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April 7, 2000

The Honorable Jim Kolbe
Chairman, Subcommittee on Treasury,
Postal Service, and General Government
Committee on Appropriations
House of Representatives

Subject: Financial Impact of Issuing the New \$1 Coin

Dear Mr. Chairman:

This letter responds to your March 1, 2000, request that we estimate the benefits to the government from the issuance of the new \$1 coin. As agreed with your office, the objectives of our review were to estimate government benefits from (1) issuing 1 billion of the new \$1 coins to circulate with the \$1 Federal Reserve notes now issued, and (2) replacing all \$1 Federal Reserve notes now in circulation with \$1 coins.

Over the past decade, we have reported on three occasions on the benefits that might accrue to the government from issuance of a new \$1 coin. In 1990, we estimated that the government could realize annual average benefits of about \$318 million if dollar notes were replaced with dollar coins, and if the dollar coins were widely accepted and used.¹ In 1993, we reported our agreement with a Federal Reserve estimate that the government could save \$395 million per year on average by substituting \$1 coins for the \$1 notes in circulation.² Similarly, in 1995 we reported our agreement with an updated Federal Reserve estimate that the government could save \$456 million per year on average by replacing the \$1 note with a \$1 coin.³ In all three estimates, a Federal Reserve model was used to estimate the average annual savings over a 30-year period, with updated information on the number of notes and coins in circulation and the associated government costs of producing and distributing them.

To expedite this letter, in calculating the government benefits from converting from \$1 notes to \$1 coins, we simplified the Federal Reserve model and did not calculate average annual present value savings over 30 years. Instead, we calculated the average annual benefits by

¹National Coinage Proposals: Limited Public Demand for New Dollar Coin or Elimination of Pennies (GAO/GGD-90-88, May 23, 1990).

²1-Dollar Coin: Reintroduction Could Save Millions if Properly Managed (GAO/GGD-93-56, Mar. 11, 1993).

³A Dollar Coin Could Save Millions (GAO/T-GGD-95-203, July 13, 1995).

using current dollar estimates for 1 year, using the same cost factors and elements used in the model and assuming the coin was fully implemented. Although the approach we used for this letter does not adjust for inflation and the time value of money as do the last three estimates using the Federal Reserve model, we believe our approach provides a reasonable approximation of the magnitude of the benefits that could be achieved.⁴ We obtained current and estimated cost information from the Mint, the Bureau of Engraving and Printing (BEP), and the Federal Reserve System to use in our estimates. It is important to know that, to expedite this letter, we did not verify or change the cost and estimated cost information obtained from the three agencies, except where noted. We requested comments on a draft of this letter from the Federal Reserve Board of Governors, the Deputy Director of the U.S. Mint, and the Director of BEP. Their written comments are discussed near the end of this letter. We conducted our work between March 1 and April 4, 2000, in accordance with generally accepted government auditing standards. Enclosure I provides further details about our objectives, scope, and methodology.

Results in Brief

We estimate that the net benefit to the government of issuing 1 billion \$1 coins this year will be \$49.9 million. According to the Mint, each dollar coin will cost an estimated \$0.12 to produce, leaving about \$880 million in gross proceeds. From gross proceeds, we subtracted \$2.8 million of Mint start-up costs (primarily equipment and alloy testing), \$44.5 million of Mint advertising and promotion costs, and \$0.4 million of Federal Reserve processing costs, for net proceeds of \$832.2 million for 1 year. Although the accounting and budgeting presentations of the net proceeds differ, in substance the \$832.2 million net proceeds represent the amount of debt held by the public that the government will avoid by issuing coins. At the current government long-term borrowing rate of 6 percent, this represents an interest avoidance, or net government benefit, of \$49.9 million this year.

We also estimate that the benefit to the government of replacing all \$1 Federal Reserve notes with \$1 coins would be \$522.2 million per year. We arrived at this calculation by first estimating the net government benefit of issuing \$1 notes only, which is \$225.3 million, and then estimating the net government benefit of issuing \$1 coins only, which is \$747.5 million. The difference is \$522.2 million.

