The Covid-19 Coin Shortage: Causes, Responses, and Lessons

Nicholas Anthony

Covid-19 altered almost every facet of the human experience in 2020. For those who were lucky, living rooms became offices, cocktail hours went virtual, and spare time was spent exploring new passions. But others suffered: hundreds of thousands of people died, millions became unemployed, and even more were left uncertain about their future. All the while, smaller inconveniences multiplied. Of these, the most unexpected was a serious coin shortage in the summer of 2020.

This article first documents the severity of the Covid-19 coin shortage. It then describes how coins normally circulate and how the failure of this circulation led to the shortage. Next it discusses the federal government and private sector responses. Finally, it draws lessons for avoiding future coin shortages.

The Severity of the Shortage

The Covid-19 coin shortage was a disruption at the most basic level of the U.S. currency system (see Siegel 2020a). Without coins to make change, many businesses had no choice but to turn away cash transactions. For some businesses, that meant having no business. "At the

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front end of the pandemic, we were deemed to be an essential business because we're providing a basic public health service," said Brian Wallace, Chief Executive of the Coin Laundry Association, "[but if] we can't make change, we can't make money" (Siegel 2020b).

The shortage was difficult for consumers as well. Although today's consumers often have access to alternative means of payments (e.g., credit or debit cards), there are still 7.1 million unbanked and 24.2 million underbanked American households (FDIC 2018, 2020).[1] So, for approximately 31 million households, cash is an important, if not the only, resource for making day-to-day payments.

For those who could switch to credit or debit cards, other issues arose. In normal times, small businesses insist on minimum purchase amounts for card payments because of card processing fees (Smith 2020). By forcing businesses into using cards almost exclusively, the Covid-19 coin shortage reduced their already thin profit margins. And, while prepaid cards might appear to be an easy solution for the unbanked, these too have associated fees (CFPB 2019).

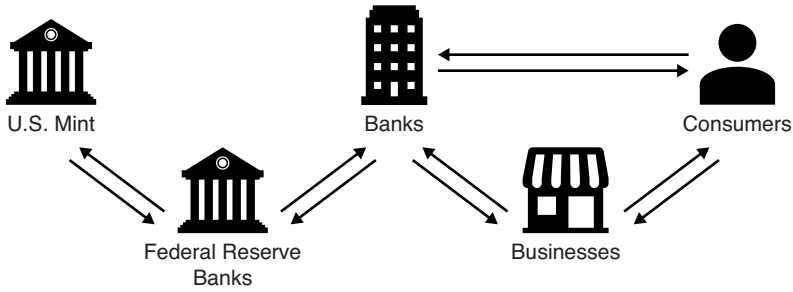
As the shortage grew worse, concern spread further. Jack Riddle, president of Delaware Community Bank, told the Cape Gazette:

> Every bank we talk to says they are experiencing a [coin] shortage. We were told our orders would be substantially shorted, but we never anticipated such a drastic decrease. I've never seen anything like this before [MacArthur 2020].

By June 2020, reporters even saw the early stages of "coin runs." Some business owners began to request several months' worth of coins out of fear of a worsening shortage (Smialek and Rappeport 2020). And laundromat owners watched customers take out thousands of dollars' worth of coins from the change machines for use elsewhere (Vanselow 2020). There were even multiple accounts of business owners driving hours, sometimes across state lines, to find available coins (Masunaga 2020; Sell 2020; Siegel 2020b; Tobin 2020). It may not have been a full-blown banking panic like that of

[1]The unbanked do not have access to a checking or savings account at a bank or credit union. Whereas the underbanked have access to an account at a bank or credit union, but also use financial products outside the banking system (e.g., check cashing, payday loans, auto title loans, etc.). Unfortunately, the 2020 FDIC survey did not include updated data for the underbanked.

FIGURE 1
The Flow of Coins Through the Economy



years past, but panic was starting to set in for the people who depend on coins to do business.

