

2002

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Rider, M. (2002). A History of Revenue Forecasts. *Public Finance And Management*, 2(3), 470-487.

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A History of Revenue Forecasts

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“It is hardly necessary to point out that estimates are at best approximate. ... Congressional appropriations, extraordinary in character, or failures to realize fully estimated revenues, are ... influences which may operate seriously to derange all calculations. A conservative margin should, therefore, be reserved in forecasting definite results based on hypothetical calculations.”

*L. J. Gage
Secretary of the Treasury
December 4, 1900*

Abstract

Feenberg et al. (1989) apply a simple regression-based method to test the rationality of state revenue forecasts. Using the same regression-based methodology, we test the rationality of federal revenue forecasts for fiscal year 1802 through 2001. We find that Treasury forecasts of federal revenues satisfy the conditions of weak rationality.

Introduction

The effective conduct of fiscal policy critically depends upon the properties of the revenue forecasts used to implement these policies. More specifically, fiscal policy is frequently used to promote macroeconomic stability, allocative efficiency, and distributional fairness. In order to conduct fiscal policy in support of these goals, officials require accurate revenue forecasts. Suppose, for example, that budget deficits (surpluses) are unexpectedly large due, in part, to inaccurate revenue forecasts. The resulting fiscal posture of the country may be inappropriate for the circumstances and may even exacerbate the conditions that fiscal policy is intended to help alleviate.

Likewise, the ability of officials to use tax policy to promote allocative efficiency requires accurate revenue forecasts. For example, tax policy experts frequently recommend broadening the tax base and

reducing marginal tax rates to encourage work, savings, investment, and entrepreneurial risk-taking. In order to implement such policy prescriptions, however, officials require accurate forecasts of their revenue consequences. Finally, officials also use tax policy to distribute tax burdens according to notions of fairness, such as the ability to pay principle. Designing tax policy to achieve distributional goals without jeopardizing other policy goals, particularly revenue adequacy, also requires accurate revenue forecasts. In short, accurate revenue forecasts play an important role in the development of sound fiscal policies.

The purpose of this study is to evaluate the quality of U.S. Treasury revenue forecasts; however, quality, like beauty, is in the eye of the beholder. For example, the preamble of this study suggests that a “conservative margin should be reserved in forecasting.” This statement seems to argue for downwardly biased forecasts. But, forecasts that are consistently biased in one direction or another may lack credibility. In addition to unbiased estimates, there may be other properties that may be desirable in revenue forecasts.

Accordingly, we propose the following three properties of revenue forecasts. First, the average forecast error should equal zero; otherwise, the forecast is biased. A forecast that is consistently biased in one direction or another will not be credible to officials and the public in the long run. Second, the variance of the revenue forecasts should be less than the variance of actual revenues. A forecast of revenues that is more volatile than actual revenues will not provide a good guide to fiscal policy, particularly stabilization policy. Third, the forecast errors should be uncorrelated with the forecast itself; otherwise, the forecast is not using all available information and could be improved.

We proceed as follows. In the next section, we discuss a regression-based test of forecast accuracy and describe the data employed in this study. Then, we assess the rationality of U.S. Treasury revenue forecasts for the period 1802 to 2001 and for three sub-periods thereof that correspond to major changes in U.S. fiscal policy. We conclude with a summary of our findings and offer suggestions for further research.

Assessing the Rationality of Revenue Forecasts

Future revenues are uncertain for a number of reasons: unanticipated fluctuations in business investment and consumer

spending, the future state of business and consumer confidence, war and peace, and political events at home and abroad. Additional uncertainty arises because the federal tax structure may change in the future. These difficulties are illustrated by the following passage:

It may be useful to add a few general illustrations of the reasons for some of the small estimates now submitted, and of the intrinsic difficulties in attaining much certainty concerning them during crises of overaction and revulsions like the past and the present. ... During the two years before the revulsions in commerce in 1819, and including that year, the sales of public land exceeded the unusual amount of nearly thirty millions of dollars, while in the following years they fell to only about four millions, or less than one-seventh. The system being changed from credit to cash may have cooperated in producing this result; though at the same time, the minimum price per acre was reduced, in order, in some degree, to counteract the effect of that change.

Levi Woodbury
Secretary of the Treasury
September 5, 1837
Reports of the Finances, vol. IV
(pp. 99-100)

Methodology

Since forecasts can only be approximate, we propose the following three properties with which to evaluate the rationality of revenue forecasts.

- (i.) *Unbiasedness*: The expected value of the forecast errors equal zero.
- (ii.) *Efficiency*: The variance of the forecast is less than the variance of actual revenues.
- (iii.) *Independence*: The forecast errors are independent of the forecast itself.

We say that a forecast is *strongly rational* if it exhibits properties (i), (ii), and (iii), and *weakly rational* if it exhibits properties (i) and (ii).¹ While we believe that these three properties are desirable and consistent with generally agreed upon notions of rationality, we concede that an optimal forecast need not be “rational” in the sense described here. A more analytical approach to identifying the properties of optimal revenue forecasts would be to define a loss function in terms of the errors of the revenue forecasts. The optimal properties of the optimal revenue forecasts would those that minimize the loss function. In addition to economic objectives, the loss function could be extended to include political

objectives as well. Although this approach has merit, it is beyond the scope of the present study.