Because \$1 notes last only about 18 months before having to be replaced, the government has to produce about 5 billion of them per year to maintain the pool of 7.5 billion \$1 notes now in circulation. At a per unit production cost of \$0.035, this costs \$175.0 million, and it also costs the Federal Reserve about \$49.7 million to process the \$1 notes each year--for a combined production and processing cost of \$224.7 million. From these costs, we subtracted the amount of interest the government would avoid by issuing the 7.5 billion \$1 notes rather than

⁴For example, in May 1995, Federal Reserve Board Governor Edward W. Kelley, Jr., testified before the House Banking and Financial Services Committee on the government savings from replacing \$1 Federal Reserve notes with \$1 coins. Mr. Kelley estimated that the savings would be \$467 million a year by using an approach similar to the one we used for this report. At that time, Mr. Kelley testified that the results obtained by using the Federal Reserve model that had been used by us and the Federal Reserve in the past were estimated to be \$460 million per year.

Treasury debt, which at the current 6 percent government long-term borrowing rate amounts to \$450 million, for a net benefit from issuing the \$1 notes of \$225.3 million per year.

In contrast, the net benefit to the government of issuing \$1 coins instead of \$1 notes would be \$747.5 million. Although the Mint's estimated cost of producing larger numbers of \$1 coins would be \$0.115 each, over three times as much as the \$0.035 cost to print a \$1 note, coins typically last 30 years before needing replacement. Drawing on the experiences of other countries that have replaced their lowest denomination currency with coins, we estimated that two \$1 coins would be needed to replace every \$1 note now in circulation. The government would have to produce 500 million coins per year over a 30-year period to reach this 15 billion coin level (at current demand levels). At current cost levels, the total annual cost of producing the \$1 coin would be \$57.5 million. To this, we added BEP's estimated \$89.5 million additional cost of printing higher denomination currency (in fiscal year 2000, \$1 note production represented over half of BEP's total production) and \$3.5 million in Mint equipment and advertising costs, for a total \$1 coin production cost of \$150.5 million per year. The Federal Reserve's estimated processing cost for \$1 coins would be \$2.0 million, for a combined production and processing cost of \$152.5 million. From these costs, we subtracted the amount of interest the government would avoid by issuing the 15 billion \$1 coins, which at the 6 percent borrowing rate amounts to \$900 million, for a net annual benefit of issuing \$1 coins of \$747.5 million.

The annual net benefit of issuing \$1 coins, \$747.5 million, thus would be \$522.2 million greater than the net benefit of issuing \$1 notes, which we estimated to be \$225.3 million. Briefly, the \$1 coin would be less costly to the government because (1) production costs for coins are lower over time than for \$1 notes, (2) the government would have lower processing costs with a \$1 coin, and (3) the government would avoid more interest costs because of the higher number of coins than notes held by the public.

Background

BEP prints Federal Reserve notes in its Washington, D.C., and Fort Worth, Texas, facilities. In fiscal year 2000, BEP plans to print 5.2 billion \$1 notes and 3.8 billion higher denomination notes. Generally, \$1 notes last about 18 months before needing replacement, while higher denomination notes last for longer periods, depending on the denomination. The Federal Reserve reimburses BEP for its currency production costs.

The U.S. Mint produces circulating coins at its Denver, CO, and Philadelphia, PA, mints. This year, with the increased demand for the 50 state quarters and the new \$1 coin, the Mint expects to produce about 29 billion coins, including 13-14 billion pennies. The Mint uses a revolving fund for its funding. As coins are delivered to the Federal Reserve, the amount of the face value of the coins increases the funds available in the revolving fund. The Mint pays its costs of coin production from the revolving fund, and surplus funds are transferred to the Treasury.

