United States General Accounting Office

GAO

Report to the Chairman, Subcommittee on Consumer Affairs and Coinage, Committee on Banking, Finance, and Urban Affairs, House of Representatives

May 1990

NATIONAL COINAGE PROPOSALS

Limited Public Demand for New Dollar Coin or Elimination of Pennies

GAO/GGD-90-88

GAO

United States
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The Honorable Richard H. Lehman
Chairman, Subcommittee on Consumer
Affairs and Coinage
Committee on Banking, Finance, and
Urban Affairs
House of Representatives

Dear Mr. Chairman:

In response to your request, we reviewed the proposed changes to the U.S. currency and coinage system set forth by H.R. 1068, H.R. 3761, and S. 814.

This report provides information and analysis to answer specific questions you had regarding the feasibility and effects of replacing the dollar bill with a dollar coin and possibly eliminating the penny and half dollar.

As arranged with the Subcommittee, we are sending copies of this report to other interested congressional committees; the Secretary of the Treasury; the Directors of the Office of Management and Budget, the U.S. Mint, and the Bureau of Engraving and Printing; the Chairman of the Board of Governors of the Federal Reserve System; and other interested parties.

The major contributors to this report are listed in appendix VI. Please contact me on 275-8676 if you have any questions concerning this report.

Sincerely yours,

L. Nye Stevens
Director, Government Business
Operations Issues

Executive Summary

Purpose

Australia, Canada, Japan, and the major countries of Western Europe all now use a coin for retail transactions at the level for which Americans use the paper dollar. While most of these countries have substituted a coin for their paper dollar equivalents in the past 20 years, the American attempt to put the Susan B. Anthony dollar coin into circulation in 1979 was a failure. In considering legislative proposals to mandate a new dollar coin and to phase out the penny and half dollar, the House Banking Subcommittee on Consumer Affairs and Coinage asked GAO to evaluate the potential costs and benefits of the currency revision proposals to the government in light of the Susan B. Anthony and other countries' experiences. (See pp. 11 and 21.)

Background

Two units of the Treasury Department produce Federal Reserve notes and coins, both driven by demand for the various denominations conveyed through the banking system. About 45 percent of the seven billion notes to be printed for the Federal Reserve System by the Treasury's Bureau of Engraving and Printing this year are 1-dollar notes. The average 1-dollar note costs about 2.6 cents to produce and lasts about 1.4 years in circulation before becoming too worn and having to be replaced.

Coins produced by the U.S. Mint are much more durable than bills and last about 30 years in circulation. The penny is the highest volume coin produced by the Mint, accounting for 12.8 billion, or 71 percent, of the 18 billion coins the Mint plans to produce in 1990. The Mint produced 41 million 50-cent coins in 1989, most of them to satisfy demand from casinos.

To evaluate potential government savings of replacing the dollar bill with a dollar coin, GAO adopted a computer model used by the Federal Reserve System and incorporated GAO's assumptions and data on various economic and cost factors. To evaluate acceptability issues, GAO held focus groups with public and private sector individuals who handle cash and interviewed numerous trade and public interest associations, Mint contractors, vending industry, armored car carriers, and others. GAO also discussed the proposals with Treasury, Mint, Bureau of Engraving and Printing, and Federal Reserve officials and reviewed pertinent data they had on the issues. (See pp. 8 to 13.)

Results in Brief

GAO estimates that the government could realize annual budgetary savings of about $318 million (in present value dollars) if it replaced the dollar bill with dollar coins and if the dollar coins were widely accepted

and used. The savings would accrue primarily by reducing production and processing costs and the need to borrow from the public to finance the debt. However, on the basis of the Susan B. Anthony experience, lessons learned from foreign governments that have converted their dollar equivalent notes to coins, and the results of public surveys, GAO believes widespread use would be unlikely unless Congress and the Administration jointly reach, and agree to sustain, an agreement to eliminate the dollar note in the face of a negative public reaction.

There is no comparable economic argument for eliminating either the penny or the half dollar coin. Both are profitable to the government in that their face value exceeds their production and distribution costs. Demand for the penny remains high. While retail trade associations and the public recognize some nuisance aspects of the penny, the problems inherent in rounding off retail transactions to the nearest 5 cents were troubling to many. The European countries that have eliminated their lowest denomination coins all did so because the production costs exceeded their face value.

GAO's Analysis

A Dollar Coin Could Save the Government Millions

Because of the dollar note's limited durability compared to a coin, the government could reduce its production and processing costs by $41 million annually, in present value terms, by replacing the note with a coin. Although the production cost of a dollar coin would be about 6 cents each, more than twice the 2.6 cent production cost of a dollar note, the coin would last about 20 times longer in circulation and be less costly in the long term.

A second major savings component would be the interest that Treasury would not have to pay because of the seigniorage earned with a dollar coin. Seigniorage, or the difference between a coin's face value and its production costs, would be 94 cents for each dollar coin produced. This amount would increase the Treasury's checking deposit at the Federal Reserve, thereby reducing the need to borrow to finance the government's debt. The avoided borrowing would reduce annual interest costs and the deficit by $461 million.

The savings from coin production and processing and the interest saved from seigniorage would be offset by the initial outlays for the transition

to coins, which would average about $593,000 annually, and reduced Federal Reserve portfolio interest earnings from the elimination of the dollar note, which would average about $177 million annually. The reduced interest earnings would result because the difference between the face value of notes and their production cost and a portion of the Federal Reserve's operating costs is currently used to purchase Treasury securities, and earnings from these securities are returned to the Treasury. Thus if notes are withdrawn, the Federal Reserve's interest earnings would also decrease. Further, the Mint would need an average of $7 million annually for its increased production costs. The net effect on the budget position of the United States, after considering the various savings and offsets, would be an estimated net savings of $318 million annually in present value dollars. (See pp. 14 to 17.)

Major Obstacles Would Need to Be Overcome

Projected savings figures are dependent on wide acceptance of the dollar coin and substitution of it for the dollar note in the economy. GAO's interviews with general public and specialized focus groups indicated that public reaction would be skeptical. These groups uniformly believed that if a dollar coin and a dollar note were both available, the public would choose to use the note.

One of the major reasons for failure of the Susan B. Anthony coin stemmed from public and congressional opposition to elimination of the dollar note. In addition, the similarity of that coin to a quarter dollar and the lack of an effective promotion effort contributed to its lack of acceptance.

The primary obstacle to a new dollar coin would be the difficulty Congress and the Administration would have reaching and sustaining an agreement to impose the coin on the public by eliminating the dollar bill. Less formidable obstacles would be difficulties in producing a coin readily distinguishable from a quarter but still acceptable to the vending industry, producing sufficient quantities to meet demand in a reasonably short transition period, and obtaining funding for a sophisticated public awareness campaign. (See pp. 17 to 21.)

Foreign Countries Have Converted Successfully

GAO contacted five European countries and Canada, which converted low denomination currency to coinage in recent years. All reported public opposition and noted that elimination of the paper equivalent was essential because the public would not use a coin if it had a choice.

These countries, however, generally have parliamentary forms of government that make it easier to impose unpopular changes on the public than does the separated and less disciplined American political system. (See pp. 21 to 23.)

No Compelling Reason to Eliminate Penny or Half Dollar

Although the penny has fallen to about one-seventh of its original 1792 value due to inflation, and is considered by some to be a nuisance, demand for it is strong. Consumers are skeptical that rounding would not disadvantage them, particularly the poor, who are most dependent on small retail transactions. In addition, pennies are still profitable for the government, costing about seven-tenths of a cent to produce and distribute.

Countries GAO identified that have eliminated their low denomination coins did so when production costs exceeded the coins' face value. Other countries chose to continue production of low denomination coins that cost more than their face value, believing the public would not approve of eliminating the coins.

Although demand for the half dollar is low and feelings about it are muted, its face value exceeds production costs by 44 cents and production of the half dollar reduces the Treasury's need to borrow by almost $2 million annually. (See pp. 28 to 34.)

Recommendation

GAO recommends that Congress proceed with the proposed dollar coin legislation only if it and the Administration can reach and sustain a joint resolve to eliminate the dollar note and stand up to an expected negative public reaction and if other conditions are met. (See p. 26.)

Agency Comments

GAO discussed its conclusions and the results of its analysis with Treasury, Mint, Bureau of Engraving and Printing, and Federal Reserve officials. They generally agreed with GAO's findings and commented that the analysis presented a balanced and fair assessment of the issues. They also said that economic benefits aside, public acceptance is the key to success in the American system. (See pp. 27 and 35.)

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Abbreviation

BEP Bureau of Engraving and Printing

Introduction

Legislation has been introduced in Congress that would significantly change the currency and coins used in the U.S. economy. The legislation's major provisions call for replacing the 1-dollar note with a coin and studying the advisability of eliminating the 1- and 50-cent coins. The Chairman, Subcommittee on Consumer Affairs and Coinage, House Committee on Banking, Finance, and Urban Affairs, asked us to review the feasibility, expected acceptance, and potential effects of the proposed legislation, considering both the failure of the Susan B. Anthony dollar coin to achieve wide circulation in our economy and the experience of foreign countries in converting from paper currency to comparable coinage.

Proposed Legislation

Two broad coinage revision bills—H.R. 1068 and S. 814—have been introduced in Congress. The bills are similar in many respects but have some significant differences. The House bill, H.R. 1068, calls for (1) introduction of a new dollar coin within 18 months after the bill's enactment that would be the same size as the Susan B. Anthony dollar coin, gold in color, have a minimum 90-percent copper content, and carry a design symbolizing Christopher Columbus; (2) ceasing production of 1-dollar notes within 18 months after the dollar coin is introduced; and (3) a study by the Secretary of the Treasury to determine the advisability of phasing out production of the 1-cent and 50-cent coins and of rounding final cash sales to the nearest 5 cents. The Senate bill, S. 814, is similar to H.R. 1068 but does not provide for ceasing production of the 1-dollar notes.

A third bill, H.R. 3761, deals exclusively with 1-cent coins. It provides that 180 days after its enactment (1) 1-cent coins would be legal tender to a maximum of 25 cents only if used in quantities divisible by 5; and (2) total cash sales, after discounts and sales taxes are computed, are to be rounded to the nearest amount divisible by 5. The bill would exempt from the rounding requirement transactions of 2 cents or less, or those for which payment is made by check or negotiable instrument, electronic fund transfer, money order, or credit card.

