The Check Tax: Fiscal Folly and the Great Monetary Contraction

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Although its role has been overlooked by monetary historians, a two-cent tax on bank checks effective from June 1932 through December 1934 appears to have been an important contributing factor to that period’s severe monetary contraction. According to the estimates in this article, the currency–demand deposit ratio was about 15 percent higher, and the M1 money stock about 12 percent smaller, ceteris paribus, than each would have been without the tax. The contractionary consequences had in fact been anticipated by many legislators who were, nevertheless, unable to prevent the measure from being included in the Revenue Act of 1932.

The monetary contraction of the early 1930s involved a massive switch from bank deposits to currency. Although bank failures and fallen real income and interest rates deserve the lion’s share of blame for the contraction, fiscal policy also played a part. In June 1932 the federal government imposed, as part of its effort to balance its budget, a two-cent tax on bank checks, equivalent to about 30 cents per check in today’s money. By giving the public another motive for switching from deposits to currency, the tax substantially deepened the money stock’s already deep slump. According to the estimates made here, this now-forgotten measure, which most monetary historians have overlooked, accounted—ceteris paribus—for about a 15 percent increase in the currency–demand deposit ratio, and about a 12 percent decline in the M1 money stock.

When the check tax was first proposed, legislators realized that a major monetary crisis was in progress. They heard the testimony of dozens of witnesses who argued that the tax would promote a large-scale switch to currency-based payments and that the already crippled banking system could ill afford the extra strain such a switch would place on it. Yet the tax found its way into the 1932 Revenue Act and, despite dozens of bills and joint resolutions calling for its early repeal, remained in effect through December 1934.


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The Treasury Proposal

Faced with a dramatic collapse in income tax revenues, the Hoover administration recommended numerous new excise taxes in its attempt to balance the 1932 budget. Treasury Secretary Andrew Mellon first proposed a tax on bank checks in his annual report for 1931. Mellon estimated that such a tax would yield $95 million during its first year, or just over 10 percent of the $900 million budget deficit Mellon anticipated in the absence of any new tax measures. The inspiration for Mellon’s proposal was a similar tax adopted during the Spanish-American War. That tax yielded $38 million during fiscal 1899, when total government revenues were only $273 million.

But conditions in 1931 were a far cry from those prevailing in 1899. As Mellon himself observed pages later in the same annual report, 1931 had been “marked with an unprecedented number of [bank] suspensions,” involving almost one and a half billion dollars in deposits. The banking crisis made the check tax an unlikely candidate for inclusion in the 1932 Revenue Act that, for the most part, “followed a path of least resistance,” sparing those industries that had “the proper blend of political efficacy and precarious finances.” Nevertheless, the drive to balance the budget, combined with the vagaries of the legislative process, first allowed the check tax to be adopted despite general opposition to the idea, and then caused the tax to be continued an extra six months despite widespread calls for its early repeal.

The House Rejects the Check Tax

Both Mellon and Undersecretary of the Treasury Ogden Mills insisted that a check tax would not appreciably increase the demand for cash. Theirs was, however, a minority opinion. Pressed on the point at the onset of the House Ways and Means Committee hearings on revenue revision in January 1932, Mills admitted that a check tax might “have a certain restrictive effect” on the banking industry by encouraging hoarding. Still, he insisted, “the best way to remove the fear that causes hoarding is to restore [confidence], and one of the indispensable steps in the restoration of confidence is to balance

2Morris Edwards, “Proposed Tax on Bank Checks,” ABA Journal (June 1932), p. 454. The check tax enacted during the Spanish-American War took the form of a stamp tax, and began on 1 July 1898. The tax was repealed shortly after the war ended. A check tax was also collected for two decades commencing in 1863; but that tax only applied to checks of $20 or more. Data problems unfortunately prevent undertaking any quantitative analysis of the monetary effects of these earlier measures.
4Leff, Limits, p. 21.
Mills’s reasoning was strained, as there was at the time no obvious connection between bank runs and the federal deficit. In any event, the Ways and Means Committee was unpersuaded: to a man it rejected the check tax idea, finding that such a tax was likely to have much more serious consequences than the Treasury claimed. The Treasury’s own position had been based on its $175 estimate of the mean value of a bank check. A two-cent tax was, of course, unlikely to cause any significant switch to currency for such large transactions. But the Treasury’s figure came from data that included some very large financial transactions. The figure therefore hid the fact that the vast majority of checks, including checks for family expenditures, wage payments, and purchases by agricultural cooperatives, were written for much smaller amounts. For instance, according to the National Cooperative Milk Producers’ Federation, as of 1932 dairy farmers had been receiving approximately 150 million checks annually, with a mean value per check of only $2.15. The proposed tax applied to such checks would therefore have been approximately equivalent to a one-percent tax on dairy products at a time when dairy industry profits were exceedingly slim or nonexistent. Similar circumstances prevailed, though on a smaller scale, in the poultry and egg industries. The committee was convinced that a check tax might sponsor a large scale switch to currency-based payments in these industries, at the expense of banks serving them.