The Federal Reserve System serves as the nation's central bank and distributes Federal Reserve notes and coins to the banking system. All currency deposited by the banking system in the Federal Reserve is processed by high-speed currency machines, which electronically

check each note for condition and for whether it is counterfeit. As notes wear out, the Federal Reserve replaces them with new notes. Coins are handled differently by the Federal Reserve. Smaller numbers of coins than notes are deposited with the Federal Reserve, and the Federal Reserve accepts only sealed bags of coins. These bags are weighed, but coins are not handled individually as the notes are.

Although the accounting processes and budgetary treatments for currency and coins are different, in substance the issuance of both coins and currency by the government represents an interest-free loan held by the public equal to the face value of the coins and currency. The net benefit to the government is equal to the interest it would have paid by issuing securities to the public in the amount of the face value of the coins and currency, less costs incurred by the Mint, BEP, and the Federal Reserve to produce and process the currency and coins.

For coins, the difference between the face value of the coins issued and the costs of producing them, called “seigniorage,” is transferred to the Treasury and can be used by the government to procure goods and services. However, the value of seigniorage is not reflected in the budget and is not a scorable savings under budget convention rules pursuant to the Budget Enforcement Act.

For currency, the Federal Reserve buys Treasury securities in the face value of Federal Reserve notes issued. The difference between the amount of interest collected by the Federal Reserve on those securities, and its own costs of processing currency plus its payments to BEP for the currency produced, is transferred to the Treasury and can be used by the government to procure goods and services. According to budget convention rules, the value of interest earned by the Federal Reserve is treated as a budgetary receipt.

Because of these differences, we are using the term “government benefit” in this letter and not “budgetary savings.” As is our policy, we would defer to the Congressional Budget Office if the Subcommittee would like an estimate of the budgetary impact of these benefits.

We would also like to reiterate what we have said in the past regarding a successful conversion from the dollar note to a dollar coin. Based on the foreign experiences we have studied, five essential elements would be needed to help ensure a successful conversion: (1) the \$1 note would have to be eliminated, (2) a reasonable transition period would be needed, (3) the \$1 coin would have to be well designed and readily distinguishable from other coins, (4) an adequate public awareness campaign would be needed, and (5) sustained administrative and congressional support would be necessary to withstand an initial negative public reaction to eliminating the \$1 note. With the introduction of the new Sacagawea golden-colored dollar coin, the third essential element appears to have been realized. In addition, the Mint’s current advertising campaign for the new \$1 coin is groundwork for the fourth essential element.

Government Benefit of Issuing 1 Billion \$1 Coins

To estimate the government benefits of issuing 1 billion \$1 coins, we calculated the production and processing costs of the coin and estimated the amount of interest the resulting net proceeds would avoid. We assumed that there would be no change in the

number of \$1 notes in circulation as a result of issuing the coins. As shown in table 1, we estimated that the net benefit of issuing 1 billion \$1 coins would be \$49.9 million.

Table 1: Government Benefit of Producing 1 Billion \$1 Coins

Factor	Amount (in millions)
Gross proceeds from coin production	\$880.0 ^a
Start-up costs for production	2.8 ^b
Advertising and promotion costs	44.5 ^c
Processing costs	0.4 ^d
Net proceeds	832.2 ^e
Net government benefit	\$49.9^f

^a(\$1 face value per coin less \$0.12 Mint production cost) x 1 billion.

^bMint's estimated costs for equipment and alloy development and testing not included in the unit production cost of \$0.12.

^cMint estimate of advertising and promotion costs for 1998-2001.

^dFederal Reserve's \$0.89 unit cost of processing x 500,000 bags of \$1 coins, each containing 2,000 coins.

^eGross proceeds less start-up, advertising, and processing costs.

^fNet proceeds x 30-year Treasury bond rate of 6 percent (as of March 20, 2000).

Source: Mint, BEP, and Federal Reserve data as adjusted by GAO and explained in the table notes.