Following Feenberg et al. (1989), we use a simple regression-based method to evaluate the rationality of a set of revenue forecasts. More specifically, first we estimate

$$R_{a,t} = a_0 + a_1 R_{e,t-f} + u_t \quad (1)$$

where $R_{a,t}$ is the actual revenues in fiscal year t , and $R_{e,t-f}$ is the forecast of $R_{a,t}$ made f periods ago. Then, we use appropriate statistical methods to test the joint hypothesis that $a_0 = 0$ and $a_1 = 1$.

Now, we intend to show that the joint test of $a_0 = 0$ and $a_1 = 1$ provides a valid statistical test of weak rationality, as defined above. Greene (1990) shows that $a_0 = E(R_{e,t}) - a_1 E(R_{a,t-f})$; therefore, it follows that a forecast is unbiased if and only if $a_0 = 0$ and $a_1 = 1$. Also, assuming $\text{var}(u_t, R_{e,t-f}) = 0$, it follows from (1) that $\text{var}(R_{a,t}) = (a_1)^2 \text{var}(R_{e,t-f}) + \text{var}(u_t)$. Since variances cannot be negative, if $a_1 \geq 1$, then $\text{var}(R_{e,t-f}) \leq \text{var}(R_{a,t})$. In other words, if the slope coefficient is less than 1.0, the variance of the forecasts is less than the variance of actual revenues. Finally, we note that least squares estimation of (1) imposes property (iii). In summary, the joint test of $a_0 = 0$ and $a_1 = 1$ is a valid statistical test of unbiasedness and efficiency of the forecasts or weak rationality.

The Data

We collected U.S. Treasury revenue forecasts from annual budget reports for fiscal years 1802 to 2001. During this period, the government employs three different definitions of a fiscal year. Consequently, it is necessary to use a variety of sources to get a series of actual revenues that is consistent with the forecasts. Specifically, actual revenues for fiscal years 1802 to 1842 are obtained from the *Report on Finances, 1929*; the *FY 1976 Budget* for 1843 to 1976; and the *FY 2003 Budget* for 1977 to 2001. The data used in this study are reported in a Data Appendix. Finally, the reader should be aware that the series of actual revenues reported in the Historical Tables of the FY 2003 Budget are adjusted to reflect the current fiscal year concept (October 1st to September 30th). Consequently, the unadjusted, actual revenue series used in this study and provided in the Data Appendix may not correspond to the adjusted series in the *FY 2003 Budget*.

In addition to various definitions of the fiscal year, the U.S. budget also employs different definitions of revenue. Currently, for example, federal budget concepts distinguish between on-budget and off-budget revenues as well as current-law and proposed-law revenues. In earlier years, U.S. budgets report revenues inclusive and exclusive of revenues from the operations of the U.S. Post Office and the Panama Canal. So far as practicable, the data series used in this study reflect a consistent definition of budget revenues. The data include all federal revenues, on a cash basis, including those due to the operations of the U.S. Post Office, Panama Canal, and other government enterprises, as well as revenues dedicated to trust funds.

Another difficult issue is whether to use current-law or proposed-law revenue forecasts for this analysis. If we employ current law forecasts and proposed tax legislation was passed into law, then the analysis may be biased. Likewise, the analysis may be biased if we use proposed law revenue forecasts and the proposed tax legislation is not passed into law. We use proposed-law forecasts under the assumption that proposed changes to the tax code are, more often than not, adopted into law. It seems reasonable to assume - despite recent experience to the contrary - that an administration's revenue targets will be honored, even if the Congress makes major changes to the legislation.

Finally, there are twelve (12) observations in the revenue forecast series with missing values. In five (5) instances, the Treasury did *not undertake* (nut) forecasts, and in seven (7) cases the budget documents are *not available* (na) in local libraries. Missing values are indicated in the Data Appendix by *nut* and *na*, as the case may be. Observations with missing values raise another issue: what to do with them. One strategy that leaps to mind is simply to set missing values equal to actual revenue. For such observations, however, there would be no forecast error by construction. Consequently, this approach may bias the analysis. Accordingly, we elect to drop missing observations. Thus, we are left with 188 observations.

Table 1
Descriptive Statistics

| Period | Means and Standard Deviations (Millions of \$'s) | | Number of Observations |
|-------------|---|----------------------|---------------------------|
| | Actual | Forecast | |
| 1802 – 1861 | 30.975 (17.417) | 26.022 (16.219) | 54 |
| 1863 - 1941 | 1,891 (2,1270) | 1,753 (2,039) | 74 |
| 1942 - 2001 | 498,300 (564,700) | 472,500 (502,700) | 60 |
| 1802 - 2001 | 159,800 (393,200) | 151,500 (358,100) | 188 |

Standard deviations are reported in parentheses.

