

TIME FOR CHANGE: MODERNIZING TO THE DOLLAR COIN SAVES TAXPAYERS BILLIONS



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AARON KLEIN

Aaron Klein served at the Treasury Department as the Deputy Assistant Secretary for Economic Policy, Policy Coordination. In that capacity he has worked on financial regulatory reform issues including crafting and helping secure passage of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Klein is also the director of the Financial Regulatory Reform Initiative at the Bipartisan Policy Center. Previously, he played a leading role on housing finance reform, transportation and infrastructure policy and TARP implementation. Prior to his appointment in 2009, he served for over eight years on the staff of the Senate Banking, Housing and Urban Affairs Committee, most recently as chief economist. In that capacity, he worked for Chairmen Chris Dodd (D-CT) and Paul Sarbanes (D-MD) on numerous pieces of legislation, including the Emergency Economic Stabilization Act (EESA), the Housing and Economic Recovery Act (HERA), the surface transportation reauthorization (SAFETEA), the Check 21 Act, the Terrorism Risk Insurance Act (TRIA) and the Sarbanes-Oxley Act. He also led the committee's economic policy agenda which included oversight over the Federal Reserve, the Council of Economic Advisers, and issues regarding currency and coins.

EXECUTIVE SUMMARY


It is rare to have an opportunity to implement a policy that can save American taxpayers billions by reducing the nation's deficit, save small businesses and public agencies money, and help the environment. Switching from the dollar note to the dollar coin is one such rare policy opportunity. It is a simple, common sense change, which could accomplish all of these important objectives, has bipartisan support in Congress, as well as the support of two-thirds of the American people. It has been proven successful numerous times in Canada, Europe, England, and all other major industrialized nations. With the current focus of the Administration and Congress on reducing the deficit and promoting economic growth, there is no better time than now to modernize our one dollar currency to the coin.

This White Paper reviews the literature, prior analysis, international examples, and new changes in the field of currency modernization. First, it will demonstrate that while previous savings estimates conducted by the Congressional Budget Office (CBO) and Government Accountability Office (GAO) have not been inaccurate, they have been significantly conservative – underscoring the actual and potential savings benefits of the coin. Through a detailed analysis of all relevant factors and data available, including the expected lifespan of the coin and the note, estimated seigniorage - government profits from making money - and the replacement rate of each, this paper will demonstrate **the budget impact of modernizing to the dollar coin is likely more than \$13 billion in savings over 30 years.**

This paper will continue to educate the reader on the financial and societal benefits of the dollar coin for small and large businesses, the environment, and taxpayers – including the blind and visually-impaired.

- ◆ Small businesses in retail sales could reap savings on the magnitude of **\$100 million or more per year**, while industries that rely on high volumes of low-denomination payments, such as transit agencies and vending machine operators, can save roughly \$9 million annually.
- ◆ A dollar coin, with a life-expectancy of at least 30 years, is a more environmentally friendly form of currency compared to the non-recyclable paper note, with a life expectancy of only 2 to 4 years. With one coin lasting as long as 7.5 to 15 paper notes over 30 years, we conclude **switching from the dollar bill to the dollar coin would save the equivalent of the amount of trash that over 345,000 Americans (approximately the population of Cincinnati) put into a landfill in a given year.**
- ◆ Hard currency is particularly important to the visually impaired for whom electronic transactions are not always practical. Coins are relatively easy for the visually impaired to use as they can distinguish between denominations by feel, size and weight, and help prevent fraud and con artists taking advantage of the visually impaired. This is no small issue as there are over 6.6 million Americans who have a visual disability, including over 2.7 million senior citizens and over 650,000 children.¹

Third, the reader will learn that America stands alone among major, developed economies in holding onto the low denomination notes. Every other major industrialized nation has moved from producing paper currency to coins for lower denominations. Examples include Australia, Canada, Japan, the United Kingdom, and the European Union. In fact, many of the member countries in the Euro-zone, such as France, Spain, and Holland already switched to coins prior to the introduction of the common currency in circulation in 2002. With the quarter as our highest denomination currency, the U.S. is very far from the global standard in currency as the Economist noted in the chart cited on page 16.²

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- ◆ As a prime example, we will study Canada and the tremendous success they have experienced with both a one dollar and two-dollar coin. Savings were ten times larger than initially anticipated. Public acceptance was strong with very little criticism.
 - ◆ We will also show how the Euro-zone introduced the only major new currency in a generation. Faced with a clean slate and a strong need for public acceptance, they decided to use coins in one and two Euro denomination. They also experienced major success in adoption and public use.

Around the globe every other major industrialized nation has chosen to use a coin instead of paper for lower denominations. Given that issues of cost, savings, technology, and usage of money are relatively constant across these nations, it stands to reason that **the overarching international trend toward using coins instead of paper for lower denomination amounts is based on sound logic and principals.**

Finally, this White Paper will dispel common myths about Americans' acceptance of the dollar coin and answer the question on the minds of everyone in Washington, D.C.: "Why now?" Legislation has been introduced numerous times over the past two decades, including recent legislation by Senators Harkin (D-IA), McCain (R-AZ), Enzi (R-WY), Udall (D-Colo), and Coburn (R-OK). The switch to the dollar coin has been endorsed by dozens of national and state newspapers, which is indicative of the common sense conclusions one draws from the facts.

With both political parties currently focused on efforts to reduce the federal deficit, the dollar coin presents a unique opportunity for Congress to take action and produce billions in budget savings without raising a single tax or cutting a single program.

INTRODUCTION

One of the basic functions of government is to produce a common currency. This has been true since well before the Roman Republic and remains the case today. Recognizing its importance, our founding fathers included this responsibility in the enumerated powers of Article I, Section 8 of the Constitution, “The Congress shall have the Power... to Coin Money.” Currency is the vital medium for which business is transacted. People rely on a common currency on a daily basis. Technology has certainly changed how currency is made and used. However, it has not changed the need for currency and contrary to some misconceptions, the need for cold hard cash. As the saying goes, “cash is king”.

How a government decides to provide currency is an important choice. It affects the efficiency of government’s own internal operations and more importantly, that of the consumers and businesses who rely on currency on a daily basis. In America, our type and form of currency has grown incredibly static. Despite significant changes in purchasing power, cost of production and demand, the United States still uses paper currency for single dollar denominations, the highest coin currency in general circulation is a quarter, and, for more than a century, the penny has been the lowest value coin in circulation.

The United States has an opportunity to more efficiently produce currency by switching from the dollar note to the dollar coin. This switch will save taxpayers billions of dollars, which effectively lowers the national debt. It does so without raising any taxes or cutting a single program. It is what economists call, “Pareto improving” – making everyone better off without making anyone else worse off (except the businesses which produce supplies for dollar notes, which in this case is one paper company and one ink company). It is what taxpayers think is a common sense solution to make government function more efficiently and effectively. Modernizing the one dollar currency to a coin is an opportunity that every other major developed nation has already taken advantage of and one the U.S. government should adopt for the dollar coin.

The U.S. has taken partial steps towards the coin in the past, with attempts to introduce dollar coins in the 1970s (Susan B. Anthony), the 1990s (Sacagwea) and in 2005 with the Presidential Coin Act. As a result of these attempts, many businesses have already invested in the technology necessary to process dollar coins and stand to reap significant savings from full implementation. In addition to the savings to taxpayers and businesses, there are additional environmental impacts that come from our continued use of a non-recyclable paper-based note instead of a recyclable coin which lasts as long as 7.5 to 15 of its paper alternatives.