The committee had even more reason to fear that a check tax would cause payrolls to return to a cash basis. Many firms had only recently been won over to using checks for payroll purposes, the result being that by early 1932 over $4 billion in payroll checks (including many for relatively small amounts) were being drawn annually. Employers told the Ways and Means Committee that a check tax could reverse this trend, encouraging even such large firms as General Electric (which was then issuing $2.7 million in payroll checks annually) “to go back to the old way” despite the entailed “risk to life and property.”

Such concerns caused the committee to conclude that, contrary to the Treasury’s claims, a check tax might cause a considerable switch from bank deposits to currency. Committee members understood, furthermore, that such a switch would harm an already tottering banking and currency system. Bankers informed them that the tax would discourage new accounts while

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8Ibid., p. 682.
9Ibid., p. 688; see also *Monthly Labor Review* (September 1932), pp. 532–36. According to one estimate, between 1919 and 1928, the overall ratio of check to cash transactions had increased 83.9 percent. See Burns, “Relative Importance.”
threatening old ones. The closing of small accounts would especially threaten struggling rural banks relying heavily on small accounts from which small check payments were made. The ensuing reduction of credit would in turn do further damage to the economy as a whole.11 In the end the committee concurred with a New Jersey banker’s testimony that “if there ever was a time when money should be kept in the banks as distinguished from pockets and money tills, it is now.”12 Indeed, such testimony had, in at least one witness’s view, made the check tax “appear silly” as a revenue device.13 Confident that it had seen the last of Mellon’s idea, the committee omitted the check tax from the revenue bill reported to the House on 8 March and passed by that body soon afterwards.14 Yet the check tax was far from dead, as events would shortly prove.

The Check Tax is Revived by the Senate

By the time the Senate Finance Committee convened in April 1932, a further drop in government revenues, the defeat of a general sales tax, and powerful Republican opposition to any substantial increase in income tax rates combined to sponsor further consideration of various excise taxes, including the check tax. Although the weight of testimony was once again altogether opposed to a check tax, the committee nevertheless voted on 27 April in favor of a tax applicable to checks for five dollars or more only.15 Such a truncated check tax would, the committee believed, yield $50 million its first fiscal year while avoiding any major switch to currency.16

The clause exempting small checks was, however, abandoned on 5 May, in the course of a chaotic afternoon of logrolling culminating in a surprise Democratic Party action placing protective tariffs on imported lumber, coal, oil, and copper. According to that day’s New York Times:

Certain Senators began trying to load down the bill with obnoxious provisions to force retraction of some of the votes already taken. Others tried to save their ‘pet’ taxes, and in the midst of this the tariff advocates sprang their surprise. . . . Practically every vote of the committee . . . was a reversal or change of some former ballot.

In the opinion of Finance Committee member Pat Harrison, the protectionist amendments “so dampened the enthusiasm” of other committee

11Ibid. pp. 675–82.
12Ibid. p. 696.
14The same committee had, after all, successfully defeated a proposed check tax during World War I, when there was no banking crisis and when, as one member of the 72nd Congress observed, “revenue was needed worse than ever before, and every source of revenue was exploited.”
16By this time, the Treasury had reduced its own estimate of the annual yield from an unrestricted check tax from $95 million to $78 million.
members that afternoon that many altogether lost interest in the other details of the bill, allowing an unrestricted check tax—one of those “obnoxious provisions” thrown into the bill as a bargaining device—to appear in the bill as reported to the full Senate on 9 May.  

The revived check tax provoked a day-long debate on the Senate floor on 27 May. Senators Robert Howell and George Norris of Nebraska led the opposition to the measure. Although stressing the adverse effects of a check tax on their dairy-industry constituents, the senators did not overlook the measure’s macroeconomic implications. Norris was particularly eloquent in this regard. Taxing checks, he argued, was tantamount to “penalizing doing business with banks at a time when the cry all over the United States has been, ‘Stop withdrawing your money from the banks!’”

The banks of the country had advertised in the newspapers advising people to... pay their bills with checks, and thus help business generally and keep more money in circulation, instead of having it in pockets and drawers of the various homes of the country... Now we propose to levy a tax upon these homes, [the effect of which] will be now, when we can least stand it, to drive, in the aggregate, millions of money out of the banks.

Country bankers shared Norris’s dim view of the revived tax. One from Kansas City complained to the Senate that banks like his were “having hard enough time keeping up their deposits and maintaining the confidence of the public without interference on the part of the government”; whereas another (also from Missouri) believed the tax would “cause more hoarding than anything [the government] could possibly do,” ruining banks like his where most checks drawn were for less than two dollars.