In addition to the time period from fiscal year 1802 to 2001, we also evaluate the rationality of revenue forecasts for three sub-periods: FY 1802 - 1861, FY 1863 - 1941, and FY 1942 - 2001. These sub-periods are chosen because they correspond to major changes in fiscal policy. Specifically, the size of the federal government grew dramatically during and after the Civil War and, again, during and after World War II. Between 1861 and 1863, federal revenues grow from \$49.860 million to \$123.861 million, or by 148 percent. Similarly, between 1941 and 1943, federal revenues grow from \$8.263 billion to \$13.677 billion, or by approximately 65 percent. The difference in these fiscal regimes also is evident in Table 1, which shows the means and standard deviations of the data for each period. During the 1802 – 1861 period, average revenue is approximately \$31 million; \$1.89 billion for 1863 – 1941; and \$159.8 billion for 1942 – 2001.

Table 1 also provides some interesting insight into important characteristics of Treasury revenue forecasts. Simple observation suggests that the means of the forecasts are less than the means of actual revenues for all four series, but we would like to know if they are statistically significantly different. We compute a conventional test for the difference between two means for the pairs in Table 1. Except for the 1942-2001 series, we reject the hypothesis that the mean of actual revenues is greater than or equal to the mean of the forecasts. In other words, the

revenue forecasts for 1802-1861 and 1863-1941 exhibit a downward bias; the forecasts for 1942-2001 do not.

As previously discussed, we also can perform a test of the efficiency of the revenue forecasts. If actual revenues and the revenue forecasts are drawn from two populations that are normally distributed and if the population variances are equal, then the ratio of the sample variances follows the F distribution. Although the assumption of normality may be unrealistic in this setting, we perform this test pair-wise on the variances of the four series. In all four cases, we cannot reject the null hypothesis that the variance of the forecasts is less than or equal to the variance of actual revenues; in other words, we cannot reject $H_0: \text{var}(R_{e,t-f}) \leq \text{var}(R_{a,t})$. This result is reassuring. One could imagine trying to conduct stabilization policy using revenue forecasts with a variance greater than that of the actual realizations.

While such evidence certainly provides insight into important characteristics of Treasury revenue forecasts, we turn now to our regression-based test of weak rationality.

Are Treasury Revenue Forecasts Rational?

As described above, we regress actual revenues on a constant and revenue forecasts, in levels. Finally, and as previously noted, this foregoing analysis is in levels. We also conducted the analysis in percentages. In this case, we reject weak rationality of the forecasts for the period 1802-2001 and for all three sub-periods. We believe that estimating the model in percentage changes is a higher hurdle, than estimating the model in percentages.

Two examples, summarized in Table 2, help to illustrate the reasoning behind this conclusion. Table 2 shows two forecasts. Forecast 1 in Table 3 switches from period-to-period from 2-units below and 2-units above the actual value, but Forecast 2 is 2-units above the actual value in each period. We suppose that Forecast 1 would strike most people as unbiased and Forecast 2 as biased.

Columns 5-8 of Table 2 show the forecast errors for each forecast computed in levels and in first differences, and the last row of Table 3 shows the corresponding average forecast error. A forecast is unbiased in levels if the average forecast error equals zero and unbiased in first-

differences if the average forecast error equals 1.0. Table 3 clearly shows that Forecast 1 is unbiased in levels (average=0), but biased upward in first differences (average = 1.03). In contrast, forecast 2 is biased in levels (average = -2), but unbiased in first differences. In other words, using first-differences to evaluate the forecasts leads to counter-intuitive conclusions. Hence, we choose to evaluate forecasts in levels.

Table 2
Comparing Two Measures of Computing Forecast Errors

| Period | Actual | Forecast | | Forecast Errors | | | |
|----------------|--------|----------|----|-----------------|-------|-------------|-------------|
| | | 1 | 2 | Lev-1 | Lev-2 | Δ -1 | Δ -1 |
| 1 | 10 | 8 | 8 | 2 | -2 | 0.71 | 1 |
| 2 | 20 | 22 | 18 | -2 | -2 | 1.67 | 1 |
| 3 | 30 | 28 | 28 | 2 | -2 | 0.71 | 1 |
| 4 | 40 | 42 | 38 | -2 | -2 | - | - |
| Average | | | | 0 | -2 | 1.03 | 1 |

We also use nominal values in the regressions because the forecast should predict the future real activity as well as future inflation. Using real values in the regressions would unnecessarily simplify the true challenge facing forecasters. Then, we test the joint hypothesis that the estimated intercept and slope coefficients are equal to zero and 1.0, respectively. If the revenue forecasts satisfy the joint test, we conclude that the forecasts are weakly rational. The results are reported in Table 3.

Before discussing the results of the regression-based test of weak rationality, however, we should briefly describe an important econometric issue affecting the estimation of (1). A common problem with time series data is serially correlated or autoregressive errors. Examining our data, we find that there are 9 positive runs – two or more consecutive forecasts that exceed actual revenues – and 15 negative runs. The average length of a negative run is 6.7, and the average length of a positive run is 3.1. This is clear evidence of autocorrelated errors, and an apparent preference in favor of downwardly biased forecasts. In fact, if we regress of the forecast errors on a constant and the forecasts, the estimated coefficients are positive and statistically significant. As previously noted, violation of independence of the forecast errors and the forecast suggests that all available information is not being used. Alternatively, this may be consistent with a political or bureaucratic constraint that favors negative

forecast errors to positive ones. Further research should explore the possible reasons for this apparent preference.