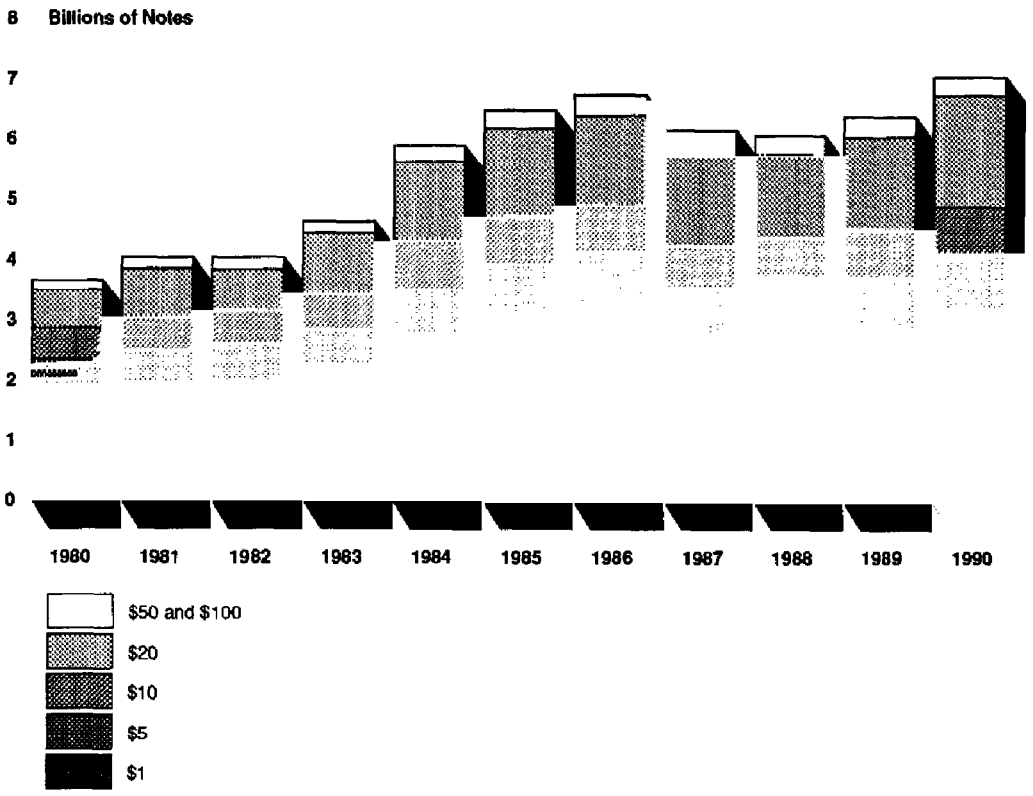
U.S. Currency and Coin Production

The Bureau of Engraving and Printing (BEP) prints Federal Reserve notes in its Washington, D.C., facilities. A second currency plant, under construction in Fort Worth, Texas, is scheduled to open in 1991. The U.S. Mint manufactures all of the coins used in commerce at its Philadelphia and Denver facilities. These coins are generally distributed by the

Federal Reserve System. Both BEP and the Mint are units of the Department of the Treasury. The Federal Reserve System serves as the Nation's central bank and supervises the issue and retirement of Federal Reserve notes, which constitute the bulk of currency and coins in circulation, through its 12 Federal Reserve Banks. According to BEP and the Mint, production of notes and coins in various denominations is driven totally by demand.

For at least the past 10 years, BEP has printed more 1-dollar notes than any other denomination. In fiscal year 1990, BEP plans to print 3.2 billion 1-dollar notes, accounting for 45 percent of the total planned printing of 7.0 billion notes of all denominations. Figure 1.1 shows currency production by BEP for the past 10 years, as well as planned production for fiscal year 1990.

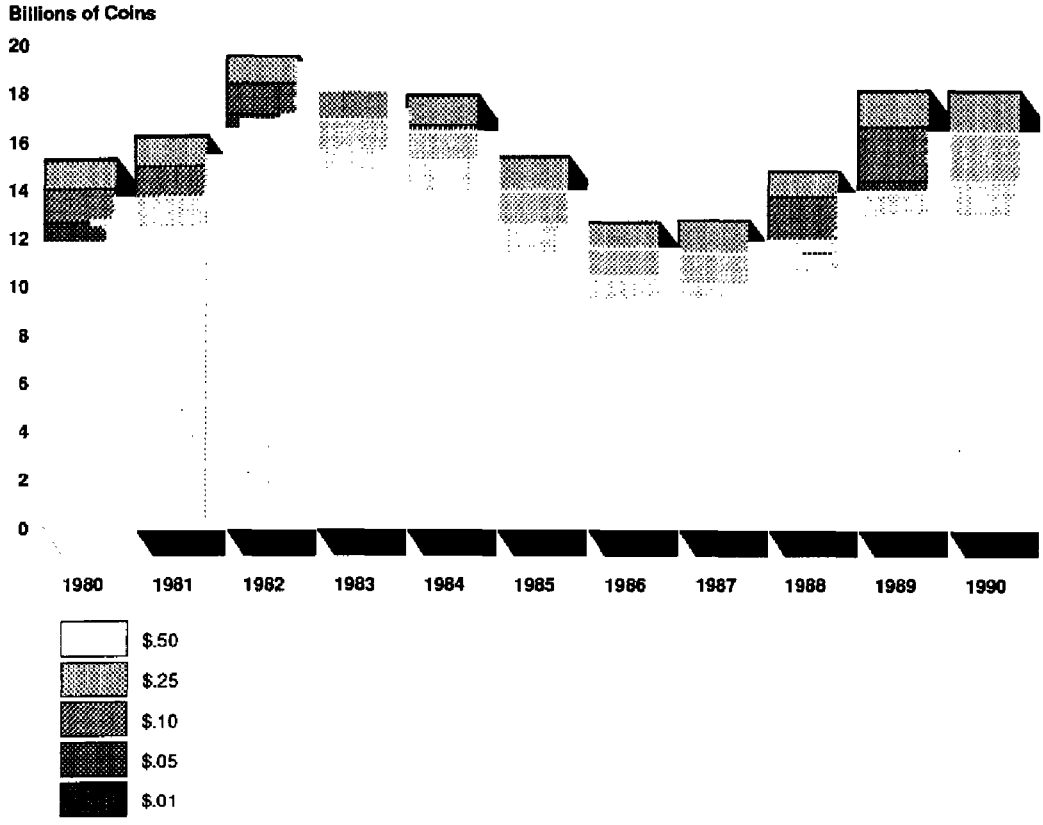
Figure 1.1: Currency Production by Denomination, Fiscal Years 1980 to 1990



Similarly, the 1-cent coin (informally known as the penny), has been the highest volume coin in production by the U.S. Mint for the past 10 years. The Mint plans to produce 12.8 billion 1-cent coins in fiscal year 1990, representing 71 percent of the total planned 18.0 billion coins to be produced.

The 50-cent coin (informally known as the half dollar), on the other hand, is currently the lowest volume coin minted. In fiscal year 1990, the Mint plans to produce only about 41 million 50-cent coins, or 0.2 percent of total Mint production. The Mint's actual coin production by denomination for fiscal years 1980 to 1989, as well as planned fiscal year 1990 production, is shown in figure 1.2.

Figure 1.2: Coin Production by Denomination, Fiscal Years 1980 to 1990



Note: We did not include production of the Susan B. Anthony dollar coin because it was produced in such low quantities. Actual production of the Anthony dollar was 199 million in fiscal year 1980, 8 million in fiscal year 1981, and 1 million in fiscal year 1982.

According to the Treasury Department, on December 31, 1989, there were $18.1 billion of coins and $242.3 billion of currency, including 4.9 billion 1-dollar notes, in circulation in our economy. The Mint estimates that there were 136.7 billion 1-cent coins in circulation in 1989, but it had no estimate of the number of 50-cent coins in circulation.

Objectives, Scope, and Methodology

As requested by the Chairman, Subcommittee on Consumer Affairs and Coinage, House Committee on Banking, Finance, and Urban Affairs, our objectives were to study and report on (1) the potential savings and other impacts of the proposed legislation on the U.S. Mint, the Bureau of Engraving and Printing, and the Federal Reserve System; (2) the expected acceptability of the proposals to the private sector and the public; (3) the reasons the Susan B. Anthony dollar coin failed; and (4) the experiences of foreign governments with similar changes in their currencies.

To evaluate the potential savings and other impacts on the federal government, we projected the estimated costs of producing and processing dollar notes and dollar coins over a 30-year period, using a computer model that we obtained from the Federal Reserve System's Board of Governors. We used a 30-year period because we wanted to determine the long-range effects of changing our currency and coins, which we assumed would take place during the first 5 years of our 30 year analysis period. We obtained historical and projected currency and coin production and processing cost information from, and interviewed officials of, the U.S. Mint, the Bureau of Engraving and Printing, the Department of the Treasury, and the Federal Reserve System. We evaluated this information and used what we considered the most reasonable assumptions and data in the model. Our major assumptions for the model are listed in appendix I.

We also estimated the cost impact of eliminating the 1- and 50-cent coins. We confined our estimate of these changes to a single year. We did not project the impact over a 30-year period as we did for the dollar note and coin model, because the costs and savings resulting from eliminating both coins would be constant each year, whereas the dollar changes would not. For example, the dollar model reflects start-up costs for the first year and a 5 year transition period—factors not applicable to the elimination of coins.

Additionally, we toured BEP's currency production facility in Washington, D.C.; the U.S. Mint coin minting operations in Denver and Philadelphia; and the cash processing operations of the Federal Reserve Bank in Baltimore.

To evaluate the expected acceptability of the legislative proposals to the private sector and the public, we interviewed eight trade and three public interest associations (see app. II); held 12 focus group discussions with the general public and individuals dealing in cash transactions as a part of their jobs; interviewed state sales tax officials in Maryland and Virginia; reviewed previous studies completed by the Federal Reserve System and the Treasury Department on similar proposals; and interviewed officials at the Mint, BEP, the Treasury Department, the Federal Reserve System, and selected foreign governments. We also interviewed officials from the two private sector firms that produce 1-cent blanks for the Mint, the firm that produces material used by the Mint for the higher denomination coins, a major seller of cash register machines, and 16 vending machine operators and manufacturers and armored car carriers (see app. III). Further, we interviewed officials of the U.S. Army in Europe and the Army and Air Force Exchange Service to determine the effects of the partial elimination in 1980 of the use of the 1-cent coin in many European military support facilities.

We retained the services of Westat, Inc., a national survey research firm, to assist us in selecting and interviewing the trade and public interest associations and in holding the focus group discussions. More detailed information on the objectives, scope, and methodology of the focus groups, as well as a description of the limitations of focus group results, are presented in appendix IV.

We judgmentally selected the trade and public interest associations, state sales tax authorities, vending machine operators and manufacturers, and armored car carriers we interviewed. They do not represent a scientific sampling, and our results are not projectable to the Nation at large. However, we selected associations that in our judgment represent the major users of currency and coins in sales transactions. Because of practical cost and timing constraints, we selected state sales tax authorities, vending machine operators, and armored car carriers that were located in the Washington, D.C., area. Despite the lack of projectability of our information from these sources, when coupled with the information we obtained from previous studies on similar proposals, we believe our work on expected acceptability is instructive in identifying key

issues and concerns the private sector and public would have with the proposed legislation.