Supporters of the check tax did not seek to contradict such testimony. They merely insisted that a check tax was, failing other, more politically popular measures, needed to balance the budget. As Senator John Thomas of Idaho put it, “we have to tax something somewhere.” In reply to such thinking Norris exclaimed, “If the budget cannot be balanced without levying this tax... then let the budget go unbalanced.” To most senators, though, a balanced budget was still an imperative. A final attempt at compromise that would once again have limited the tax to checks of five

17Ironically, the same logrolling session that produced the check tax also eliminated a House provision that would have discouraged hoarding of cash by taxing safety-deposit boxes. See U.S. Senate, Report, p. 47.
19Ibid., p. 11418.
20Ibid., p. 11423.
21Ibid., p. 11415.
22For a critical overview of depression-era fiscal policy, see Brown, “Fiscal Policy.”
dollars or more was narrowly defeated in the session's only tie, with 18 senators abstaining.23

*The Check Tax is Debated in the House*

Surprised by the Senate's resurrection of the check tax, many House members expected the measure to be removed in conference, where House and Senate versions of the revenue bill were to be reconciled. But they were disappointed: Early in the morning of 3 June, during a marathon conference session reviewing hundreds of amendments and lasting until 5 a.m., exhausted House conferees withdrew their objection to the Senate check tax amendment. The revenue bill, including the check tax, was reported to the full House the next day.

Although House rules now limited debate to a scant three hours, much of which was taken up by a summary of the report, the check tax was again roundly denounced. Indeed, of all the controversial changes made to the original House bill, including the notorious tariffs, none proved so unpopular or provoked such a bitter response. One representative even wondered whether the conference committee could possibly have come up with another tax "that would have exercised such an unfortunate effect upon the business interests of the country" if it had tried.24 House members echoed their Senate colleagues' earlier predictions that a check tax would "drive more money into hoarding," inducing people to pay their living expenses with cash taken from safety-deposit boxes.25 According to Clarence Cannon of Missouri, one result of this would be the closing of "the great majority of accounts in all country banks," which would in turn "further reduce loanable funds of the banks," eliminating the last remaining source of agricultural credit:

> It is incredible that in this emergency, with the small bank fighting for its life... practical men should propose such a tax. It spells disaster in many communities, it retards recovery from the depression throughout the country, and it defers indefinitely the return of national prosperity.26

But Cannon spoke in vain. Pressed for time, and having rejected Cannon's earlier plea that they take a separate vote on the check tax so as "not to sign the death warrant of the home-town bank," House members were now obliged either to accept the bill as reported from conference or to convene another conference.27 The latter alternative would have meant

23According to the *New York Times* (28 May 1932), this final, unsuccessful challenge to the check tax proved "the greatest test for all the leaders in handling the revenue bill."
25Ibid., p. 12020.
26Ibid.
27Ibid., p. 11905.
failing to pass a revenue bill before recess. This option was, for most mem-
bers, unacceptable. Accepting the check tax as the lesser of evils, and
allowing itself to be assuaged somewhat by the Treasury argument that a
balanced budget would help the banks more than the check tax would hurt
them, a majority voted to accept the conference bill. President Hoover
signed the Revenue Act of 1932, including the check tax, into law on 6 June
1932.

The Term of the Check Tax is Extended, then Shortened

The check tax, along with other excise taxes included in the revenue act,
took effect on 21 June 1932, and was originally supposed to remain in effect
until 1 July 1934. However, a movement to repeal the tax was afoot within
days of its passage. Letters condemning the tax poured into representatives’
ofices from all sections of the country, and congressmen again spoke out
against the tax, to rounds of applause from their colleagues. By the time
Congress went on holiday on 16 July, no fewer than five bills and two joint
resolutions had been introduced calling for the measure’s immediate repeal.

Yet, instead of being terminated ahead of schedule, the check tax would
ultimately be extended an extra six months, expiring on 1 January 1935.
Once again, this outcome was more inadvertent than a reflection of any
genuine support for the tax measure itself. In its final days the first session
of the Seventy-second Congress had the initiative, but lacked sufficient time,
to repeal the check tax. In contrast, the lame-duck second session that
reconvened on 5 December had the time but lacked the initiative. Although
in all the Seventy-second Congress introduced more than a dozen bills
aimed at repealing the tax, no action was taken on any of them. In March
1933 responsibility for ending the tax passed to the Seventy-third Congress.

Within a month the new Congress had introduced a dozen more bills
calling for immediate repeal of the check tax. However, before any of these
measures could be debated by the House Committee of Ways and Means,
that body voted to extend all the excise taxes of the 1932 revenue act,
including the check tax, an extra year as a means for financing the pending
National Industrial Recovery Act. Although House members later spoke out
against the decision to extend the check tax, a “gag rule” effectively pre-
vented them from amending the committee’s bill. Not until the Revenue Act
of 1934 was passed on 8 February 1934, was Congress finally able to cut
short the check tax, calling for it to end on 1 January 1935, or six months
ahead of the other excise taxes extended by the NIRA.
EFFECTS OF THE CHECK TAX

Overview

From the business cycle peak of August 1929 to the trough of March 1933, the M1 money stock fell by 26 percent, whereas the M2 stock fell by more than 35 percent. Most of the decline in both measures took place between August 1931 and January 1932, when a rising tide of bank failures led to a substantial increase in the public’s desired currency-deposit ratio. In January 1932 bank failures ebbed, and the currency-deposit ratio leveled off. In the meantime the stock of high-powered money grew steadily though modestly, thanks to a combination of Federal Reserve open market purchases and inflowing gold. It began to appear as if the worst of the monetary contraction was over.