Even in the presence of autocorrelated errors, least squares estimates are consistent, but the estimates are inefficient. Consequently, inference based on least squares estimates is adversely affected. To test the data for autocorrelation, we compute the Durbin-Watson (DW) statistic for each series. We report the DW-statistic and the associated p-value in the bottom row of Table 2. The p-value is the probability of rejecting the null hypothesis, given that it is true. Clearly, in all four series the DW-statistics provide strong evidence of autocorrelation. For example, the DW-statistic for the 1802 – 2001 series is 0.74902, and the associated p-value is 0.000000. Hence, we compute Newey-West (1987) autoregressive consistent standard errors, which are reported in Table 3 in parentheses beneath the corresponding estimated coefficients.²

Table 3
OLS estimates
(Newey-West autoregressive consistent standard errors)

| Coefficients | 1802-1861 | 1863-1941 | 1942-2001 | 1802-2001 |
|------------------------------------|------------------------|------------------------|-------------------------|------------------------|
| Constant | 0.64E+07 (0.31E+07) | 0.20E+09 (0.12E+09) | -0.26E+11 (0.16E+11) | 0.52E+10 (0.32E+10) |
| Forecast | 0.9426 (0.97E-01) | 0.9659 (0.93E-01) | 1.0091 (0.62E-01) | 1.0883 (0.56E-01) |
| P-value of joint test ^a | 0.01285 | 0.22164 | 0.1899 | 0.20872 |
| Nobs. | 54 | 74 | 60 | 188 |
| DW statistic (P-value) | 1.0265 (0.00003) | 0.7772 (0.000000) | 0.7998 (0.000000) | 0.74902 (0.000000) |

^a The joint test that $a_0 = 0$ and $a_1 = 1$.

Beginning with the 1802 - 2001 period, we find that the estimated intercept is 0.52E+10, which is not very close to zero. But, the estimate is not statistically significantly different than zero because the standard error of the estimate is quite large as well. The estimated slope coefficient for this series is 1.0883, and the standard error of the estimate is 0.56E-01. Assuming the slope coefficient is equal to 1.0, the t-statistic is equal to 1.58 or $(1.0883 - 1.0)/0.56E-01$, which is not significant at conventional

levels. In summary, the estimated intercept and slope coefficients are not significantly different than zero and 1.0, respectively.

Thus, the revenue forecasts of this period satisfy the conditions for weak rationality. Not surprisingly, this conclusion is also borne out by the joint hypothesis test. The p-value of the joint test for this series is 0.20872. In other words, the probability of rejecting the null hypothesis, given that the null is true, is greater than conventional significance levels. Thus, we cannot reject the null hypothesis that Treasury revenue forecasts are weakly rational. The p-values of the joint tests for the 1863-1941 and 1942-2001 periods are 0.2214 and 0.1899, respectively. Since the p-values are greater than conventional significance levels, we cannot reject the null hypothesis that the revenue forecasts of these two periods are weakly rational. In contrast, the p-value for the 1802 - 1860 period is 0.01285, which is less than conventional significance levels, and thus, we reject weak rationality of the forecasts of this period. In summary, except for the 1802-1861 period, the revenue forecasts satisfy the conditions of weak rationality.

Treasury reports to Congress suggest that eliminating the federal debt was a major policy goal during the early years of the U.S. The sentiments expressed in the following passage are representative of those in other reports during this period:

It is evident that the possibility of thus providing for the payment of the interest of a new debt of thirteen millions of dollars, without recurring to new taxes, or interfering with the provisions heretofore made for the payment of the existing debt, depends on the correctness of the estimate of the public revenue which has been submitted. Although it is not without diffidence that the hope of such a favorable result is entertained, some reliance is placed on the solidarity of the basis on which the estimate is grounded. It rests principally on the expectation that the revenue of the ensuing year shall not be less than that which accrued during the year 1802. No part of it depends on the probable increase which may result from the neutrality of the United States during the continuance of the war in Europe, nor even on the progressive augmentation, which, from past experience, may naturally be expected to arise from the gradual increase of population and wealth.

Albert Gallatin
Secretary of the Treasury
October 25, 1803
Reports of the Finances, vol. I (p. 266)

The foregoing passage seems to reflect a preference for a conservative approach to revenue forecasting. Interestingly, in light of this apparent preference for conservative forecasts, the estimated intercept of the 1802-1861 regression is statistically significantly greater than zero, suggesting that the revenue forecasts during this period are biased downward. The apparent desire to reduce the federal debt, expressed above, may reflect a preference during this period for conservative or downwardly biased revenue forecasts. Briefly, policymakers of this era may have preferred unexpectedly large surpluses due to conservative revenue forecasts because they believed this posture would further their objective of reducing the federal debt.

