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U.S. COINS

Benefits and Considerations
for Replacing the \$1 Note
with a \$1 Coin

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Highlights of [GAO-13-164T](#), a testimony before the Subcommittee on Domestic Monetary Policy and Technology, Committee on Financial Services, House of Representatives

Why GAO Did This Study

Since coins are more durable than notes and do not need replacement as often, many countries have replaced lower-denomination notes with coins to obtain a financial benefit, among other reasons. Six times over the past 22 years, GAO has reported that replacing the \$1 note with a \$1 coin would provide a net benefit to the federal government of hundreds of millions of dollars annually.

This testimony provides information on what GAO's most recent work in 2011 and 2012 found regarding (1) the net benefit to the government of replacing the \$1 note with a \$1 coin, (2) stakeholder views on considerations for the private sector and the public in making such a replacement, and (3) the experiences of other countries in replacing small-denomination notes with coins. This testimony is based on previous GAO reports. To perform that work, GAO constructed an economic model to assess the net benefit to the government. GAO also interviewed officials from the Federal Reserve and Treasury Department, currency experts, officials from Canada and the United Kingdom, and representatives of U.S. industries that could be affected by currency changes.

What GAO Recommends

GAO has recommended in prior work that Congress replace the \$1 note with a \$1 coin. GAO continues to believe that replacing the \$1 note with a coin is likely to provide a financial benefit to the federal government if the note is eliminated and negative public reaction is effectively managed through stakeholder outreach and public education.

View [GAO-13-164T](#). For more information, contact Lorelei St.James at (202) 512-2834 or stjamesl@gao.gov.

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U.S. COINS

Benefits and Considerations for Replacing the \$1 Note with a \$1 Coin

What GAO Found

GAO reported in February 2012 that replacing \$1 notes with \$1 coins could potentially provide \$4.4 billion in net benefits to the federal government over 30 years. The overall net benefit was due solely to increased *seigniorage* and not to reduced production costs. *Seigniorage* is the difference between the cost of producing coins or notes and their face value; it reduces government borrowing and interest costs, resulting in a financial benefit to the government. GAO's estimate takes into account processing and production changes that occurred in 2011, including the Federal Reserve's use of new equipment to determine the quality and authenticity of notes, which has increased the expected life of the note thereby reducing the costs of circulating a note over 30 years. (The \$1 note is expected to last 4.7 years and the \$1 coin 30 years.) Like all estimates, there are uncertainties surrounding GAO's estimate, especially since the costs of the replacement occur in the first several years and can be estimated with more certainty than the benefits, which are less certain because they occur further in the future. Moreover, changes to the inputs and assumptions GAO used in the estimate could significantly increase or decrease the results. For example, if the public relies more heavily on electronic payments in the future, the demand for cash could be lower than GAO estimated and, as a result, the net benefit would be lower.

In March 2011, GAO identified potential shorter- and longer-term costs to the private sector that could result from the replacement of the \$1 note with a \$1 coin. Industry stakeholders indicated that they would initially incur costs to modify equipment and add storage and that later their costs to process and transport coins would increase. However, others, such as some transit agencies, have already made the transition to accept \$1 coins and would not incur such costs. In addition, for such a replacement to be successful, the \$1 coin would have to be widely accepted and used by the public. Nationwide opinion polls over the last decade have indicated lack of public acceptance of the \$1 coin. Efforts to increase the circulation and public acceptance of the \$1 coins have not succeeded, in part, because the \$1 note has remained in circulation.

Over the last 48 years, many countries, including Canada and the United Kingdom, have replaced low denomination notes with coins because of expected cost savings, among other reasons. The Canadian government, for example, saved \$450 million (Canadian) over 5 years by converting to the \$1 coin. Canada and the United Kingdom found that stopping production of the note combined with stakeholder outreach and public education were important to overcome public resistance, which dissipated within a few years after transitioning to the low denomination coins.