Coin Circulation in Context

Under normal circumstances, the circulation of coins in the United States runs smoothly (Figure 1). First, the U.S. Mint gives newly minted coins to the Federal Reserve for distribution. When private banks need additional coins to service businesses and households, they can place an order with one of the 12 regional Federal Reserve banks. The coins are paid for with the banks' reserve accounts. This exchange also doubles as a time for banks to return excess coins to be redistributed and damaged coins to be retired from circulation.[2]

When banks receive coins from the Federal Reserve, they can provide them to businesses for day-to-day operations. Banks also accept surpluses as deposits to be paid out again or, if not needed, returned to the Federal Reserve. Although some businesses primarily receive coins as payment,[3] most businesses store only enough to make change for routine transactions. When these coins enter the pockets of consumers, they are eventually spent, deposited at banks, or exchanged for paper money.[4] Finally, if consumers want

[2] As long as they do not find themselves on any railroad tracks, coins generally remain in circulation for 30 years (U.S. Treasury 2010).

[3] Businesses that primarily receive coins as payment include laundromats, public transportation, car washes, vending machine operators, parking meter supervisors, amusement parks, campgrounds, and arcades.

[4] Coins can be exchanged for paper money at banks, exchange services (i.e., Coinstar), and even most businesses.

additional coins, they can withdraw them from a bank or exchange paper money for coins at most local businesses.

Tracing Causation

The Covid-19 coin shortage had three central causes: (1) the government mandate to shut down businesses; (2) consumer health concerns; and (3) the U.S. mint shutdown. The government mandate to shut down businesses reduced both the paths in which coins could travel and the number of transactions that would prompt the need for coins to travel in the first place.[5] The distinction is subtle, but important. When the lockdown began, it fractured the paths between the participants in the system.[6] By fracturing those paths, the mandate also reduced the number of potential transactions. If the paths were reduced, but the number of transactions were held constant, the coins would have been funneled—an effect which would have maintained circulation. In that case, any shortage could be mended by minting and distributing additional coins.

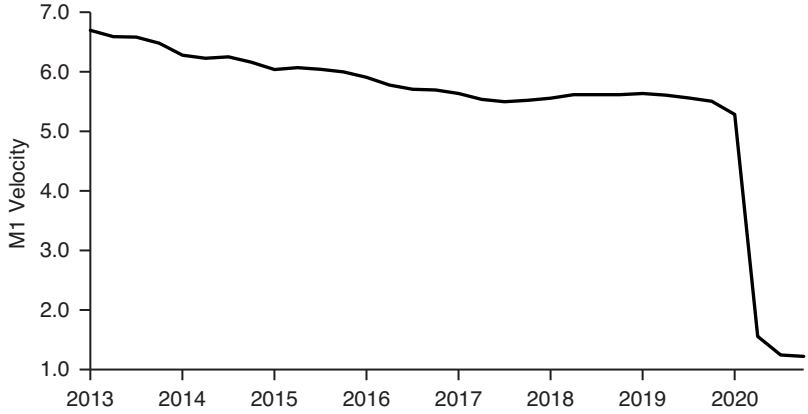
However, people do not commit to a set number of transactions per period. Rather, they desire a unique basket of goods and services, which changes with income and preferences. People who spend $42 in cash on a burger, a t-shirt, and a haircut will not suddenly spend $42 on burgers alone when the clothing store and barber shop are ordered to close. Instead, it is more likely that they will continue to purchase burgers but save the rest of their money. In other words, if the system is flooded with coins, those coins will be destined for coffee cans and old jars.

The change in consumer spending is evident in the velocity of M1, which measures the circulation of coins as well as Federal Reserve notes, demand deposits, traveler's checks, and other checkable deposits. Although the velocity of M1 has been slowly declining for years, the crash in 2020 was the most severe decline on record (Figure 2).

[5] The efficacy of the shutdown is a topic that has been widely debated; however, it is beyond the scope of this article.

[6] In the interest of clarity, the paths were not severed entirely. Coins were able to travel, but only on a fraction of the prepandemic paths (hence, the paths were "fractured").

FIGURE 2
Collapse in the Velocity of M1



Note: M1 velocity = nominal income/M1. The velocity of money is the rate at which money is exchanged, and it varies inversely with the demand to hold money.
Source: Federal Reserve Bank of St. Louis.