Finally, it is worth noting that the estimated intercept and slope coefficients are closer to zero and 1.0, respectively, for the 1861 - 1941 series, than for the 1942 - 2001 series. If one can use such patterns to evaluate the quality of forecasts, then it would seem that revenue forecasts of the current period are not as good as those of the pre-war period. This is ironic given the presumed progress in economic science, econometrics, data availability, and data processing. Without further analysis, one should be cautious about drawing any firm conclusions in this regard, but it would be interesting to explore whether differences in political pressure or instability in tax law account for this preliminary finding.

Conclusion

Feenberg et al. (1989) use a simple regression-based test to evaluate the rationality of state revenue forecasts. They find evidence of downward bias in the post-war revenue forecasts of the three states that are the focus of their study. In contrast, we conclude that U.S. Treasury revenue forecasts satisfy the conditions of weak rationality. In the 1802-1861 series, however, we find evidence of downward bias in the forecasts. We speculate that the emphasis on eliminating the federal debt may have resulted in a preference among policymakers of this era for conservative or downwardly biased revenue forecasts.

It would be interesting to explore whether differences in political pressure or differences in the stability of the tax structure account for any change in the quality of Treasury revenue forecasts in the modern period. Further research also should examine the rationality of federal expenditure and deficit forecasts.

Endnotes

¹ Feenberg et al. (1989) describe a strong test of rationality, but this test is difficult to implement because it requires knowledge of all information available at time $t-f$.

² The Newey-West autoregressive consistent errors are computed as follows:

$$V(A) = N(X'X)^{-1}S^*(X'X)^{-1}$$

where: $S^* = S_0(1/N)\sum_{j=1}^L\sum_{t=j+1}^N w_j e_t e_{t-j}'(X_t X_{t-j}' + X_{t-j} X_t')$
and $w_j = 1 - j/(L+1)$.

References

Annual Report of the Secretary of the Treasury on the State of the Finances, Washington: United States Government Printing Office, various years.

Feenberg, Daniel R., William Gentry, David Gilroy, and Harvey Rosen, "Testing the Rationality of State Revenue Forecasts," *Review of Economics and Statistics*, 71(2), 1989, pp. 300-08.

Greene, William H., *Econometric Analysis*, New York: Macmillan Publishing Company, 1990.

Newey, W., and K. West, "A Positive Semi-Definite, Heteroscedasticity and Autocorrelation Consistent Covariance Matrix," *Econometrica*, 55, 1987, pp. 703-8.

Reports on the Finances, vol. I, Washington: Blair and Rives, 1837.

Reports on the Finances, vol. II, Washington: Blair and Rives, 1837.

Reports on the Finances, vol. III, Washington: Blair and Rives, 1837.

Reports on the Finances, vol. IV, Washington: John C. Rives, 1851.

Reports on the Finances, vol. V, Washington: John C. Rives, 1851.

Reports on the Finances, vol. VI, Washington: John C. Rives, 1851.

Reports on the Finances, vol. VII, Washington: John C. Rives, 1851.

The Budget of the United States Government, Washington: United States Printing Office, various years.

