The original documents are located in Box C53, folder "Presidential Handwriting, 12/10/1976" of the Presidential Handwriting File at the Gerald R. Ford Presidential Library.

THE WHITE HOUSE

WASHINGTON

December 10, 1976

MEMORANDUM FOR
THE HONORABLE WILLIAM E. SIMON
Secretary of the Treasury

Re: State of United States Coinage

The President reviewed your memorandum of December 3 on the above subject and approved the forwarding of the proposed report to the Congress for consideration.

Please follow up with appropriate action.

James E. Connor
Secretary to the Cabinet

bcc: Dick Cheney
Bob Linder (with copy of report)

THE WHITE HOUSE

WASHINGTON

December 9, 1976

MR PRESIDENT:

State of United States Coinage

Staffing of the attached memorandum from Secretary Simon resulted in the following comments and recommendations:

Messrs. Buchen, Cannon, Friedersdorf, Marsh and Seidman recommended that the Secretary of the Treasury be authorized to forward the attached report to the Congress for consideration.

OMB (Dan Kearney) commented: "The report on the State of United States Coinage adequately addresses the potential problems with the one-cent, fifty-cent and one-dollar coings. OMB recommends tha the President approve the forwarding of this report to the Congress in order that public hearings can be held regarding possible changes in these coin denominations."

Alan Greenspan commented - see TAB A.

Jim Connor

THE SECRETARY OF THE TREASURY
WASHINGTON

DEC 3 1976

MEMORANDUM FOR THE PRESIDENT

SUBJECT: State of United States Coinage

Attached is a report reviewing the present United States coinage and identifying two major problem areas which require resolution:

(1) the diminishing utility of the one-cent coin in commerce.

(2) failure of the half-dollar and dollar coins to circulate readily.

Concerning the one-cent coin, we are rapidly approaching the decision point for continuance or elimination. The diminishing utility of the coin is clearly evidenced by its high (14%) annual attrition rate from the circulating supply compared with the nickel (7%) and the dime and quarter (both essentially 0%). This voluntary, permanent withdrawal of coins by the public is an indication of the lack of purchasing power of the coin and its nuisance status. While the value of the denomination decreases with inflation, the cost for the Mint to produce attrition replacement coins increases. Decisions must be made soon whether to start increasing Mint capacity to almost threefold by 1990 to accommodate rising one-cent requirements. Even more significant is the double impact of inflation which results in rising day-to-day costs of keeping the one-cent coin in circulation, while at the same time decreasing the purchasing power of the cent.

While the technical and production/distribution cost evaluations point toward its elimination, there is, on the other hand, a prevalent notion that eliminating the cent would be inflationary by causing the prices of consumer items to automatically rise to the next five-cent increment.

Although the inflationary impact has not been systematically surveyed, it does not necessarily follow that prices will rise as perceived. The entire issue of pricing, rounding, and consumer impact is complex and needs thorough public airing and review prior to any final decision to eliminate the one-cent. We recommend that the Congress hold hearings to resolve these matters.

Concerning the half-dollar and dollar coins, present utilization of the half-dollar is very low and almost nonexistent for the dollar. This is due to the cumbersome size of these coins and the ready availability of convenient substitutes (quarters and dollar bills). The alternatives are to continue the present coins, reduce sizes, or eliminate. We recommend a smaller, more conveniently sized dollar coin and elimination of the half-dollar. In the future, the smaller dollar coin would be particularly useful in vending machine-type transactions.

RECOMMENDATION: That the Secretary of the Treasury be authorized to forward the attached report to the Congress for consideration.

WILLIAM E. SIMON

Attachment

Approve: 4/24

Disapprove: _____

THE STATE OF THE UNITED STATES COINAGE

I. INTRODUCTION

After completion of a comprehensive review of United States coinage system requirements to 1990, the Treasury Department has identified substantial deficiencies in the existing system which require resolution in the near future. There are two major problem areas:

(1) the diminishing utility of the one-cent denomination in commerce, and

(2) the failure of the present half-dollar and dollar coins to circulate readily.

ONE-CENT COIN

The United States Government is rapidly approaching a decision point concerning continuance of the one-cent coin. The decision is prompted by the diminishing utility of the one-cent coin in commerce, causing ever-increasing production to compensate for high attrition of coins from the circulating supply. Inflation has a double impact because it increases the cost per transaction of keeping a one-cent coin in circulation while simultaneously decreasing the purchasing power of each cent transacted. The diminishing utility of the one-cent denomination in commerce is clearly evidenced by its high (14%) annual attrition from the circulating pool compared to the nickel (7%) and the dime and quarter (both essentially 0%). The attrition,

which represents permanent voluntary withdrawal from circulation by the public, is directly related to the lack of purchasing power of the one-cent alone and, to a lesser extent, even to that of two, three, or four cents combined. Future increases in inflation are expected to create further corresponding increases in attrition rates which in turn place demand on the Mint for replacements; a never-ending spiral. Compounding the situation, estimated cost increases for coinage metal and manufacturing and distribution costs will cause the cost of producing the cent to exceed its face value by about 1980. In addition, the price of copper is projected to rise to such a level by 1990 that the cent coins may provide an economical source of copper for limited industrial consumption, adding to the rate of withdrawal of these coins from circulation.

If coin demand and economic market conditions meet current projections, and if the current coinage system remains unaltered, the present coin manufacturing capacity of the Bureau of the Mint must be increased about 20% by 1980, and must be almost tripled by 1990. These increasing capacities will be solely for cent manufacturing, which presently accounts for 75% of all coin manufacturing. Over 90% of the 1990 capacity would be dedicated to manufacturing cents, which would cost about two cents for each coin produced. Elimination of the cent at some later date would be a much more drastic action than elimination now, as more production plant and equipment, and more Mint employees, would be affected by the precipitous reduction in production requirements.

Alternative one-cent coins which are less costly to produce have been examined. These alternatives would, of course, lower the production and distribution costs for a period of time but, in the best case, only to 1990 when cost would again exceed face value. Changeover confusion and impact would also be considerable. Importantly, however, an alternate coin does not solve the basic phenomenon of decreasing utility in commerce and the increasing day-to-day transaction handling costs.

HALF-DOLLAR AND DOLLAR COINS

Presently, utilization is very low for the half-dollar and practically nonexistent for the dollar coin, due to the cumbersome size of these coins and the ready availability of convenient substitutes (two quarters for the half-dollar and four quarters, or the dollar note, for the dollar coin). The alternatives are to continue manufacturing the present coins, to reduce the sizes, or to eliminate the dollar and half-dollar coin from the system.

EARLY CONSIDERATION

The problems with the present coinage system, as discussed above, are considered by the Treasury Department to be of sufficient magnitude and wide-spread impact as to justify early consideration by Congress of whether changes in the Nation's coinage system are appropriate. Decisions are needed to provide a proper basis for planning, budgeting and implementing actions by the Bureau of the Mint, the Federal Reserve System, commercial banks and businesses.

A review of the present coinage system and the consequences of retaining it in its present form are to be examined herein prior to a discussion of possible alternatives for a more viable system.

II. THE CURRENT COINAGE SYSTEM

The Secretary of the Treasury is responsible for the production of coins in such quantities as he determines necessary to meet the Nation's needs. The Secretary's statutory responsibility for the production of coins is carried out by the Bureau of the Mint, whose two major field facilities, the Philadelphia and Denver Mints, manufacture most of the country's coinage for circulation. Once produced, the coins are shipped by the Mint to the Federal Reserve Banks and branches, which, in turn, distribute the coins to commercial banks.

As specified by law, the Nation's coinage system currently consists of the following denominations: dollar, half-dollar, quarter, dime, nickel and the cent. All physical characteristics of the coins, including their alloy, size and weight, are specified by law. Since the late 1960's all denominations from the dime through the dollar have been made from a clad (sandwich) material which has thin outer layers of cupro-nickel (75% copper and 25% nickel) and an inner core of pure copper. The five-cent piece is made from an alloy consisting of 75% copper and 25% nickel, while the one-cent piece is composed of 95% copper and 5% zinc.

The quantity of coins produced annually by the Mint depends essentially on public demand. The Federal Reserve System and the Mint jointly forecast the anticipated coinage requirements, and, on the basis of the projections, the Bureau of the Mint prepares its operational and financial plans so that it can provide the coins to meet the Nation's needs. The financial plans include all of the costs of making coins which, in addition to manufacturing expenses, cover the costs of coinage metal and the costs of distributing the coins to the Federal Reserve Banks. Thus, in the current fiscal year the Mint's estimated coin production of 12 billion pieces will cost the American taxpayer about $130 million.

Historically, the Nation's coinage demand has increased annually at a rate of approximately 10%. In more recent years, however, there have been abrupt deviations from this pattern. These have been caused primarily by sharply varied demand for cents, the production of which accounts for approximately 75% of the Mint's total coinage output. By way of illustration, in Fiscal Year 1974, the coinage production of the Mint totaled 10.4 billion pieces, 8.4 billion of which were cents. During the next fiscal year, total coin production increased to 13.4 billion pieces, with cents accounting for 10 billion. In Fiscal Year 1976, excluding the three-months transition period, the Mint produced 12.6 billion coins, over 9 billion of which were one-cent pieces.