Government Benefit of Replacing \$1 Notes With \$1 Coins

To estimate the government benefit of replacing all \$1 notes now in circulation with the new \$1 coin, we compared the production and processing costs of, and the interest avoided by, producing \$1 notes with the costs and benefits of producing \$1 coins. As shown in table 2, the coin has a higher net benefit than the note. The \$1 coin's advantage would be \$522.2 million per year, once fully implemented.

Table 2: Annual Government Benefit of Replacing \$1 Notes With \$1 Coins (in millions)

Factor	\$1 Note	\$1 Coin	Difference
Production costs	\$175.0 ^a	\$57.5 ^b	\$117.5
Increased production costs of higher denomination notes	0.0	89.5 ^c	-89.5
Start-up and advertising costs	0.0	3.5 ^d	-3.5
Production cost subtotal	175.0	150.5	24.5
Processing costs	49.7 ^e	2.0 ^f	47.7
Production and processing cost subtotal	224.7	152.5	72.2
Less interest avoided	450.0 ^g	900.0 ^h	-450.0
Net government benefit	\$225.3ⁱ	\$747.5^j	-522.2

^a(Number of \$1 notes now in circulation / life of note) x unit production cost of \$1 note (7.5 billion / 1.5 years. x \$0.035).

^b(Number of \$1 notes now in circulation x 2 / life of coin) x unit production cost of \$1 coin [(7.5 billion x 2) / 30 years x \$0.115].

^cCurrent cost of producing higher denomination notes x increased percentage due to lower volume of BEP production (\$241.9 million x 37 percent).

^dMint's start-up and advertising costs of \$1 coin program / 30 years [\$17.0 million (Mint's estimated start-up costs) + \$89.0 million / 30] Because the Mint did not have an estimate for an advertising campaign for replacing \$1 notes with \$1 coins, we doubled the \$44.5 million current advertising program cost of the \$1 dollar coin program. Mint officials said that even with \$17 million start-up costs, the Mint would need 4-5 years to produce 15 billion \$1 coins.

^eNumber of \$1 notes currently in circulation x number of times \$1 notes are processed each year at Federal Reserve x unit processing cost (7.5 billion x 1.4 x \$4.73 per thousand notes).

^fNumber of \$1 notes currently in circulation x 2 x number of times \$1 coins are processed each year at the Federal Reserve x unit cost (7.5 billion x 2 x 0.3 x \$0.89 per 2,000 coins).

^gFace value of \$1 note in circulation x current 30-year Treasury bond rate (\$7.5 billion x 6 percent).

^hFace value of \$1 coins in circulation x current 30-year Treasury bond rate (\$15.0 billion x 6 percent).

ⁱProduction costs for \$1 note + processing costs for \$1 note less interest avoided for \$1 note (\$175.0 million + \$49.7 million less \$450.0 million).

^jProduction costs for \$1 coin + processing costs for \$1 coin less interest avoided for \$1 coin (\$150.5 million + \$2.0 million less \$900.0 million).

Source: Mint, BEP, and Federal Reserve data as adjusted and explained by GAO in the table notes.

In comparing the government benefit of replacing \$1 notes with \$1 coins, we assumed that each note would be replaced by two coins. We based this assumption on the experiences of other countries that replaced their \$1 note equivalents with coins and had replacement ratios of between 2:1 and 4:1. Several reasons have been offered to explain why more coins are required when they replace notes, including that (1) some people do not use coins and set them aside at the end of the day; (2) merchants are reluctant to deposit surplus coins with banks because of the cost of transporting coins; (3) vending machines require larger inventories of coins; and perhaps to a lesser degree, (4) some people initially hoard new coin issues.

In previous reports, we assumed that 25 percent of the demand for \$1 notes would be met by producing \$2 notes. While the demand for the \$2 denomination might increase, such a demand could be met by either \$2 notes or, if Congress authorized it, a \$2 coin. To simplify the foregoing comparison, we assumed that neither the \$2 note nor the \$2 coin would be produced. If either were produced, the estimated net government benefit would be different.