Unfortunately, what might have been the beginning of a process of reflation ended up being a kind of intermission between two deflationary acts. From May to July the currency-deposit ratio rose again, and sharply. In part this increase was due to a new outbreak of bank difficulties, centered around Chicago. But the Chicago situation had “cleared up” by July, and bank failures did not pick up again until December 1932. Other developments starting in June 1932, including a rally in commodity and stock prices (the Standard and Poor’s 500 index rose 71 percent between June and September) and a more modest increase in industrial production, all pointed to a restoration of confidence in the economy.

Yet the currency–demand deposit ratio did not decline much from its high point during the Chicago banking crisis. Instead, a persistently high demand for currency in the months after July 1932 helped to set the stage for another round of monetary contraction, by absorbing quantities of high-powered money that would otherwise have gone to the relief of the banking system. The check tax played a crucial part in sustaining this high demand for currency, by encouraging a greater use of currency in transactions just when a decline in bank failures and other signs of restored confidence were bringing it out of hoarding.

Contemporary Assessments

Reports of the adverse consequences of the check tax were heard within days of its implementation. By 1 July Missouri bankers had already informed Representative Cannon that the tax had “reduced to an alarming

28Friedman and Schwartz, Monetary History, pp. 712–13, table A-1.
29Ibid., pp. 316–17.
31Anderson, Economics, p. 275.
32Ibid., pp. 273–76.
extent the number of small accounts” in rural areas especially, effectively “nullifying the effects of the antihoarding campaign”:

The heavy withdrawal of funds [has reduced] amounts available in the average bank—and especially in the country banks—for loans. A bank can lend only in proportion to its deposits. The reduction of surplus funds in the banks means inevitably a restriction of the credits and the calling of loans or the refusal of loans at a time when liquid funds are desperately needed.33

Other congressmen spoke of the disappointing yield of the tax, of the “great hardship it is working upon our farmers,” and of withdrawals by “millions of small depositors” the tax had triggered.34

Similar impressions were conveyed outside of Congress. Federal Reserve Governor Meyer called the check tax a “noticeable factor in withdrawals of bank deposits and increase in money in circulation.”35 The American Bankers Association heard complaints from many bankers about the closing of small accounts. One banker reported that account closings were up “at least 100 per cent in reaction against the tax”; another reported that “hundreds of accounts” had closed at his bank alone.36

Other reports at the same time noted a reduced quantity of checks drawn (a common estimate of the decline was 20 percent) and an increase in cash transactions. One banker estimated that the check tax had caused the amount of currency in circulation to increase by 15 to 20 percent. Assuming that the tax did not cause an even larger increase in the monetary base, these figures imply equal or larger increases in the equilibrium currency–demand deposit ratio. Another banker observed that his bank “found it wise to increase the amount of currency we hold in the vault” to accommodate the public’s increased resort to cash payments.37 To the extent that such additions to vault cash involved an overall increase in bank reserve ratios, they were a separate cause of monetary contraction. The switch to cash was enough to alarm even check manufacturers: an advertisement from the Gilbert Safety Bond Company declared, optimistically, that although “the first reaction to the tax” was an increased demand for currency, “sober analysis of the dangers of pickpockets, loss and unthrifty influence in carrying large amounts of cash will soon bring depositors back to the habit of using even more checks.”38

But the public’s response to the check tax was not just a temporary overreaction. By January 1933 monthly revenues from the tax were still only

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34Ibid., pp. 14879, 14908.
36ABA Journal (September 1932), p. 35.
37Ibid., p. 36.
38Ibid.
about half of what the Treasury (in its later, most pessimistic forecast) had anticipated, suggesting that the use of checks had fallen considerably.\(^{39}\) A report by the Bankers Association of Wisconsin indicated that bankers there attributed the closing of almost ten thousand accounts to the check tax.\(^{40}\) According to the *ABA Journal*, housewives continued to pay their bills with cash and employers were still actively “shifting from wage payment by check to the old fashioned pay envelope,” in an effort to avoid the check tax.\(^{41}\)

To some extent the check tax could be avoided without resort to currency by using a single check to pay several bills or by paying wages less frequently. In July 1932 the *New York Times* reported a “growing movement on the part of buyers” to obtain extended credit as a means for making only monthly payments on all transactions.\(^{42}\) Such strategies were evident in statistics for “outside” clearings through the Federal Reserve banks, which showed an average increase of 14.1 percent in the amount per check, and an average decline of 15.2 percent in the number of checks, between December 1932 and December 1933.\(^{43}\) However, because they refer to long-distance payments only, for which cash is not convenient, these “outside” clearing statistics give a false impression of the extent to which the “lumping” of check payments was a preferred means of avoiding the check tax. In local payments, the *ABA Journal* observed, a similar reduction in the number of checks most probably had as its counterpart, not larger checks, but an increased use of cash, with a corresponding, negative impact on the money stock.\(^{44}\)