III. CONSEQUENCES OF RETAINING THE PRESENT COINAGE SYSTEM

The consequences of retaining the present coinage system basically derive from the experienced and projected growth in the demand for circulating coins. Production by the Bureau of the Mint increased from 2.7 billion coins in Fiscal Year 1961 to 12.6 billion in Fiscal Year 1976. With the present set of denominations, annual requirements are forecast to increase to 18 billion by 1980 and 41 billion by 1990. To provide a basis for planning and implementing action by the Bureau of the Mint, several different methods and mathematical models have been developed for estimating future coinage requirements. The 18 billion figure for 1980 and the 41 billion figure for 1990 are in the intermediate portion of the range of forecasts which are provided by using the various methods and models.

The factors or relationships underlying the demand for cents are different from those affecting the demand for all other coin denominations. A stable relationship exists between the demand for nickels, dimes and quarters and the growth in retail sales, or similar measures of economic activity. Cent demand is less predictable due to the unique functions of this denomination in commercial transactions and the evident declining utility.

In recent years, there has been practically no correlation between the disappearance of cents from circulation (attrition rate) and the estimated coin life of about fifteen years. On the contrary, the attrition rate, and in particular the growth

in the attrition rate, appears to be closely associated with the evident public attitudes concerning the declining utility and increasing nuisance aspect of this coin. For example, two previous studies of samples of coins in circulation indicates attrition rates for cents of 4.8% in 1962 and 13.0% in 1973. Conservative projections indicate that this attrition rate will grow to about 21.0% by 1990. In effect, the public, by not bothering to keep these coins in circulation, has been "voting" over a protracted period of time for elimination of the one-cent piece from the United States coinage system.

The result of the experienced growth in cent attrition rates is that approximately two-thirds of the cents produced by the Mint in Fiscal Year 1975 were necessary to replace coins withdrawn from circulation. This proportion is projected to increase, as its utility declines, to the extent that by 1990, about 31 billion (82%) of the estimated production requirement of 37 billion cents would be solely to provide replacements for coins removed from the circulating pool. As the 1990 projected production of 37 billion cents would be about 90% of the expected total requirement for all denominations, it is readily apparent that cent projections impact most significantly on required production capacity and on total coinage system costs.

Current forecasts show that total coinage demand will exceed present Mint production capacity by about 1980, and will exceed present capacity by as much as two or three times by 1990. In addition, valuable resources and substantial costs would be

involved in producing the tremendous number of one-cent coins, which would not circulate and which would be of limited value commercially.

The cost to the public of maintaining a coinage system includes all costs of the Mint in producing, handling and shipping its product. In addition, costs of handling, storing and distributing the coins by the Federal Reserve System, by commercial banks and by merchants are all passed to the consumer in one form or another. By this definition, the aggregate costs to our society of maintaining an adequate supply of cents have been estimated. The estimates were based on reasonable assumptions regarding increases in costs to the Mint of manufacturing and shipping coins. For example, the trend in copper prices was estimated to increase from the present figure of $.60 per pound to $1 per pound in 1980 and $1.50 per pound by 1990. Similarly, the costs of fabricating coinage metal, coining, and shipping were assumed to increase at an annual rate of 4%. Also, the 1975 estimated cost figure of $.03 per 100 coins for Federal Reserve and commercial banks to process cents was assumed to increase at an annual rate of 5%. On the basis of these types of assumptions, the total annual costs for maintaining the one-cent piece in the coinage system are expected to increase from the $81 million figure in 1975 to $189 million in 1980, and to about $693 million in 1990. These costs do not include the capital investment required to expand the Mint's production capacity.

As mentioned earlier, the current Mint production capacity will be exhausted by 1980. Development of additional capacity within existing facilities is not a total or, in some cases, a reasonable alternative, since these facilities already are overcrowded and have serious environmental and engineering deficiencies. Future capacity requirements will have to be met by constructing and equipping new mints, with the first major production increment needed by 1980. Capacity requirements can be met for some time by the construction of the tentatively planned new Denver Mint. This facility, when fully equipped, would have a capacity of 16 billion coins per year, at an estimated full capital investment cost of $86 million. To fulfill the 1990 projected requirement of 41.5 billion coins, additional capacity from the present base in the amount of 25 billion coins per year would be required. By extrapolating from the cost estimate for the planned new Denver Mint, by 1990 capital investment in the order of $200 million would be required to meet reasonable demand projections. Without the one-cent piece in the coinage system, additional capacity would not be required and, in fact, present Mint capacity should be sufficient until at least the year 2000.

IV. ALTERNATIVES TO THE PRESENT COINAGE SYSTEM

A. Elimination of the One-cent Coin

The one-cent piece would have to be eliminated soon in order to forestall the excessive costs to the public of main-

taining in circulation a coin of so little value for commerce.

The cent has been the minimum U.S. coinage denomination since 1857, when Congress eliminated the half-cent. The purchasing power of a cent in 1917 was equivalent to that of a nickel in 1975, and (assuming a 5% inflation rate) to the projected value of a dime in 1990.

The costs associated with maintaining cents in circulation are rising. The present manufacturing cost, .7¢ per coin, is projected to increase to 1.5¢ per coin by 1990. However, the manufacturing cost is only a portion of the total cost to the public. In addition to these and other Governmental costs, commercial businesses incur costs for handling the large volume of cents. Considering the frequency with which this coin is handled, counted, packaged, stored, and transported; the labor, materials, and capital equipment involved in the process; and the losses due to attrition, one can easily conclude that it costs our society more than a penny to transact a penny's worth of business.

Reduction of Production and Distribution Costs

Eliminating the cent would avoid an increasing annual cost to the public via a reduction in total coin production and distribution. As mentioned previously, the total annual costs to the American taxpayers of maintaining the cent in the coinage system are estimated to be $189 million in 1975, with a growth to about $690 million by 1990. Removing the cent from the system would not eliminate all of these costs, since there

would be some increases in requirements for nickels and dimes due to the absence of the one-cent piece. Thus, reduction in costs is estimated to be about $150 million annually in 1980, and about $600 million by 1990. Also, expenditures of nearly $200 million for establishment of additional mint capacity to 1990 would be avoided if the cent were eliminated.

In addition to the reduced costs, removing the cent from the coinage system also would eliminate the consumption of valuable and increasingly scarce metal resources. With the present configuration and alloy of the cent, this "waste" of metal is in the order of 39,000 tons of copper in Fiscal Year 1977, with a projected growth to an annual figure by 1990 of about 129,000 tons. These are significant uses of a resource which has important military applications as well as wide commercial applications in the electrical, construction and transportation industries.

Discontinuing cent production would reduce the manufacturing requirements of the Bureau of the Mint by more than 60%. Excluding this denomination, total production requirements to 1990 are not expected to exceed 7 billion coins annually, and present coin production capacity would be more than adequate to the 21st century.

Preferences of Affected Institutions and Individuals

While the Treasury Department has surveyed various affected institutions concerning the possible elimination of the one-cent piece, no attempt has been made to poll the general public.

However, the Department has recently made several announcements which have generated a limited amount of response from the public. As of the middle of November 1976, 146 letters had been received by the Department expressing an opinion on the subject. The Mint has maintained a tally which indicates that 89% of the respondents are opposed to, and 11% in favor of, elimination of the one-cent piece. Most of those opposing elimination do so because of perceived inflationary effects and anticipated inconveniences in conducting cash transactions. The letters reflect the assumptions that individual items will have to be priced in five-cent increments, and that prices always will be rounded up. Some writers feel that elimination of the cent would be demoralizing, since it would be an open admission of continuing inflation and the worthlessness of our currency, or fear a national or world impression that our monetary system is shaky. A sentimental attachment to the cent is reflected in a few letters which mention "children's piggy banks," and the "oldest coin," as reasons for not eliminating the cent. The small percentage of letters which welcome the elimination of the cent express the belief that the result would be increased consumer convenience and savings to the Government and to business, who would no longer have to deal with the coin. However, since a significant sampling of public opinion has not been conducted, the real attitudes and desires of the American people on this subject are not known at this time.

Retail firms and commercial banks recently surveyed by the Department also have expressed opposition to the elimination of the cent because of assumed inflationary impacts, as well as anticipated inconveniences which the absence of the cent would cause in cash transactions. Further, the overwhelming majority of state revenue departments opposed the discontinuance of cents, because of problems associated with the adjustment of existing state sales tax schedules and collection of tax revenues.