This White Paper reviews the literature, prior analysis, international examples, and new changes in the field of currency modernization. It is broken down into four sections: the first looks at the savings to government from switching from the note to the coin; the second examines the business and societal benefits of the dollar coin; the third considers the experience of other modern, comparable nations as they have considered and ultimately moved higher denomination coins; and, the fourth explains why now is the right time to for the U.S. government to modernize its currency. This analysis will show that under reasonable assumptions, modernizing our currency from a dollar note to the dollar coin could save the government \$13.8 billion over 30 years. Along the way, it will dispel several of the common myths, which often arise in discussions of the currency, coins, and notes.

Fundamentally, the choice is clear. We can save the government significant money, reduce costs to businesses, and help the environment and millions of Americans by making the same common sense switch that every other major industrialized nation has done by moving from the dollar note to the dollar coin. Alternatively, we can run a larger deficit or pay higher taxes or cut important programs, continue to dump waste in landfills, cost businesses more time and money, and spend billions of dollars a year to use a less efficient form of currency. The right choice is pretty clear.

SECTION I: SAVINGS OFFERED BY THE DOLLAR COIN

The first question often asked in this debate is: “How can it be cheaper to make a coin than a paper note?” In the following pages, we will demonstrate that once all relevant factors are considered, including lifespan, seigniorage, and the replacement rate of each, the dollar coin is far cheaper for the American taxpayer than continued reliance on the outdated paper note.

It is true that a paper note costs less to produce than a coin. In 2011, the Mint estimated that the total cost to produce a dollar coin was 18 cents. In 2012 this number rose slightly to 21 cents.³ The cost of actual production of the coin has varied between 15 and 18 cents over the last three years, with the remainder of the cost resulting from administration and transportation costs. The Federal Reserve estimates that it cost 5.4 cents to produce each dollar note in FY 2012.⁴ However, despite being roughly 3 times as expensive to produce initially, the coin lasts far longer. Each dollar coin is projected to remain in circulation for 30 years. The one dollar bill however, has historically lasted only 21 months. This is primarily a result of the frequent use and handling of the one dollar note, as larger currency is used less frequently and lasts longer. The Federal Reserve Bank of New York offers a clear explanation of the process for retiring used currency as well as data on the lifespan of each denomination:⁵

“When a Federal Reserve Bank receives a cash deposit from a bank, it checks the individual notes to determine whether they are fit for future circulation. About one-third of the notes that the Fed receives are not fit, and the Fed destroys them. As shown in [Table 1], the life of a note varies according to its denomination. For example, a \$1 bill, which gets the greatest use, remains in circulation an average of 21 months; a \$100 bill lasts about 7.4 years.”

Interestingly, the Federal Reserve of Richmond provides a different set of answers as to how long currency lasts on its website. See Table 2.⁶

Table 1: Fed. Reserve of New York Estimate

HOW LONG DOES A BILL LAST BEFORE IT WEARS OUT?	
\$ 1	1.8 years
\$ 5	1.3 years
\$10	1.5 years
\$20	2 years
\$50	4.6 years
\$100	7.4 years

Table 2: Fed. Reserve of Richmond Estimate

HOW LONG DOES A BILL LAST BEFORE IT WEARS OUT?	
\$ 1	4.8 years
\$ 5	3.8 years
\$10	3.6 years
\$20	6.7 years
\$50	9.6 years
\$100	17.9 years

Note that the trend of shorter longevity among lower denominations (\$1, \$5, \$10) is still the case, where as higher denominations (\$20, \$50, \$100) last much longer. Still, despite the similar trends the data are very different. There has been a redesign of the larger denomination notes for security purposes, but that has not been the case for the dollar note. One reason for the discrepancy could be the claim reported by GAO that, “In April 2011, the Federal Reserve began using new equipment to process notes, which has increased the expected life of the \$1 note to an average of 4.7 years.”⁷

Given that this new technology was implemented only slightly over two years ago it is difficult to understand how the Federal Reserve Board can report with certainty that the change in the lifespan of the dollar note has been achieved already. It is also interesting to note that there does not appear to have been any media or public release of the implementation of this new technology that would result in significant savings to taxpayers and increases in Federal Reserve profits, which flow back to the U.S. Treasury, minus expenses. Finally, it seems that the only way that this new technological change could cause such a drastic increase in the lifespan of all notes would be if the prior process for Federal Reserve counting was extremely damaging to the currency notes.

The newer data from the Richmond Fed indicates note lifespans more than double what is indicated by data from the New York Fed. Given that lower denomination bills are handled far more frequently outside of the Federal Reserve System than by the equipment described, it stands to reason that that equipment must have been highly damaging. Do other banks or financial intermediaries that handle currency also use highly destructive technology or was this unique to the Federal Reserve System?

Federal Reserve financial documents raise questions about the data they provided to the GAO, which was incorporated into GAO's revised estimates. To explain the sudden, nearly 300% increase in one dollar note lifespan, from 21 to 56 months, GAO stated that "In April 2011, the Federal Reserve began using new equipment to process notes, which has increased the expected life of the \$1 note to an average of 56 months (or 4.7 years), according to the Federal Reserve..."⁸ GAO further stated, "In the past, many notes were destroyed not because they were too worn but because they were not faced correctly when they passed through the processing equipment. Over the past few years, the Federal Reserve has made technical improvements to its equipment to prevent this problem. This has resulted in a lower "shred rate" and, subsequently, a longer average life for \$1 notes."⁹

However, the Fed's own 2013 documents indicate that their improvements in one dollar note processing for so-called misfaced notes resulted in an only 4% improvement: "Beginning in April 2011... the destruction rate of \$1 notes has decreased by approximately four percentage points..."¹⁰ For 2012 the Fed reported: "Beginning in April 2011...pay(ing) out misfaced notes...decreased the destruction rate of \$1 notes by 5 percentage points..." compared to pre-April 2011 rates.¹¹ These modest improvements, while commendable, further validate the New York Federal Reserve Bank data and raise questions as to whether we will experience the large increase in the expected life span of the note, as stated by the Fed to GAO.

There is substantial data about how long coins last and the dollar note lasts – on average 30 years and 21 months, respectively. As shown above, there is uncertainty over the current lifespan of a dollar bill. Current experience suggests a dollar bill lasts under 2 years, with the Fed hoping to extend the lifespan to over 4 years. **If one uses two years as a measure – which would constitute a 14% increase in lifespan over the historical data – 15 notes must be produced to equal the lifespan of one coin. Given that a one dollar note costs 5.4 cents to produce, then it would cost 81 cents to produce enough notes to last as long as each coin, which costs 18 cents to produce. If you assume the longer lifespan of 4 years for a note, then you need 7.5 dollar notes that would still cost over 40 cents to produce, more than double the production cost of one coin.**

This calculation does not include any estimate for inflation for the cost of producing either notes or coins. Inflation is important in the context that production costs rise with inflation, but the sale price of the dollar instrument does not – a dollar coin in 10 years still sells for a dollar. Assuming that each coin circulates for 30 years and each dollar note is tracking the lifespan of the coin, then there is no need to assume inflation in the cost of production for the coin, but it would matter for the cost of the note. While it may not seem like much, even at the low rate of 3% inflation, the cost of labor, ink, paper, etc. adds up over time. The chart below tracks the comparative cost of producing a one dollar coin and a one dollar note over 30 years, taking into account inflation and assuming a 4 year life-span for each note.

WHAT IS THE TRUE PRODUCTION COST OF A DOLLAR?

Year	1	4	8	12	16	20	24	28	30
Cost to Produce a Dollar Coin*	\$18	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Cost to Produce a Dollar Note	\$5.40	\$5.90	\$6.64	\$7.47	\$8.41	\$9.47	\$10.66	\$11.99	\$12.73

*There are no additional costs for producing a coin after year one due to the coin's 30 year lifespan

Attempting to match a dollar coin produced for 18 cents against the creation of a repeated dollar note every four years, controlling for inflation, leads to the total cost of production for the dollar note to be 72 cents.¹² Again, even using the longer lifespan of a note it is simply more expensive to continually produce paper currency rather than coins at this low denomination value with a short lifespan.

