation. In this way, the Federal Reserve anchors a dollar's value to its ability to purchase the broad array of goods and services consumed in the United States. And the first step toward the fiat standard on which our money now rests may have begun 153 years ago, when the federal government was forced to reduce the price of a postage stamp to 3 cents.

Recommended Reading

Neil Carothers, 1930, *Fractional Money*, London: John Wiley and Sons.

A. Barton Hepburn, 1924, *A History of Currency in the United States*, New York: Macmillan.

David A. Martin, 1973, "1853: The End of Bimetallism in the United States," *Journal of Economic History* 33.

Kelly B. Olds, 2002, "The Challenge to the U.S. Postal Monopoly, 1839–1851," *Cato Journal* 15.

Arthur J. Rolnick and Warren E. Weber, 1986, "Gresham's Law or Gresham's Fallacy?" *Journal of Political Economy* 94.

Thomas J. Sargent and François R. Velde, 2002, *The Big Problem of Small Change*, Princeton, N.J.: Princeton University Press.

Footnotes

1. See Olds (2002).

2. Why these copper pieces were so disliked is unclear, but the coins had many perceived shortcomings. Cents and half-cents had an uncertain legal-tender status, they were very heavy for their value, and they were prone to discoloration. The cent was formally made legal tender (for sums up to 10 cents) in 1864.

3. Rolnick and Weber (1986) describe the conditions when an "undervalued" commodity money will circulate at a premium, and when it will disappear from circulation.

4. See Martin (1973, p. 830).

5. See Carothers (1930, p. 108).

6. The problem of bimetallic coinage is described in great detail by Sargent and Velde (2002).

7. Carothers (1930, pp. 110–11). Spanish reals (silver dollars), also known as "pieces of eight" were commonly divided into eight pie-shaped "bits," each with a value of $12^{1}/_{2}$ cents. A small Spanish coin called the "medio," valued at $6^{1}/_{4}$ cents, was also in wide circulation in the United States in the mid-nineteenth century.

8. Hepburn (1924, p. 64).

9. Hepburn (1924, p. 65).

10. There is some disagreement among economists over the precise meaning of fiat money, and a comparison of two textbooks on money and banking is unlikely to yield the same definition. Alternative definitions include a money that is produced and circulates at no cost, while another popular description is that it is a money created by order of the government.

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