Data Appendix

| Fiscal Year | Actual Revenue | Estimated Reve | FY ending | Source of Estimates |
|----------------------|-----------------|------------------|-----------|--------------------------|
| 1802 | 15,287,838 | 10,600,000 | Dec 31 | Report on Finances, 1801 |
| 1803 | 11,399,493 | 10,000,000 | Dec 31 | Report on Finances, 1802 |
| 1804 | 12,189,256 | 10,400,000 | Dec 31 | Report on Finances, 1803 |
| 1805 | 13,960,723 | 11,750,000 | Dec 31 | Report on Finances, 1804 |
| 1806 | 15,964,918 | 12,500,000 | Dec 31 | Report on Finances, 1805 |
| 1807 | 16,873,166 | 14,500,000 | Dec 31 | Report on Finances, 1806 |
| 1808 | 17,521,226 | 15,800,000 | Dec 31 | Report on Finances, 1807 |
| 1809 | 8,280,106 | 16,000,000 | Dec 31 | Report on Finances, 1808 |
| 1810 | 9,935,899 | nut ^b | Dec 31 | Report on Finances, 1809 |
| 1811 | 15,010,737 | 12,500,000 | Dec 31 | Report on Finances, 1810 |
| 1812 | 10,365,301 | 8,200,000 | Dec 31 | Report on Finances, 1811 |
| 1813 | 15,008,564 | 12,000,000 | Dec 31 | Report on Finances, 1812 |
| 1814 | 11,866,995 | 10,100,000 | Dec 31 | Report on Finances, 1813 |
| 1815 | 16,637,089 | 8,200,000 | Dec 31 | Report on Finances, 1814 |
| 1816 | 48,489,665 | 33,400,000 | Dec 31 | Report on Finances, 1815 |
| 1817 | 34,072,651 | 30,650,000 | Dec 31 | Report on Finances, 1816 |
| 1818 | 22,695,336 | 24,525,000 | Dec 31 | Report on Finances, 1817 |
| 1819 | 25,808,041 | 24,220,000 | Dec 31 | Report on Finances, 1818 |
| 1820 | 18,986,131 | 22,000,000 | Dec 31 | Report on Finances, 1819 |
| 1821 | 15,631,950 | 21,500,000 | Dec 31 | Report on Finances, 1820 |
| 1822 | 21,349,316 | 16,110,000 | Dec 31 | Report on Finances, 1821 |
| 1823 | 21,670,670 | 21,100,000 | Dec 31 | Report on Finances, 1822 |
| 1824 | 20,578,971 | 18,550,000 | Dec 31 | Report on Finances, 1823 |
| 1825 | 23,146,913 | 21,500,000 | Dec 31 | Report on Finances, 1824 |
| 1826 | 26,707,837 | 25,500,000 | Dec 31 | Report on Finances, 1825 |
| 1827 | 24,490,896 | 23,150,000 | Dec 31 | Report on Finances, 1826 |
| 1828 | 26,423,525 | 22,300,000 | Dec 31 | Report on Finances, 1827 |
| 1829 | 26,534,958 | 23,140,000 | Dec 31 | Report on Finances, 1828 |
| 1830 | 26,694,644 | 23,480,000 | Dec 31 | Report on Finances, 1829 |
| 1831 | 30,524,071 | 23,340,000 | Dec 31 | Report on Finances, 1830 |
| 1832 | 34,123,886 | 30,100,000 | Dec 31 | Report on Finances, 1831 |
| 1833 | 36,565,438 | 24,000,000 | Dec 31 | Report on Finances, 1832 |
| 1834 | 24,615,585 | 18,500,000 | Dec 31 | Report on Finances, 1833 |
| 1835 | 38,422,750 | 20,000,000 | Dec 31 | Report on Finances, 1834 |
| 1836 | 54,235,108 | 19,750,000 | Dec 31 | Report on Finances, 1835 |
| 1837 | 29,055,856 | 24,000,000 | Dec 31 | Report on Finances, 1836 |
| 1838 | 30,541,295 | 22,800,000 | Dec 31 | Report on Finances, 1837 |
| 1839 | 35,967,406 | 24,000,000 | Dec 31 | Report on Finances, 1838 |
| 1840 | 24,023,637 | 18,600,000 | Dec 31 | Report on Finances, 1839 |
| 1841 | 21,267,886 | 22,580,000 | Dec 31 | Report on Finances, 1840 |
| 1842 | 24,523,048 | 19,150,000 | Dec 31 | Report on Finances, 1841 |
| TQ 1843 ^a | na ^c | 9,050,000 | Jun 30 | Report on Finances, 1842 |
| 1843 | 12,598,927 | nut ^b | Jun 30 | Report on Finances, 1842 |
| 1844 | 33,558,662 | 18,850,000 | Jun 30 | Report on Finances, 1842 |
| 1845 | 34,259,948 | 22,300,000 | Jun 30 | Report on Finances, 1843 |
| 1846 | 33,187,166 | 32,160,302 | Jun 30 | Report on Finances, 1844 |
| 1847 | 30,376,078 | 25,000,000 | Jun 30 | Report on Finances, 1845 |
| 1848 | 40,290,990 | 32,000,000 | Jun 30 | Report on Finances, 1846 |