Chairman Paul, Ranking Member Clay, and Members of the Subcommittee:

I am pleased to be here today to participate in your hearing that examines the potential savings from replacing the \$1 note with the \$1 coin. GAO has reported six times over the last 22 years that replacing the \$1 note with the \$1 coin would result in net financial benefits to the government of hundreds of millions of dollars annually.¹

In our prior reports, we recommended that Congress proceed with replacing the \$1 note with the \$1 coin. We continue to believe that replacing the note with a coin is likely to provide a financial benefit to the government if the note is eliminated and negative public reaction is effectively managed through stakeholder outreach and public education. However, we realize that replacing the \$1 note with the \$1 coin is controversial. We have previously reported on public opposition to using the \$1 coin and the challenges that private businesses such as vending machine owners would face if such a transition were undertaken. Several foreign countries have already transitioned from small note denominations to coins, for a number of reasons, including the greater durability of coins and inflationary pressures.

My statement today addresses (1) our most recent estimates of the net financial benefit from replacing the \$1 note with a \$1 coin, (2) the long-standing public and private sector considerations of such a replacement, and (3) the experiences of other countries with replacing currency. This statement is based primarily on our most recent reports issued in March 2011 and February 2012. For our March 2011 report, to estimate the net financial benefit to the government, we constructed an economic model with data from the Federal Reserve, and the Department of the Treasury's (Treasury Department) Bureau of Engraving and Printing and

¹GAO, *National Coinage Proposals: Limited Public Demand for New Dollar Coin or Elimination of Pennies*, [GAO/GGD-90-88](#) (Washington, D.C.: May 23, 1990); GAO, *1-Dollar Coin: Reintroduction Could Save Millions If Properly Managed*, [GAO/GGD-93-56](#) (Washington, D.C.: Mar. 11, 1993); GAO, *Dollar Coin Could Save Millions*, [GAO/T-GGD-95-203](#) (Washington, D.C.: July 13, 1995); GAO, *Financial Impact of Issuing the New \$1 Coin*, [GAO/GGD-00-111R](#) (Washington, D.C.: Apr. 7, 2000); GAO, *U.S. Coins: Replacing the \$1 Note with a \$1 Coin Would Provide a Financial Benefit to the Government*, [GAO-11-281](#) (Washington, D.C.: Mar. 4, 2011); and GAO, *U.S. Coins: Alternate Scenarios Suggest Different Benefits and Losses from Replacing the \$1 Note with a \$1 Coin*, [GAO-12-307](#) (Washington, D.C.: Feb. 15, 2012).

the United States Mint (Mint). We interviewed government officials from Canada and the United Kingdom to obtain information about their experiences with replacing notes with coins and used the information to develop some of the assumptions used in our model. To determine the effects such a replacement would have on the public and on private business, we identified and interviewed officials from industries and organizations that could be affected by currency changes. For our February 2012 report, we updated our model to reflect actions taken by the Federal Reserve and the Treasury Department. In its most basic form, the model measures the difference between the status quo scenario—where \$1 coins are available, but \$1 notes predominate—and an alternative replacement scenario in which the \$1 note is replaced with the \$1 coin, the \$1 notes are phased out, and \$1 coins are produced and issued into circulation at a rate to match the way the public uses coins. Although we recognize that such a replacement would have benefits and costs for the public and for private businesses, the model was designed to estimate the net benefit and costs solely to the federal government and did not quantify the effects on the public or on private business. More detailed information on our objectives, scope, and methodology for this work can be found in the issued reports.² We conducted the work on which this statement is based in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Potential Benefits from Replacing the \$1 Note with the \$1 Coin

In February 2012, we reported that the increased *seigniorage* resulting from replacing \$1 notes with \$1 coins could potentially offer \$4.4 billion in net benefits to the government over 30 years. We determined that seigniorage was the sole source of the net benefits and not lower production costs due to switching to the coin, which lasts much longer than a note. *Seigniorage* is the financial gain the federal government realizes when it issues notes or coins because both forms of currency usually cost less to produce than their face value. This gain equals the difference between the face value of currency and its costs of production, which reflects a financial transfer to the federal government because it