The Perception of Inflation

There is a prevalent notion that eliminating the cent would generate an automatic increase in consumer prices. Although the inflationary impact has not been systematically studied, it does not necessarily follow that prices will rise. For example, absence of the cent in cash transactions does not mean that prices would have to be stated in five-cent increments. Many prices, particularly for items that typically sell in multiples (e.g., postage stamps), or as part of a basket of different items (e.g., groceries), could continue to be quoted in one-cent increments. Rounding would then occur only on the sum of purchases if payment were by cash, and not at all if payment were by check or credit card. Furthermore, for those item prices that were changed to a five-cent increment basis, competitive pressures undoubtedly would lead to some rounding down as well as up. Over time, leads and lags in changing prices in five-cent increments should tend to average out. And, pricing adjustments could be made in many cases through changes in packaging,

or similar devices. Finally, the cost of keeping the cent in circulation is built into the current price structure, and removing this cost should have a favorable price effect in the long run.

Transitional Considerations

If a decision to eliminate the penny were announced well in advance, commercial interests and state revenue departments would have adequate lead time to make the necessary accommodations. Although such an announcement could stimulate cent hoarding, the present stock of cents in circulation (45 billion), current Mint and Federal Reserve inventory (3.5 billion), and Mint cent production capacity (13 billion annually) should be adequate to avert a crisis during the transition period.

Summary

The primary advantage of eliminating the cent soon is that immediate resolution of the dilemma eliminates the cost of maintaining circulation and increasing mint capacity to meet an artificially high demand, which is nearly all due to attrition caused by the coin's declining purchasing power.

Terminating cent production in the near future will permit the Mint to reduce its operating costs, as well as to avoid the expense of constructing new capacity. Deferring the decision to halt cent production will necessitate a costly expansion of manufacturing capacity, to be followed -- when the decision is finally made -- by a large-scale and more disruptive cutback than would occur now.

Retaining the cent indefinitely would require a large capital investment commitment by the Government. In 15 years the annual U.S. production of cents alone would exceed the quantity of all coins produced world-wide during 1974, and at a cost of nearly 2¢ per piece. Clearly, before that point is reached, cents will no longer be commercially useful, and elimination of the denomination will be warranted.

B. The Dollar and Half-Dollar Coins

The existing dollar and half-dollar coins have no future roles in our coinage system because of their cumbersome size and the availability of acceptable substitutes. In recent years, the Mint has produced approximately 60 million dollars and 180 million half-dollars annually. These two denominations account for only two percent of the Mint's total production. According to projections of demand, there will be no significant increase in requirements for these denominations in the foreseeable future. In essence, production satisfies a numismatic type demand, with coins produced being immediately withdrawn from circulation.

Potential Circulation

The basic rationale for a small dollar coin is to increase the flexibility for consumer transactions. The increased use of vending machines to save labor costs, and the higher prices for items which consumers are already accustomed to purchasing from machines, are expected to pursuade the public that the convenience of using vending machines outweighs any inconvenience

of carrying an additional coin denomination. Moreover, the experience of other countries, notably West Germany, with its 2 Deutsche Mark coins (U.S. $.80), demonstrates that large denomination coins in the same range as the new dollar coin can circulate and can find use in vending applications.

A recent survey of commercial banks and merchants, conducted by the Bureau of the Mint, disclosed a desire by both groups that the present dollar and half-dollar coin be eliminated. Of all the groups surveyed, only the vending and coin equipment manufacturers gave a favorable response to the introduction of a new dollar coin. At the present time, with the exception of a limited supply of very expensive bill changers, there are no dollar vending machines.

Initial circulation would be very much dependent upon the production of dollar coin vending devices. At the present time, approximately thirty percent of vending machines sales are 60 cents or more. Despite industry survey results to the contrary, one must question whether dollar vending machines will be developed and installed on the speculation that consumers would obtain the coins to use them. However, a commitment on the part of the vending industry probably would be forthcoming if legislation were enacted to replace the existing dollar coin with a smaller conveniently-sized coin.

Large scale production of automated machines which would accept dollar coins could be accomplished in eighteen to twenty-four months after legislation is enacted. Considering the time

required for production of new automated machines and the likely initial reluctance on the part of the banks, retailers and consumers to use the new coin, it would probably take three to four years after the passage of legislation to achieve wide-spread circulation.

Although the above discussion has focused on the replacement of the existing dollar coin with a smaller conveniently-sized dollar coin, the elimination of the half-dollar coin should be considered simultaneously. It, too, does not circulate and the introduction of a viable one dollar coin would seem to obviate its future usefulness.

Size and Material

The proposed new coin would be sized between the existing quarter and half-dollar. Compared to the quarter, the diameter would be 10% greater and the weight 40% greater (the half-dollar has twice the weight of the quarter). The weight of the proposed new dollar coin would be only one-third the weight of four quarters. The material recommended for the proposed smaller dollar would be cupro-nickel clad on copper (currently used for the dime, quarter, half-dollar and dollar coin), which has excellent wear and corrosion resistance and provides a greater degree of protection against "slugging" than a "non-sandwich" material.

Because of its value relative to other coins, the new dollar might be expected to be susceptible to slugging or counterfeiting. Vending machine and production technology, however, have

reduced this risk to minimal proportions. In fact, dollar coin changers would be considerably less expensive and offer greater security than dollar bill changers.

Cost

The cost of producing the new dollar coin would be approximately three cents, compared to six cents for the present dollar coin and 1.5 cents for the $1 bill. Initial annual production requirements of 300 million dollar coins would cost the same ($9 million) as producing the current average of 60 million dollar coins and 180 million half-dollars. After the first few years the quantity produced is likely to increase. This may be offset by decreased requirements for the quarter dollar as new vending machines become available.

The new one dollar coin offers potential cost savings by supplanting some of the demand for one dollar bills. The coin would have an average live of 15 years, while the bill, costing 1.5 cents, lasts approximately 15 months. Thus it would take 12 bills, costing 18 cents, to provide the medium of exchange service life of one dollar coin, costing 3 cents. It would be highly speculative, however, to attempt to project savings in $1 bill production in view of the number of uncertain interrelated variables -- e.g., if initially the dollar coin became merely a numismatic item and did not circulate, production of $1 bills would remain high and there would be little or no savings; at the other extreme, if production of $1 bills were arbitrarily stopped there would be a savings of about $25 million.

This savings would be partially offset by the increased demand for, and therefore cost of, $2 bills.

Summary

The present half-dollar and dollar coins have minimal utility due to their cumbersome sizes and the ready availability of convenient substitutes. Their manufacture should, therefore, be discontinued. Instead, legislation should be proposed to permit the Treasury Department to manufacture a conveniently-sized dollar coin which would be slightly larger than the quarter. Strong interest by the automated coin handling manufacturers indicates that vending machines and dollar coin changers will be manufactured after such legislation is enacted. This should provide increased consumer flexibility and facilitate transactions for automatically vended products such as cigarettes and sandwiches and services such as mass transit usage. At the same time, consideration should be given to discontinuing half-dollar production since the introduction of a smaller dollar coin would further diminish the usefulness of a coin which is not presently used to any significant degree for commercial transactions.

V. PROPOSED ACTIONS

In view of the foregoing, the Department believes that the Congress should give serious consideration to the question of whether the cent is needed in our coinage system. The analyses conducted by this Department show conclusively that elimination

of the cent after a suitable preparatory period, but no later than 1980, would eliminate substantial production and distribution costs.

However, no decision should be made without full scale public hearings and a thorough understanding of the impact on the consumer and the various institutions involved. The consumer issue is complex and will need to be thoroughly reviewed before determining the final course of action. The Department feels that the potential cost reductions and the diminishing utility of the cent warrant such a review at this time and will be pleased to cooperate in every way possible.

In addition, the Congress should authorize the replacement of the existing dollar coin with a smaller, conveniently-sized dollar, as well as the elimination of the half-dollar from the Nation's circulating denominations. Congressional review and analysis of these recommendations at the earliest feasible date are urged by the Department.

THE SECRETARY OF THE TREASURY
WASHINGTON

DEC 3 1976

MEMORANDUM FOR THE PRESIDENT

SUBJECT: State of United States Coinage

Attached is a report reviewing the present United States coinage and identifying two major problem areas which require resolution:

(1) the diminishing utility of the one-cent coin in commerce.

(2) failure of the half-dollar and dollar coins to circulate readily.

Concerning the one-cent coin, we are rapidly approaching the decision point for continuance or elimination. The diminishing utility of the coin is clearly evidenced by its high (14%) annual attrition rate from the circulating supply compared with the nickel (7%) and the dime and quarter (both essentially 0%). This voluntary, permanent withdrawal of coins by the public is an indication of the lack of purchasing power of the coin and its nuisance status. While the value of the denomination decreases with inflation, the cost for the Mint to produce attrition replacement coins increases. Decisions must be made soon whether to start increasing Mint capacity to almost threefold by 1990 to accommodate rising one-cent requirements. Even more significant is the double impact of inflation which results in rising day-to-day costs of keeping the one-cent coin in circulation, while at the same time decreasing the purchasing power of the cent.

While the technical and production/distribution cost evaluations point toward its elimination, there is, on the other hand, a prevalent notion that eliminating the cent would be inflationary by causing the prices of consumer items to automatically rise to the next five-cent increment.

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RECOMMENDATION: That the Secretary of the Treasury be authorized to forward the attached report to the Congress for consideration.