To evaluate the reasons for the failure of the Susan B. Anthony dollar coin, we reviewed congressional hearings and interviewed present and former Mint, BEP, Treasury, and Federal Reserve System officials. In addition, we asked selected questions on the Susan B. Anthony experience in interviews with the trade association and vending machine operators and manufacturers and in the focus groups we held.

To obtain information on the foreign experiences in converting from a dollar equivalent note to a coin and eliminating the cent equivalent, we visited and interviewed monetary officials in five countries and sent questionnaires and interviewed embassy officials in three other countries. The countries we visited were Canada, France, the Netherlands, the United Kingdom, and West Germany. The countries surveyed by questionnaire and embassy interviews were Norway, Spain, and Switzerland. With the exception of Switzerland, these countries were identified by the Coin Coalition, an interest group promoting the dollar coin proposal, as countries that had converted their dollar note equivalents to coins in recent years. We added Switzerland because of its general recognition as a country with a stable currency.

At the request of the Subcommittee, we did not obtain written comments on this report but discussed our conclusions and the results of our work with Treasury, Mint, BEP, and Federal Reserve officials on May 21, 1990. We incorporated their informal comments into this report where appropriate.

We did our work from January through May 1990 in accordance with generally accepted government auditing standards.

A Dollar Coin Could Save the Government Millions, but Major Obstacles Need to Be Overcome

The government could save over $318 million annually in present value dollars if it replaced 1-dollar notes with dollar coins. However, such savings could be realized only if the coin is widely accepted and used. The Susan B. Anthony dollar coin, introduced in 1979, was never accepted by the American people, but its introduction was not managed well. Foreign countries, on the other hand, have successfully replaced currency with coins. Lessons they learned, as well as our experience with the Susan B. Anthony dollar, provide valuable insight into what it would take to successfully convert to a dollar coin.

The foremost ingredient for success—the elimination of the 1-dollar note—is probably also the foremost obstacle to success. Overcoming this obstacle will require the Administration and Congress to jointly resolve to remain firm in a decision to eliminate the 1-dollar note and to be willing to withstand expected negative public reaction. Other obstacles—the need for a good coin design, a public awareness campaign, and a short transition period—could be more easily overcome.

A Dollar Coin Could Save the Government Millions

The government's cost to produce and process 1-dollar notes each year is sizable. If the 1-dollar notes were replaced by dollar coins, the government could reduce its budgetary costs by $318 million a year in present value dollars.

We used a computer model to estimate savings over a 30-year period from replacing the 1-dollar note with a dollar coin. The cost factors and assumptions we used in the model are discussed in appendix I. The model has three components of savings—production costs, processing costs, and the overall budgetary impact of the conversion.

Production and Processing Cost Savings

In 1989, the Federal Reserve System paid the Bureau of Engraving and Printing about $75 million to print 2.9 billion 1-dollar notes. The printing of so many 1-dollar notes is due primarily to the note's average circulation life of about 1.4 years, the lowest of all the currency used in America. A coin, however, would last about 30 years. Although the production cost of a dollar coin, which would be $.06 each, is more than twice that of a dollar note, which is currently $.026 each, the durability of the coin makes it less costly in the long term.

We estimated that over a 30-year period, the Federal Reserve would save $12 million a year in present value dollars if a dollar coin replaced the 1-dollar note and if the 2-dollar notes gained in popularity. As

explained in appendix I, we assumed that 25 percent of the demand for 1-dollar notes would be replaced by demand for 2-dollar notes, primarily on the basis of Canada's experience in a similar conversion.

Similarly, the Federal Reserve's cost of processing notes—$4.38 per 1,000 notes—is higher than its cost to process coins—which is about $.27 per 1,000 coins. The primary reason for such a difference is that paper currency requires much more processing than coins. For example, when the Federal Reserve receives currency from a financial institution, it must verify the number of bags deposited and the number of currency bundles in each bag. The Federal Reserve Bank then separates the bundles so that the individual notes can be run through a machine that verifies the denomination of notes, evaluates the note quality, checks for counterfeit notes, and destroys those unfit for circulation. If a note is in such inferior condition that the machine cannot evaluate its quality, it must be destroyed manually. Notes judged fit for reintroduction into circulation are rebundled, counted, bagged, and paid out to a requesting institution.

Coin processing at the Federal Reserve Banks, on the other hand, is minimal. The Federal Reserve Banks accept coins from financial institutions only in bags that are weighed to verify quantities, but the bags are never opened by the Federal Reserve Banks. Financial institutions, or armored car carriers, bear the burden and costs of wrapping, counting, and verifying the coins. Additionally, Federal Reserve officials said that a lower percentage of coins are processed because merchants retain for recirculation a higher percentage of coins than notes.

We estimated that the Federal Reserve would save about $29 million a year in processing costs, in present value dollars, if the dollar coin and 2-dollar note replaced the 1-dollar note.

Budgetary Impact of Converting to a Dollar Coin

In addition to currency production and processing savings, the government will also reduce overall budgetary costs by replacing the 1-dollar note with a coin. As explained below, we estimated that overall budgetary savings, on a present value basis, will average $318 million a year, after considering the savings in production and processing costs, debt interest avoided through profits made on coin production, the initial start-up costs associated with introducing a new dollar coin, additional operational costs for the Mint, and the loss in Federal Reserve portfolio earnings made on its holding of government securities purchased by issuing dollar notes.

When the Mint produces coins, it recognizes as a profit the difference between the coins' production costs and their face value. The concept of the government's recognition of such profit is called "seigniorage" (see app. V). We estimated that seigniorage would average $1.6 billion a year, in present value dollars, from the production of dollar coins over the 30-year period. The cumulative seigniorage would average $23.1 billion annually. Seigniorage itself has no impact on the size of the current budget deficit but does reduce the amount of money that must be borrowed from the public to finance future deficits. Thus, in this instance, Treasury would avoid the need to borrow $23.1 billion a year, on average, to finance the Nation's debt. We estimated that this would equate, on an average present value basis, to a $461 million a year reduction in interest costs and future budget outlays and deficits.

Although seigniorage would be recognized from a dollar coin, the Treasury would lose some offsetting interest from the elimination of 1-dollar notes. Generally, the difference between the face value of notes and the cost of printing them and an allocation of the Federal Reserve's operating costs is used by the Federal Reserve to purchase Treasury securities, which make up the Federal Reserve's portfolio. The Federal Reserve's holdings of Treasury securities are what backs up the Federal Reserve notes, which are obligations of the system. The earnings from these securities are returned to the Treasury. Thus if the notes are withdrawn from circulation, the Federal Reserve's portfolio earnings and interest on it would decrease accordingly. We estimated that by eliminating the dollar note, Treasury would lose about $177 million annually, in present value dollars, from reduced Federal Reserve portfolio earnings.

Also, the Mint would require additional appropriations for the coins' production. We assumed that the Mint would produce about 2 billion coins annually for the first 5 years, then would produce coins at a level that would meet currency growth. We estimated the Mint would require an average additional $7 million annually, in present value dollars, in appropriated funds for dollar coin production over the 30-year period. We also estimated that an additional outlay of $17.8 million would be needed to

- purchase two blanking presses and an annealing furnace ($1.5 million);
- research and develop the new coin ($300,000);
- expand the Mint's die-casting capacity ($10 million); and
- pay for a public awareness campaign ($6 million).

Over our 30 year analysis period, the $17.8 million in start-up costs would average $593,000 annually in present value dollars. Overall annual savings, in present value dollars, from the conversion to a dollar coin are shown in table 2.1.

Table 2.1: Average Annual Government Present Value Savings With a Dollar Coin

Dollars in millions

	Average annual savings	
Savings components:		
Reduced currency production and processing costs	$41.4	
Interest expense avoided through seigniorage	461.1	
Subtotal		**$502.5**
Less additional costs:		
Start-up costs	0.6	
Increased Mint production costs	6.6	
Loss in Federal Reserve portfolio earnings	177.1	
Subtotal		**184.3**
Net annual budgetary savings		**$318.2**

Note. All values are in present value 1990 dollars averaged over 30 years

Questionable Public and Private Sector Acceptability of a Dollar Coin

To evaluate the acceptability of a dollar coin to replace the 1-dollar note, we interviewed trade and public interest associations (see app. II), vending machine operators and manufacturers and armored car carriers (see app. III), and held focus groups with the general public and people who handle money as a part of their jobs. We also reviewed a recent Gallup Survey on this issue. For the most part, it does not appear the public or the private sector is particularly interested in having a new dollar coin.

General public focus group participants on the whole did not accept the idea of a new dollar coin. They felt that savings to the government would not be substantial enough to offset the inconvenience, confusion, and total costs to the public for a new dollar coin. They expressed skepticism that any savings to the government would be used for worthwhile causes. The general public focus group participants cited more negative than positive impacts. As positive effects, they thought a dollar coin would be easier for the visually impaired to detect, would have greater physical durability, and would be more convenient to use in vending machines. The negative effects included more bulk to transport; slower cash transactions; possible loss if the coin resembled a 25-cent coin; higher prices at vending machines where prices would be raised to the

dollar; and additional costs passed on to consumers from the private sector's costs of retooling vending and laundromat machines.

Focus group participants who handled money as a part of their jobs offered some positive aspects of a new dollar coin, including a reduction in counterfeiting in the short term, easier handling than for deteriorated or newly printed paper currency, and convenience for use in small cash transactions. They saw as negative impacts the costs to retrofit vending and coin counting machines; slower cash transactions; transportation problems due to more bulk; and accommodation problems in cash registers with high volumes of coins, drop safes, and pneumatic bank tubes.

The money handlers, however, were more inclined to accept a new dollar coin than the general public participants. For example, convenience store, taxicab driver, restaurant, and soft drink vendor associations favored the dollar coin because of increased sales; faster cash register transactions (presumably because a coin is easier to take out of a register than a note); the elimination of bill changer machines, which are difficult to maintain; fewer security concerns; and bigger tips. They noted that a dollar coin could reduce counterfeiting in the short term and increase convenience for vending and other automated machine use. However, the money handlers also noted disadvantages of a dollar coin, such as short-term costs to retool and retrofit vending machines, public ill will directed at the retailer, more use of credit for purchases, increased transportation costs, and accommodation problems in cash registers if many coins are needed.

The American Bankers Association said that banks would incur increased transportation, storage, sorting, wrapping, processing, and administrative costs. This association thought that the costs of converting to a dollar coin would outweigh its benefits to both consumers and the banking industry. Armored car carriers also reported that coins are more expensive to transport than currency and that the carriers would incur increased transportation costs with a dollar coin.