²[GAO-11-281](#) and [GAO-12-307](#).

reduces the government's need to raise revenues through borrowing.³ With less borrowing, the government pays less interest over time, resulting in a financial benefit.⁴

The replacement scenario of our 2012 estimate assumed the production of \$1 notes would stop immediately followed by a 4-year transition period during which worn and unfit \$1 notes would gradually be removed from circulation. Based on information provided by the Mint, we also assumed that the Mint would convert existing equipment to increase its production capability for \$1 coins during the first year and that it would take 4 years for the Mint to produce enough coins to replace the currently outstanding \$1 notes. Our assumptions covered a range of factors, but key among these was a replacement ratio of 1.5 coins to 1 note to take into consideration the fact that coins circulate with less frequency than notes and therefore a larger number are required in circulation. Other key assumptions included the expected rate of growth in the demand for currency over 30 years, the costs of producing and processing both coins and notes, and the differential life spans of coins and notes. We projected our analyses over 30 years to be consistent with previous GAO analyses and because that period roughly coincides with the life expectancy of the \$1 coin.

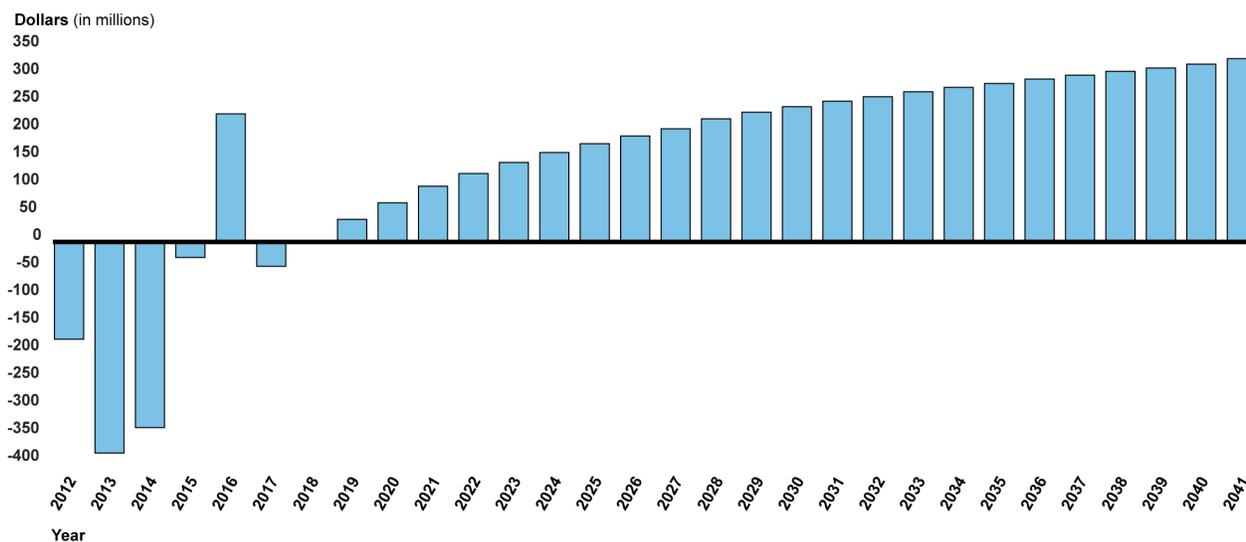
As shown in figure 1, we found that the net benefit accruing each year varied considerably over the 30 years. More specifically, across the first 10 years of our 30-year analysis, replacing the \$1 note with a \$1 coin would result in a \$531 million net loss or approximately \$53 million per year in net loss to the government. The early net loss would be due in part to the up-front costs to the Mint of increasing its coin production

³Traditionally, *seigniorage* is defined as the difference between the face value of coins and their cost of production. As long as there is public demand, the government creates this net value when it puts coins into circulation. Similarly, when the government issues notes, it creates an analogous net value, equal to the face value of the notes less their production costs. In this statement, we use the term *seigniorage* to refer to the value created from the issuance of both coins and notes.