WILLIAM E. SIMON

Attachment

Approve: _____

Disapprove: _____

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I. INTRODUCTION

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Alternative one-cent coins which are less costly to produce have been examined. These alternatives would, of course, lower the production and distribution costs for a period of time but, in the best case, only to 1990 when cost would again exceed face value. Changeover confusion and impact would also be considerable. Importantly, however, an alternate coin does not solve the basic phenomenon of decreasing utility in commerce and the increasing day-to-day transaction handling costs.

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II. THE CURRENT COINAGE SYSTEM

The Secretary of the Treasury is responsible for the production of coins in such quantities as he determines necessary to meet the Nation's needs. The Secretary's statutory responsibility for the production of coins is carried out by the Bureau of the Mint, whose two major field facilities, the Philadelphia and Denver Mints, manufacture most of the country's coinage for circulation. Once produced, the coins are shipped by the Mint to the Federal Reserve Banks and branches, which, in turn, distribute the coins to commercial banks.

As specified by law, the Nation's coinage system currently consists of the following denominations: dollar, half-dollar, quarter, dime, nickel and the cent. All physical characteristics of the coins, including their alloy, size and weight, are specified by law. Since the late 1960's all denominations from the dime through the dollar have been made from a clad (sandwich) material which has thin outer layers of cupro-nickel (75% copper and 25% nickel) and an inner core of pure copper. The five-cent piece is made from an alloy consisting of 75% copper and 25% nickel, while the one-cent piece is composed of 95% copper and 5% zinc.

The quantity of coins produced annually by the Mint depends essentially on public demand. The Federal Reserve System and the Mint jointly forecast the anticipated coinage requirements, and, on the basis of the projections, the Bureau of the Mint prepares its operational and financial plans so that it can provide the coins to meet the Nation's needs. The financial plans include all of the costs of making coins which, in addition to manufacturing expenses, cover the costs of coinage metal and the costs of distributing the coins to the Federal Reserve Banks. Thus, in the current fiscal year the Mint's estimated coin production of 12 billion pieces will cost the American taxpayer about $130 million.

Historically, the Nation's coinage demand has increased annually at a rate of approximately 10%. In more recent years, however, there have been abrupt deviations from this pattern. These have been caused primarily by sharply varied demand for cents, the production of which accounts for approximately 75% of the Mint's total coinage output. By way of illustration, in Fiscal Year 1974, the coinage production of the Mint totaled 10.4 billion pieces, 8.4 billion of which were cents. During the next fiscal year, total coin production increased to 13.4 billion pieces, with cents accounting for 10 billion. In Fiscal Year 1976, excluding the three-months transition period, the Mint produced 12.6 billion coins, over 9 billion of which were one-cent pieces.

III. CONSEQUENCES OF RETAINING THE PRESENT COINAGE SYSTEM

The consequences of retaining the present coinage system basically derive from the experienced and projected growth in the demand for circulating coins. Production by the Bureau of the Mint increased from 2.7 billion coins in Fiscal Year 1961 to 12.6 billion in Fiscal Year 1976. With the present set of denominations, annual requirements are forecast to increase to 18 billion by 1980 and 41 billion by 1990. To provide a basis for planning and implementing action by the Bureau of the Mint, several different methods and mathematical models have been developed for estimating future coinage requirements. The 18 billion figure for 1980 and the 41 billion figure for 1990 are in the intermediate portion of the range of forecasts which are provided by using the various methods and models.

The factors or relationships underlying the demand for cents are different from those affecting the demand for all other coin denominations. A stable relationship exists between the demand for nickels, dimes and quarters and the growth in retail sales, or similar measures of economic activity. Cent demand is less predictable due to the unique functions of this denomination in commercial transactions and the evident declining utility.

In recent years, there has been practically no correlation between the disappearance of cents from circulation (attrition rate) and the estimated coin life of about fifteen years. On the contrary, the attrition rate, and in particular the growth

in the attrition rate, appears to be closely associated with the evident public attitudes concerning the declining utility and increasing nuisance aspect of this coin. For example, two previous studies of samples of coins in circulation indicates attrition rates for cents of 4.8% in 1962 and 13.0% in 1973. Conservative projections indicate that this attrition rate will grow to about 21.0% by 1990. In effect, the public, by not bothering to keep these coins in circulation, has been "voting" over a protracted period of time for elimination of the one-cent piece from the United States coinage system.

The result of the experienced growth in cent attrition rates is that approximately two-thirds of the cents produced by the Mint in Fiscal Year 1975 were necessary to replace coins withdrawn from circulation. This proportion is projected to increase, as its utility declines, to the extent that by 1990, about 31 billion (82%) of the estimated production requirement of 37 billion cents would be solely to provide replacements for coins removed from the circulating pool. As the 1990 projected production of 37 billion cents would be about 90% of the expected total requirement for all denominations, it is readily apparent that cent projections impact most significantly on required production capacity and on total coinage system costs.

Current forecasts show that total coinage demand will exceed present Mint production capacity by about 1980, and will exceed present capacity by as much as two or three times by 1990. In addition, valuable resources and substantial costs would be

involved in producing the tremendous number of one-cent coins, which would not circulate and which would be of limited value commercially.

The cost to the public of maintaining a coinage system includes all costs of the Mint in producing, handling and shipping its product. In addition, costs of handling, storing and distributing the coins by the Federal Reserve System, by commercial banks and by merchants are all passed to the consumer in one form or another. By this definition, the aggregate costs to our society of maintaining an adequate supply of cents have been estimated. The estimates were based on reasonable assumptions regarding increases in costs to the Mint of manufacturing and shipping coins. For example, the trend in copper prices was estimated to increase from the present figure of $.60 per pound to $1 per pound in 1980 and $1.50 per pound by 1990. Similarly, the costs of fabricating coinage metal, coining, and shipping were assumed to increase at an annual rate of 4%. Also, the 1975 estimated cost figure of $.03 per 100 coins for Federal Reserve and commercial banks to process cents was assumed to increase at an annual rate of 5%. On the basis of these types of assumptions, the total annual costs for maintaining the one-cent piece in the coinage system are expected to increase from the $81 million figure in 1975 to $189 million in 1980, and to about $693 million in 1990. These costs do not include the capital investment required to expand the Mint's production capacity.

As mentioned earlier, the current Mint production capacity will be exhausted by 1980. Development of additional capacity within existing facilities is not a total or, in some cases, a reasonable alternative, since these facilities already are overcrowded and have serious environmental and engineering deficiencies. Future capacity requirements will have to be met by constructing and equipping new mints, with the first major production increment needed by 1980. Capacity requirements can be met for some time by the construction of the tentatively planned new Denver Mint. This facility, when fully equipped, would have a capacity of 16 billion coins per year, at an estimated full capital investment cost of $86 million. To fulfill the 1990 projected requirement of 41.5 billion coins, additional capacity from the present base in the amount of 25 billion coins per year would be required. By extrapolating from the cost estimate for the planned new Denver Mint, by 1990 capital investment in the order of $200 million would be required to meet reasonable demand projections. Without the one-cent piece in the coinage system, additional capacity would not be required and, in fact, present Mint capacity should be sufficient until at least the year 2000.

IV. ALTERNATIVES TO THE PRESENT COINAGE SYSTEM

A. Elimination of the One-cent Coin

The one-cent piece would have to be eliminated soon in order to forestall the excessive costs to the public of main-

taining in circulation a coin of so little value for commerce.

The cent has been the minimum U.S. coinage denomination since 1857, when Congress eliminated the half-cent. The purchasing power of a cent in 1917 was equivalent to that of a nickel in 1975, and (assuming a 5% inflation rate) to the projected value of a dime in 1990.

The costs associated with maintaining cents in circulation are rising. The present manufacturing cost, .7¢ per coin, is projected to increase to 1.5¢ per coin by 1990. However, the manufacturing cost is only a portion of the total cost to the public. In addition to these and other Governmental costs, commercial businesses incur costs for handling the large volume of cents. Considering the frequency with which this coin is handled, counted, packaged, stored, and transported; the labor, materials, and capital equipment involved in the process; and the losses due to attrition, one can easily conclude that it costs our society more than a penny to transact a penny's worth of business.

Reduction of Production and Distribution Costs

Eliminating the cent would avoid an increasing annual cost to the public via a reduction in total coin production and distribution. As mentioned previously, the total annual costs to the American taxpayers of maintaining the cent in the coinage system are estimated to be $189 million in 1975, with a growth to about $690 million by 1990. Removing the cent from the system would not eliminate all of these costs, since there

would be some increases in requirements for nickels and dimes due to the absence of the one-cent piece. Thus, reduction in costs is estimated to be about $150 million annually in 1980, and about $600 million by 1990. Also, expenditures of nearly $200 million for establishment of additional mint capacity to 1990 would be avoided if the cent were eliminated.