The commuter transit association said that as a positive impact, a dollar coin could serve as a token in transit fare machines and that commuters could use the coin as fare when they did not have exact change. However, this association, as well as the two consumer associations interviewed, also mentioned negative impacts. For example, they said fare machines would have to be retrofitted; fares might increase, which would have disproportionate effects on low-income groups and those dependent on public transportation; and the coin would be bulky and

add weight to wallets and pockets. The consumer associations offered no positive impacts of a dollar coin.

Despite their mixed reactions to a dollar coin, nearly all the general public and private sector respondents indicated that the dollar note would have to be eliminated if the government expects to have a successful dollar coin. They uniformly believed that if a dollar note and dollar coin were both available, the public would choose to use the note.

Because our interviews with trade and public interest associations and our focus groups with the general public and money handlers were not designed to provide statistically representative samples, we are unable to generalize from our results. Nevertheless, we believe the results we obtained from these sources are instructive regarding some of the impressions that affected consumers and businesses would have with the proposed dollar coin. The extent to which similar responses occurred across many of the interviews and focus group reinforces our belief.

Further, the results of our focus groups and interviews were confirmed by an April 1990 Gallup Survey commissioned by several zinc producers, who were primarily interested in public attitudes towards the discontinuance of the 1-cent coin (which is comprised of 97 percent zinc).[1] Regarding public attitudes toward the creation of a new dollar coin, the survey found the following:

- One-third (34 percent) of the adult population would favor legislation that calls for the creation of a new dollar coin, while 6 in 10 (59 percent) would oppose such legislation.
- Among the minority of respondents who favored the creation of a dollar coin, 4 in 10 favored abolishing the 1-dollar note, while 52 percent opposed its replacement.
- Expressed as a proportion of the total population, 15 percent would favor creation of a new dollar coin and abolishing the 1-dollar note, while 18 percent would favor a new coin but would oppose abolishing the 1-dollar note.

[1] We reviewed the methodology of the Gallup Survey and found it to be appropriate. Specifically, its results are projectable to plus or minus 5 points at the 95 percent confidence level to the total population of adults aged 18 and over living in telephone households in the continental United States.

The American Public Did Not Accept the Susan B. Anthony Dollar Coin

According to Treasury officials, the Susan B. Anthony dollar coin was introduced in 1979 to save coin production costs, replace the larger Eisenhower dollar coin, and commemorate a great American woman. In 1978 Treasury Department officials said the Susan B. Anthony dollar coin would initially displace a portion of 1-dollar notes, increase the demand for 2-dollar notes, and eventually displace all 1-dollar notes. The legislation, however, did not call for the elimination of the 1-dollar note, and the public continued to use it. The Mint stopped producing the Susan B. Anthony dollar coin in 1982. Today, almost one-half of the 857 million produced remain in storage at the Mint and the Federal Reserve Banks.

We reviewed congressional hearings, interviewed former and present Mint and Treasury officials, and discussed the Susan B. Anthony experience with focus group and interview participants to determine why the coin failed to circulate. We concluded that the government did not effectively manage the coin's introduction.

One of the major causes was the failure to eliminate the 1-dollar note. While the coin was first introduced to co-circulate with the 1-dollar note, Federal Reserve, Treasury, and Mint officials recognized the coin would not be accepted by the public until the note was eliminated. However, officials were initially reluctant to come forth and advocate that the dollar note be eliminated, knowing that such a proposal would not be popular with the public. In 1979, when Treasury let its intention of eliminating the dollar note be known, the then Chairman of the House Banking Committee's Subcommittee on Consumer Affairs introduced a bill—along with 96 co-sponsors—to prevent the elimination of the 1-dollar note.

Additionally, the Susan B. Anthony coin too closely resembled the 25-cent coin. In 1979 hearings after the coin was introduced, Treasury officials said that the public was confusing the dollar coin with the 25-cent piece and, as a result, was not using it. That view was echoed by the private sector and general public respondents in our interviews and focus groups. They said the Susan B. Anthony failed because it looked too much like the 25-cent coin.

Further, neither the Treasury Department, the Federal Reserve, or the Mint effectively promoted the coin's benefits to the general public or to the industries most affected, such as the vending or banking industries. The Department of the Treasury and the Federal Reserve System each spent $300,000 to market the coin. The Federal Reserve contracted with

a public relations firm to prepare videotapes describing the merits of the coin and distribute them to television stations. Additionally, the firm arranged for the Mint Director and other agency officials to appear on local and national press conferences. The Federal Reserve developed educational materials for banks. The Mint distributed almost half a million information kits to banks, major retailers, financial and retail associations, the vending industry, and the media.

However, none of the agencies involved made a public acceptability study before carrying out these activities. One marketing strategy study contracted by the Federal Reserve was not completed until after the coin was introduced. While Mint officials said that at least $1 million should have been spent on the Susan B. Anthony awareness program, there is no indication that even $1 million would have been effective since the acceptability issues were not known.

Foreign Governments Have Had Successful Conversions

According to Treasury and the Coin Coalition (a lobbying organization advocating the dollar coin in the United States), Canada, Japan, Australia, and many western countries in Europe have introduced high denomination coins and phased out the note of the same value.

We contacted seven European countries and Canada to gain some insight into their experiences converting low denomination currency to coins. As shown in table 2.2, all of these eight countries had coins valued (in U.S. dollars in March 1990) at $.85 or higher. Also, their lowest valued currency (in U.S. dollars in March 1990) was $1.69 or higher.

Table 2.2: Coins and Currency Used in Selected Countries

	Coins			Currency		
	Number	Lowest	Highest	Number	Lowest	Highest
Canada	6	$.01	$.85	6	$1.69	$847.17
France	8	.01	1.74	5	3.48	86.96
The Netherlands	6	.03	2.60	7	2.60	520.83
Norway	5	.02	1.51	4	7.54	150.83
Spain	8	.01	4.56	5	4.56	91.16
Switzerland	8	.01	3.31	6	6.62	661.60
The United Kingdom	7	.02	1.62	4	8.09	80.91
West Germany	8	.01	2.93	7	2.93	585.89

Note: Values are rounded to the nearest hundredth of U.S. dollars as of March 1990.

Six of the eight countries have converted low denomination currency to coins in recent years. Two countries—Switzerland and West Germany—reported they have had no conversions in recent years. As shown in table 2.2, however, both Switzerland and West Germany have coins that are worth about 3 U.S. dollars. Table 2.3 lists these conversions and the value of the notes replaced (in U.S. dollars as of March 1990).

Table 2.3: Dollar Note Equivalent Conversions in Selected Countries

	Year	Note replaced	U.S. value (March 1990)
Canada	1987	1 Dollar	$.85
France	1970	5 Franc	.87
	1975	10 Franc	1.74
The Netherlands	1988	5 Guilder	2.60
Norway	1964	5 Kroner	.75
	1984	10 Kroner	1.51
Spain	1982	100 Peseta	.91
	1986	200 Peseta	1.82
	1988	500 Peseta	4.56
The United Kingdom	1983	1 Pound	1.62

Officials in these countries gave several reasons for converting from notes to coins. All of the countries said they did so to save currency production costs of short-lived notes. With the exception of Spain, they said that another reason was that coins were easier to use in vending machines. Most of the six countries said that conversions were made because notes were often dirty and in poor condition and that coins saved currency maintenance and processing costs. France and the United Kingdom also said that conversions were natural progressions due to inflation.

All of these countries faced public resistance to the changes. The officials indicated that, for a successful conversion, the government must expect public resistance and be strong in its determination to eliminate the note. The United Kingdom officials said that as long as notes still circulate, the public will resist coins and exert pressure on the government to rescind its decision. French officials said the public accepted the 10-Franc coin only when the note was demonetized. Spanish officials also noted that the public is generally averse to change and will always prefer notes to coins. Norway said the public heavily criticized its decision, but the government gave no serious consideration to reversing it.

The Netherlands reported little initial resistance to the changes. Canadian officials said the public was evenly split among like, dislike, and indifference.

We asked the six countries an open-ended question as to what lessons had been learned from their experiences in converting to coins. They offered the following lessons (number of countries indicating lessons learned in parentheses):

- Notes must be eliminated. (6)
- Have a public awareness campaign. (5)
- Government must expect public resistance and be strong in its determination to convert. (4)
- Ensure sufficient coins are available. (4)
- Coins must have a distinct appearance. (4)
- Consult beforehand with consumers and private organizations. (3)
- Have vending machines available to use coins. (2)
- Inform the public that the reason for converting is cost savings, not inflation. (2)
- Coins must not be too large or too small. (2)
- Coins should represent a national symbol. (1)
- Consider coins of neighboring countries. (1)

Mint, BEP, and Treasury officials said they believed foreign experiences may not be valid indicators of the prospects the United States would have in mandating a dollar coin in view of (1) the parliamentary form of government characteristic of these countries, which makes it easier to impose unpopular changes on the public; (2) the central banking systems most of these countries have, which increases the amount of control the government has over the banks; and (3) the smaller scale on which these countries produce currency and coins. Mint, BEP, and Treasury officials all agreed that because of these basic differences it would be much harder for the United States to have success in substituting a dollar coin for a note.

Essential Ingredients for a Successful Conversion

The experience of the Susan B. Anthony failure and lessons learned by countries in converting from notes to coins provide insight into what it would take to successfully convert to a dollar coin in the 1990s. For example, it appears that the following factors should be addressed.

The dollar note would have to be eliminated: For the dollar coin to successfully circulate, the note would have to be eliminated. Mint and Treasury Department officials said the current U.S. mix of currency and coins, which is driven by consumer preferences, works well. They also said that in the American political context with open channels for the public to communicate its views in the short term, they do not think Congress will allow the dollar note to be eliminated. The 1979 experience, coupled with strong congressional opposition to the prospect of eliminating the dollar note, bolsters this view.

A reasonable transition period is needed: The period of co-circulation of the 1-dollar note and coin should be minimized. Although the proposed legislation calls for a 3 year transition period, Mint officials said they would need 30 months just to develop the coin. We used 5 years in our model for a transition period, primarily because Mint officials said they could produce a maximum of 2 billion dollar coins a year. At this rate, it would take 5 years to meet the 10 billion coin demand from the eliminated 1-dollar notes and currency growth. BEP officials said the transition period should proceed gradually, over a 5-year period at least. Realizing there are practical constraints, it would seem that a protracted transition period could cause a loss of momentum to a conversion program and could ultimately lead to failure.

The coin must be well designed: A circulating coin must be commercially functional as well as acceptable to the public. The Susan B. Anthony coin too closely resembled the 25-cent coin. It appears that the proposed coin may also be confused with the 25-cent coin. For example, we showed the new Canadian dollar coin—which is gold-colored, has 11 sides, and is about the same size and weight as the Susan B. Anthony dollar coin—to our focus group, trade association, and public interest group participants and asked if such a coin would be more distinguishable from the 25-cent coin than the Susan B. Anthony dollar coin. Generally, all respondents reacted well to the coin's gold color but did not think the color alone was enough to avoid confusion with the 25-cent coin.