| Fiscal Year | Actual Revenue | Estimated Revenue | FY ending | Source of Estimates |
|-------------|----------------|-------------------|-----------|--------------------------|
| 1849 | 35,913,319 | 35,100,000 | Jun 30 | Report on Finances, 1847 |
| 1850 | 49,103,424 | 35,400,000 | Jun 30 | Report on Finances, 1848 |
| 1851 | 58,969,908 | 34,450,000 | Jun 30 | Report on Finances, 1849 |
| 1852 | 55,031,343 | na ^c | Jun 30 | Report on Finances, 1850 |
| 1853 | 66,827,779 | na ^c | Jun 30 | Report on Finances, 1851 |
| 1854 | 80,055,927 | na ^c | Jun 30 | Report on Finances, 1852 |
| 1855 | 71,992,711 | 55,000,000 | Jun 30 | Report on Finances, 1853 |
| 1856 | 80,977,521 | 62,500,000 | Jun 30 | Report on Finances, 1854 |
| 1857 | 76,319,265 | 71,500,000 | Jun 30 | Report on Finances, 1855 |
| 1858 | 54,142,159 | 72,955,311 | Jun 30 | Report on Finances, 1856 |
| 1859 | 61,454,949 | 75,500,000 | Jun 30 | Report on Finances, 1857 |
| 1860 | 64,582,675 | 62,000,000 | Jun 30 | Report on Finances, 1858 |
| 1861 | 49,859,227 | 66,225,000 | Jun 30 | Report on Finances, 1859 |
| 1862 | 60,287,277 | na ^c | Jun 30 | Report on Finances, 1860 |
| 1863 | 123,861,081 | 95,800,000 | Jun 30 | Report on Finances, 1861 |
| 1864 | 277,065,025 | 233,025,000 | Jun 30 | Report on Finances, 1862 |
| 1865 | 348,270,764 | na ^c | Jun 30 | Report on Finances, 1863 |
| 1866 | 572,419,606 | 396,000,000 | Jun 30 | Report on Finances, 1864 |
| 1867 | 505,871,037 | na ^c | Jun 30 | Report on Finances, 1865 |
| 1868 | 421,930,684 | 436,000,000 | Jun 30 | Report on Finances, 1866 |
| 1869 | 388,257,923 | 381,000,000 | Jun 30 | Report on Finances, 1867 |
| 1870 | 430,135,014 | 300,000,000 | Jun 30 | Report on Finances, 1868 |
| 1871 | 403,360,990 | 393,000,000 | Jun 30 | Report on Finances, 1869 |
| 1872 | 396,022,294 | 320,418,000 | Jun 30 | Report on Finances, 1870 |
| 1873 | 356,734,947 | 359,000,000 | Jun 30 | Report on Finances, 1871 |
| 1874 | 331,449,828 | na ^c | Jun 30 | Report on Finances, 1872 |
| 1875 | 314,791,365 | 305,700,000 | Jun 30 | Report on Finances, 1873 |
| 1876 | 322,740,063 | 293,000,000 | Jun 30 | Report on Finances, 1874 |
| 1877 | 308,938,004 | 304,000,000 | Jun 30 | Report on Finances, 1875 |
| 1878 | 287,041,396 | 270,050,000 | Jun 30 | Report on Finances, 1876 |
| 1879 | 303,869,168 | 269,250,000 | Jun 30 | Report on Finances, 1877 |
| 1880 | 366,842,090 | 264,500,000 | Jun 30 | Report on Finances, 1878 |
| 1881 | 397,567,691 | 288,000,000 | Jun 30 | Report on Finances, 1879 |
| 1882 | 445,401,660 | 350,000,000 | Jun 30 | Report on Finances, 1880 |
| 1883 | 443,796,275 | 400,000,000 | Jun 30 | Report on Finances, 1881 |
| 1884 | 391,845,829 | 415,000,000 | Jun 30 | Report on Finances, 1882 |
| 1885 | 391,251,550 | 343,000,000 | Jun 30 | Report on Finances, 1883 |
| 1886 | 380,388,149 | 330,000,000 | Jun 30 | Report on Finances, 1884 |
| 1887 | 420,240,886 | 315,000,000 | Jun 30 | Report on Finances, 1885 |
| 1888 | 431,961,252 | nut ^b | Jun 30 | Report on Finances, 1886 |
| 1889 | 443,225,670 | 383,000,000 | Jun 30 | Report on Finances, 1887 |
| 1890 | 463,963,082 | 377,000,000 | Jun 30 | Report on Finances, 1888 |
| 1891 | 458,544,233 | 385,000,000 | Jun 30 | Report on Finances, 1889 |
| 1892 | 425,868,260 | 373,000,000 | Jun 30 | Report on Finances, 1890 |
| 1893 | 461,716,562 | 455,336,350 | Jun 30 | Report on Finances, 1891 |
| 1894 | 381,435,795 | 490,121,365 | Jun 30 | Report on Finances, 1892 |
| 1895 | 401,712,547 | 454,427,748 | Jun 30 | Report on Finances, 1893 |
| 1896 | 420,641,655 | 476,907,407 | Jun 30 | Report on Finances, 1894 |
| 1897 | 430,387,168 | 464,793,121 | Jun 30 | Report on Finances, 1895 |