Health concerns also constituted a portion of the free fall in Figure 2. People were confronted by a swarm of warnings as Covid-19 began to spread across the world.[7] First, the World Health Organization announced that Covid-19 might be spreading through cash transactions (Pietsch 2020). Then, the National Institutes of Health (2020) announced that Covid-19 can survive on metal surfaces (e.g., coins) for extended periods of time. Finally, the U.S. Centers for Disease Control (2020) recommended that stores switch to touchless payment options. The overall message from the

[7]Warnings in addition to those mentioned here likely had additional effects. Furthermore, misinformation on the internet likely played a role. However, it is unclear if misinformation was a positive or negative effect. Misinformation could either inspire "unnecessary" precautions or undermine credibility. To understand the net effect will require extensive surveying but will be an important topic for future study.

health experts was clear, and people heard it: "cash is dangerous."[8] Even a year after Covid-19 first appeared, 24 percent of those surveyed on the topic of touchless payments said they were waiting for a vaccine to be widely available before returning to prepandemic payment methods (Visa 2021).[9]

Like warnings against using cash, statewide orders to shelter in place were a jarring departure from the prepandemic world.[10] These orders also decreased cash transactions by discouraging people from patronizing the few businesses that were permitted to remain open: the order convinced many that even a mundane trip to the store could lead to infection. And those who did take the risk opted for digital payments to avoid spending extra time counting out change within close quarters of cashiers and other patrons.[11]

Cash transactions were further reduced when people took advantage of delivery services (e.g., Amazon, Grubhub, Uber Eats) as quasi "health services" (Semuels 2020; Sumagaysay 2020).[12] Therefore, transactions that may have still been in person (and accomplished using cash) were instead conducted digitally. Even tipping, traditionally paid in cash, became digital after "contactless delivery" was introduced (Papa John's 2020).

Finally, to protect its employees, the U.S. Mint chose to reduce production (Federal Reserve Board 2020a).[13] The U.S. Mint's

[8] Aaron Klein (2020) was an early critic to point out the questionable nature of credit cards being a safe alternative considering all patrons share the same pen to sign for their purchase.

[9] As late as May 2021, business were still declining cash due to safety concerns (Gladstein 2021).

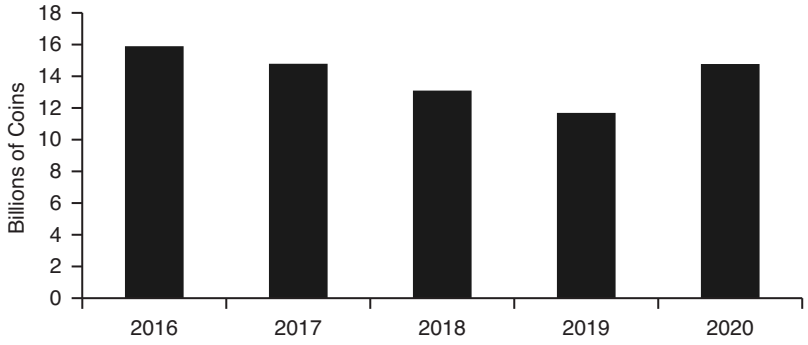
[10] For a description of each state's response, see Mervosh, Lu, and Swales (2020).

[11] In hindsight, it may appear to be a good thing that consumers were avoiding coins. As will be discussed in the next section, discouraging the use of coins can be helpful if there is a shortage. However, hindsight is often 20/20. At this early stage of the Covid-19 coin shortage, businesses did not know what was still to come. Businesses were still trying to pick up routine orders from the banks in order to maintain their inventories with what they have needed in the past (Goulding 2020a; Smialek and Rappeport 2020). Yet in doing so, they were inadvertently removing coins from circulation because consumers were not taking them.

[12] Fees that were once paid to receive the mere convenience of having goods delivered were suddenly viewed as fees paid to avoid potential exposure to the virus.

[13] Annual coin production has been consistently declining for years. And, although 2020 production continued this annual decline by beginning the first quarter at a lower level relative to the first quarter of 2019, production was reduced below trend in March.