General public focus group participants said they would still confuse such a coin with the 25-cent coin as long as the sizes were similar. They

suggested increasing the proposed dollar coin's size to halfway between the size of the 25-cent coin and the 50-cent coin, with distinctive edges or a hole in the middle. Representatives of public interest groups also noted that, to avoid confusion with the 25-cent coin, the proposed dollar should be bigger. Respondents representing the visually impaired said that the gold color would not help the visually impaired as much as would a larger sized coin.

Additionally, money handler focus group participants said the Canadian coin's gold color was an improvement over the Susan B. Anthony dollar coin, but the coin's size was still too similar to the 25-cent coin. Representatives of trade associations also favored the Canadian coin's gold color, but said the proposed dollar would have a greater chance at success if it were larger. However, they were not unanimous as to the preferred size of the new coin. Vending equipment operators, for example, said they would prefer the new dollar coin to be the size of the Susan B. Anthony dollar coin to minimize retooling costs.

Moreover, size, shape, and alloy content alterations may increase the vending industry's costs to retool machines to make them accept the dollar coin and thus mitigate the industry's support for a dollar coin. For example, the National Automatic Merchandising Association said that about 50 percent of the vending machines in America can handle the Susan B. Anthony dollar coin. Most of these machines were acquired in the 1980s. The association said that changes in the size or metallic content of the proposed dollar coin could require completely new coin mechanisms, which would be vigorously opposed by the vending industry. Other vendors that we contacted, however, disputed this assertion and said their machines could not accept the Susan B. Anthony dollar coin. Some indicated that they purposely modified the coin slots on their machines so that only 25-cent or smaller sized coins could be inserted, because the Susan B. Anthony dollar coins jammed their machines when deposited.

BEP, Mint, and Treasury officials said that the public may not like a Christopher Columbus design on the coin since he was not an American. BEP officials suggested that George Washington be put on the coin. Some of our general public focus group participants indicated a belief that the Anthony coin was never meant to circulate widely, because, they said, the coin was a one-time commemorative of Susan B. Anthony. A similar confusion could result from commemorating Columbus on the new dollar coin.

An adequate public awareness program is needed: While public acceptability is questionable, the government can lessen public resistance through an adequately funded public awareness campaign. It would be essential for such a campaign to be thoroughly grounded on an understanding of public attitudes and a core of persuasive themes. The Treasury Department requested funds for its fiscal year 1990 budget to make a public acceptability study for the proposed coin, a request that was denied by the Office of Management and Budget. Treasury Department officials said they did not think Congress would now authorize additional funds for Treasury to make a public acceptability study.

The Administration and Congress must support the coin: If Congress authorizes the new dollar coin, it and the Administration have to be firm in their resolve to make the change and be prepared to handle public resistance. In some countries that have made conversions, a "champion" of the coin was designated to address the public's concerns. However, Mint and Treasury Department officials said that their agencies have not lived down the Susan B. Anthony experience, which has made them reluctant to try again. Additionally, Treasury Department officials said the legislation may be perceived to benefit only the special interests of certain sectors of the economy, such as the copper suppliers and the vending industry.

Conclusions

If successfully introduced and accepted, a dollar coin could save the government over $41 million annually in present value dollars to produce and process currency. Under our assumptions, the budgetary impact of all savings, including seigniorage, would be about $318 million a year. However, if the coin is not widely accepted and used, the government will not realize these savings. Also, some of the government savings will come at the expense of additional costs being borne by the private sector, such as additional coin processing and transportation costs.

The Susan B. Anthony experience is not conclusive proof that a dollar coin cannot be successful. It does show, however, that if a coin's introduction is not effectively managed, the coin will not be accepted. The primary obstacle to the coin's success would be the difficulty Congress and the Administration would have to reach an agreement to impose the coin on the public by eliminating the 1-dollar note and maintain a resolve not to reverse the decision, even if public reaction is negative, which we expect it will be. The other obstacles—designing a coin readily distinguishable from the 25-cent coin but still acceptable to the vending

industry and making the transition in a relatively short period of time without imposing undue burdens on the Mint and BEP—also need to be addressed but appear less formidable.

Recommendation

We recommend that Congress proceed with the proposed dollar coin legislation only if (1) it and the Administration can reach and sustain a joint resolve to eliminate the dollar note and stand up to an expected negative public reaction, (2) it funds a sophisticated and sustained public awareness campaign, (3) the Mint is able to produce a coin readily distinguishable from the 25-cent coin but still acceptable to the vending industry, and (4) the Mint can produce sufficient quantities of the coin to meet all demand within 5 years of the coin's introduction.

Views of the Agencies

Treasury, Mint, BEP, and Federal Reserve officials commented on our conclusions and the results of our analysis of the dollar coin proposal on May 21, 1990. Federal Reserve officials said our analysis was balanced and fairly presented the issues. The Mint and BEP Directors said they found our analysis to be an accurate assessment of the potential benefits and difficulties of substituting a dollar coin for the current 1-dollar bill. They said that economic benefits aside, it is public acceptance that is the key to success in our system. Treasury officials also said that they generally agreed with our findings but would reserve commenting on our specific projected savings estimates until they had the opportunity to review our report in depth.

No Compelling Reason to Eliminate the Penny or Half Dollar

Although the penny has lost most of its purchasing power to inflation over the years[1] and is considered by some a "nuisance," demand for it is strong. Rounding cash transactions to the closest five cents may not be palatable to some, at least initially. Further, the Mint can still produce pennies at a profit. Some foreign governments have eliminated their lowest denomination coins, but in the cases we reviewed the production costs of such coins exceeded their face value. While demand for the 50-cent coin is very limited compared to other coins minted today, it too is profitable to the government.

Eliminating the Penny and/or Half Dollar Would Not Save the Treasury Money

The face value—the amount that the Federal Reserve credits to the Treasury when coins are put into circulation—of both the penny and the half dollar exceeds their production costs. As explained in appendix V, the difference between face value and cost of production—called seigniorage—is treated as a reduction in the amount of borrowing the Treasury must do to finance the national debt.

According to the Mint, in fiscal year 1989, 12.8 billion pennies were produced at a cost of $84.8 million, or a unit cost of $0.007. An additional $1.2 million expense was incurred by the Mint to transport the 1-cent coins to the Federal Reserve banks. If the penny were eliminated, the Mint's production and transportation costs of $86.0 million would be avoided, but the Treasury would also forego the $128 million credit (12.8 billion x $0.01) from the Federal Reserve, for an annual net loss of $42.4 million to the Treasury. At the fiscal year 1989 average borrowing rate of 8.5 percent, the $42.4 million reduction in government borrowing resulted in interest savings of $3.6 million.

Although the total seigniorage for the half dollar is less than the penny, due to its relatively low volume of production,[2] the seigniorage is still positive. Only 41 million half dollars were produced in fiscal year 1989, at a cost of $2.4 million, or a unit cost of $0.06. Transportation costs to Federal Reserve banks totalled $50,640. If the half dollar was eliminated, the Treasury would avoid the $2.4 million production and transportation costs but would forego the $20.5 million Federal Reserve

[1]The 1-cent coin (often "penny" in the vernacular) was first authorized by Congress in 1792. We computed the difference in the consumer price index from 1800, the closest year to 1792 that data were available, to 1989. A 1-cent coin in 1989 was worth about one-seventh of its 1800 value (1800 index of 100.0; 1989 index of 728.0).

[2]Mint officials said that the largest consumers of 50-cent coins were casinos. In 1989, according to the Mint, 58 percent of all 50-cent coins produced were shipped to the three Federal Reserve Banks servicing the Las Vegas, Reno, Lake Tahoe, and Atlantic City casinos.

credit (41 million x $0.50), for a net loss of $18.1 million. At the 8.5 percent borrowing rate, the seigniorage on the half dollars would save an additional $1.5 million in interest paid by the Treasury.

Few People Would Probably Miss the Half Dollar, but Some Might Prefer the Inconvenience of Handling Pennies to Rounding

Treasury and Mint officials said that they were opposed to eliminating the 1- and 50-cent coins because the current mix of coins used in our economy was working well and the public was not demanding any changes. Federal Reserve and BEP officials said that although the 50-cent coin is rarely used, they did not understand the rationale for eliminating either the 1- or 50-cent coins.

Representatives of the trade associations we interviewed generally favored elimination of the penny and half dollar but expressed concern that rounding and its potential negative impacts—bookkeeping problems and the creation of public ill will stemming from the perception that businesses would use rounding to their own advantage—would be a serious deterrent to accepting the legislation. The public interest group associations were generally indifferent to the elimination of the penny and in favor of eliminating the half dollar. However, they expressed concern about the differential impact on the poor (because of their disproportionate participation in small cash transactions) from price increases and rounding-up losses.

In general, the associations thought that eliminating the penny might speed up transactions at cash registers but pointed out that charities may suffer a loss in donations from pennies now used in gumball machines and wishing wells. Many negative impacts were mentioned resulting from the rounding rules associated with elimination of the 1-cent coin, including

- inconsistencies in bookkeeping and resolving cash register balances;
- problems when cashing checks written to fractions of a dollar;
- retraining employees;
- significant public education programs;
- temporary unloading of cents on retailers;
- consumers' belief that they were being "ripped off";
- bigger effect on poorer consumers, who generally make frequent smaller purchases, and those retailers whose average transaction amount is low; and
- need to reprogram computer cash registers and other automated equipment.

The focus groups we held with the general public and money handlers indicated that both groups were indifferent to eliminating the half dollar, primarily due to its scarce appearance, limited use in vending machines, and large size. About one-half of the general public respondents favored the elimination of the penny primarily because of its limited buying power and inconvenience; the other half opposed its elimination and thought that rounding rules would be complicated and had the potential to cause inflation. A few general public respondents also were against eliminating the penny because it is part of America's heritage. Most money handler respondents favored elimination of the penny. Many cited concerns over accounting discrepancies and other negative impacts resulting from rounding.

Overall, general public participant reaction to the rounding rule was also negative. Most believed that businesses would increase their prices and expressed concern for the poor, who could not afford losses from rounding up. Business group participants were concerned that rounding would result in bookkeeping problems, tedious verbal explanations of rounding to consumers, short-term costs involved in cash register adjustments or purchase of software to accommodate automatic rounding, and rounding losses particularly for banks when cashing checks that round up.

Since our interviews with trade and special interest associations and our focus groups with money handlers and the general public were not designed to provide statistically representative samples, we are not able to generalize from our results. However, we believe the results we obtained from the association interviews and focus groups are instructive regarding some of the impressions that consumers and businesses would have with the proposed legislation. The extent to which similar responses kept occurring across many of the interviews and focus groups reinforces that belief.