### Statistical Analysis

Although the behavior of the currency–demand deposit ratio during the early 1930s has been the subject of numerous econometric studies, most of them entirely overlook the check tax. To examine the effects of the tax here, this study estimates a vector autoregression (VAR) model of the currency–demand deposit ratio and the money stock and their conventionally cited determinants (bond yields, deposit interest rates, transactions variables, and bank failures), to which are added an exogenous variable that measures the additional real cost of writing checks attributable to the check tax.\(^{45}\)

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\(^{39}\)In April 1932, the anticipated monthly revenue from the unrestricted check tax was $6.5 million. The actual monthly revenue for the entire check-tax period averaged $3.4 million. U.S. Internal Revenue Commission, *Annual Report*, 1933–1935.

\(^{40}\)*ABA Journal* (January 1933), p. 48.

\(^{41}\)Ibid., pp. 28–29.


\(^{44}\)Bank customers could use specially prepared bank “cash receipts” to obtain cash from their accounts without paying the tax. But such receipts were not transferable.
During the check tax period, this variable equals the magnitude of the check tax (normalized to one) deflated by the price level; otherwise, the variable is zero. The VAR approach has important advantages over conventional studies of the currency–demand deposit ratio: it avoids strong restrictions on exogeneity of the variables in the system, as well as improbable constraints on the dynamic structure of the data.45

The main concern here is with the dynamic effects of the check tax on the equilibrium values of the currency–demand deposit ratio and the money stock. These effects are measured in two ways. First, the coefficient estimates of the contemporaneous and lagged values of the check tax in the currency ratio and money stock equations are reported. These estimates measure the effects of the tax, holding the lagged behavior of all variables in the system constant. Second, the dynamic multipliers of the check tax are reported. These multipliers represent the general equilibrium effects of the tax on the currency–demand deposit ratio and money stock over various horizons.

A basic system for a sample of monthly data from August 1921 to December 1936 is estimated. The VAR model contains six lags of each of the endogenous variables, and a deterministic component consisting of seasonal dummy variables.46 The variable measuring the added real cost of writing a check due to the check tax is set to the reciprocal of the price level from May 1932 through December 1934 and zero otherwise.47 The timing of this variable allows for anticipation effects of the tax.48 Both contemporane-

45The one study to examine the tax is Boughton and Wicker, “Behavior,” which reports ambiguous effects of the tax, and concludes that it was probably unimportant. However, Boughton and Wicker estimate the demand function for currency relative to deposits by relying on questionable identifying and lag restrictions. In addition, they only consider a general measure of the cost of writing checks that includes the effect of an increase in postal rates. The present study examines the effect of the postal rate change later. Finally, Boughton and Wicker incorrectly assume that the tax was lifted in June 1934, its original expiration date. If either of these last assumptions is incorporated into this study’s statistical model, the significant check-tax findings, described later, vanish. Cagan, Determinants, p. 318, table E-1 n., also mentions the check tax, but simply assumes that it had no significant effects.

46The data used in the basic model are: currency held by domestic nonbank public, adjusted demand deposits of all commercial banks, M1, department store sales (as a proxy for currency transactions), the yield on 90-day commercial paper, the interest rate paid on demand deposits by New York City banks, and the number of bank failures, set to zero after March 1933. Data Sources: Department store sales index: Board of Governors, Federal Reserve Bulletin, 30 June, 1944, pp. 542–49; Price Index, revised: Sayre, Consumers’ Prices; Deposits and currency: Friedman and Schwartz, Monetary History, pp. 712–13, table A-1; Bank Failures: Board of Governors, Federal Reserve Bulletin, December 1937; and interest rate on demand deposits: Boughton and Wicker, “Behavior.” The sample period roughly coincides with the sample period in Boughton and Wicker. These data are available from January 1921, but seven observations are lost to differencing and conditioning on initial values.

47Because the real check tax variable varies very little over the check tax period, from 2.19 cents to 1.94 cents (the major deflation occurs before June 1932), the real variable differs little from its nominal counterpart, and the use of an undeflated (constant) variable for the tax period alters the results only trivially. Adding the price level separately to the original system also has trivial effects on inference.

48The check tax was assessed on all checks cleared on or after 21 June. Some switching to cash payments may have occurred prior to that date to avoid a tax charge on temporarily undeposited checks.
Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>$R^2$</th>
<th>Q</th>
<th>$\Pi_{20}(i)$</th>
<th>$\Pi_{21}(i)$</th>
<th>F-test</th>
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<td>C/D</td>
<td>185</td>
<td>0.27</td>
<td>60.83</td>
<td>0.035</td>
<td>0.055</td>
<td>4.19</td>
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<td></td>
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<td></td>
<td>(0.070)</td>
<td>(0.126)</td>
<td>(0.017)</td>
</tr>
<tr>
<td>M1</td>
<td>185</td>
<td>0.25</td>
<td>25.35</td>
<td>-0.026</td>
<td>-0.021</td>
<td>3.86</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.994)</td>
<td>(0.030)</td>
<td>(0.084)</td>
</tr>
</tbody>
</table>

Notes: C/D denotes the currency-demand deposit ratio, N is the number of observations used to estimate the VAR, Q is the Ljung-Box statistic for serial correlation, and F-test is the F-statistic computed under the null hypothesis that $\Pi_{20}$ and $\Pi_{21}$ are jointly zero. Marginal significance levels are in parentheses.