⁴Some observers have stated that seigniorage essentially represents a tax on the public. The gains to the federal government through increased seigniorage occur because as \$1 notes are replaced by \$1 coins, the public will choose to hold more of their wealth in cash, thus providing a transfer to the federal government. Thus, the financial benefit to the federal government comes at a cost to the public, and there is not a net gain to society from increased seigniorage. However, this transfer occurs as a result of voluntary changes in how people are choosing to hold their wealth, which is different than in the case of a tax, which is a mandated transfer to the government.

during the transition, together with the limited interest expense the government would avoid in the first few years after replacement began.⁵

Figure 1: Discounted Net Benefit to the Government of Replacing the \$1 Note with a \$1 Coin



Source: GAO analysis.

This estimate differs from our 2011 estimate, which found that replacement would result in a net benefit of about \$5.5 billion over 30 years (an average of about \$184 million per year) because the 2012 estimate takes into account two key actions that occurred since our 2011 report, specifically:

- In April 2011, the Federal Reserve began using new equipment to process notes, which has increased the expected life of the \$1 note to an average of 56 months (or 4.7 years), according to the Federal Reserve, compared with the 40 months we used in our 2011

⁵The large net benefit in 2016 would occur because we assume that the Mint's production at maximum capacity during the 4-year transition period would lead to some overproduction and thus production would drop dramatically in 2016. Because of the far lower coin production costs, the net benefit to the government would temporarily spike in that year.

analysis.⁶ The longer note life reduces the costs of circulating a note over 30 years and thus reduces the expected net benefits of replacing the \$1 note with a \$1 coin.

- In December 2011, the Treasury Department announced that it would take steps to eliminate the overproduction of dollar coins by relying on the approximately 1.4 billion \$1 coins stored with the Federal Reserve as of September 30, 2011, to meet the relatively small transactional demand for dollar coins. This new policy would reduce the cost associated with producing \$1 coins that we estimated in the status quo scenario and, therefore, would reduce the net benefit, which is the difference in the estimated costs between the status quo scenario and the replacement scenario.

However, like all estimates, there are uncertainties involved in developing these analyses. In particular, while the up-front costs to the Mint of increasing its coin production during the transition is reasonably certain—in large part because it is closer in time—the longer-term benefits, particularly those occurring in the later years, involve greater uncertainty because of unforeseen circumstances that could occur farther into the future. Nonetheless, looking at a longer time period allows for trends to be seen.

Moreover, changes to the inputs and assumptions used in our analysis could significantly change the estimated net benefit. For example, in 2011, we compared our status quo scenario to an alternative scenario in which the growing use of electronic payments—such as making payments with a cell phone—results in a lower demand for cash and lower net benefit. If Americans come to rely more heavily on electronic payments, the demand for cash could grow more slowly than we assumed or even decrease. By reducing the public's demand for \$1 currency by 20 percent in this alternative scenario, we found that the net benefit to the government would decrease to about \$3.4 billion over 30 years.⁷

⁶When notes are returned by commercial banks as deposits to the Federal Reserve, each note is processed to determine its quality and authenticity. During processing, worn and counterfeit notes are removed from circulation and the rest are wrapped for storage or re-circulation.

⁷We did not have any evidence to suggest how much demand might transfer to electronic use, but a 20 percent transfer to electronic use would appear to be a reasonably substantial change in the public's use of money. The actual number, however, could be higher or lower.

In another scenario, we reported in 2012 that if interest savings because of seigniorage were not considered, a net loss of approximately \$1.8 billion would accrue during the first 10 years for an average cost of \$179 million per year—or \$2.8 billion net loss over 30 years. While this scenario suggests that there would be no net benefits from switching to a \$1 coin, we believe that the interest savings related to seigniorage, which is a result of issuing currency, cannot be set aside because the interest savings reflects a monetary benefit to the government.