For these reasons, we do not know what is more acceptable to the majority of Americans—retaining the penny and living with its attendant inconveniences or eliminating it and adjusting to rounding. It does seem clear, however, that the 50-cent coin would not be missed by the majority of Americans and that there could be much negative public reaction to rounding to the nearest 5 cents, at least initially. We are unable to determine how long such negative reaction might last.

An April 1990 Gallup Survey on public attitudes toward the discontinuation of the penny, commissioned by zinc producers who were interested in preserving the coin because of its 97 percent zinc content, showed

that rounding may not be acceptable to the public. Regarding the penny (no questions were asked on the 50-cent coin), the survey found the following:

- Three in five (62 percent) adults surveyed said they would oppose legislation that would call for the discontinuation of the penny and that would require merchants to implement a rounding system. One in four (26 percent) would favor such legislation.
- When asked how strongly they felt about this issue, those who opposed the legislation were more likely than those who favored it to say they feel very strongly about it.
- Three in four (77 percent) were concerned that merchants might increase their prices to compensate for any losses from a rounding system. However, when asked a follow-up question as to how concerned they were that this might happen, fewer (54 percent) said they were very concerned.
- About two in five (43 percent) agreed that eliminating the penny would not be a problem, since most people try to avoid using it.
- The majority of adults surveyed said that eliminating the penny will have an effect on the economy, though fewer than one in five (18 percent) believed this will contribute to inflation a great deal.

While we were doing our work in Europe on foreign countries' experiences with converting from dollar equivalent notes to coins and eliminating penny equivalents, we learned that in 1980 the U.S. Army in Europe asked the American military facilities in Europe to eliminate the penny because of the expense of transporting the coins there. All but three facilities—the Post Office, the commercial bank, and the Finance Office—agreed to the change. These three facilities were bound by regulations that would not allow them to round prices. The commissaries and Army and Air Force Exchange Service facilities welcomed the coin's elimination and said that they were not adversely affected by it. Officials said that while a few complaints were received initially, as customers have become familiar with the rounding policy, complaints have decreased and today are rarely received. However, officials said that the facilities often round down to minimize complaints. Also, while the facilities do not give pennies as change, they will accept pennies if people want to pay with them.

Although the Coin Coalition said a reason to eliminate the penny was to make room in cash register drawers for the proposed dollar coin, the focus group participants who deal in cash transactions as a part of their jobs did not confirm this as a need. We interviewed officials of the NCR

Corporation, the major source of cash registers in the United States, and asked them if the majority of cash registers in use today could accept a dollar coin without eliminating the compartment for pennies. They said that although they were not aware of any surveys done on this subject, their corporation did not sell any cash registers with fewer than five coin compartments, which could be used for the 1-, 5-, 10- and 25-cent coins, leaving another compartment for a possible dollar coin. They added that many merchants use the fifth compartment for rolled coins, but this was not advisable due to the weight this imposed on open cash register drawers. NCR's newer products have a separate compartment for rolled coins that is in the back of the drawer to minimize the weight load.

The NCR officials added that probably many imported, lower cost cash registers sold in the United States only had four coin compartments. These machines are used primarily by small retailers who want a cash register that uses less counter space. Although NCR officials did not know how many of such machines were in use today, they said that these machines generally had about a 5-year life. Therefore, if merchants had sufficient lead time to plan converting to a five-coin system, officials said that the impact would be minimal. These officials also said that the cost to convert the more sophisticated cash registers in use today, which have an 8-year life, to automatically round to the nearest 5 cents would probably convince most users to buy new equipment.

We also asked sales tax authorities in Maryland and Virginia if the rounding rule would pose problems in collecting sales taxes in these states. Maryland said that rounding to the closest 5 cents would not affect the collection of sales taxes. Maryland would continue to collect the actual tax due, before rounding. A Maryland sales tax official thought that merchants would "lose" sometimes and "win" sometimes and that winning and losing would even out in the long term. He also indicated that merchants might try to set prices so that rounding would benefit them. He also said that forces of a competitive marketplace would tend to negate this practice.

Virginia officials said rounding would not impose any significant problems to the collection of sales taxes but should be applied to all forms of payment, including checks and credit cards. They reasoned that people who do not have access to checking accounts or credit cards, most likely poor people, would pay the rounded amount, whereas people who do have access to checks or credit cards would pay the unrounded

amount. They also noted that converting cash registers to compute the rounded price would be a burden on merchants.

Foreign Experiences in Eliminating Low Denomination Coins Have Been Mixed

Of the seven foreign countries that provided data to us on eliminating their low denomination coins (Norway did not answer our questions on this matter), four indicated that they had eliminated their low denomination coins. Table 3.1 shows the four countries that eliminated their low denomination coins.

Table 3.1: Low Denomination Coins Eliminated by Selected Countries

Country	Coin eliminated	Year eliminated	Equivalent U.S. value (March 1990)
France	1 centime	1975	$0.0018
The Netherlands	1 cent	1982	0.006
Spain	50 centimos	1983	0.005
The United Kingdom	1/2 penny	1983	0 01

Officials from these countries said they eliminated the coins because they (1) were expensive to produce (France, the Netherlands, Spain, and the United Kingdom); (2) did not circulate (France and the United Kingdom); and (3) had very limited buying power (the Netherlands and the United Kingdom).

Officials from Canada, Switzerland, and West Germany said that they have not eliminated their low denomination coins for a variety of reasons. Canadian officials said that since no one is pushing the issue, no decision to eliminate the cent has been made. They said that there would be no political benefit in eliminating the coin, but the political risk would be substantial. The Canadian officials added that because the government is currently in the process of imposing a national value-added tax to all purchases, eliminating the cent at this time would be perceived by consumers as a government initiative to increase prices further.

Swiss officials said that their 1-centime coin, although still produced, is rarely seen in circulation. They said that the major reason for keeping the coin is that the country's coinage system is legally based on the 1-centime unit.

West German officials said that they did not feel the public would approve of eliminating the 1-pfennig coin because most prices would be rounded up, causing people to think that inflation was increasing. They added that the country could probably close two of its four mints if the pfennig was eliminated.

In two of the three countries that have not eliminated their low denomination coin equivalent, the production cost exceeds the face value. Canada said the cent costs about 1-1/2 to 2 cents (Canadian) to produce. West Germany said that the production cost of a 1-pfennig coin is 2-1/2 pfennigs. Three of the four countries that did eliminate their low denomination coins—France, the Netherlands, and the United Kingdom—said that the production cost of the cent equivalents was higher than the face value at the time of eliminating the coins. The fourth country that eliminated the cent equivalent, Spain, did not respond to this question.

Conclusions

While some Americans would no doubt welcome the elimination of the penny because of its low purchasing power and inconvenience, Americans generally seem to tolerate the coin, as evidenced by the more than 12 billion pennies demanded this year. The possible benefits of speeding up cash transactions and reduced handling costs of the coins for banks and merchants has to be weighed against the possible negative impacts of rounding, such as bookkeeping problems, reprogramming automatic cash registers, a potential that prices would increase with a disproportionate effect on the poor, and a loss in donations for charities.

Further, the countries we identified that have eliminated their low denomination coins did so when the production cost exceeded the face value of the coin. This is not the case in our country. In fact, eliminating the penny at today's cost levels would increase the Treasury's cost of borrowing and increase the deficit by almost $4 million a year. Some countries have chosen to continue production of low denomination coins costing more than their face value, believing the public would not approve of eliminating the coins.

Although demand in the United States for the half dollar is low and it would not be missed by the majority of Americans, we see no compelling reason to eliminate it. It does reduce Treasury's cost of borrowing and the deficit by almost $2 million a year and apparently is of use to some of the public.

Views of the Agencies

In commenting on the results of our analysis of the penny and half dollar proposals on May 21, 1990, Federal Reserve officials said our analysis was fair and balanced. Treasury officials and the Director of the U.S. Mint also agreed with our conclusions and analysis.

Major Assumptions Used in Cost Model

We used a computer model to estimate government savings from replacing the 1-dollar note with a dollar coin over a 30-year period. We adapted a model used by the Federal Reserve Board of Governors, which divides the government's costs into three components—production costs, processing costs, and the budgetary impact of the proposed legislation.

General Assumptions

We made certain assumptions in using the model to compute all three components. The bases for our assumptions follow.

Transition period: The proposed legislation calls for introducing the coin 18 months after the legislation is passed, and ceasing production of the 1-dollar note 18 months after the coin is introduced. Foreign governments that have made similar changes in their currency system recommend a transition period ranging from a few months to 3 years. However, Mint officials said the Mint, with expanded die-casting capacity, could produce a maximum of 2 billion dollar coins a year. We estimated that 7.5 billion coins would be needed initially to replace the 1-dollar notes that would be in circulation at the outset of our 30-year analysis (see replacement ratio assumption for the computation of total demand). Bureau of Engraving and Printing officials said that the transition period should be as gradual as possible to minimize disruptions to their operations. Mint officials also said that the Mint would need 30 months to research and develop the new dollar coin. Taking the foreign experience and practical limitations into account, we assumed a 5 year transition period and that coin production would begin in January 1991.

Inflation rate: We assumed a 4 percent inflation rate for the 30-year period. We based our estimate on a January 1990 Congressional Budget Office publication, The Economic and Budget Outlook: Fiscal Years 1991-1995, which estimates that the Gross National Product deflator will rise 4 percent annually from 1991 to 1995. The Congressional Budget Office makes no economic assumptions for years after 1995. We believe 4 percent is a reasonable estimate for expected inflation throughout the analysis period.

Discount rate: We used 4.61 percent as the discount rate for the 30-year period. To arrive at this rate, we averaged the yields on outstanding Treasury obligations that have remaining maturities comparable to the period of analysis (30 years), excluding those maturing before 1991 and those with a coupon interest rate less than 4.25 percent. This resulted in

an 8.61 percent rate. To account for inflation, we subtracted the 4 percent inflation rate from the 8.61 percent cost of borrowing. The resulting real discount rate, 4.61 percent, was applied to all costs in our analysis. We did two alternative simulations using rates of 2.61 and 6.61 to determine the sensitivity of the discount rate of 4.61 in our analysis. Overall results were not materially different under these rates.

Number of 1-dollar notes in circulation at the beginning of the model: We began our model with 5 billion 1-dollar notes in circulation. According to the March 1990 Treasury Bulletin, there were about 4.8 billion 1-dollar notes in circulation on December 31, 1989. At a 5 percent annual growth (see currency growth assumption), about 5 billion notes would be in circulation in January 1991.

Number of higher denomination notes in circulation at the beginning of the model: We began our model with 8 billion higher denomination notes (5-, 10-, 20-, 50- and 100-dollar notes) in circulation. According to the March 1990 Treasury Bulletin, there were about 7.6 billion of such notes in circulation on December 31, 1989. At a 5 percent annual growth (see currency growth assumption), about 8 billion higher denomination notes would be in circulation in January 1991.