FIGURE 3
U.S. MINT COIN PRODUCTION 2016–2020



SOURCES: Unser (2020); U.S. Mint (2020a).

decision alone would not have been enough to initiate the shortage. But the reduction did worsen the situation. Consumers and businesses were using coins at a fraction of their prepandemic practice, and now banks were receiving fewer coins from the government.[14]

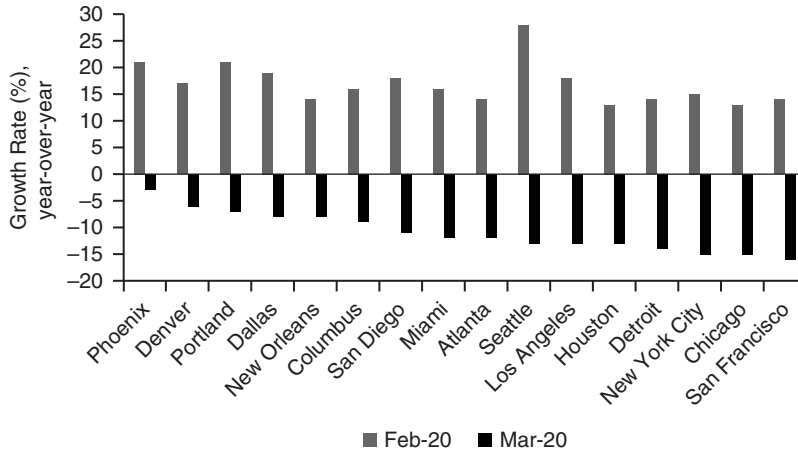
Responses: Public and Private

The official response from the U.S. government came in the form of a three-step plan. First, the U.S. Mint announced that it would reallocate coins through a "strategic rationing program" (Federal Reserve Board 2020a). The rationing was based on historical order volume and U.S. Mint production levels. Second, the U.S. Mint brought workers back to mint coins around the clock, and ultimately increased production to the highest it had been since 2017 (Figure 3; Prior 2021; Unser 2020). Third, the Federal Reserve Board (2020b, 2020c) convened a U.S. Coin Task Force to monitor how the situation developed.[15]

[14] Across the country, banks were receiving between 40 percent (Smialek and Rappeport 2020) and 50 percent (Goulding 2020a) of their usual weekly coin orders.

[15] The U.S. Coin Task Force included representatives from the U.S. Mint, Federal Reserve, Armored Carriers, American Bankers Association, Independent Community Banks Association, National Association of Federal Credit Unions, Coin Aggregators, and Retail Trade Industry.

FIGURE 4
Change in Local Commerce by City



Source: Farrell et al. (2020).

However, there is no evidence that the plan took the novel nature of Covid-19 into account. This oversight is concerning because, although the impact of the virus was widespread, it did not affect all areas equally. In an early survey of the impact of Covid-19 on local commerce, Farrell et al. (2020) found that changes in local consumer spending varied by nearly 20 percent when comparing major U.S. cities (Figure 4). And, although local commerce is not a perfect proxy for local coin circulation, a more effective response would have recognized this disparity and taken it into account when allocating newly minted coins.

In the hope that it would "#GetCoinMoving," the U.S. Mint followed its strategic rationing program with a request for spare change. Both press releases and a social media campaign were used to promote the idea of paying with exact change, depositing coins at local banks, and exchanging coins at kiosks (Crawford 2020; U.S. Mint 2020b, 2020c; U.S. Treasury 2020).

In the private sector response, three general trends emerged throughout the country. Some businesses paid premiums for coins, others used digital payments alternatives, and others chose to discourage coin use entirely.

Once they recognized that a shortage had taken hold, many banks began paying premiums for coins in order to get hold of them. One bank launched a coin buyback program in which it offered a $5 bonus for every $100 worth of coins deposited or exchanged for paper money (Elassar 2020). Another bank offered a chance to win a $250 prize, and some banks waived fees for the use of coin-counting machines (Janey 2020).