We also assumed that there would be no change in the public's demand for the quarter. Although it might be expected that, with a new dollar coin, there would be less demand for quarters in vending machines, we had no basis to estimate how that demand would change, especially in view of the current very popular 50 state quarter program.

Further, we assumed that all \$1 notes currently in circulation would be exchanged for \$1 coins and not held by the public. If the public decided to keep some of the \$1 notes beyond the transition period, the net benefit to the government would also be different.

For our calculations, we included only the 7.5 billion \$1 notes in circulation. According to the Federal Reserve, an additional 2.8 billion \$1 notes are on hand at the Federal Reserve and BEP. In past reports, we included only those notes actually circulating because that is how we calculated the replacement ratios experienced by other countries. Including the additional 2.8 billion \$1 notes not in circulation would change the estimated benefit in favor of the \$1 coin substantially.

Another matter brought up by Federal Reserve officials that we did not attempt to quantify concerns the number of \$1 notes held and used in foreign countries. The officials said that some countries, such as Argentina, use the U.S. dollar extensively.⁵ Federal Reserve officials said that because of the weight of \$1 coins and the resulting transportation charges, those countries might decide to decrease their use of the U.S. dollar. If that happened, the number of higher denomination notes circulating abroad might also decrease. Because of the uncertainty of such effects, we did not factor them into the estimate of the net benefit to the government of replacing \$1 notes with \$1 coins.

Agency Comments and Our Evaluation

On March 28, 2000, we requested comments on a draft of this letter from the Chairman of the Board of Governors of the Federal Reserve System, the Deputy Director of the Mint, and the Director of BEP.

On March 31, 2000, the Associate Director (Chief Financial Officer) of BEP commented in writing that our letter realistically identified the benefits to the government over a 30-year period of converting to a \$1 coin. He expressed concern that our amortization of Mint start-up costs over 30 years did not reflect that the Mint would actually incur these costs during the first few years of the program, and that our approach did not take into account the costs associated with the multiyear phase-in of the dollar coin. He said that the consideration of these factors could result in a net cost to the government in the initial years of the conversion effort, instead of a net benefit. We agree with the BEP official's points. As explained earlier, our approach did not attempt to calculate the net benefits of each year of a conversion to a \$1 coin. Rather, our approach gives a reasonable approximation of a typical year. While the initial years of such a conversion would have lower benefits than the "typical" year, the later

⁵ According to the Federal Reserve, over the last 3 years, the Federal Reserve System has shipped on average \$175 million of \$1 notes annually to overseas banks.

years would have higher benefits. We believe our approach balances these extremes and provides reasonable estimates for decisionmaking purposes.

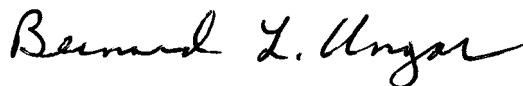
In a letter dated April 3, 2000, the Deputy Director of the Mint commented that the Mint accepted the methodology used in our letter. He emphasized that the Mint's and Department of the Treasury's position was that the new \$1 coin and the \$1 Federal Reserve note should co-circulate in accordance with long-standing policy and the authorizing legislation. This letter does not address the policy considerations surrounding the continued production of \$1 Federal Reserve notes except to point out the foreign experiences we have studied. The Deputy Director also said that, given the current record demand for circulating coins, it would take the Mint 4-5 years to produce 15 billion \$1 coins. We added this information to a note in table 2.

Finally, the Staff Director for Management of the Board of Governors of the Federal Reserve System provided written comments on April 3, 2000. He said that the Board believes that, as important as the budgetary gains would be, convenience and the needs of the public should also weigh heavily in the decision to replace the \$1 Federal Reserve note with a \$1 coin. We agree that nonmonetary factors need to be considered. The Staff Director for Management also provided technical comments, which we incorporated in the letter as appropriate.