ACCOUNTING FOR SAVINGS

The profit from the sale of circulating money is called seigniorage. It is a fundamentally profitable source of revenue for the government: the government makes money by literally making money. The United States government accounts for seigniorage, the difference between currency's face value and its cost of production, differently for notes and coins. This distinction exists because the sale of coins is handled by the Treasury Department through the U.S. Mint, while the sale of notes is handled by the Federal Reserve System, which has twelve regional banks.

The Federal Reserve regional banks are government sponsored private, non-profit entities. They are not part of the government in terms of revenue or expense; they do not use federal government civil service employees or report through the Office of Management and Budget. Instead, they operate independently and are centralized through the Federal Reserve Board of Governors, which is a part of the U.S. Government, operating as an independent agency.

Conversely, the Mint's revenue and expenses are accounted for in a more straightforward manner. It books the revenue from the sale of coins, subtracts its production costs, and returns the rest as profit to the Treasury. Thus, after the 18 cents cost of production for the one dollar coin, the Mint will book the 82 cent profit upon selling it to the Federal Reserve at face value – one dollar. After covering other expenses, the Mint returns its profit to the U.S. Treasury. The Federal Reserve will then sell the dollar coin for one dollar to a bank, resulting in no profit or loss for the Fed.

According to its annual report, the Mint transmitted \$77 million in total net profits to the Treasury in 2012, which resulted from their other non-circulating lines of business. This was a sharp decrease in profits from 2009 and 2008 when the Mint returned profits of \$750 million and \$475 million respectively.¹³ One of the major drivers in the decrease in profits by the Mint has been the decision to suspend production of the dollar coin. In 2012, the Mint reported \$77 million of seigniorage profit as a direct result from the dollar coin, a sharp decrease of 80 percent from the \$383 million in seigniorage profits the Mint recorded in 2011 from the dollar coin.¹⁴ Prior to this change, the Mint had reported seigniorage profits from the dollar coin ranging from \$283 million in 2010 to \$574 million in 2007. These profits flowed directly into the U.S. Treasury.

The Office of Management and Budget has specific rules for accounting for seigniorage. OMB categorizes seigniorage as a 'means of financing' that it does not count for directly in its budget. Thus, changes in seigniorage, 'are not counted in the budget totals either collections or outgo (outlays).'¹⁵

Thus, changes in the total amount of seigniorage are simply passed through directly to produce a smaller or greater deficit to be financed (or in the case of a surplus to be saved). **Thus, changing from a dollar note to a dollar coin produces guaranteed savings that reduce the deficit.** These savings are not subject to annual Congressional appropriations or usable in a scoring sense as an offset to other discretionary spending programs. Instead they are locked in to the very foundational accounting that determines the size of the deficit.

MYTH

SEIGNIORAGE IS NOT A TAX

Seigniorage is the profit that arises from the creation of hard currency money. This profit goes to the government, which created the money (or the Federal Reserve Regional Banks that function as government chartered sellers of money). A simple way to think about it is if you leave \$100 in your bank account, you are earning the interest. If you withdraw it and carry it in your wallet, the government is earning the interest. The more currency people choose to hold in circulation, the more the government earns.

In the context of the dollar note as compared to the dollar coin, this is purely the choice of individuals, who can decide how much cash they want to keep. It is not related to trying to print a lot of money, to cause inflation. So the question is empirical, how do people react when there are dollar coins instead of dollar notes. The answer is that they keep more of them in circulation. International estimates range from 1.5 to 4 coins for every note. Why this is the case is not entirely clear. It may involve a different usage for the coin, such as vending machines, parking meters, and laundromats. You probably don't keep a stack of singles in your car, but keeping change in your car is so common, most new cars come pre-equip with change holders next to the driver. It may involve personal accounting where people keep change in jars or piggy banks at home for a type of savings. Businesses may keep change in cash registers over night, but send bills back to the bank on a daily basis. Whatever the reason, it represents a completely voluntary form of behavior on the part of consumers and businesses as part of their natural preference for the use of coins as compared to notes.

Thus it is not a tax in the sense that everyone or anyone is paying the government. It is simply the choice of people and businesses to how much and in what form to hold hard currency because of preference and efficiency.

Unlike the Mint, which is part of the U.S. Treasury, the Federal Reserve Regional Banks, which handle the sale of notes, are not part of the government. The way that the federal government handles the budgetary treatment, 'scoring', of the Federal Reserve's distribution of notes is complicated. When a Federal Reserve regional bank orders a dollar note from the Bureau of Engraving and Printing (BEP), it pays 5.4 cents to the BEP for the note. It then sells the note to a bank or depository institution for one dollar, which it collects by decreasing that institution's balance at the Fed (often called its reserve account). The Fed uses the profit on the sale (94.6 cents) to purchase Treasury bonds (or, in modern times, other securities) on which the Fed earns interest. These assets are used as securities to offset the liability on the Fed's balance sheet for the dollar note that has been issued.¹⁶ In other words, unlike the Mint, the Fed's profits on each dollar note do not go directly back to the Treasury for deficit reduction.

At the end of the process the Federal Reserve Board of Governors sums up all profits and expenses of the Federal Reserve System and transmits the profit to the U.S. Treasury. Historically, this has always been a positive amount, growing substantially in recent times because of the Fed's unconventional monetary policy decision to buy additional assets to support the economy, such as mortgage-backed securities. In fact, the size of the Fed's asset purchase program is so large that future changes in the value of the balance sheet have the potential to swamp out the profit from the sale of paper currency. A paper by Federal Reserve Economists from the Fed Board of Governors, cited by Chairman Ben Bernanke indicated that, "Taken together, remittances to Treasury are projected to fall to a low level or to be halted for a few years and a deferred asset will be booked on the Federal Reserve's balance sheet."¹⁷ A halt in remittances would occur if the Fed system were to lose money in any given year, something which has not happened in the first hundred years of the Fed's history.

The way that OMB treats the Federal Reserve System is different from that of the Mint. The entire balance of transfers that are "shown as a miscellaneous receipt in the federal budget under 'deposit of earnings, Federal Reserve System,' and are counted in the federal budget's annual calculation of the deficit or surplus."¹⁸ If this seems confusing it is because it is confusing. James Blum, Deputy Director of CBO summed it up nicely in his testimony before the Senate Banking Committee in 1995: "The disparate treatment of the cost of notes and coins, which has no apparent economic justification, arises from a series of decisions by the 1967 President's Commission on Budget Concepts."¹⁹ This Commission decided to treat the Fed's remittances, which historically have been closely related to its profit from currency differently than how the Mint is treated with respect to its profits from coins.

Thus, it is far more difficult to directly treat the changes in net income that the Federal Reserve would remit to the Treasury as a result of offering fewer dollar notes. This would depend on the interest income it earns from its securities, which as noted above has changed substantially as a result of the Fed's move into unconventional monetary policy and asset purchases. It also depends on the budgeting choices of the Federal Reserve Regional Banks, whose cumulative budget in 2012 was over \$3.44 billion, a growth of over 5% as compared to 2011's actual expenses.²⁰

Ultimately, even the Federal Reserve acknowledges that switching to the dollar coin saves taxpayers money. As a Federal Reserve official testified to Congress: "I should observe that the Treasury of the United States – and thereby taxpayers – would benefit financially if, and to the extent that, the availability of a more acceptable dollar coin either caused dollar coins to substitute for dollar notes in circulation more than would be the case without it or caused the total circulation of dollar notes and dollar coins to increase further than would have been the case otherwise."²¹

HOW MUCH MONEY DOES THE DOLLAR COIN SAVE?