Production Cost Model Assumptions

To compute production cost savings, we estimated the government's production costs for 1-dollar notes assuming no changes. This savings was the product of the number of 1-dollar notes that would have been produced times current unit production cost. From this, we subtracted the expected production costs of a dollar coin.

Currency circulation growth: We used a 5 percent annual currency circulation growth rate, based on the average yearly growth for the amount of currency in circulation from 1983 to 1989. We assumed this rate would remain constant throughout the 30-year period. Federal Reserve officials agreed that a 5 percent growth rate would be a reasonable assumption for our analysis period.

Number of 2-dollar notes in circulation at the beginning of the model: We began our model with 625 million 2-dollar notes in circulation. This number is based on a 25 percent switchover rate from 1-dollar notes to 2-dollar notes (see switchover rate assumption).

Circulation life of 1- and 2-dollar notes: We used 1.4 years as the average life of 1- and 2-dollar notes, which represents the actual average life

of 1-dollar notes from 1985 to 1989. We determined the actual life by dividing the number of 1-dollar notes destroyed annually by the Federal Reserve from 1985 to 1989 into the number of 1-dollar notes in circulation during each of those years and averaging the annual life for the 5-year period. As 2-dollar notes do not currently circulate, we did not consider their actual circulation life of 83 years to be appropriate. Instead, since the 2-dollar note would become the lowest denomination note in circulation, we assumed the 2-dollar note would have the same life as 1-dollar notes do now—1.4 years.

Unit production cost of currency: We used the actual $26 per 1,000 notes (regardless of denomination) unit cost that the Federal Reserve has paid the Bureau of Engraving and Printing for currency production from 1985 to 1989.

Circulation life of higher denomination notes: We used 2.1 years as the average life of higher denomination notes, which has been their average life from 1985 to 1989. We did not use the same method to calculate the life of higher denomination notes as we did for 1-dollar notes because, according to Federal Reserve officials, higher denomination notes last longer than 1-dollar notes. Dividing the number of higher denomination notes destroyed in 1 year into the number of higher denomination notes in circulation in that same year would have underestimated the actual number of higher denomination notes in circulation. Therefore, we divided the number of higher denomination notes destroyed by the Federal Reserve annually from 1985 to 1989 into the average outstanding quantity of higher denomination notes in circulation during the 2 years previous to the year of destruction.

Life of the proposed coin: We used 30 years as the life of the proposed dollar coin. According to experts at the U.S. Mint and the foreign governments we contacted—Canada, France, the Netherlands, Norway, Spain, Switzerland, the United Kingdom, and West Germany—coins generally last from 20 to 50 years.

Switchover rate from 1-dollar to 2-dollar notes: Although the 2-dollar note has not been popular in America, we assumed the government would promote its use and the public's views on this note would change if the 1-dollar note was not available. Federal Reserve and Bureau of Engraving and Printing officials agreed with our reasoning. It would also seem logical that merchants, who would no longer have a dollar note, would be willing to use the cash register compartment now reserved for the 1-dollar note for the 2-dollar note. We used 25 percent

as the value of 1-dollar note demand that would be absorbed by 2-dollar notes. In Canada, demand for the 2-dollar note, which was already more popular than in America, increased about 20 percent after the 1-dollar note was eliminated. Our switchover rate applies to value rather than volume of notes. For example, for the 5 billion 1-dollar notes in circulation at the beginning of our analysis period, a 25-percent switchover would mean that 25 percent of the $5 billion value, or $1.25 billion, would be absorbed by 2-dollar notes. This equates to 625 million 2-dollar notes.

Replacement rate of dollar coins to 1-dollar notes: We used a 2 to 1 replacement ratio by which 1-dollar notes would be replaced by 1-dollar coins. We based this assumption on the experiences of the six foreign countries that replaced a dollar note equivalent with a coin (see table 2.2). These countries experienced replacement rates ranging from 1.6 to 1 to 4 to 1. Assuming that 25 percent of the 5 billion 1-dollar note demand at the outset of our analysis period was absorbed by 2-dollar notes, 3.75 billion 1-dollar notes would have to be replaced. A 2 to 1 replacement factor equates to 7.5 billion 1-dollar coins. A 5 percent annual currency growth rate would have to be added to the 7.5 billion coins in the remaining years of our analysis period. In our model, the additional coins needed over the transition period for currency growth equals about 2.5 billion coins.

Increase in the unit production cost of currency without 1-dollar notes and a 25-percent switchover to 2-dollar notes: We used a $7.47 unit cost increase per 1,000 notes printed as the amount by which the Bureau of Engraving and Printing's currency production costs would increase if all 1-dollar notes were eliminated and if 2-dollar note production would absorb 25 percent of their production value. We obtained this estimate from Bureau of Engraving and Printing officials, who said that since there would be an overall decrease of 2.4 billion notes printed over the transition period, overhead and other program support costs would have to be absorbed by the remaining notes printed. We evaluated this computation by projecting the current unit overhead costs to the reduced number of notes to be produced. Since our estimate was less than 8 percent higher than the Bureau's estimate, we believe the $7.47 estimate to appear reasonable.

Unit production cost of the proposed dollar coin: We used $60.00 as the average unit cost for 1,000 dollar coins, or $.06 per coin. U.S. Mint officials said it might not be technically possible to mint a coin with 90 percent copper that is gold in color, as specified in the proposed legislation.

However, they said it would definitely be possible to mint a coin with 80 percent of copper that was gold in color. The Mint officials estimated that such a coin could be produced for $.06 each. According to Mint officials, the new coin would probably be made from clad materials (three layers of metal bonded together) with a similar size and weight as the Susan B. Anthony coin. Their estimate appeared reasonable in view of the $.035 production cost of the Susan B. Anthony coin in 1979 and the $.06 unit production cost of 50-cent coins in 1989.

Processing Cost Model Assumptions

To compute overall government processing savings from replacing the 1-dollar note with a coin, we estimated the government's processing costs for 1-dollar notes and subtracted our estimated processing costs of a dollar coin.

Percent of currency in circulation processed by the Federal Reserve System: We used the annual average percent of the currency in circulation the Federal Reserve System processed from 1985 to 1989, which is 156 percent. To calculate this, we divided the number of notes processed each year from 1985 to 1989 by the number of notes in circulation during each of those years.

Percent of coins in circulation processed by the Federal Reserve System: We used the annual average percent of circulating 25-cent coins processed each year by the Federal Reserve from 1986 to 1988, which is 72 percent. Federal Reserve officials said since the proposed dollar coin will most likely circulate like the 25-cent coin, it would be reasonable to assume that 1-dollar coins would be processed with the same frequency. To calculate this figure, we divided the number of 25-cent coins processed each year from 1986 to 1988 by the number of 25-cent coins in circulation during each of those years.

Unit processing cost for currency: We used the Federal Reserve's actual average processing cost of $4.38 per 1,000 notes for 1985 to 1989. To calculate this, we divided the number of notes processed each year from 1985 to 1989 into the processing costs for each of those years.

Unit processing cost for coins: We used the Federal Reserve's actual average processing cost of $.27 per 1,000 coins from 1985 to 1989.

Budgetary Impact of Proposed Legislation

In addition to the currency production cost and processing costs, we also estimated other effects of the proposed legislation on the government. We first computed seigniorage made from the coins, by subtracting the production and transportation costs from the face value of the coins produced each year. We then calculated the amount of interest Treasury would avoid each year from the seigniorage, by multiplying the yearly seigniorage by Treasury's cost of borrowing. Third, we calculated the overall budgetary impact to the government, by estimating initial start-up costs for the dollar coin, additional operating costs for the Mint, losses in Federal Reserve portfolio earnings that would no longer be earned on 1-dollar notes, and reduced Federal Reserve currency production and processing costs.

Coin transportation costs: We used $1.27 per 1,000 coins shipped as the transportation cost for the proposed dollar coin. We assumed that 100 percent of the coins produced each year would be shipped to Federal Reserve Banks. We based this on discussions with Mint officials, who said that the dollar coin should not cost more to transport than the 50-cent coin does currently, which is $1.27 per 1,000 coins shipped.

Start-up costs: Mint officials said that to produce 2 billion coins a year, the Mint would need (1) $1.5 million to buy two blanking presses and an annealing furnace, (2) $300,000 to research and develop the new coin, and (3) $7 to $10 million to expand die-casting capacity. Additionally, they said $4 to $6 million would be needed for a public awareness program. Therefore, total start-up cost estimates ranged from $12.8 million to $17.8 million. We used the highest estimate of $17.8 million.

Percent of proposed coin's cost that is for metal: We estimated that 80 percent of the proposed coin's cost would be for metal. We calculated the percent of each circulating coin's cost that was metal from 1986 to 1989, since data for previous years were not available. The average percent for the 4-year period was 77 percent for all coins. We rounded that figure to 80 percent.

Mint operating costs: To produce the additional coins, the Mint would require additional appropriations. However, as the metal for coins and the metal fabrication costs are financed through a revolving fund, increases in metal costs would not affect the Mint's appropriated budget. To estimate increases in the Mint's operating budget, which is funded by appropriations, we multiplied the percent of the coin's cost that is not metal—20 percent—times the annual production costs.

Federal Reserve portfolio earnings and rate: Currently, the Treasury receives the Federal Reserve's earnings on assets associated with the outstanding 1-dollar Federal Reserve notes. Generally, the difference between the face value of the notes and the cost of printing and an allocation of Federal Reserve operating costs is used by the Federal Reserve to purchase Treasury securities, which make up the Federal Reserve's portfolio. The Federal Reserve credits Treasury with the earnings received from those investments. If notes are withdrawn from circulation, the portfolio and its earnings are reduced accordingly. We estimated the average Federal Reserve portfolio earning rate to be 4.61 percent, the same rate we used for the model's discount rate. We multiplied this rate by the decreased value of 1-dollar notes in circulation to calculate the loss in portfolio earnings.

Treasury interest rate: We also used 4.61 percent as the rate of interest on Treasury obligations over the 30-year period. To calculate this figure, we averaged the yields on outstanding Treasury obligations that have remaining maturities comparable to the period of analysis, excluding those maturing before 1991 and those with a coupon interest less than 4.25 percent. This resulted in an 8.61 percent rate. To account for inflation, we subtracted the 4 percent inflation rate as determined previously. We multiplied the result, 4.61 percent, by the amount of seigniorage on the 1-dollar coin to determine the amount of interest saved by the Treasury.

Federal Reserve currency production and processing costs: This represents the total difference between what the Federal Reserve System would have paid for printing and processing 1-dollar notes and what it would pay to process dollar coins rather than notes. The bases for these costs are described in the production and processing cost factors earlier in this appendix.