We are sending copies of this letter to Representative Steny Hoyer, Ranking Minority Member, Subcommittee on Treasury, Postal Service, and General Government, House Committee on Appropriations; Senator Phil Gramm, Chairman, and Senator Paul Sarbanes, Ranking Minority Member, Senate Committee on Banking, Housing, and Urban Affairs; Representative Spencer Bachus, Chairman, and Representative Maxine Waters, Ranking Minority Member, House Subcommittee on Domestic and International Monetary Policy, House Committee on Banking and Financial Services; the Honorable Alan Greenspan, Chairman of the Board of Governors of the Federal Reserve System; the Honorable Lawrence H. Summers, Secretary of the Treasury; Mr. John P. Mitchell, Deputy Director of the Mint; Mr. Thomas Ferguson, Director of BEP; and other interested parties. We will also make copies available to others upon request.

If you have any questions regarding this letter, please contact me or John Baldwin on (202) 512-8387. Key contributors to this assignment were Lucy Hall and Yesook Merrill.

Sincerely yours,



Bernard L. Ungar
Director, Government Business
Operations Issues

Objectives, Scope, and Methodology

Our objectives were to estimate benefits to the government of (1) issuing 1 billion of the new \$1 coins to circulate with the \$1 Federal Reserve notes now issued, and (2) replacing all \$1 Federal Reserve notes now in circulation with \$1 coins.

We met with and obtained and reviewed information from officials of the Federal Reserve System, the U.S. Mint, and BEP. We obtained cost and volume data on the production and processing of coins and currency in circulation from these agencies, and we reviewed their data. However, because of the time it would have taken, we did not verify the information they provided.

From the Mint, we obtained information on the production cost of the new \$1 coin, estimates of start-up costs for presses and other equipment that would be needed, and advertising and promotion costs of introducing the new \$1 coin. The Mint said that it did not have an estimate for the promotional costs of the option in which the \$1 coin would replace the \$1 note. We assumed that the Mint would spend twice as much as it plans to spend for the 1998-2001 promotional campaign of the new \$1 coin on an advertising campaign for this option.

From the Federal Reserve System, we obtained information on the number of \$1 notes currently in circulation, actual and expected lives of \$1 notes and \$1 coins, actual and expected numbers of times \$1 notes and \$1 coins are processed annually at the Federal Reserve, and actual and estimated processing costs for coins and currency. We also discussed with Federal Reserve officials the possible impact of replacing the \$1 note with a \$1 coin on the use of U.S. currency in foreign countries.

From BEP, we obtained production costs and quantities of currency produced as well as an estimate of how the production costs of higher denomination notes would be affected if the \$1 note were eliminated.

We also reviewed our past products that are cited in this letter and the supporting information used in those products, including the replacement rate of coins to notes experienced in other countries and the elements that are essential for a successful conversion from notes to coins.¹

To estimate the government benefits of replacing notes with coins, we simplified a Federal Reserve model that we and the Federal Reserve have used in the past to estimate average present value savings on an annual

¹ See GAO/GGD-90-88, GAO/GGD-93-56, and GAO/GGD-95-203.

basis over a 30-year period. We chose not to calculate average present value annual savings over this period in order to expedite this letter, and because a similar 1995 analysis by the Federal Reserve using the simplified approach was in reasonable agreement with the more sophisticated 30-year model. Instead, we used an approach that does not adjust for inflation or the time value of money and calculates a typical or average year's government benefit once the \$1 coin is fully implemented. In both cases, the approaches calculate production and processing costs of the government and the interest avoided by the government's issuance of money. For the interest rate used in our calculations, we used the 6 percent 30-year Treasury bond rate, as published in the Wall Street Journal on March 20, 2000.

The specific data and other assumptions that we used to calculate the government benefits are listed in the notes to tables 1 and 2 in the text of this letter.

We did our audit work in March and April 2000 in accordance with generally accepted government auditing standards.

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