The dollar coin saves the government money. The natural question is, how much does it save? The Government Accountability Office (GAO) is Congress' budget watchdog, which frequently investigates the inner workings of government with an eye to boosting efficiency. It should come as no surprise then that the GAO has published on this topic extensively, recommending to Congress in eight separate reports over the last twenty-three years that the U.S. government should switch from a dollar note to a dollar coin. In its most recent estimates, in 2012 and 2013, GAO calculated that the switch would save \$4.5 billion over 30 years.²² In 2011, GAO estimated that it would save the US Government \$5.5 billion to switch from dollar notes to dollar coins, over a 30-year time horizon.²³ The two major reasons driving the change in this estimate were:

- 1) An increase in the estimated life span of the dollar note from 40 months to 56 months (which was previously addressed); and
- 2) The U.S Department of Treasury's December 2011 decision to suspend production of additional circulating dollar coins.

Both of these changes reduce the net benefits of switching to the dollar coin by 20 percent. It is interesting to note that even a radical increase in the expected lifespan of the dollar note (an increase of 16 months is pretty striking when before 2011, the Fed's estimate for the entire lifespan of the dollar note was 21 months) did not reduce the estimated total savings by more. In addition, the decision by the Treasury to suspend production of coins is entirely discretionary and could be reversed before a full switch is made. This would be similar to the Canadian experience discussed below where dollar coin production began alongside the note before the note was discontinued.

The Congressional Budget Office (CBO) also attempted to score the savings from the dollar coin in the mid 1990s. CBO's methodology differed substantially from GAO on a number of fronts. First, CBO used a 5-year budget window, which was how budgetary effects were scored at the time, rather than the full 30-year window that GAO rightly uses when considering the full impact of the coin as compared to the note. Second, CBO does not include any gains in seigniorage in calculating changes to the deficit. This follows OMB's scorekeeping rules in which seigniorage is not factored. At the time, there was no Presidential Coin or Sacagawea coin so the start-up costs to the Mint were radically higher. Finally, CBO was using the lifespan for the dollar note at the time, which was the traditional 20 months.

Despite these differences, CBO found that "Over the 1996-2000 period, budgetary savings would total \$100 million... After the switch to coin is complete, budgetary savings could exceed \$200 million per year."²⁴ It is interesting to note that these seigniorage effects, which CBO and OMB do not score and CBO called 'secondary' would actually exceed the primary scored savings of \$200 million per year during the 1995 estimate. This is consistent with GAO's findings that the savings to the government derive from seigniorage, which is not directly scored by OMB or CBO. Thus, while the numbers are very different, the differences are a result of rules, time frames and specific assumptions such as replacement rate or the life span of the note. CBO Deputy Director Blum put it well when he testified: "The GAO and the Federal Reserve have projected much larger budgetary savings to the government from substituting the one dollar coin for the one dollar note than has CBO. Those larger estimates, however, are not the result of disagreements over basic assumptions, such as the cost to produce coins or process notes. Rather, the dissimilarities stem from different approaches, items of measurement, and time frames."²⁵

CBO did comment on the possibility of a seigniorage effect, stating that, "If the public chooses to hold two coins for each note in circulation, significant secondary effects would have a positive impact on the federal budget."²⁶ CBO estimated those effects at \$270 million using prevailing interest rates and currency levels at the time. Thus, we can try to adjust for some of these differences between CBO and GAO's estimates. First, we can lengthen the timeframe out to thirty years by summing the CBO estimates of \$100 million over the first five years and \$200 million per year subsequently. Then, we can add back in seigniorage by accounting for an additional \$270 million per year of seigniorage, over the final 25 years once the transition is complete. **This results in an estimated savings to the government of \$13.2 billion over 30 years.**²⁷

This is an illustrative estimate using CBO's baseline savings from the mid-1990s. It does not take into account changes in inflation, interest rates for federal borrowings, changes in the life span of the dollar note, or reductions in transition costs as a result of the Presidential Coin Act. While it is not meant to imply an actual CBO estimate – to the contrary, CBO will not score seigniorage – it demonstrates the large range in estimates.

One of the major reasons for this substantial increase in savings was the replacement rate of 2:1. The replacement rate is simply the number of dollar coins that the public would use instead of dollar notes. If each note were replaced by only one coin, the replacement rate would be 1:1. However,

that is not likely to be the case. Generally, the public uses more coins than notes for currency, even of the same value. International experience, as reported by CBO, GAO, and others has shown a wide range of replacement rates, spanning 1.5:1 to 4:1.

To underscore how important the change in this assumption is, GAO used the higher replacement rate of 2:1, but held constant its new assumptions about the length of the dollar note (at 40 months in the 2011 report), transition costs, the cost of the note (2.7 cents in this report, about half of the current cost), and other factors. **Changing only the replacement ratio increased the estimated net savings by \$3.4 billion to \$8.9 billion over 30 years.**

Another key question is the cost of producing the dollar bill. The GAO 2011 report estimated that Bureau of Engraving and Printing will produce 109 billion new dollar notes under the status quo over the next 30 years. In their model, they assumed an average cost of production of each note at 2.7 cents. Yet the Federal Reserve indicates that the cost per note last year was twice that, at 5.4 cents per note. **Using the current cost of production, savings from switching to the dollar coin grew by an additional \$5.88 billion over 30 years.** Of course, including inflation-adjusted costs for production as explained above would increase this figure even more.

Providing a range of total savings of the dollar coin is complicated. As the discussion above illustrates there are a lot of variables: replacement rate, costs of producing a dollar note and coin, inflationary costs of production, interest earned by the Federal Reserve's investments, operating costs at the Federal Reserve Regional Banks and at the U.S. Mint, and many more. However, it is possible to begin to put together an alternative cost savings estimate based on a few clearly delineated assumptions. First, starting with the GAO's 2011 comprehensive analysis of \$5.5 billion in savings over 30 years. Second, increasing the replacement rate to 2:1 used by CBO and GAO earlier, which is more consistent, but still conservative, given the international experience ranged from 1.5:1 to 4:1. This increases the total savings to \$8.9 billion. Third, fixing the one dollar note's cost of production at the current 5.4 cents increases total savings to \$14.8 billion over thirty years. Finally, use the Federal Reserve's conservative assumption that the one dollar note's lifespan has increased another 16 months to 56 months, which reduces total savings by approximately \$1 billion.²⁸ **This leaves the total savings from a switch to the one dollar coin at \$13.8 billion over 30 years.**

MYTH

AMERICANS DON'T WANT DOLLAR COINS

There is a myth that American consumers would reject dollar coins because they prefer paper currency. If this were true, the logic should also hold that people would always have wanted the value of one dollar as a note and not as a coin. Thus, one would have expected a strong 'paper quarter' movement in the 1960s and 1970s when the quarter was worth well over a dollar today. There was no such movement. In fact, the half-dollar coin enjoyed wide circulation in the 1950s and 1960s at a time when that coin was worth approximately \$4 in today's currency. Americans of prior generations were more than willing to use coins equal to or greater in value than a current dollar. And there is no record of a paper quarter movement in the 1950s, 1960s or 1970s. The truth is, the American people support the dollar coin and polling consistently shows that Americans support replacing the dollar bill with the dollar coin by a two-to-one margin when informed of the potential government savings.

SECTION II: THE BENEFITS TO BUSINESS & SOCIETY

Having demonstrated the significant savings the dollar coin offers to the federal government and the American taxpayer, which can be used for deficit reduction, the following section highlights several ways in which modernizing to the dollar coin would benefit businesses, the environment and millions of disabled Americans.

HOW THE COIN BENEFITS BUSINESS AND CONSUMERS

There are many uses for which coins are easier, cheaper, and more efficient than notes. Common examples include vending machines, parking meters, and laundromats. Many Americans have rolls of quarters reserved just for these expenses. In addition, when purchasing anything with cash through a machine which requires change, such as buying a fare card for public transit, having a dollar coin would make life a lot easier. When you have to buy a \$2 trip on a subway but only have a \$10 bill, you will receive \$8 dollars in coins as your change; the difference between 8 one dollar coins and 32 quarters is pretty significant – especially when you consider that 4 quarters are about three times heavier than a dollar coin). From the business perspective, using coins instead of accepting dollar bills is a lot more efficient due to less jamming and the general cost of technology to accept and process notes. These benefits to consumers and costs to businesses from small transactions can really add up.