Yet, some businesses chose to use nonmonetary incentives. Chick-fil-A offered a free sandwich to anyone who exchanged $5 worth of coins for $5 worth of paper money (Lexington Chamber and Visitors Center 2020). Similarly, 7-11 gave away free drinks (Crawford 2020) and casinos even gave away free slot machine plays to anyone who brought in coins to exchange for paper money (Colonial Downs and Rosies Gaming 2020; Treasure Island 2020).

Though some businesses circumvented the shortage entirely by changing the way they accepted payments, others could not. Rather than incur the cost of continuing to use coins, they invested in alternatives. For example, laundromats began using mobile apps to activate their machines (Vanselow 2020), while other businesses began giving "digital change" through loyalty cards and gift cards (Abril 2020; Chen 2020). A few businesses even went so far as to create a system for customers to scan items and check out virtually (Goulding 2020b).

But not all businesses could afford to pay premiums or change their operations on such short notice. Some instead chose to either ration coins or discourage their use entirely. According to Fadia Patterson (2020), to prevent coins from "walking away," one laundromat went so far as to hire attendants and install cameras to ensure that the coin machines were used only by customers. Further, Megan Vanselow (2020) reported that other businesses charged "convenience fees" on making change. And then some businesses—in an effort to put a positive spin on the perceived loss incurred by those unfamiliar with Swedish rounding[16]—turned

[16] Swedish rounding occurs when the minimum unit of account is smaller than the minimum currency denomination. In countries without pennies or cent pieces, a price is simply rounded to the lowest denomination. For the U.S., abolishing the penny and taking up Swedish rounding would mean rounding everything to the nearest nickel. The price is often perceived as a loss when it rounds up, but it is also equally likely a price will round down. Furthermore, businesses can compete by lowering pricing to account for the rounding.

the issue into an opportunity to raise donations for charity (Janey 2020). However, in the end, the most common approach was a sign that appeared at businesses across the country: "ATTENTION CUSTOMERS: The U.S. is currently experiencing a coin shortage. Please use correct change or other form of tender if possible. We apologize for any inconvenience this may cause."[17]

Evidently, the federal government and private sector had very different approaches to the Covid-19 coin shortage. Although the federal government recognized that the issue at hand was one of coin distribution, its most substantial move was to increase coin production. In contrast, by offering premiums, changing operations, and discouraging coin use, the private sector used a more tailored approach.

Businesses recognized that one of the central issues was that people stopped using coins due to potential health risks. By paying a premium for coins, businesses mitigated the cost of that risk. People who were less concerned about the dangers were able to effectively profit from the jar of coins sitting in their laundry room. Similarly, for the businesses that could not afford to pay a premium to keep doing business with coins, it became clear that digital alternatives offered a new path forward. And, finally, those who could not afford either option moved swiftly to inform the public that they could no longer operate with coins or must do so on a limited basis.

Conclusion

Covid-19 altered almost every facet of the human experience in 2020. However, the coin shortage was not the first coin shortage, and it is unlikely to be the last.[18] So what lessons can we draw from it? First, novel crises require novel responses. The federal government's response failed in this respect. Although coin rationing was rightly based on historical order volume and the U.S. Mint's production levels, there is no sign that the regional effects of Covid-19 and shelter-in-place orders were taken into account (Federal Reserve Board 2020a).

[17] As of April 20, 2021, these signs are still regularly visible.

[18] For reviews of past shortages, see Selgin (2008), Champ (2007), and Federal Reserve Bank of New York (1999).

Second, the government does not act alone in the physical distribution of money. On paper, the government is in charge of money. However, in practice, consumers, businesses, and banks all have a role to play alongside the U.S. Mint and Federal Reserve. Their roles were evident both in the disruption to the circulation of coins and the private sector's response. Greater cooperation between the public and private sectors could have created not only a swifter response but also a more tailored one.

The third, and last, lesson lies in what did not happen. Although history is rife with examples of the private sector stepping in to provide alternative money when official currencies have been in short supply (e.g., Selgin 2008; Champ 2007), that didn't happen here. Why not? The most likely answer is that the U.S. government is not one to tolerate competition. In fact, it has said as much. While investigating the NORFED Liberty Dollar, the U.S. Mint (2006) issued a press release that stated:

> NORFED's "Liberty Dollar" medallions are specifically marketed to be used as current money in order to limit reliance on, and to compete with the circulating coinage of the United States. Consequently, prosecutors with the United States Department of Justice have concluded that the use of NORFED's "Liberty Dollar" medallions violates 18 U.S.C. § 486, and is a crime.