Our estimates of the discounted net benefit to the government of replacing the \$1 note with a \$1 coin differ from the method that the Congressional Budget Office (CBO) would use to calculate the impact on the budget of the same replacement. In the mid-1990s, CBO made such an estimate and noted that its findings for government savings were lower than our estimates at that time because of key differences in the two analyses. Most important, budget scorekeeping conventions do not factor in gains in seigniorage in calculating budget deficits.⁸ Thus, the interest expense avoided in future years by reducing borrowing needs, which accounts for our estimate of net benefit to the government, would not be part of a CBO budget-scoring analysis. Additionally, CBO's time horizon for analyzing the budget impact is up to 10 years—a much shorter time horizon than we use in our recent analyses.

Considerations Moving Forward

Two factors merit consideration moving forward. The first factor is the effect of a currency change on the private sector. Our 2011 and 2012 reports considered only the fiscal effect on the government. Because we found no quantitative estimates that could be evaluated or modeled, our estimate did not consider factors such as the broader societal impact of replacing the \$1 note with a \$1 coin or attempt to quantify the costs to the private sector. Based on our interviews with stakeholders representing a variety of cash-intensive industries, we believe that the costs and benefits to the private sector should be carefully weighed since some costs could be substantial. In 2011 we reported that stakeholders identified potential shorter- and longer-term costs that would likely result from the replacement. Specifically, shorter-term costs would be those costs involved in adapting to the transition such as modifying vending

⁸*Budget scorekeeping* is the process of estimating the budgetary effects of pending and enacted legislation and comparing them with limits set in the budget resolution or legislation.

machines, cash-register drawers, and night-depository equipment to accept \$1 coins. Such costs would also include the need to purchase or adapt the processing equipment that businesses may need, such as coin-counting and coin-wrapping machines. Longer-term costs would be those costs that would permanently increase the cost of doing business, such as the increased transportation and storage costs for the heavier and more voluminous coins as compared to notes, and processing costs. These costs would likely be passed on to the customer and the public at large through, for example, higher prices or fees. Most stakeholders we interviewed said, however, that they could not easily quantify the magnitude of these costs, and the majority indicated that they would need 1 to 2 years to make the transition from \$1 notes to \$1 coins.

In contrast to the stakeholders who said that a replacement would mean higher costs for their businesses, stakeholders from the vending machine industry and public transit said that the changeover might have only a minimal impact on them. For example, according to officials from the National Automatic Merchandising Association, an organization representing the food and refreshment vending industry, many of its members have already modified their vending machines to accept all forms of payment, including \$1 coins. In addition, according to transit industry officials, the impact on the transit industry would be minimal since transit agencies that receive federal funds were required under the Presidential \$1 Coin Act of 2005 to accept and distribute \$1 coins.

The second factor that merits consideration is public acceptance. Our 2012 estimate assumes that the \$1 coin would be widely accepted and used by the public. In 2002, we conducted a nationwide public opinion survey, and we found that the public was not using the \$1 coin because people were familiar with the \$1 note, the \$1 coin was not widely available, and people did not want to carry more coins. However, when respondents were told that such a replacement would save the government about half a billion dollars a year (our 2000 estimate), the proportion who said they opposed elimination of the note dropped from 64 percent to 37 percent. Yet, two more recent national-survey results suggest that opposition to eliminating the \$1 note persists. For example, according to a Gallup poll conducted in 2006, 79 percent of respondents were opposed to replacing \$1 notes with \$1 coins, and their opposition decreased only slightly, to 64 percent, when they were asked to assume that a replacement would result in half a billion dollars in government savings each year. We have noted in past reports that efforts to increase the circulation and public acceptance of the \$1 coins—such as changes

to the color of the \$1 coin and new coin designs—have not succeeded, in part, because the \$1 note has remained in circulation.⁹