The results from the basic model, shown in Table 1, show a check tax effect on the currency-demand deposit ratio (C/D) that is both statistically significant and economically important. Although the impact effect of the tax on the currency-demand deposit ratio is relatively small and significant only at 12.6 percent, the lagged effect is stronger and significantly positive at 1.5 percent. In contrast, both the impact and lagged effects of the tax on the M1 money stock are negative and statistically significant at low levels, with the impact effect the larger of the two. For both C/D and M1, the F-statistic testing the joint hypothesis that both the impact and lagged effects are zero rejects the null at less than 2.4 percent.49

Figure 1 plots the estimated dynamic multipliers of the logs of the currency-demand deposit ratio and M1 with respect to the check tax, along with asymmetric standard error bands from a bootstrap simulation of 500 replications. This standard error band gives some indication of the statistical significance of the dynamic effects. On impact, the check tax causes the equilibrium value of the currency ratio to increase by 3.5 percent. The ratio then continues to grow for the better part of a year until it is about 15 percent above its initial value. The dynamic response of M1 is similar, though of course in the opposite direction. For each variable, the dynamic responses are large relative to the standard error bands.

To further illustrate the influence of the check tax, a simulated contraction-era time series for the currency-demand deposit ratio and M1 in the absence of the check tax is obtained using the results reported previously.

49There is some weak evidence that the residuals in the currency-ratio equation are serially correlated; however, none of the estimated autocorrelations are quantitatively important.

Also, banks may have prepared in advance for the tax by increasing their reserve ratios. This would, other things being equal, reduce the money stock.
The Check Tax

FIGURE 1
DYNAMIC RESPONSE TO THE CHECK TAX
Notes: The estimated dynamic multipliers of the logs of the currency–demand deposit ratio and M1 with respect to the check tax are plotted. The small dotted lines are standard error bands.

Figures 2 and 3 plot the simulated series against their actual counterparts, where the shaded areas represent the period of the great contraction, October 1930 to March 1933. The gaps between the simulated and actual series give a rough indication of the effects of the check tax. Over the contraction period, the currency–demand deposit ratio rises from 0.168 to 0.407. The simulated series, which represents the behavior of the currency-deposit ratio in the absence of the tax, predicts a rise in the ratio to 0.346 over this period. The check tax therefore accounts for about 26 percent of the actual increase.\(^50\) As for M1, the check tax accounts for 35 percent of its overall decline (from $25 billion to $19 billion) between October 1930 and March 1933.

The previous results do not account for a possible effect of the check tax on the equilibrium value of time deposits. To allow for such an effect, and also to make the findings more commensurate with Milton Friedman and Anna Schwartz’s description of the great contraction, an alternative model was estimated, using M2 in place of M1 and using the ratio of currency to total (demand and time) deposits in place of the currency–demand deposit

\(^{50}\)That is, \((0.407 - 0.346) / (0.407 - 0.168) = 25.5\) percent.
FIGURE 2
ACTUAL AND PREDICTED CURRENCY TO DEMAND DEPOSIT RATIO

Note: The shaded area is October 1930 to March 1933.

FIGURE 3
ACTUAL AND PREDICTED MONEY STOCK: M1

Note: The shaded area is October 1930 to March 1933.
The coefficient estimates for this model, shown in Table 2, generally accord with those for the original empirical model. The dynamic multipliers (not shown) imply that the currency–total deposit ratio rises 2 percent on impact and ultimately by 13 percent, whereas the M2 money stock falls immediately by 1.6 percent and ultimately by 10 percent. According to simulations analogous to those performed for the original system, the check tax accounts for 20 percent of the total increase in the currency–total deposit ratio and for 18 percent of the total decline in M2 between October 1930 and March 1933 (Figures 4 and 5).

The check tax was only one of two factors affecting the cost of writing checks during the great contraction. The other was a temporary increase in postage rates, which lasted from June 1932 through June 1933. To determine whether the check tax variable might actually be picking up the effects of the changed postage rate, a real postage rate variable was substituted for the check tax variable in the original M1 and M2 models. The coefficients on the postage variable are, however, statistically and economically insignificant in both models.