As George Selgin (2009) previously said in response to Argentina's coin shortage in 2009, the solution could be as simple as sanctioning private coins on the condition that acceptance is not mandatory and some minimum capital requirements back the coins. Such a sanction would welcome back the innovations that occurred during past coin shortages and solve the crisis in a way that keeps coins flowing for users who have no alternative.

Whether or not the Covid-19 coin shortage is taken as a learning experience is still to be seen. The private sector has certainly proven itself capable of serving a more active role in the distribution of money. Yet, if nothing else, the Covid-19 coin shortage has been a firm reminder of why it is important not to take the existence of coins for granted. For what might be a nuisance in your pocket one day may just disappear the next.

References

Abril, D. (2020) "Why Is There a Coin Shortage in the U.S.?" *Fortune* (July 18).

Anthony, N. (2020) "COVID's Latest Trick: Making Coins Disappear." Foundation for Economic Education (FEE) (July 20).

Centers for Disease Control (2020) "What Grocery and Food Retail Workers Need to Know About COVID-19." Atlanta, Ga.: CDC (April 13).

Consumer Finance Protection Bureau (CFPB) (2019) "What Types of Fees Do Prepaid Cards Typically Charge?" *Consumer Education* (April 1).

Champ, B. (2007) "Private Money in Our Past, Present, and Future." Federal Reserve Bank of Cleveland *Economic Commentary* (January 1).

Chen, N. (2020) "Coin Shortage Impacts Businesses across the U.S." *9&10 News* (July 10).

Colonial Downs and Rosies Gaming (2020) Twitter post (August 13): https://twitter.com/ColonialRosies/status/1293964325611360256.

Crawford, L. (2020) "Pandemic Causes Coin Shortage across the Country." *News12 Long Island* (July 27).

Elassar, A. (2020) "A Bank Is Paying People to Bring in Their Spare Change to Help Local Businesses amid the Coin Shortage." *CNN* (July 19).

Farrell, D.; Wheat, C.; Ward, M.; and Relihan, L. (2020) "The Early Impact of COVID-19 on Local Commerce." New York: JPMorgan Chase.

Federal Deposit Insurance Corporation (FDIC) (2018) "FDIC National Survey of Unbanked and Underbanked Households." *2017 FDIC Survey.* Washington: FDIC.

_____ (2020) "How America Banks: Household Use of Banking and Financial Services." *2019 FDIC Survey*. Washington: FDIC.

Federal Reserve Bank of New York (1999) "Shortage of Pennies and Other Coins." *Circular No. 11182* (September 1).

Federal Reserve Board (2020a) "Strategic Allocation of Coin Inventories." *FRB Services* (June 11).