COSTS TO BUSINESS FROM DOLLAR BILLS

Processing paper currency is more expensive than processing coins, especially for businesses that use vending machines or have to handle large volumes of small denomination notes. One estimate of the cost of processing dollar notes versus coins comes from the public transit industry. A transit trade association, “Determined that the cost to process one thousand dollars worth of one dollar bills is approximately \$10.11. The cost to process the same amount in dollar coins is \$1.22.”²⁹ They cited a series of factors to explain this cost difference, including the cost of handling, counting, and stacking the bills, as well as the costs of vending coins as compared to dollars. That is a savings of \$8.89 per one thousand dollar bills, which translates into \$8,890 per million or \$8.89 million per billion.

While it may seem difficult to posit that transit agencies nationally could save almost \$9 million per year in processing costs by switching from dollar notes to dollar coins, consider that across the nation transit agencies collected over \$13 billion in passenger fares in 2011.³⁰ If only eight percent of this revenue came in the form of one dollar bills that would translate into approximately 1 billion dollar bills being processed by the transit agency. Under this assumption, modernizing to the dollar coin would produce almost \$9 million in savings due to cheaper processing costs.

FOCUS ON SMALL AND RETAIL BUSINESSES

These savings would be similarly realized by individuals and small businesses that rely on cash transactions, such as restaurants and small family owned retail stores. However, it would be less impactful for those who conduct business through the internet or high dollar volume transactions (not many people buy cars with suitcases full of cash). It is difficult to quantify the cost structure for handling the currency for these businesses, much less the cost savings for switching to coins. However, just because these cost savings are difficult to estimate and small in the individual transaction doesn't mean that they couldn't add up.

One study estimates that roughly one-third of in-store purchases are made in cash.³¹ According to the U.S. Census Bureau, retail sales for businesses with fewer than 100 employees were over \$2.5

trillion annually.³² If the share of transactions using dollars were the same as the total volume of business that would translate into \$816 billion of retail sales, in cash to small businesses in the U.S. on an annual basis. How many dollar bills are in those transactions is a difficult figure to know. One starting point for an estimate would be to use the share of dollar bills as a share of total currency, which is just under one-third.³³ Using that assumption leads to just over \$250 billion of cash transactions using dollar bills at small, retail businesses alone.

The question of savings now comes down to the estimate of how much could small businesses save by using coins instead of notes. This is very difficult to estimate. It clearly isn't the same across businesses. Small businesses that use vending machines would experience savings in line with the transit agency example. Those that sell high dollar, low volume merchandise would not. Also, the transit estimate only looked at the cost of handling the money, and didn't focus as much on the cost of time to the customer and to the business serving the customer. Using coins can keep a line moving, which is very important in retail; recall how fast-food chains sometimes use automated dispensers for coins because they are more efficient. Let's be extremely conservative and estimate that the savings for a retail small business is only five-percent of that of the transit agency. **That would still create an estimated savings for small, retail businesses of over \$100 million per year, just from switching from the dollar note to the dollar coin.**

ENVIRONMENTAL ASPECTS

The above discussion focused primarily on the economics of production, distribution, and usage of the note and the coin. These estimates frequently do not go into any great depth on the question of the environmental impacts of producing notes as compared to coins. This is a constraint on the analysis as the environmental aspects are important and merit strong consideration in determining which method of production the government should choose to making one dollar instruments of currency.

There are a lot of factors at play in considering a holistic environmental analysis. Similar to the analysis with respect to cost, the time horizon chosen is critically important. Because a coin will last for 30 years while a dollar note lasts for far less time, it will require the production of many notes to equal the lifespan of one coin. The discrepancy in production between the two is exacerbated, as the dollar coin is 100 percent recyclable. The metal in an old coin retains its metallurgic value beyond its functionality as a coin; once it is no longer usable as a coin, the metal can be reused to make a new coin. Conversely, the dollar note is not recyclable for the most part. A group of scientists and engineers at Michigan State University attempted to quantify the difference in waste generated between coins and notes over a 30-year time horizon. This would underestimate the real savings of the dollar coin, because even at the end of its useful life, it is still 100 percent recyclable, as compared to the end of the useful life of the last dollar note used to last through the 30th year. However, even with that caveat, the findings are very interesting.

They found that over thirty years, to meet the demand for dollar notes, the U.S. would generate 164,700,000 kilograms of landfill waste, as compared to zero for the dollar coin. That is a tremendous amount of waste, but keep in mind that according to GAO estimates, we will produce 109 billion new dollar notes over the next 30 years.³⁴ To put that figure in perspective, it is equivalent to the amount of trash that 225,000 Americans create in a given year.³⁵ When you consider that Americans today recycle approximately one-third of the waste that they create, the landfill impact is even greater.³⁶ **Switching from the dollar bill to the dollar note would save the equivalent of the amount of trash that over 345,000 Americans put into a landfill in a given year.** That is the equivalent of the population of Cincinnati (or Tampa Bay or Boise plus Waco).³⁷ It should not be surprising then, that the scientists at Michigan State University concluded: "The life cycle assessment of the dollar coin and note has demonstrated that the coin is better for the environment than the note."³⁸



MYTH

TRANSITIONING TO THE DOLLAR COIN WILL BE EXPENSIVE

Most businesses have already made the switch. This is because the government kept indicating to business that the dollar coin was coming. Beginning with the Dollar Coin Act of 1997, which established the new Sacagawea dollar coin and continuing with the Presidential \$1 Coin Act of 2005, the government indicated that change was coming. The 2005 legislation went further and required that all federal agencies, the Postal Service, transit agencies, and “all entities that operate any business, including vending machines, on any premises owned by the United States or under the control of any agency or instrumentality of the United States” had to be “fully capable of accepting and dispensing \$1 coins.”³⁹ Essentially this captures a huge number of businesses and sends a strong signal to others to adapt. According to the National Automatic Merchandising Association, all vending machines manufactured in the last 20 years are equipped to accept \$1 coins.

COINS WORK BETTER FOR ALL AMERICANS

Hard currency is particularly important to the visually impaired for whom electronic transactions are not always practicable. Coins are relatively easy for the visually impaired to use as they can distinguish between denominations by feel, size, and weight. America is somewhat unique among major industrialized nations in that our paper currency is impossible to distinguish between denominations for the visually impaired. Other nations use different size currency or have unique tactile features on the currency to address this problem. This is no small issue as there are over 6.6 million Americans who have a visual disability, including over 2.7 million senior citizens and over 650,000 children.⁴⁰

In fact, the U.S.’s refusal to address this issue led to a lawsuit in which the court found against the government and “ruled that the Department of the Treasury and BEP must provide meaningful access to the denomination of U.S. currency notes for blind and visually impaired U.S. citizens and legal permanent residents.”⁴¹ As a result the Treasury Department is considering purchasing digital currency readers and giving them to all visually impaired people at a cost of \$122 million in fiscal year 2013 alone.⁴² Of course, switching to dollar coins would eliminate problems for the visually impaired in distinguishing and using a one dollar note. This is another example of how the switch will be Pareto improving as it improves the lives of one group without negatively effecting others.