Experiences of Other Countries

Over the last 48 years, Australia, Canada, France, Japan, the Netherlands, New Zealand, Norway, Russia, Spain, and the United Kingdom, among others, have replaced lower-denomination notes with coins. The rationales for replacing notes with coins cited by foreign government officials and experts include the cost savings to governments derived from lower production costs and the decline over time of the purchasing power of currency because of inflation.¹⁰ For example, Canada replaced its \$1 and \$2 notes with coins in 1987 and 1996, respectively. Canadian officials determined that the conversion to the \$1 coin saved the Canadian government \$450 million (Canadian) between 1987 and 1991 because it no longer had to regularly replace worn out \$1 notes. However, Canadian \$1 notes did not last as long as \$1 notes in the United States currently do.

Stopping production of the note and actions to overcome public resistance have been important in Canada and the United Kingdom as the governments transitioned from a note to a coin. While observing that the public was resistant at first, Canadian and United Kingdom officials said that with the combination of stakeholder outreach, public relations efforts, and ending production and issuance of the notes, public dissatisfaction dissipated within a few years. Canada undertook several efforts to prepare the public and businesses for the transition to the coin. For example, the Royal Canadian Mint reached out to stakeholders in the retail business community to ensure that they were aware of the scope of the change and surveyed public opinion about using coins instead of notes and the perceived impact on consumer transactions. The Canadian Mint also proactively worked with large coin usage industries, such as vending and parking enterprises, to facilitate conversion of their equipment, and conducted a public relations campaign to advise the

⁹[GAO/GGD-90-88](#), [GAO/GGD-93-56](#), and [GAO/GGD-00-111R](#).

¹⁰Lower-denominated currencies tend to be metal based rather than paper based because, among other reasons, these denominations tend to circulate more rapidly than higher denominations. Over time, inflation erodes the purchasing power of any particular denomination of currency. As the real value of a note declines with inflation, its more rapid circulation may wear paper notes more quickly and can make a switch to a coin cost effective.

public of the cost savings that would result from the switch. According to Canadian officials, the \$1 and \$2 coins were the most popular coins in circulation and were heavily used by businesses and the public. In our analysis of replacing the \$1 note with a \$1 coin, we assumed that the U.S. government would conduct a public awareness campaign to inform the public during the first year of the transition and assigned a value of approximately \$7.8 million for that effort.

In addition, some countries have used a transition period to gradually introduce new coins or currency. For example, the United Kingdom issued the £1 coin in April 1983 and continued to simultaneously issue the £1 note until December 1984. Similarly, Canada issued the \$1 coin in 1987 and ceased issuing the \$1 note in 1989.

Concluding Observations

In our prior reports, we recommended that Congress proceed with replacing the \$1 note with the \$1 coin. We continue to believe that the government would receive a financial benefit from making the replacement. However, this finding comes with several caveats. First, the costs are immediate and certain while the benefits are further in the future and more uncertain. The uncertainty comes, in part, from the uncertainty surrounding key assumptions like the future demand for cash. Second, the benefits derive from seigniorage, a transfer from the public, and not a cost-saving change in production. Third, these are benefits to the government and not necessarily to the public at large. In fact, public opinion has consistently been opposed to the \$1 coin. Keeping those caveats in mind, many other countries have successfully replaced low denomination notes with coins, even when initially faced with public opposition.

Chairman Paul, Ranking Member Clay, and members of the Subcommittee, this concludes my prepared statement. I would be pleased to answer any questions at this time.

GAO Contact and Staff Acknowledgements

For further information on this testimony, please contact Lorelei St. James, at (202) 512-2834 or stjamesl@gao.gov. In addition, contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals making key contributions to this testimony include Teresa Spisak (Assistant Director), Lindsay Bach, Amy Abramowitz, Patrick Dudley, and David Hooper.

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