Four other factors, not considered so far, that may have affected the currency–demand deposit ratio or equilibrium money stock during the period of the check tax were the declaration of a national banking holiday in March 1933, prior declarations of state banking holidays starting with Nevada’s in late October 1932, a tapering off of Federal Reserve open market bond purchases during the summer of 1932, and the publication of Reconstruction Finance Corporation (RFC) loans beginning in August 1932. To control for these factors, the original M1 and M2 models were modified by including a national banking holiday dummy variable that was nonzero only in March 1933; by introducing a state banking holiday time series giving for each month the number of state banking holidays declared on or after the twentieth of the preceding month; by introducing the monetary base as an additional endogenous variable in the VAR; and by introduc-

---

Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>$N$</th>
<th>$R^2$</th>
<th>$Q$</th>
<th>$\Pi_{00}$</th>
<th>$\Pi_{12}$</th>
<th>$F$-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/TD</td>
<td>185</td>
<td>0.28</td>
<td>70.09</td>
<td>0.020</td>
<td>0.044</td>
<td>3.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.013)</td>
<td>(0.308)</td>
<td>(0.026)</td>
<td>(0.051)</td>
</tr>
<tr>
<td>M2</td>
<td>185</td>
<td>0.39</td>
<td>37.25</td>
<td>-0.016</td>
<td>-0.016</td>
<td>3.17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.818)</td>
<td>(0.076)</td>
<td>(0.076)</td>
<td>(0.045)</td>
</tr>
</tbody>
</table>

Notes: See notes to Table 1; TD denotes total (demand plus time) deposits.

---

51 M2 is the sum of M1 and time deposits. The data on time deposits come from Friedman and Schwartz, Monetary History, pp. 712–13, table A1.
52 RFC loans may have been regarded by bank customers as a signal of impending bank insolvencies.
FIGURE 4
ACTUAL AND PREDICTED CURRENCY TO TOTAL DEPOSIT RATIO

Note: The shaded area is October 1930 to March 1933.

FIGURE 5
ACTUAL AND PREDICTED MONEY STOCK: M2

Note: The shaded area is October 1930 to March 1933.
ing an "RFC loans publicized" series, showing for each month the dollar value of RFC loans publicized in the RFC's report issued on the twenty-fifth of the preceding month. In every case, the check tax coefficients are virtually unchanged from those of the original models.

Yet another factor that may have contributed to a rise in the currency-ratio and decline in the money stock in the early 1930s was the introduction of service charges on bank deposit accounts. As Phillip Cagan notes, although such charges "were not common before the 1930s," when they were first imposed is not known, and charges (equal to about two-tenths of one percent of the face value of bank deposits) were not separately reported before 1933. Therefore, it is difficult to control for these service charges in the regressions. However, the available data suggest that service charges rose steadily as a percentage of total deposits after the check tax was repealed. It therefore seems unlikely that omitting service charges substantially biases the main findings.

To further assess the robustness of the results, the empirical specification of the original M1 system was altered along a number of dimensions: the number of lags (six or seven) of the endogenous variables in the VAR and of the check tax variable, the form of the bank failure variable (number of bank failures set to zero after March 1933, number of bank failures set to zero after March 1933 and before November 1930, as in the "crisis-only" series employed by James Boughton and Elmus Wicker, or the value of deposits in suspended banks, set to zero after March 1933), the sample period (through 1936 or through 1940), and the transactions proxy (real department store sales alone, real department store sales and the Federal Reserve Board industrial production index, or sales and Jeffrey Miron and Christina Romer's alternative industrial production index). In every case the lagged effect of the check tax on the currency ratio is statistically significant (usually at less than 3 percent) and positive, varying between 0.043 and 0.066 (as compared to 0.055 in the original estimate). The money stock results are equally robust: both impact and lagged coefficients remain negative in each specification, with impact coefficients ranging from −0.019 to −0.028 (as compared to −0.026 from the base model), and lagged coefficients ranging from −0.012 to −0.024 (as compared to the base-model figure of −0.021). The check tax accounts for between 18.2 and 25.3 percent of the

53Although the RFC first began to make loans to troubled banks in February 1932, the first of its loan authorizations to be publicized were those revealed in its report of 25 August 1932. Loans authorized from February through July 1932 were eventually made public in the RFC’s January 1933 report. The value of the latter loans is therefore included in the February statistic.

54Cagan, Determinants, p. 317.

55Deposits of suspended banks are from Board of Governors, Federal Reserve Bulletin (September 1937), table 13; the Federal Reserve industrial production index is from idem., Industrial Production; and the alternative industrial production index is from Miron and Romer, "New Monthly Index," p. 337, table 2. For other data sources, see note 46.
rise in the currency–demand deposit ratio over the period, and for between 24.9 and 38.4 percent of the decline in M1. These results are broadly consistent with, and lend further credibility to, the initial findings.

CONCLUSION

Although monetary historians have tended to overlook it, the check tax enacted as part of the Revenue Act of 1932 seems to have had an important influence on the currency–demand deposit ratio and the money stock in the early 1930s. The tax gave the public yet another motive for withdrawing cash from the banking system, and the public responded accordingly, contributing to deflationary pressures that were already extreme. But the significance of the check tax extends beyond its purely monetary implications. The check tax was enacted by legislators who were informed of its likely, adverse monetary consequences, but who chose to overlook them in their endeavor to balance the budget. More perhaps than any other measure, the check tax stands as a symbol of depression-era attitudes towards both fiscal and monetary policy.