SECTION III: PROOF THE COIN WORKS

America is unique among major, developed economies in holding onto its low denomination notes. Every other major industrialized nation has moved from producing paper currency to coins for lower denominations. Examples include Australia, Canada, Japan, the United Kingdom, and the European Union. In fact many of the member countries in the Euro-Zone, such as France, Spain and Holland had already switched to coins before the introduction of the common currency in circulation in 2002. With the quarter as our highest widely circulating denomination of coin, the U.S. is very far from the global standard in currency as The Economist noted in the chart below:⁴³

Change, the facts

	Most valuable coin		Least valuable note	
	Local	\$	Local	\$
Britain	£2	2.98	£5	7.45
Canada	C\$2	1.95	C\$5	4.87
Euro area	€2	2.60	€5	6.51
Japan	¥500	5.20	¥1,000	10.40
Russia	10 rouble	0.33	50 rouble	1.63
Average		2.61		6.17
United States		0.25		1.00

Sources: Dollar Coin Alliance; Thomson Reuters

CANADA

Perhaps the best country to look at for a comparison is our neighbor to the north, Canada. Canada began transitioning from the dollar note to the dollar coin in 1987. In 1987, Canada introduced a new dollar coin – known as the Loonie – and in 1989 they stopped issuing dollar notes completely. At the time, the Canadian government estimated savings of \$175 million over a 20-year time horizon as a result of the transition.⁴⁴ While this estimate sounds smaller than the figures discussed for the U.S. above, consider that Canada has only approximately 10 percent of the population of the U.S. and thus needs a lot less currency, that the shorter, 20-year time horizon would show smaller savings, and that these figures are not adjusted for inflation. Still, the economics on the basis of those figures were compelling and Canada made the switch. The results were astonishing:

- ◆ **Savings were almost ten times greater than estimated.** Canadian officials have gone back and estimated that over the first five years the Canadian government saved \$450 million.⁴⁵ That is a rate of \$90 million of savings per year, as compared to an estimate of \$8.75 million. Further, savings are likely to be larger over the out-years as the initial start-up costs are greatest during the transition.
- ◆ **Public Sentiment grew strongly in support of the coin.** Initially, the public was split with support ranging from 38 to 52 percent during the introductory phase of the coin.⁴⁶ However by 1992, five years after the coin was introduced and three years after the dollar note was eliminated, only 18 percent disapproved of the action according to a Gallop survey.⁴⁷ Beyond that the strongly negative reaction was minimal, as fewer than 100 people wrote to the Canadian government to complain about the transition.

- ◆ *Canada subsequently replaced the two-dollar note with a two-dollar coin.* The change over was so successful and the savings so great that Canada also converted its two-dollar note into a two-dollar coin in 1996. According to the Canadian mint, the two-dollar coin has a life span that is approximately 20 times longer than the previous paper currency.⁴⁸
- ◆ *Canada's experience "can be deemed a success," according to Beverly Lepine, Chief Operating Officer of the Royal Canadian Mint,* who testified at the House Financial Services Subcommittee Hearing in 2012. "In a June 2013 online poll conducted on the Loonie's 25th anniversary...almost 70% of Canadians identified the coin as a recognizable symbol of Canada and many of those consider it a national icon equal to the beaver and the maple leaf."⁴⁹

Canada's experience with currency reform has recently led it to end production of the penny. Similar to the United States, Canada was losing money producing the penny. Thus, in 2012, Canada began to phase out the penny, which it plans to stop distributing entirely in 2013. Canada expects to save \$11 million annually by eliminating the penny.

THE EUROPEAN UNION: A NEW CURRENCY CASE STUDY

Currency production is one of the most basic services provided by governments. Thus, one of the inherent difficulties in an international comparison of currencies is that each nation has a pre-set starting point for the form of currency it produces. It is extremely rare for a new currency to be created, particularly among an industrialized nation comparable in other ways to the United States. The only example of such a new currency coming into circulation over the past three decades is that of the Euro. Currently, twenty-three countries comprising 320 million Europeans use the Euro. The common currency was first put into circulation in 2002, in France, Germany, Italy, Spain, Austria, The Netherlands, Ireland, Belgium and other nations.

This new common currency provided the opportunity to start with a clean slate in determining where to draw the line between notes and coins. Public acceptance of the new currency was a major goal of the Euro movement. There was significant public backlash in multiple countries against ending the production of local currency. The total value of seigniorage was not divided between coins and notes as it is in the U.S., but rather divided up between the member nations in proportion to "a specific key based on each country's GDP and population."⁵⁰ Thus there was no competition or difference in accounting for the production of notes or coins. Thus, the Europeans had a relatively free platform to select the optimal mix of coins and notes with incentives to maximize revenue and public acceptance.

The European Central Bank (ECB) selected coins ranging from 1 cent to 2 Euros and notes from 5 Euros to 500 Euros. At its launch, the Euro was priced just above one dollar (\$1.05 approximately). Using current exchange rates a 2 Euro coin would be equal to slightly more than \$2.50 in dollars while a 5 Euro note would be equivalent to just under \$6.50 in dollars. This is similar to Canada's use of one and two dollar coins and five dollar notes. The equivalent in the U.S. would be to replace the one dollar and two dollar notes with coins.











The introduction of the Euro as a common functioning currency was a major success. Participating countries produced 15 billion notes and 51 billion coins.⁵¹ Public adoption was swift and strong among participating nations. Use and integration of the physical currency went extremely smoothly. As the European Commission cited in their review of the roll out of the Euro: "The public in Europe have accepted their new currency rapidly and enthusiastically."⁵² In explaining the decision for the currency choices, the ECB revealed their original estimate for the lifespan of the 5 Euro note as being only one year, while they estimated several years for higher denomination notes.⁵³ This is consistent, although shorter, than the U.S. experience in 2002 of 20 months.

The decision by the European Union to use Euro coins up to 2 Euros is further evidence that similarly situated, modern, advanced economies use coins more successfully and efficiently for lower denominations than notes. The European case is particularly interesting because the goal of public acceptance was so prevalent at inception. Here the public was dealing with a far greater shift than just one denomination of notes to coins as they were translating and digesting an entirely new currency. However, use of the physical coins and notes between all of the various Euro-nations, has been a success.

THE INTERNATIONAL EXPERIENCE IS PROOF THE COIN WORKS

We have seen the tremendous success that our neighbor to the north, Canada, have experienced. Their savings were far larger than initially anticipated. Public acceptance was strong with very little criticism. Support grew to the point where subsequently transitioning to a two dollar coin was also supported. We have also seen how the Euro-zone introduced the only major new currency in a generation. Faced with a clean slate and a strong need for public acceptance, the ECB decided to use coins in one and two Euro denominations. They also experienced a major success in adoption and public use. Around the globe every other major industrialized nation has chosen to use a coin instead of paper for lower denominations. In fact, the U.S. with our highest major circulating coin at a quarter sticks out like a sore thumb. Given that issues of cost, savings, technology, and usage of money are relatively constant across these nations, it stands to reason that the overarching international trend toward using coins instead of paper for lower denomination amounts is based on sound logic and principals. This is similar to the findings of GAO, CBO, and others who have studied the issue. A full look at all of these major currencies highest circulating coin and lowest circulating note proves the point.

UNITED STATES VS. GLOBAL COIN CIRCULATION & VALUE

COUNTRY	HIGHEST WIDELY CIRCULATED COIN	US VALUE*
Australia	2 Dollar 	\$1.85
Canada	2 Dollar 	\$1.93
France	2 Euro 	\$2.63
Germany	2 Euro 	\$2.63
Italy	2 Euro 	\$2.63
Japan	500 Yen 	\$5.04
Sweden	10 Krona 	\$1.52
United Kingdom	2 Pound 	\$5.32
Switzerland	5 Franc 	\$3.03
AVERAGE		\$3.05
United States	25 Cents 	\$0.25

*US Value found via Yahoo Finance, July 16, 2013.

SECTION IV: CONGRESS SHOULD ACT NOW

Given that GAO has been recommending this action for over twenty years, all other comparable nations have modernized their currency, and the expense already incurred by private business to accept the dollar coin, it is hard to believe that we have not already transitioned away from the dollar note and to the dollar coin. A corollary of this position is: if all of the reasons have not proven sufficient to change, what will finally provoke action? There are several potential reasons to think that policy makers will finally make this switch.