_____ (2020b) "Federal Reserve Convenes U.S. Coin Task Force with Industry Partners." *FRB Services* (June 30).

_____ (2020c) "U.S. Coin Task Force Initial Report and Recommendations." *FRB Services* (July 31).
Gladstein, A. (2021) Twitter post (May 21): https://twitter.com/gladstein/status/1395835550548983808.
Goulding, G. (2020a) "Less Coins Trickling through Area Banks, Businesses." *WTOV9 Fox* (July 7).
_____ (2020b) "End Could Be in Sight for Coin Shortage as Businesses Continue to Adapt." *WTOV9 Fox* (July 27).
Janey, J. (2020) "Coin Shortage Has Some Breaking Open Their Piggy Banks." *Winchestar Star* (July 28).
Klein, A. (2020) Twitter post (March 10): https://twitter.com/Aarondklein/status/1237500733030875144.
Lexington Chamber and Visitors Center (2020) Twitter post (August 11): https://twitter.com/lexingtonsccoc/status/1293198960128139265?s=20.
MacArthur, R. (2020) "Coin Shortage Is a Real Issue." *Cape Gazette* (August 21).
Masunaga, S. (2020) "Free Drinks, Store Credit and Cries for Help: How We're Handling the Coin Shortage." *Los Angeles Times* (July 30).
Mervosh, S.; Lu, D.; and Swales, V. (2020) "See Which States and Cities Have Told Residents to Stay at Home." *New York Times* (April 20).
National Institutes of Health (2020) "New Coronavirus Stable for Hours on Surfaces." NIH News Release (March 17). Available at www.nih.gov/news-events/news-releases/new-coronavirus-stable-hours-surfaces.
Papa John's (2020) "No Contact Delivery from Papa John's." Available at www.papajohns.com/no-contact-delivery.
Patterson, F. (2020) "How WNY Laundromats Are Managing to Avoid the Coin Shortage." *Spectrum News* (July 27).
Pietsch, B. (2020) "Cash Could Be Spreading the Coronavirus, Warns the World Health Organization." *Business Insider* (March 5).
Prior, J. (2021) "Coin Shortage Eases As U.S. Ramps Up Production." *American Banker* (January 10).
Selgin, G. (2008) *Good Money: Birmingham Button Makers, the Royal Mint, and the Beginnings of Modern Coinage, 1775–1821*. Ann Arbor: University of Michigan Press.

_____ (2009) "Argentina is Short of Cash–Literally." *Wall Street Journal* (January 5).
Sell, S. (2020) "Coin Shortage Hits Retailers, Laundromats, Tooth Fairy." *Associated Press* (August 18).
Semuels, A. (2020) "Many Companies Won't Survive the Pandemic. Amazon Will Emerge Stronger Than Ever." *Time* (July 28).
Siegel, R. (2020a) "Hang on to Your Nickels and Dimes, the Pandemic Has Created a Coin Shortage." *Washington Post* (June 17).
_____ (2020b) "A Penny Pinch: How America Feel into a Great Coin Shortage." *Washington Post* (September 1).
Smialek, J., and Rappeport, A. (2020) "A Penny for Your Thoughts Could Be a Lot Harder to Find." *New York Times* (June 25).
Smith, K. A. (2020) "Is There Really a Coin Shortage?" *Forbes* (July 20).
Sumagaysay, L. (2020) "The Pandemic Has More Than Doubled Food-Delivery Apps' Business. Now What?" *MarketWatch* (November 25).
Tobin, M. (2020) "Coin Shortages Are Causing a Liquidity Crisis at Laundromats." *Bloomberg Businessweek* (August 1).
Treasure Island (2020) Twitter post (August 16): https://twitter.com/ticasino/status/1295043908381089792?s=20.
Unser, M. (2019) "U.S. Mint Produces 11.9 Billion Coins for Circulation in 2019." *CoinNews* (January 31).
_____ (2020) "U.S. Mint Produces 14.77 Billion Coins for Circulation in 2020." *CoinNews* (January 22).
U.S. Coin Task Force (2021) "#GetCoinMoving." Available at https://getcoinmoving.org.
U.S. Mint (2006) "Liberty Dollars Not Legal Tender, United States Mint Warns Consumers." Press Release (September 14).
_____ (2020a) "Circulating Coins Production." Available at www.usmint.gov/about/production-sales-figures/circulating-coins-production.
_____ (2020b) Twitter post (August 27): https://twitter.com/usmint/status/1299041998742134786?s=20.
_____ (2020c) "U.S. Mint Public Service Announcement." Available at www.youtube.com/watch?v=pWbGMmlniCw&ab_channel=USMINT.

U.S. Treasury (2010) "Production and Circulation." Available at www.treasury.gov/resource-center/faqs/Coins/Pages/edu_faq_coins_production.aspx#.

_____ (2020) Twitter post (August 6): https://twitter.com/USTreasury/status/1291406310207033350.

Vanselow, M. (2020) "Got Some Spare Change? Maybe Not as Coin Shortage Grows." *KWTX* (July 27).

Visa (2021) "The Visa Back to Business Study." *2021 Outlook*. Available at https://usa.visa.com/dam/VCOM/blogs/visa-back-to-business-study-jan21.pdf.