Appendix

The basic statistical model that is estimated is a vector autoregression involving a set of endogenous variables

\[
\begin{pmatrix}
\ln (C/D)_t \\
\ln (M)_t \\
r_{ct} \\
r_{dt} \\
\ln (T)_t \\
F_t
\end{pmatrix}
\]

that contains the currency–demand deposit ratio (C/D) and conventionally cited determinants of this ratio. M is the nominal money stock, \( r_c \) is the yield on commercial paper, \( r_d \) is the explicit yield on demand deposits, \( T \) is a measure of transactions, and \( F \) is the number of bank failures. The assumption is made that \( z_t \) is explained by a structural model of the form

\[
A_0 z_t = D_0 + D_1 t + A_1(L) z_{t-1} + B(L) CT_t + u_t
\]

where \( L \) is the lag operator, \( u_t \) is a vector of stochastic structural shocks, and \( CT_t \) is the

Weak evidence only is found that the check tax had a negative impact on real activity as measured by sales and industrial production. Indeed, the role of monetary contraction generally in the Great Depression remains controversial. Recent empirical assessments of this role include Bordo, Choudhri, and Schwartz, “Could Stable Money”; Cecchetti and Karras, “Sources”; Cecchetti, “Prices”; McCallum, “Could a Monetary Base”; and Hamilton “Monetary Factors.”

See, for example, Boughton and Wicker “Behavior”; and Cagan Determinants.
exogenous “intervention” variable that is nonzero during the period of the check tax and zero otherwise. The distinct dynamic effects of this variable are then captured by the lag polynomial \( B(L) = B_0 + B_1 L + \ldots + B_p L^p \).

The effects of the check tax on the equilibrium values of the currency-demand deposit ratio and money stock (rather than on supply and demand schedules directly) are assessed by focusing on the reduced form of equation A1

\[
zt = A_0^{-1} D_0 + A_0^{-1} D_1 t + A_0^{-1} A_1(L) z_{t-1} + A_0^{-1} B(L) CT_t + A_0^{-1} u_t
\]

\[
= \Pi + \Pi_0 t + \Pi_1(L) z_{t-1} + \Pi_2(L) CT_t + \epsilon_t
\]  

(A2)

Unit root and cointegration tests suggest that the structural shocks in equation A1 each have a permanent component, \( u_t = (1 - L)^{-1} v_t \), so that equation A2 can be rewritten as

\[
\Delta z_t = \Pi_0 + \Pi_1(L) \Delta z_{t-1} + \Pi_2(L) \Delta CT_t + \epsilon_t
\]  

(A3)

where \( \epsilon_t = A_0^{-1} v_t \) is a serially uncorrelated process. The vector autoregression of \( \Delta z_t \) in equation A3 is estimated. The focus is on the coefficients in the first two rows of \( \Pi_2(L) \) to measure the effects of the tax, holding other dynamic factors constant. To obtain the general equilibrium effects, the moving average representation of equation A3 is used, expressed in levels

\[
z_t = (1 - L)^{-1} \left( (1 - \Pi_1 L)^{-1} \Pi_2(L) \Delta CT_t + (1 - L)^{-1} (1 - L)^{-1} \epsilon_t \right)
\]

\[
= (1 - L)^{-1} K(L) \Delta CT_t + (1 - L)^{-1} \left( (1 - L)^{-1} \Pi_1(L) \right)^{-1} \epsilon_t
\]  

(A4)

where the \( k^{th} \) element of \( (1 - L)^{-1} K(L) \) measures the dynamic response of \( z_t \) to a one-time change in the status of the check tax \( k \) periods earlier. The steady-state or ultimate response—the effect on \( z_{t+k} \) of the change in the check tax at time \( t \) as \( k \) gets large—is measured as \( K(1) \). Because the structure is not identified, there is no need to orthogonally decompose the error covariance matrix, as is typically done in most VAR studies. When the behavior of \( C/D \) and \( M1 \) are simulated in the absence of the check tax, \( B_0 \) and \( B_1 \) are set equal to zero and then the dependent variables are dynamically simulated using the estimated coefficients and residuals from the base model.

The methods proposed by Dickey and Fuller, “Likelihood Ratio”; and Kwiatkowski et al., “Testing,” have been used to test for unit root nonstationarity. Adjustments were also made for a structural break during the check tax period, as suggested by Perron, “Testing”; this made no difference. Nor was any strong evidence found for cointegration among the variables in the system, based on the systems test of Johansen and Juselius, “Maximum Likelihood.” These specification checks imply that equation A3 is a reliable statistical model. However, to ensure robustness, the system in equation A2 was also estimated, in levels, to allow for the possible existence of cointegration and long-run relationships. Although the levels system gives estimates of \( \Pi_2(L) \) that are quite similar to those from the differenced system, the steady-state responses do not converge, indicating explosive roots. The implausibility of these steady-state results is another argument for relying on the differenced system.

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