In addition to the reduced costs, removing the cent from the coinage system also would eliminate the consumption of valuable and increasingly scarce metal resources. With the present configuration and alloy of the cent, this "waste" of metal is in the order of 39,000 tons of copper in Fiscal Year 1977, with a projected growth to an annual figure by 1990 of about 129,000 tons. These are significant uses of a resource which has important military applications as well as wide commercial applications in the electrical, construction and transportation industries.

Discontinuing cent production would reduce the manufacturing requirements of the Bureau of the Mint by more than 60%. Excluding this denomination, total production requirements to 1990 are not expected to exceed 7 billion coins annually, and present coin production capacity would be more than adequate to the 21st century.

Preferences of Affected Institutions and Individuals

While the Treasury Department has surveyed various affected institutions concerning the possible elimination of the one-cent piece, no attempt has been made to poll the general public.

However, the Department has recently made several announcements which have generated a limited amount of response from the public. As of the middle of November 1976, 146 letters had been received by the Department expressing an opinion on the subject. The Mint has maintained a tally which indicates that 89% of the respondents are opposed to, and 11% in favor of, elimination of the one-cent piece. Most of those opposing elimination do so because of perceived inflationary effects and anticipated inconveniences in conducting cash transactions. The letters reflect the assumptions that individual items will have to be priced in five-cent increments, and that prices always will be rounded up. Some writers feel that elimination of the cent would be demoralizing, since it would be an open admission of continuing inflation and the worthlessness of our currency, or fear a national or world impression that our monetary system is shaky. A sentimental attachment to the cent is reflected in a few letters which mention "children's piggy banks," and the "oldest coin," as reasons for not eliminating the cent. The small percentage of letters which welcome the elimination of the cent express the belief that the result would be increased consumer convenience and savings to the Government and to business, who would no longer have to deal with the coin. However, since a significant sampling of public opinion has not been conducted, the real attitudes and desires of the American people on this subject are not known at this time.

Retail firms and commercial banks recently surveyed by the Department also have expressed opposition to the elimination of the cent because of assumed inflationary impacts, as well as anticipated inconveniences which the absence of the cent would cause in cash transactions. Further, the overwhelming majority of state revenue departments opposed the discontinuance of cents, because of problems associated with the adjustment of existing state sales tax schedules and collection of tax revenues.

The Perception of Inflation

There is a prevalent notion that eliminating the cent would generate an automatic increase in consumer prices. Although the inflationary impact has not been systematically studied, it does not necessarily follow that prices will rise. For example, absence of the cent in cash transactions does not mean that prices would have to be stated in five-cent increments. Many prices, particularly for items that typically sell in multiples (e.g., postage stamps), or as part of a basket of different items (e.g., groceries), could continue to be quoted in one-cent increments. Rounding would then occur only on the sum of purchases if payment were by cash, and not at all if payment were by check or credit card. Furthermore, for those item prices that were changed to a five-cent increment basis, competitive pressures undoubtedly would lead to some rounding down as well as up. Over time, leads and lags in changing prices in five-cent increments should tend to average out. And, pricing adjustments could be made in many cases through changes in packaging,

or similar devices. Finally, the cost of keeping the cent in circulation is built into the current price structure, and removing this cost should have a favorable price effect in the long run.

Transitional Considerations

If a decision to eliminate the penny were announced well in advance, commercial interests and state revenue departments would have adequate lead time to make the necessary accommodations. Although such an announcement could stimulate cent hoarding, the present stock of cents in circulation (45 billion), current Mint and Federal Reserve inventory (3.5 billion), and Mint cent production capacity (13 billion annually) should be adequate to avert a crisis during the transition period.

Summary

The primary advantage of eliminating the cent soon is that immediate resolution of the dilemma eliminates the cost of maintaining circulation and increasing mint capacity to meet an artificially high demand, which is nearly all due to attrition caused by the coin's declining purchasing power.

Terminating cent production in the near future will permit the Mint to reduce its operating costs, as well as to avoid the expense of constructing new capacity. Deferring the decision to halt cent production will necessitate a costly expansion of manufacturing capacity, to be followed -- when the decision is finally made -- by a large-scale and more disruptive cutback than would occur now.

Retaining the cent indefinitely would require a large capital investment commitment by the Government. In 15 years the annual U.S. production of cents alone would exceed the quantity of all coins produced world-wide during 1974, and at a cost of nearly 2¢ per piece. Clearly, before that point is reached, cents will no longer be commercially useful, and elimination of the denomination will be warranted.

B. The Dollar and Half-Dollar Coins

The existing dollar and half-dollar coins have no future roles in our coinage system because of their cumbersome size and the availability of acceptable substitutes. In recent years, the Mint has produced approximately 60 million dollars and 180 million half-dollars annually. These two denominations account for only two percent of the Mint's total production. According to projections of demand, there will be no significant increase in requirements for these denominations in the foreseeable future. In essence, production satisfies a numismatic type demand, with coins produced being immediately withdrawn from circulation.

Potential Circulation

The basic rationale for a small dollar coin is to increase the flexibility for consumer transactions. The increased use of vending machines to save labor costs, and the higher prices for items which consumers are already accustomed to purchasing from machines, are expected to pursuade the public that the convenience of using vending machines outweighs any inconvenience

of carrying an additional coin denomination. Moreover, the experience of other countries, notably West Germany, with its 2 Deutsche Mark coins (U.S. $.80), demonstrates that large denomination coins in the same range as the new dollar coin can circulate and can find use in vending applications.

A recent survey of commercial banks and merchants, conducted by the Bureau of the Mint, disclosed a desire by both groups that the present dollar and half-dollar coin be eliminated. Of all the groups surveyed, only the vending and coin equipment manufacturers gave a favorable response to the introduction of a new dollar coin. At the present time, with the exception of a limited supply of very expensive bill changers, there are no dollar vending machines.

Initial circulation would be very much dependent upon the production of dollar coin vending devices. At the present time, approximately thirty percent of vending machines sales are 60 cents or more. Despite industry survey results to the contrary, one must question whether dollar vending machines will be developed and installed on the speculation that consumers would obtain the coins to use them. However, a commitment on the part of the vending industry probably would be forthcoming if legislation were enacted to replace the existing dollar coin with a smaller conveniently-sized coin.

Large scale production of automated machines which would accept dollar coins could be accomplished in eighteen to twenty-four months after legislation is enacted. Considering the time

required for production of new automated machines and the likely initial reluctance on the part of the banks, retailers and consumers to use the new coin, it would probably take three to four years after the passage of legislation to achieve wide-spread circulation.

Although the above discussion has focused on the replacement of the existing dollar coin with a smaller conveniently-sized dollar coin, the elimination of the half-dollar coin should be considered simultaneously. It, too, does not circulate and the introduction of a viable one dollar coin would seem to obviate its future usefulness.

Size and Material

The proposed new coin would be sized between the existing quarter and half-dollar. Compared to the quarter, the diameter would be 10% greater and the weight 40% greater (the half-dollar has twice the weight of the quarter). The weight of the proposed new dollar coin would be only one-third the weight of four quarters. The material recommended for the proposed smaller dollar would be cupro-nickel clad on copper (currently used for the dime, quarter, half-dollar and dollar coin), which has excellent wear and corrosion resistance and provides a greater degree of protection against "slugging" than a "non-sandwich" material.

Because of its value relative to other coins, the new dollar might be expected to be susceptible to slugging or counterfeiting. Vending machine and production technology, however, have

reduced this risk to minimal proportions. In fact, dollar coin changers would be considerably less expensive and offer greater security than dollar bill changers.

Cost

The cost of producing the new dollar coin would be approximately three cents, compared to six cents for the present dollar coin and 1.5 cents for the $1 bill. Initial annual production requirements of 300 million dollar coins would cost the same ($9 million) as producing the current average of 60 million dollar coins and 180 million half-dollars. After the first few years the quantity produced is likely to increase. This may be offset by decreased requirements for the quarter dollar as new vending machines become available.

The new one dollar coin offers potential cost savings by supplanting some of the demand for one dollar bills. The coin would have an average live of 15 years, while the bill, costing 1.5 cents, lasts approximately 15 months. Thus it would take 12 bills, costing 18 cents, to provide the medium of exchange service life of one dollar coin, costing 3 cents. It would be highly speculative, however, to attempt to project savings in $1 bill production in view of the number of uncertain interrelated variables -- e.g., if initially the dollar coin became merely a numismatic item and did not circulate, production of $1 bills would remain high and there would be little or no savings; at the other extreme, if production of $1 bills were arbitrarily stopped there would be a savings of about $25 million.

This savings would be partially offset by the increased demand for, and therefore cost of, $2 bills.

Summary

The present half-dollar and dollar coins have minimal utility due to their cumbersome sizes and the ready availability of convenient substitutes. Their manufacture should, therefore, be discontinued. Instead, legislation should be proposed to permit the Treasury Department to manufacture a conveniently-sized dollar coin which would be slightly larger than the quarter. Strong interest by the automated coin handling manufacturers indicates that vending machines and dollar coin changers will be manufactured after such legislation is enacted. This should provide increased consumer flexibility and facilitate transactions for automatically vended products such as cigarettes and sandwiches and services such as mass transit usage. At the same time, consideration should be given to discontinuing half-dollar production since the introduction of a smaller dollar coin would further diminish the usefulness of a coin which is not presently used to any significant degree for commercial transactions.