NO PAPER QUARTER MOVEMENT

While the production of coins and notes in the U.S. has been static for several decades that does not mean that their value has remained so. Fifty years ago, a quarter was worth almost two dollars as measured in today's purchasing power. When America celebrated its bicentennial in 1976 a quarter was worth the equivalent of \$1.02. The chart below shows the value of a quarter over the past fifty years, according to the Bureau of Labor Statistics.

WHAT IS THE COMPARATIVE VALUE OF A QUARTER?	
1963	\$1.90
1973	\$1.31
1983	\$0.58
1993	\$0.40
2003	\$0.32
2013	\$0.25

The point here is that at one point in America's not too distant past we had circulating coins that were worth a dollar or more in today's currency. The system made sense at that point as a dollar note in 1973 was worth \$5.24 in today's money. Moving to the dollar coin would simply be restoring the relative balance of pre-1970s coin and note values, before America suffered its worst bought of inflation in a generation.

TACKLING OUR DEBT & DEFICITS

Concerns regarding the growth of our national debt and the increase in the annual federal deficit have skyrocketed over the past several years. Federal debt held by the public has risen to over \$11 trillion in 2012, which is 73 percent of GDP.⁵⁴ While the annual budget deficit is falling sharply since peaking at over \$1 trillion, it is still projected to be in excess of \$600 billion this year and \$560 billion next year.⁵⁵ While a combination of revenue increases and spending cuts have placed the deficit on a path to decline over the next several years, increasing deficits begin again in 2016 and sharply accelerate in the next decade as the baby boomers retire in greater numbers.

The major levers to tackle the deficit are well known: raising more revenue, cutting discretionary spending (both military and non-military), and cutting entitlements. However there is another cate-

gory of measures that reduce the deficit without tackling any of those sacred cows: making the government work more efficiently. While there are not enough gains in government efficiency to solve the budget deficit, each and every change that reduces deficits without pressing any of those major levers ought to receive serious consideration by both parties.

Attempts at a political ‘grand bargain’ in which Republicans accept higher revenues and Democrats accept reductions in entitlements have so far failed to materialize. Yet that does not mean that there has not been substantial progress is discussing what kind of package such a bargain would entail. The Bipartisan Policy Center’s Debt Reduction Task Force, co-chaired by former Senator Pete Domenici (R-NM), and OMB Director and Federal Reserve Board Governor Alice Rivlin (a Democrat) proposed one such grand bargain which they stated would create 2.5 to 7 million new jobs over two years while stabilizing the debt below 60 percent of GDP by 2020.⁵⁶ They included the switch to the dollar coin as part of a package to achieve economic growth while reducing the deficit.⁵⁷ The Campaign to Fix the Debt, Chaired by former Senator Judd Gregg (R-NH), former Governor Ed Rendell (D-PA), and New York City Mayor Michael Bloomberg (I) also laid out principals for a grand bargain which stated, “It is urgent and essential that we put in place a plan to fix America’s debt.” The principals went on to include, “The recommendations of the Simpson-Bowles Commission, the Domenici-Rivlin Task Force, and other recent bipartisan efforts – which each addressed all parts of the budget – provide effective frameworks for such a plan.”⁵⁸

There are strong political forces on both sides pushing for greater deficit reduction. Simultaneously, the so-called ‘grand bargain’ has proven elusive as all of the above major policy levers have entrenched supporters and opponents. It is reasonable to conclude that any policy that reduces the deficit without tackling any of those core issues or having any clear anti-growth elements ought to be at the front of the line for inclusion in any ‘grand bargain.’ Doing so would simply lower the total amount of tax increases or spending cuts that would be required to achieve a stable deficit. The switch to a one dollar coin satisfies all of these objectives. It is not surprising that it has already been included in one major bipartisan proposal.

It is easy to imagine a world in which this switch had been during a prior period of budget tightening. In 1990, then President George H.W. Bush and Congress agreed on a bi-partisan plan to reduce the nation’s deficit. At the time, GAO was calling for the switch to the dollar coin, projecting that it would save \$318 million per year over 30 years (in 1990 dollars). However, those projections were based on 1990 dollars. Using a first order approximation of the savings generated under GAO’s 1990 estimate and adjusting for inflation, we find that our savings for this year (fiscal year 2013) would be \$740 million in current dollars. In other words, had we adopted GAO’s recommendation then, and their projection at the time been accurate, then today, 23 years into the thirty-year window, our annual budget deficit would be almost three-quarters of a billion dollars lower this year alone. Savings next year would be even larger because of lower interest payments over the prior two plus decades. Those savings really add up over time.

ADDITIONAL SAVINGS THROUGH CURRENCY REFORM

Replacing the dollar note with the dollar coin makes sense. However once you open the box to currency reform there is another clear opportunity for savings: eliminating the penny. The penny has cost more than a cent to make for many years. In 2012, each penny cost an average of two cents to make, which was down from the 2.4 cents cost per penny in 2011. Over the last five years the Mint has lost \$187 million producing the penny, the largest loss for any coin denomination.⁶¹ The penny is also the most produced coin. In 2012, the Mint created more than 5.8 billion new pennies. Given the long lifespan of a penny, it would seem very strange that we would need so many new pennies. In fact, according to a different GAO report, approximately 2/3 of pennies are out of circulation. As GAO put it: “These numbers tell us that for almost two-thirds of the billions of pennies produced,

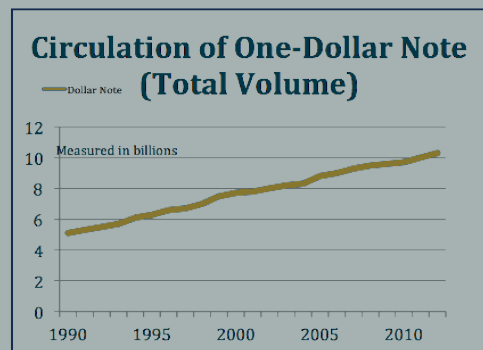
the trip from the Mint to the Federal Reserve to the commercial banks and finally to consumers is a 'one-way trip' – they are not seen again in circulation."⁶²

Projections on losses for the penny going forward are difficult. Over the past five years, losses have ranged from \$20 million to \$60 million, with the largest losses coming over the past two years. If you take the average loss over the last five years (\$37.5 million, which is very conservative given that average loss over the past two years has been \$59 million) and project that out over the next 30 years, you have \$1.12 billion in losses from production of new pennies. If you factor in inflation at 3% per year in terms of costs (a reminder that inflation does not apply to revenue, as a penny still sells for a penny), then those costs jump to \$1.78 billion over 30 years.

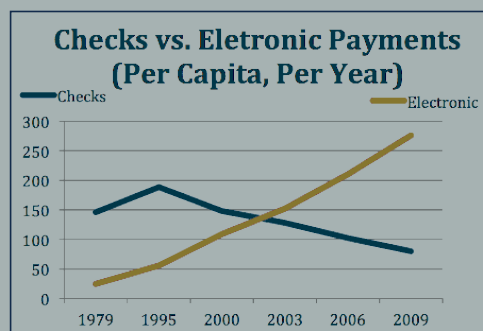
MYTH

THE USE OF CASH IS DECLINING WITH TECHNOLOGY, SO WHY BOTHER SWITCHING?

Fact: Cash is still king. The demand for dollar instruments in circulation is growing. According to the Federal Reserve, we set a record level of one dollar notes in circulation of 10.3 billion at the end of 2012, the most recent data they have published.⁵⁹ In fact, demand for one dollar units of currency has grown at a remarkably stable rate over the past twenty years as shown by this chart using the Fed's data.