Trade Associations and Public Interest Groups Contacted

Trade Associations

American Bankers Association
Washington, D.C.

Food Marketing Institute
Washington, D.C.

International Taxicab Association
Kensington, Maryland

National Association of Convenience Stores
Alexandria, Virginia

National Automatic Merchandising Association
Chicago, Illinois

National Restaurant Association
Washington, D.C.

National Soft Drink Association
Washington, D.C.

Petroleum Marketers Association of America
Washington, D.C.

Public Interest Groups

Association for Commuter Transportation
Washington, D.C.

National Consumers League
Washington, D.C.

National Federation of the Blind
Baltimore, Maryland

Vending Machine Operators and Manufacturers and Armored Car Carriers Contacted

Vending Machine Operators

Allied Vending
Beltsville, Maryland

Bell Atlantic Telephone Coin Organization
Silver Spring, Maryland

Coca-Cola Bottlers of D.C.
Alexandria, Virginia

D.C. Vending Company, Inc.
Washington, D.C.

Eastern Vending Corporation
Linden, New Jersey

National Trading Sales Association
Landover, Maryland

Pepsi Company Bottlers
Cheverly, Maryland

United Vending Services Company, Inc.
Washington, D.C.

Vending Services, Inc.
Rockville, Maryland

Vending Machine Manufacturers

A & A Coin Machine Company
Timonium, Maryland

Coin Acceptors Incorporated
St. Louis, Missouri

Mars Electronic International
Westchester, Pennsylvania

Armored Car Carriers

Brinks Inc. Armored Car Service
Philadelphia, Pennsylvania

Federal Armored Express
Baltimore, Maryland

Loomis Armored Inc.
Beltsville, Maryland

Wells Fargo Armored Service Corporation
Springfield, Virginia

Objective, Scope, Methodology, and Limitations of Focus Groups

Objective

We contracted with Westat, Inc., a national survey research firm, to assist us in conducting focus groups with members of the general public and individuals who handle cash as part of their work. Focus groups involve a planned, tape-recorded discussion designed to obtain information about individuals' perceptions and opinions related to a specific issue. Focus groups allow researchers to obtain access to information from members of society who are not formally organized and represented. The discussions generally involve a small group of participants (usually 8 to 10) who have similar characteristics and are knowledgeable about the specific issue. Discussions are done informally but are guided by a moderator who encourages participants to share their thoughts and experiences on specific topics.

Our objective in holding the focus groups with the general public and people who handle cash as part of their jobs was to obtain their views, insights, and feelings to assist us in evaluating the acceptability and impact of the proposed changes to the U.S. coinage and currency system. The focus groups held with money handlers concentrated on the acceptability and impact of the proposals on the handling of cash at their work. The general public focus groups addressed the acceptability of the proposals to consumers. For both sets of groups, we were specifically interested in the range of potential concerns and support that might be raised.

Scope

We selected four cities for the focus groups: Frederick, Maryland; Kansas City, Missouri; Scottsdale, Arizona; and Rye Brook, New York. Frederick is a small city north of Washington, D.C. The Kansas City area includes both urban and suburban areas. Scottsdale, a suburb of Phoenix, has many retired people in its population. Rye Brook is a suburb of New York City.

Westat selected a total of 12 groups from the four cities. Nine or 10 participants were in each focus group. Westat moderators traveled to each city to conduct the focus groups, which were monitored by at least one GAO representative. Six of the focus groups were comprised of individuals who handled cash transactions as part of their jobs. These participants were selected to ensure variety in age, income, gender, and type of business. The other six groups were made up of the general public, including a range of people with different ages, incomes, education, and gender, to represent a cross-section of the general public in the selected cities. Additionally, retired individuals and teenagers were represented

in the general public focus groups, while visually impaired representatives were included in both the general public and the money handler groups.

Methodology

A focus group guide was developed to assist the moderator in leading the discussions. The guide helped the moderator to address each of the provisions of the legislation (eliminating the 1-cent coin, rounding, eliminating the 50-cent coin, introducing the new dollar coin, and eliminating the dollar note). The focus groups began with the moderator describing the purpose of our study and an explanation of how focus groups work. The participants were then presented with a brief summary of the proposed legislation and the estimated savings to the government. For each provision, participants were asked open-ended questions about how they would accept the proposed changes to the U.S. coinage and currency system, their likely reactions, and the possible impacts. Money handlers were also asked how their businesses would react to the changes and about the impacts on the operation of the business. Participants were also asked questions on their experience with the Susan B. Anthony dollar coin.

To help group participants provide more informed answers, several visual aids were used, including (1) the Canadian dollar coin, which is similar to the proposed U.S. coin, the Susan B. Anthony coin, and other coins, so participants could judge similarity or differences among the coins; (2) a chart to aid moderators in explaining the rounding rule; and (3) a picture of a typical cash drawer layout before and after the proposed currency changes.

All focus group discussions were led by a senior Westat social science researcher, while an assistant moderator took notes. Also, each focus group session was tape recorded to assist in subsequent analysis and report writing.

Limitations of Focus Groups

Focus groups are not designed to (1) demonstrate the extent of a problem or to generalize results to a larger population, (2) develop a consensus to arrive at an agreed-upon plan or make decisions about what actions to take, or (3) provide statistically representative samples or reliable quantitative estimates. Instead, they are intended to generate information that can provide reasons that support people's attitudes toward specific topics and offer insights into the range of concerns and support for an issue.

The projectability of the information produced by our focus groups is limited for several reasons. First, they represent the responses of 117 people, which is insufficient for projectability. Second, while the composition of the groups was designed to assure some representation of men and women, different ages, retired persons, visually impaired individuals, different industries, and different regions of the United States, the groups were not a random sample. Third, participants were asked questions about what would happen in the future if the proposed legislation was enacted. Responses to such questions are, of necessity, speculative. However, the "speculations" of many group participants showed a common response, and the degree of consistency in participants' recurring themes provided some (though immeasurable) degree of validation. Fourth, no participants were able to give even a rough estimate of quantitative impacts, such as cost savings or added costs, or increase or decrease in check-out time at cash registers.

Because of these limitations, we used several methodologies, including focus groups, to support our conclusions in chapters 2 and 3.

Definition of Seigniorage

The Department of the Treasury defines seigniorage as the difference between the face value of a coin and the coin's cost of production. A coin's cost of production includes the metals contained in the coin, the Mint's manufacturing expenses, metal wastage from production, and the cost of distributing coins.

The definition of seigniorage has changed over the years as the concept of money has evolved. The term originated in the Middle Ages when the sovereigns or kings (seigneurs) made a charge for minting coins. In early times, when the face value of coins equalled their metallic content, seigniorage was the fee charged by mints for stamping the government's or an individual's gold or silver into coins. Over time, precious metals such as gold or silver were no longer used in coins. Even though these "debased" coins did not themselves contain precious metals, they were presumed to be freely convertible into gold or silver. Seigniorage came to be known as the difference between the face value of a coin and its true metallic content. As long as the coins remained accepted by the public, there were no runs on the treasury to convert coins into precious metals. Governments were able to use seigniorage to fund their operations.

Today's money has been even further debased. Currency is no longer convertible into precious metal and our circulating coins contain no precious metal. Coins today are really tokens but widely acceptable in exchange for goods and services and settling debts. However, the concept of a government to recognize or take seigniorage has continued. Today, seigniorage is the difference between the face value of a coin and its cost of production.

Before 1968, seigniorage was treated as a revenue in the administrative budget, excluded from the consolidated cash budget, and treated as a means of financing. In 1968, the President's Commission on Budget Concepts recommended that seigniorage be treated solely as a means of financing. That recommendation was adopted. As a result, today seigniorage itself has no impact on the size of the current budget deficit, but it does reduce the amount of money that must be borrowed from the public to finance the deficit. Thus, the amount of interest it saves does reduce future budget outlays and deficits.

The recognition of seigniorage comes in three steps. First, as coins come off the Mint's stamping lines and are turned over to in-house cashiers, gross seigniorage is recognized as the difference between the face value of the coins produced and the cost of the metal from which the coins

were stamped. Second, on a monthly basis, the Mint reduces gross seigniorage by the costs of coinage operations and related overhead. Finally, the cost of transporting coins and the cost of any production wastage is deducted, and the difference is net seigniorage. Net seigniorage ultimately is accounted for as an off-budget receipt from the government's authority to issue money, to be used for financing budget deficits. Although the Treasury recognizes seigniorage at the time coins are manufactured, it does not actually obtain value for newly manufactured coins until they are deposited with the Federal Reserve banks.

Although seigniorage seems to be the creation of something out of nothing (because an off-budget receipt is recognized even though no cash is received from the public), it is an accepted practice of governments.

As a further explanation, the metal used in today's coins—even though not precious or intrinsically valuable—is treated as a Treasury asset (not expensed as coins are produced). Seigniorage increases the value of the metal assets up to the face value of the coins, less the costs of production (which are expensed). Once the coins are deposited with the Federal Reserve, they are exchanged for another government asset, namely a checking deposit balance. Finally, that balance is ultimately exchanged for goods and services used by the government at a level represented by the face value of the coins.

For example, imagine that the Treasury produces 1,000 dollar coins having a monetary value of $1,000 and a manufacturing cost of $60, of which $48 is for metal and $12 is for labor and other Mint costs. The Treasury's accounting entries associated with the manufacturing of the coins would be as follows:

(Dr.) Metal on Hand	$48	
(Cr.) Coinage Metal Fund (to pay for metal)		$48
(Dr.) Mint Operating Expenses	$12	
(Cr.) General Account at Federal Reserve (the Treasury's checking account)		$12

After the coins were produced, Treasury would make the following accounting entry:

(Dr.) Coins on Hand	$1,000	
(Cr.) Metal on Hand		$48
(Cr.) Seigniorage		$952

When the coins are deposited with the Federal Reserve banks, the Federal Reserve's accounting entry would be:

(Dr.) Coins on Hand	$1,000	
(Cr.) Deposits—U.S. Treasury General Account		$1,000

Corresponding Treasury accounting entries would be:

(Dr.) General Account at Federal Reserve	$1,000	
(Cr.) Coins on Hand		$1,000
(Dr.) Coinage Metal Fund (to replenish the fund)	$48	
(Cr.) General Account at Federal Reserve		$48

As a result of manufacturing the coins and depositing them with the Federal Reserve, the Treasury would realize the following net consequences:

- an increase in its checking account at the Federal Reserve of $940 ($1,000 - $12 - $48),
- a budgetary expenditure for Mint expenses of $12, and
- seigniorage of $952.

Further, assuming Treasury's cost of borrowing was 8.6 percent, Treasury would realize interest savings of $80.84 ($940 times 8.6 percent) in the subsequent year, due to the amount of borrowing that was displaced by seigniorage.

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