V. PROPOSED ACTIONS

In view of the foregoing, the Department believes that the Congress should give serious consideration to the question of whether the cent is needed in our coinage system. The analyses conducted by this Department show conclusively that elimination

of the cent after a suitable preparatory period, but no later than 1980, would eliminate substantial production and distribution costs.

However, no decision should be made without full scale public hearings and a thorough understanding of the impact on the consumer and the various institutions involved. The consumer issue is complex and will need to be thoroughly reviewed before determining the final course of action. The Department feels that the potential cost reductions and the diminishing utility of the cent warrant such a review at this time and will be pleased to cooperate in every way possible.

In addition, the Congress should authorize the replacement of the existing dollar coin with a smaller, conveniently-sized dollar, as well as the elimination of the half-dollar from the Nation's circulating denominations. Congressional review and analysis of these recommendations at the earliest feasible date are urged by the Department.

THE CHAIRMAN OF THE
COUNCIL OF ECONOMIC ADVISERS
WASHINGTON

December 8, 1976

MEMORANDUM FOR JIM CONNOR

FROM: ALAN GREENSPAN

This is in response to your request for recommendations and comments on William E. Simon's memorandum concerning a report prepared by the Treasury Department entitled, "The State of the United States Coinage". The report reviews problems concerning the costs on benefits of continued coinage of (1) the one-cent and (2) half-dollar and dollar coins. Because of estimated high manufacturing costs and high attrition rates the report recommends that the elimination of the one-cent coin be considered in public hearings and review. Further, because of very low current use of the half dollar and dollar coins, the report recommends that the half-dollar be eliminated and the dollar coin be replaced by a smaller and less cumbersome coin.

Recommendations: The evidence provided in the report indicates that some Congressional review of the U. S. coinage system is in order, although the specific recommendations of the Treasury will require further analysis and evidence. The Council of Economic Advisers therefore recommends that the report be forwarded to Congress so that a review of these problems can begin.

Comments on the Report:

1. The report estimates the current and projected cost of producing the one-cent coin. However, more evidence is necessary on the benefits of the coin. In particular the fact that the production cost of a penny will rise to more than that $.01 does not necessarily indicate that production be stopped. The utility of money to society does not generally equal its denominational value.

2. High attrition rates for the one-cent coin do not necessarily indicate their diminishing utility. Compare, for example, the transactions utility of the one-dollar coin.

3. In discussing the disadvantages of eliminating the one-cent coin the report does not consider the problem of State and local sales taxes which generally require the use of cents.

4. Another alternative to eliminating the one-cent coin would be to attempt to reduce attrition rates directly either by public appeal or by a small monetary inducement.

THE SECRETARY OF THE TREASURY
WASHINGTON

DEC 3 1976

MEMORANDUM FOR THE PRESIDENT

SUBJECT: State of United States Coinage

Attached is a report reviewing the present United States coinage and identifying two major problem areas which require resolution:

(1) the diminishing utility of the one-cent coin in commerce.

(2) failure of the half-dollar and dollar coins to circulate readily.

Concerning the one-cent coin, we are rapidly approaching the decision point for continuance or elimination. The diminishing utility of the coin is clearly evidenced by its high (14%) annual attrition rate from the circulating supply compared with the nickel (7%) and the dime and quarter (both essentially 0%). This voluntary, permanent withdrawal of coins by the public is an indication of the lack of purchasing power of the coin and its nuisance status. While the value of the denomination decreases with inflation, the cost for the Mint to produce attrition replacement coins increases. Decisions must be made soon whether to start increasing Mint capacity to almost threefold by 1990 to accommodate rising one-cent requirements. Even more significant is the double impact of inflation which results in rising day-to-day costs of keeping the one-cent coin in circulation, while at the same time decreasing the purchasing power of the cent.

While the technical and production/distribution cost evaluations point toward its elimination, there is, on the other hand, a prevalent notion that eliminating the cent would be inflationary by causing the prices of consumer items to automatically rise to the next five-cent increment.

Although the inflationary impact has not been systematically surveyed, it does not necessarily follow that prices will rise as perceived. The entire issue of pricing, rounding, and consumer impact is complex and needs thorough public airing and review prior to any final decision to eliminate the one-cent. We recommend that the Congress hold hearings to resolve these matters.

Concerning the half-dollar and dollar coins, present utilization of the half-dollar is very low and almost nonexistent for the dollar. This is due to the cumbersome size of these coins and the ready availability of convenient substitutes (quarters and dollar bills). The alternatives are to continue the present coins, reduce sizes, or eliminate. We recommend a smaller, more conveniently sized dollar coin and elimination of the half-dollar. In the future, the smaller dollar coin would be particularly useful in vending machine-type transactions.

RECOMMENDATION: That the Secretary of the Treasury be authorized to forward the attached report to the Congress for consideration.

WILLIAM E. SIMON

Attachment

Approve: _____

Disapprove: _____

THE STATE OF THE UNITED STATES COINAGE

I. INTRODUCTION

After completion of a comprehensive review of United States coinage system requirements to 1990, the Treasury Department has identified substantial deficiencies in the existing system which require resolution in the near future. There are two major problem areas:

(1) the diminishing utility of the one-cent denomination in commerce, and

(2) the failure of the present half-dollar and dollar coins to circulate readily.

ONE-CENT COIN

The United States Government is rapidly approaching a decision point concerning continuance of the one-cent coin. The decision is prompted by the diminishing utility of the one-cent coin in commerce, causing ever-increasing production to compensate for high attrition of coins from the circulating supply. Inflation has a double impact because it increases the cost per transaction of keeping a one-cent coin in circulation while simultaneously decreasing the purchasing power of each cent transacted. The diminishing utility of the one-cent denomination in commerce is clearly evidenced by its high (14%) annual attrition from the circulating pool compared to the nickel (7%) and the dime and quarter (both essentially 0%). The attrition,

which represents permanent voluntary withdrawal from circulation by the public, is directly related to the lack of purchasing power of the one-cent alone and, to a lesser extent, even to that of two, three, or four cents combined. Future increases in inflation are expected to create further corresponding increases in attrition rates which in turn place demand on the Mint for replacements; a never-ending spiral. Compounding the situation, estimated cost increases for coinage metal and manufacturing and distribution costs will cause the cost of producing the cent to exceed its face value by about 1980. In addition, the price of copper is projected to rise to such a level by 1990 that the cent coins may provide an economical source of copper for limited industrial consumption, adding to the rate of withdrawal of these coins from circulation.

If coin demand and economic market conditions meet current projections, and if the current coinage system remains unaltered, the present coin manufacturing capacity of the Bureau of the Mint must be increased about 20% by 1980, and must be almost tripled by 1990. These increasing capacities will be solely for cent manufacturing, which presently accounts for 75% of all coin manufacturing. Over 90% of the 1990 capacity would be dedicated to manufacturing cents, which would cost about two cents for each coin produced. Elimination of the cent at some later date would be a much more drastic action than elimination now, as more production plant and equipment, and more Mint employees, would be affected by the precipitous reduction in production requirements.

Alternative one-cent coins which are less costly to produce have been examined. These alternatives would, of course, lower the production and distribution costs for a period of time but, in the best case, only to 1990 when cost would again exceed face value. Changeover confusion and impact would also be considerable. Importantly, however, an alternate coin does not solve the basic phenomenon of decreasing utility in commerce and the increasing day-to-day transaction handling costs.

HALF-DOLLAR AND DOLLAR COINS

Presently, utilization is very low for the half-dollar and practically nonexistent for the dollar coin, due to the cumbersome size of these coins and the ready availability of convenient substitutes (two quarters for the half-dollar and four quarters, or the dollar note, for the dollar coin). The alternatives are to continue manufacturing the present coins, to reduce the sizes, or to eliminate the dollar and half-dollar coin from the system.

EARLY CONSIDERATION

The problems with the present coinage system, as discussed above, are considered by the Treasury Department to be of sufficient magnitude and wide-spread impact as to justify early consideration by Congress of whether changes in the Nation's coinage system are appropriate. Decisions are needed to provide a proper basis for planning, budgeting and implementing actions by the Bureau of the Mint, the Federal Reserve System, commercial banks and businesses.

A review of the present coinage system and the consequences of retaining it in its present form are to be examined herein prior to a discussion of possible alternatives for a more viable system.

II. THE CURRENT COINAGE SYSTEM

The Secretary of the Treasury is responsible for the production of coins in such quantities as he determines necessary to meet the Nation's needs. The Secretary's statutory responsibility for the production of coins is carried out by the Bureau of the Mint, whose two major field facilities, the Philadelphia and Denver Mints, manufacture most of the country's coinage for circulation. Once produced, the coins are shipped by the Mint to the Federal Reserve Banks and branches, which, in turn, distribute the coins to commercial banks.