It is true that electronic payments have taken off in the digital age. But the growth in electronic payments has come at the expense of personal checks. In the past twenty years, the number of checks written per capita has fallen by 50 percent, while electronic payments have increased rapidly.⁶⁰ For example, think about all of the monthly bills that were paid almost exclusively by check (telephone, gas, electric, cable, credit card bills) 20 years ago. How many of those do you still pay with a check as compared to paying on-line?



Similar to the costs of handling dollar notes, fumbling with pennies costs businesses real money. One estimate from the National Association of Convenience Stores indicated that it adds two seconds or more to each cash transaction. Based on that estimate, Greg Mankiw, former Chief Economist for President George W. Bush, calculated that “getting rid of the penny would free up economic resources valued at about \$1 billion a year.”⁶³

There are additional savings from combining the suspension of the penny with movement to the dollar coin. These savings come from repurposing Mint personnel and space. The Mint is currently producing 5.8 billion pennies a year. That requires a lot of machinery, space, and people. The Mint estimated that it cost over \$116 million last year in non-material costs to produce the pennies. This is larger than the \$84 million that it associated with costs for the dollar coin in 2011 before suspension.⁶⁴ While it is unclear how much could be saved through combinatory efficiency at the Mint between the dollar coin and the penny, the answer is clearly greater than zero and perhaps on the order of \$50-100 million annually. Looking across thirty years, those savings would really add up.

Earlier, a savings estimate of \$13.8 billion was calculated from switching from the dollar bill to the coin. Assuming producing the penny is projected to lose over \$1.1 billion over the next 30 years and assuming a small administrative combinatory additional saving, **it is possible that taxpayers could save \$15 billion over the next 30 years by switching to the dollar coin from the note and by suspending production of the penny.**

WIDE RANGE OF SUPPORT

Given all of the arguments above it should come as no surprise that there is a wide range of bi-partisan and non-partisan support to make the common sense switch from the dollar note to the dollar coin. Bipartisan legislation has been introduced over the past two decades to do just that, including the recent legislation by Senators Harkin (D-IA), McCain (R-AZ), Enzi (R-WY), Udall (D-Colo), and Coburn (R-OK). The following editorial boards have stated their support for making the switch. A striking element is the common theme among them: it makes sense because it saves taxpayers money:⁶⁵

- ◆ *The New York Times*: “As Washington struggles to cut costs big and small, converting to the dollar coin would be a reasonable way to save money.”
- ◆ *The Chicago Tribune*: “Change is hard. But this one’s overdue. Printing paper dollars is a waste of money we don’t have.”
- ◆ *The Boston Globe*: “US should scrap \$1 bill for more economical coin: Even as other nations eliminate low-denomination money, the dollar bill has hung on through a combination of nostalgia, inertia, and lobbying by paper and ink suppliers like Dalton-based Crane.”
- ◆ *USA Today*: “Ditch the dollar bill and live with change: The main reason to make the switch is that it will save money. Paper dollars wear out in about three years and then are typically shredded and put in landfills.”
- ◆ *The Washington Post*: “Cutting a dollar a tough issue for Congress: On balance, though, the merits favor a coin”
- ◆ *The Los Angeles Times*: “A coin would last longer than a bill, saving the government money.”
- ◆ *The Wisconsin State Journal*: “Swap dollar bill for coin to save: Our leaders in Washington, D.C., face many difficult decisions as they approach the “fiscal cliff.” This isn’t one of them. This is a no-brainer”

- ◆ *The Post and Courier*: “Dollar Coin: ...it (\$1 coin) makes indisputable financial sense.”
- ◆ *Reno Gazette Journal*: “If Congress and President Barack Obama were truly serious about avoiding the “fiscal cliff” come Jan. 1, they’d start with a few easy measures instead of going for the whole ball of wax at one time. They could get rid of the \$1 bill, for instance.”
- ◆ *The Pilot Online*: “Dollar coins mean change for better: Continuing to make and circulate dollar bills is costly at a time the nation needs every (too expensive) penny.”

CONCLUSION

The broad support from bipartisan elected officials and nonpartisan newspapers is indicative of the common sense conclusions one draws from the facts. Switching from dollar notes to coins could save taxpayers over \$13 billion. It is a simple step to reduce our deficit without raising taxes or cutting investment. Sure, on its own it won't 'solve the deficit'. However, if we do not take the small, easy steps first, how can we expect to be able to tackle the larger, more complicated ones, which entail difficult tradeoffs? Switching to the dollar coin will save businesses time and money, particularly small and retail businesses. It will help the environment by reducing waste and landfills and increase accessibility to the blind and visually-impaired.

There is a reason that Canada, Britain, and Europe have all done it. The U.S. is now alone in using paper currency at such a low value. A quarter in the 1970's was worth what a dollar is today. America can handle a dollar coin. What is concerning is what it says about our nation if we cannot make this change.

ENDNOTES

¹<https://nfb.org/factsaboutblindnessintheus>

²The Economist, Kill Bill, Will the deficit finally spur America to replace dollar bills with coins? March 16, 2013

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⁵Federal Reserve Bank of New York: <http://www.newyorkfed.org/aboutthefed/fedpoint/fed01.html>

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⁷GAO-13-164T, testimony of Lorelei St. James, before House Financial Services Subcommittee on Domestic Monetary Policy and Technology, Committee on Financial Services, House of Representatives, <http://financialservices.house.gov/uploadedfiles/hhrg-112-ba19-wstate-lstjames-20121129.pdf>

⁸GAO Testimony before the House Financial Services Subcommittee on Domestic Monetary Policy, November 11, 2013, <http://www.dollarcoinalliance.org/wp-content/uploads/2012/11/Lorelei-St-James.pdf>

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¹²Assuming the creation of a new note every 4 years and half a note on year 30.

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¹⁸GAO-04-283, page 10

¹⁹<http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/54xx/doc5499/doc56.pdf>

²⁰Federal Reserve, Annual Report 2012, Appendix C: <http://www.federalreserve.gov/publications/budget-review/2012-appendix-c-expenses-and-employment-at-the-federal-reserve-banks.htm>

²¹Allison, Theodore, Assistant to the Board for Federal Reserve System Affairs, <http://www.federalreserve.gov/boarddocs/testimony/1997/19971021.htm>

²²GAO-12-307, <http://www.gao.gov/assets/590/588549.pdf>

²³GAO: U.S. Coins Replacing the \$1 Note with a \$1 Coin Would Provide a Financial Benefit to the Government, GAO-11-281, <http://www.gao.gov/new.items/d11281.pdf>

²⁴<http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/54xx/doc5499/doc56.pdf>

²⁵<http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/54xx/doc5499/doc56.pdf>

²⁶Ibid, page 13

²⁷GAO 11-281, page 12 <http://www.gao.gov/new.items/d11281.pdf>

²⁸A careful reader will note that there may be some interactive effects of the longer lifespan and the number of new notes at the cost per note in a downward direction, which is correct. I would add two points: if the new technology makes the notes last longer, that probably is reflected with higher initial printing costs, justifying the higher cost per note assumption; I used \$1 billion in cost savings from the longer lifespan, which is a high estimate, attributing over 90% of the total cost savings from that and not the Treasury suspension of production.

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³⁰APTA, 2013 Public Transportation Fact Book, Appendix A, page 219: <http://www.apta.com/resources/statistics/Documents/FactBook/2013-Fact-Book-Appendix-A.pdf>

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³²http://www.census.gov/econ/census/pdf/smallbiz_snapshot.pdf

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⁴⁸Royal Canadian Mint: <http://www.mint.ca/store/mint/learn/2-dollars-5300016#.Udm4xj7SMi4>

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⁵⁰European Commission, Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee, the Committee of the Regions and the European Central Bank - Five years of euro banknotes and coins, Section 3.5, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52006DC0862:EN:NOT>

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