As specified by law, the Nation's coinage system currently consists of the following denominations: dollar, half-dollar, quarter, dime, nickel and the cent. All physical characteristics of the coins, including their alloy, size and weight, are specified by law. Since the late 1960's all denominations from the dime through the dollar have been made from a clad (sandwich) material which has thin outer layers of cupro-nickel (75% copper and 25% nickel) and an inner core of pure copper. The five-cent piece is made from an alloy consisting of 75% copper and 25% nickel, while the one-cent piece is composed of 95% copper and 5% zinc.

The quantity of coins produced annually by the Mint depends essentially on public demand. The Federal Reserve System and the Mint jointly forecast the anticipated coinage requirements, and, on the basis of the projections, the Bureau of the Mint prepares its operational and financial plans so that it can provide the coins to meet the Nation's needs. The financial plans include all of the costs of making coins which, in addition to manufacturing expenses, cover the costs of coinage metal and the costs of distributing the coins to the Federal Reserve Banks. Thus, in the current fiscal year the Mint's estimated coin production of 12 billion pieces will cost the American taxpayer about $130 million.

Historically, the Nation's coinage demand has increased annually at a rate of approximately 10%. In more recent years, however, there have been abrupt deviations from this pattern. These have been caused primarily by sharply varied demand for cents, the production of which accounts for approximately 75% of the Mint's total coinage output. By way of illustration, in Fiscal Year 1974, the coinage production of the Mint totaled 10.4 billion pieces, 8.4 billion of which were cents. During the next fiscal year, total coin production increased to 13.4 billion pieces, with cents accounting for 10 billion. In Fiscal Year 1976, excluding the three-months transition period, the Mint produced 12.6 billion coins, over 9 billion of which were one-cent pieces.

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The consequences of retaining the present coinage system basically derive from the experienced and projected growth in the demand for circulating coins. Production by the Bureau of the Mint increased from 2.7 billion coins in Fiscal Year 1961 to 12.6 billion in Fiscal Year 1976. With the present set of denominations, annual requirements are forecast to increase to 18 billion by 1980 and 41 billion by 1990. To provide a basis for planning and implementing action by the Bureau of the Mint, several different methods and mathematical models have been developed for estimating future coinage requirements. The 18 billion figure for 1980 and the 41 billion figure for 1990 are in the intermediate portion of the range of forecasts which are provided by using the various methods and models.

The factors or relationships underlying the demand for cents are different from those affecting the demand for all other coin denominations. A stable relationship exists between the demand for nickels, dimes and quarters and the growth in retail sales, or similar measures of economic activity. Cent demand is less predictable due to the unique functions of this denomination in commercial transactions and the evident declining utility.

In recent years, there has been practically no correlation between the disappearance of cents from circulation (attrition rate) and the estimated coin life of about fifteen years. On the contrary, the attrition rate, and in particular the growth

in the attrition rate, appears to be closely associated with the evident public attitudes concerning the declining utility and increasing nuisance aspect of this coin. For example, two previous studies of samples of coins in circulation indicates attrition rates for cents of 4.8% in 1962 and 13.0% in 1973. Conservative projections indicate that this attrition rate will grow to about 21.0% by 1990. In effect, the public, by not bothering to keep these coins in circulation, has been "voting" over a protracted period of time for elimination of the one-cent piece from the United States coinage system.

The result of the experienced growth in cent attrition rates is that approximately two-thirds of the cents produced by the Mint in Fiscal Year 1975 were necessary to replace coins withdrawn from circulation. This proportion is projected to increase, as its utility declines, to the extent that by 1990, about 31 billion (82%) of the estimated production requirement of 37 billion cents would be solely to provide replacements for coins removed from the circulating pool. As the 1990 projected production of 37 billion cents would be about 90% of the expected total requirement for all denominations, it is readily apparent that cent projections impact most significantly on required production capacity and on total coinage system costs.

Current forecasts show that total coinage demand will exceed present Mint production capacity by about 1980, and will exceed present capacity by as much as two or three times by 1990. In addition, valuable resources and substantial costs would be

involved in producing the tremendous number of one-cent coins, which would not circulate and which would be of limited value commercially.

The cost to the public of maintaining a coinage system includes all costs of the Mint in producing, handling and shipping its product. In addition, costs of handling, storing and distributing the coins by the Federal Reserve System, by commercial banks and by merchants are all passed to the consumer in one form or another. By this definition, the aggregate costs to our society of maintaining an adequate supply of cents have been estimated. The estimates were based on reasonable assumptions regarding increases in costs to the Mint of manufacturing and shipping coins. For example, the trend in copper prices was estimated to increase from the present figure of $.60 per pound to $1 per pound in 1980 and $1.50 per pound by 1990. Similarly, the costs of fabricating coinage metal, coining, and shipping were assumed to increase at an annual rate of 4%. Also, the 1975 estimated cost figure of $.03 per 100 coins for Federal Reserve and commercial banks to process cents was assumed to increase at an annual rate of 5%. On the basis of these types of assumptions, the total annual costs for maintaining the one-cent piece in the coinage system are expected to increase from the $81 million figure in 1975 to $189 million in 1980, and to about $693 million in 1990. These costs do not include the capital investment required to expand the Mint's production capacity.

As mentioned earlier, the current Mint production capacity will be exhausted by 1980. Development of additional capacity within existing facilities is not a total or, in some cases, a reasonable alternative, since these facilities already are overcrowded and have serious environmental and engineering deficiencies. Future capacity requirements will have to be met by constructing and equipping new mints, with the first major production increment needed by 1980. Capacity requirements can be met for some time by the construction of the tentatively planned new Denver Mint. This facility, when fully equipped, would have a capacity of 16 billion coins per year, at an estimated full capital investment cost of $86 million. To fulfill the 1990 projected requirement of 41.5 billion coins, additional capacity from the present base in the amount of 25 billion coins per year would be required. By extrapolating from the cost estimate for the planned new Denver Mint, by 1990 capital investment in the order of $200 million would be required to meet reasonable demand projections. Without the one-cent piece in the coinage system, additional capacity would not be required and, in fact, present Mint capacity should be sufficient until at least the year 2000.

IV. ALTERNATIVES TO THE PRESENT COINAGE SYSTEM

A. Elimination of the One-cent Coin

The one-cent piece would have to be eliminated soon in order to forestall the excessive costs to the public of main-

taining in circulation a coin of so little value for commerce.

The cent has been the minimum U.S. coinage denomination since 1857, when Congress eliminated the half-cent. The purchasing power of a cent in 1917 was equivalent to that of a nickel in 1975, and (assuming a 5% inflation rate) to the projected value of a dime in 1990.

The costs associated with maintaining cents in circulation are rising. The present manufacturing cost, .7¢ per coin, is projected to increase to 1.5¢ per coin by 1990. However, the manufacturing cost is only a portion of the total cost to the public. In addition to these and other Governmental costs, commercial businesses incur costs for handling the large volume of cents. Considering the frequency with which this coin is handled, counted, packaged, stored, and transported; the labor, materials, and capital equipment involved in the process; and the losses due to attrition, one can easily conclude that it costs our society more than a penny to transact a penny's worth of business.

Reduction of Production and Distribution Costs

Eliminating the cent would avoid an increasing annual cost to the public via a reduction in total coin production and distribution. As mentioned previously, the total annual costs to the American taxpayers of maintaining the cent in the coinage system are estimated to be $189 million in 1975, with a growth to about $690 million by 1990. Removing the cent from the system would not eliminate all of these costs, since there

would be some increases in requirements for nickels and dimes due to the absence of the one-cent piece. Thus, reduction in costs is estimated to be about $150 million annually in 1980, and about $600 million by 1990. Also, expenditures of nearly $200 million for establishment of additional mint capacity to 1990 would be avoided if the cent were eliminated.

In addition to the reduced costs, removing the cent from the coinage system also would eliminate the consumption of valuable and increasingly scarce metal resources. With the present configuration and alloy of the cent, this "waste" of metal is in the order of 39,000 tons of copper in Fiscal Year 1977, with a projected growth to an annual figure by 1990 of about 129,000 tons. These are significant uses of a resource which has important military applications as well as wide commercial applications in the electrical, construction and transportation industries.

Discontinuing cent production would reduce the manufacturing requirements of the Bureau of the Mint by more than 60%. Excluding this denomination, total production requirements to 1990 are not expected to exceed 7 billion coins annually, and present coin production capacity would be more than adequate to the 21st century.

Preferences of Affected Institutions and Individuals

While the Treasury Department has surveyed various affected institutions concerning the possible elimination of the one-cent piece, no attempt has been made to poll the general public.

However, the Department has recently made several announcements which have generated a limited amount of response from the public. As of the middle of November 1976, 146 letters had been received by the Department expressing an opinion on the subject. The Mint has maintained a tally which indicates that 89% of the respondents are opposed to, and 11% in favor of, elimination of the one-cent piece. Most of those opposing elimination do so because of perceived inflationary effects and anticipated inconveniences in conducting cash transactions. The letters reflect the assumptions that individual items will have to be priced in five-cent increments, and that prices always will be rounded up. Some writers feel that elimination of the cent would be demoralizing, since it would be an open admission of continuing inflation and the worthlessness of our currency, or fear a national or world impression that our monetary system is shaky. A sentimental attachment to the cent is reflected in a few letters which mention "children's piggy banks," and the "oldest coin," as reasons for not eliminating the cent. The small percentage of letters which welcome the elimination of the cent express the belief that the result would be increased consumer convenience and savings to the Government and to business, who would no longer have to deal with the coin. However, since a significant sampling of public opinion has not been conducted, the real attitudes and desires of the American people on this subject are not known at this time.

Retail firms and commercial banks recently surveyed by the Department also have expressed opposition to the elimination of the cent because of assumed inflationary impacts, as well as anticipated inconveniences which the absence of the cent would cause in cash transactions. Further, the overwhelming majority of state revenue departments opposed the discontinuance of cents, because of problems associated with the adjustment of existing state sales tax schedules and collection of tax revenues.

The Perception of Inflation

There is a prevalent notion that eliminating the cent would generate an automatic increase in consumer prices. Although the inflationary impact has not been systematically studied, it does not necessarily follow that prices will rise. For example, absence of the cent in cash transactions does not mean that prices would have to be stated in five-cent increments. Many prices, particularly for items that typically sell in multiples (e.g., postage stamps), or as part of a basket of different items (e.g., groceries), could continue to be quoted in one-cent increments. Rounding would then occur only on the sum of purchases if payment were by cash, and not at all if payment were by check or credit card. Furthermore, for those item prices that were changed to a five-cent increment basis, competitive pressures undoubtedly would lead to some rounding down as well as up. Over time, leads and lags in changing prices in five-cent increments should tend to average out. And, pricing adjustments could be made in many cases through changes in packaging,

or similar devices. Finally, the cost of keeping the cent in circulation is built into the current price structure, and removing this cost should have a favorable price effect in the long run.

Transitional Considerations

If a decision to eliminate the penny were announced well in advance, commercial interests and state revenue departments would have adequate lead time to make the necessary accommodations. Although such an announcement could stimulate cent hoarding, the present stock of cents in circulation (45 billion), current Mint and Federal Reserve inventory (3.5 billion), and Mint cent production capacity (13 billion annually) should be adequate to avert a crisis during the transition period.

Summary

The primary advantage of eliminating the cent soon is that immediate resolution of the dilemma eliminates the cost of maintaining circulation and increasing mint capacity to meet an artificially high demand, which is nearly all due to attrition caused by the coin's declining purchasing power.

Terminating cent production in the near future will permit the Mint to reduce its operating costs, as well as to avoid the expense of constructing new capacity. Deferring the decision to halt cent production will necessitate a costly expansion of manufacturing capacity, to be followed -- when the decision is finally made -- by a large-scale and more disruptive cutback than would occur now.

Retaining the cent indefinitely would require a large capital investment commitment by the Government. In 15 years the annual U.S. production of cents alone would exceed the quantity of all coins produced world-wide during 1974, and at a cost of nearly 2¢ per piece. Clearly, before that point is reached, cents will no longer be commercially useful, and elimination of the denomination will be warranted.

B. The Dollar and Half-Dollar Coins

The existing dollar and half-dollar coins have no future roles in our coinage system because of their cumbersome size and the availability of acceptable substitutes. In recent years, the Mint has produced approximately 60 million dollars and 180 million half-dollars annually. These two denominations account for only two percent of the Mint's total production. According to projections of demand, there will be no significant increase in requirements for these denominations in the foreseeable future. In essence, production satisfies a numismatic type demand, with coins produced being immediately withdrawn from circulation.

Potential Circulation

The basic rationale for a small dollar coin is to increase the flexibility for consumer transactions. The increased use of vending machines to save labor costs, and the higher prices for items which consumers are already accustomed to purchasing from machines, are expected to pursuade the public that the convenience of using vending machines outweighs any inconvenience

of carrying an additional coin denomination. Moreover, the experience of other countries, notably West Germany, with its 2 Deutsche Mark coins (U.S. $.80), demonstrates that large denomination coins in the same range as the new dollar coin can circulate and can find use in vending applications.

A recent survey of commercial banks and merchants, conducted by the Bureau of the Mint, disclosed a desire by both groups that the present dollar and half-dollar coin be eliminated. Of all the groups surveyed, only the vending and coin equipment manufacturers gave a favorable response to the introduction of a new dollar coin. At the present time, with the exception of a limited supply of very expensive bill changers, there are no dollar vending machines.

Initial circulation would be very much dependent upon the production of dollar coin vending devices. At the present time, approximately thirty percent of vending machines sales are 60 cents or more. Despite industry survey results to the contrary, one must question whether dollar vending machines will be developed and installed on the speculation that consumers would obtain the coins to use them. However, a commitment on the part of the vending industry probably would be forthcoming if legislation were enacted to replace the existing dollar coin with a smaller conveniently-sized coin.

Large scale production of automated machines which would accept dollar coins could be accomplished in eighteen to twenty-four months after legislation is enacted. Considering the time

required for production of new automated machines and the likely initial reluctance on the part of the banks, retailers and consumers to use the new coin, it would probably take three to four years after the passage of legislation to achieve wide-spread circulation.

Although the above discussion has focused on the replacement of the existing dollar coin with a smaller conveniently-sized dollar coin, the elimination of the half-dollar coin should be considered simultaneously. It, too, does not circulate and the introduction of a viable one dollar coin would seem to obviate its future usefulness.

Size and Material

The proposed new coin would be sized between the existing quarter and half-dollar. Compared to the quarter, the diameter would be 10% greater and the weight 40% greater (the half-dollar has twice the weight of the quarter). The weight of the proposed new dollar coin would be only one-third the weight of four quarters. The material recommended for the proposed smaller dollar would be cupro-nickel clad on copper (currently used for the dime, quarter, half-dollar and dollar coin), which has excellent wear and corrosion resistance and provides a greater degree of protection against "slugging" than a "non-sandwich" material.

Because of its value relative to other coins, the new dollar might be expected to be susceptible to slugging or counterfeiting. Vending machine and production technology, however, have

reduced this risk to minimal proportions. In fact, dollar coin changers would be considerably less expensive and offer greater security than dollar bill changers.

Cost

The cost of producing the new dollar coin would be approximately three cents, compared to six cents for the present dollar coin and 1.5 cents for the $1 bill. Initial annual production requirements of 300 million dollar coins would cost the same ($9 million) as producing the current average of 60 million dollar coins and 180 million half-dollars. After the first few years the quantity produced is likely to increase. This may be offset by decreased requirements for the quarter dollar as new vending machines become available.

The new one dollar coin offers potential cost savings by supplanting some of the demand for one dollar bills. The coin would have an average live of 15 years, while the bill, costing 1.5 cents, lasts approximately 15 months. Thus it would take 12 bills, costing 18 cents, to provide the medium of exchange service life of one dollar coin, costing 3 cents. It would be highly speculative, however, to attempt to project savings in $1 bill production in view of the number of uncertain interrelated variables -- e.g., if initially the dollar coin became merely a numismatic item and did not circulate, production of $1 bills would remain high and there would be little or no savings; at the other extreme, if production of $1 bills were arbitrarily stopped there would be a savings of about $25 million.

This savings would be partially offset by the increased demand for, and therefore cost of, $2 bills.

Summary

The present half-dollar and dollar coins have minimal utility due to their cumbersome sizes and the ready availability of convenient substitutes. Their manufacture should, therefore, be discontinued. Instead, legislation should be proposed to permit the Treasury Department to manufacture a conveniently-sized dollar coin which would be slightly larger than the quarter. Strong interest by the automated coin handling manufacturers indicates that vending machines and dollar coin changers will be manufactured after such legislation is enacted. This should provide increased consumer flexibility and facilitate transactions for automatically vended products such as cigarettes and sandwiches and services such as mass transit usage. At the same time, consideration should be given to discontinuing half-dollar production since the introduction of a smaller dollar coin would further diminish the usefulness of a coin which is not presently used to any significant degree for commercial transactions.

V. PROPOSED ACTIONS

In view of the foregoing, the Department believes that the Congress should give serious consideration to the question of whether the cent is needed in our coinage system. The analyses conducted by this Department show conclusively that elimination

of the cent after a suitable preparatory period, but no later than 1980, would eliminate substantial production and distribution costs.

However, no decision should be made without full scale public hearings and a thorough understanding of the impact on the consumer and the various institutions involved. The consumer issue is complex and will need to be thoroughly reviewed before determining the final course of action. The Department feels that the potential cost reductions and the diminishing utility of the cent warrant such a review at this time and will be pleased to cooperate in every way possible.

In addition, the Congress should authorize the replacement of the existing dollar coin with a smaller, conveniently-sized dollar, as well as the elimination of the half-dollar from the Nation's circulating denominations. Congressional review and analysis of these recommendations at the earliest feasible date are urged by the Department.