| Fiscal Year | Actual Revenues | Estimated Revenues | FY ending | Source of Estimates |
|-------------|-----------------|--------------------|-----------|--------------------------|
| 1998 | 494,333,954 | 412,227,077 | Jun 30 | Report on Finances, 1896 |
| 1899 | 610,982,005 | 482,874,647 | Jun 30 | Report on Finances, 1897 |
| 1900 | 669,595,431 | 610,958,112 | Jun 30 | Report on Finances, 1898 |
| 1901 | 699,316,531 | 667,773,254 | Jun 30 | Report on Finances, 1899 |
| 1902 | 684,326,280 | 716,633,042 | Jun 30 | Report on Finances, 1900 |
| 1903 | 696,105,165 | 712,020,630 | Jun 30 | Report on Finances, 1901 |
| 1904 | 684,669,709 | 729,767,664 | Jun 30 | Report on Finances, 1902 |
| 1905 | 697,101,270 | 704,472,061 | Jun 30 | Report on Finances, 1903 |
| 1906 | 762,917,229 | 725,590,515 | Jun 30 | Report on Finances, 1904 |
| 1907 | 849,445,392 | nut ^b | Jun 30 | Report on Finances, 1905 |
| 1908 | 793,340,570 | nut ^b | Jun 30 | Report on Finances, 1906 |
| 1909 | 807,882,881 | 878,123,011 | Jun 30 | Report on Finances, 1907 |
| 1910 | 899,640,373 | 825,340,712 | Jun 30 | Report on Finances, 1908 |
| 1911 | 939,712,735 | 672,000,000 | Jun 30 | Report on Finances, 1909 |
| 1912 | 939,353,220 | 680,000,000 | Jun 30 | Report on Finances, 1910 |
| 1913 | 990,730,756 | 667,000,000 | Jun 30 | Report on Finances, 1911 |
| 1914 | 1,018,807,733 | 710,000,000 | Jun 30 | Report on Finances, 1913 |
| 1915 | 981,658,992 | 728,000,000 | Jun 30 | Report on Finances, 1913 |
| 1916 | 1,094,592,237 | 735,000,000 | Jun 30 | Report on Finances, 1914 |
| 1917 | 1,448,850,911 | 580,200,000 | Jun 30 | Report on Finances, 1915 |
| 1918 | 4,520,770,417 | 1,005,550,000 | Jun 30 | Report on Finances, 1916 |
| 1919 | 5,000,714,025 | 4,097,715,000 | Jun 30 | Report on Finances, 1917 |
| 1920 | 7,136,351,649 | 4,942,000,000 | Jun 30 | Report on Finances, 1918 |
| 1921 | 6,048,008,320 | 5,420,000,000 | Jun 30 | Report on Finances, 1919 |
| 1922 | 4,588,368,578 | 4,859,530,000 | Jun 30 | Report on Finances, 1920 |
| 1923 | 4,379,873,608 | 3,345,182,750 | Jun 30 | Report on Finances, 1921 |
| 1924 | 4,456,989,920 | 3,361,812,359 | Jun 30 | Report on Finances, 1922 |
| 1925 | 4,207,235,642 | 3,693,762,078 | Jun 30 | Report on Finances, 1923 |
| 1926 | 4,568,277,376 | 3,641,295,092 | Jun 30 | Report on Finances, 1924 |
| 1927 | 4,811,544,877 | 3,824,530,203 | Jun 30 | Report on Finances, 1925 |
| 1928 | 4,731,869,433 | 3,772,753,077 | Jun 30 | Report on Finances, 1926 |
| 1929 | 4,733,166,496 | 4,352,495,287 | Jun 30 | Report on Finances, 1927 |
| 1930 | 3,841,000,000 | 5,605,152,047 | Jun 30 | Report on Finances, 1928 |
| 1931 | 3,190,000,000 | 6,404,314,700 | Jun 30 | Report on Finances, 1929 |
| 1932 | 2,006,000,000 | 4,085,119,927 | Jun 30 | Report on Finances, 1930 |
| 1933 | 2,080,000,000 | 2,473,515,772 | Jun 30 | Fiscal Year 1933 Budget |
| 1934 | 3,116,000,000 | 2,949,162,713 | Jun 30 | Fiscal Year 1934 Budget |
| 1935 | 3,800,000,000 | 3,974,665,479 | Jun 30 | Fiscal Year 1935 Budget |
| 1936 | 4,116,000,000 | 3,991,904,639 | Jun 30 | Fiscal Year 1936 Budget |
| 1937 | 5,294,000,000 | 5,654,217,650 | Jun 30 | Fiscal Year 1937 Budget |
| 1938 | 6,242,000,000 | 7,293,607,197 | Jun 30 | Fiscal Year 1938 Budget |
| 1939 | 5,668,000,000 | 5,919,437,000 | Jun 30 | Fiscal Year 1939 Budget |
| 1940 | 5,925,000,000 | 5,669,320,000 | Jun 30 | Fiscal Year 1940 Budget |
| 1941 | 8,263,000,000 | 6,150,760,000 | Jun 30 | Fiscal Year 1941 Budget |
| 1942 | 13,667,000,000 | 8,971,735,000 | Jun 30 | Fiscal Year 1942 Budget |
| 1943 | 23,282,000,000 | 17,825,090,000 | Jun 30 | Fiscal Year 1943 Budget |
| 1944 | 45,408,000,000 | 35,406,695,000 | Jun 30 | Fiscal Year 1944 Budget |
| 1945 | 47,740,000,000 | 43,425,380,000 | Jun 30 | Fiscal Year 1945 Budget |
| 1946 | 44,239,000,000 | 42,854,752,000 | Jun 30 | Fiscal Year 1946 Budget |
| 1947 | 44,718,000,000 | 32,717,465,945 | Jun 30 | Fiscal Year 1947 Budget |

| Fiscal Year | Actual Revenue | Estimated Revenue | FY ending | Source of Estimates |
|----------------------|-------------------|-------------------|-----------|-------------------------|
| 1948 | 43,827,000,000 | 39,717,465.94 | Jun 30 | Fiscal Year 1948 Budget |
| 1849 | 39,936,000,000 | 46,499,000,000 | Jun 30 | Fiscal Year 1949 Budget |
| 1950 | 39,151,000,000 | 45,365,000,000 | Jun 30 | Fiscal Year 1950 Budget |
| 1951 | 51,263,000,000 | 52,070,586,034 | Jun 30 | Fiscal Year 1951 Budget |
| 1952 | 65,697,000,000 | 59,236,000,000 | Jun 30 | Fiscal Year 1952 Budget |
| 1953 | 64,593,000,000 | 75,028,000,000 | Jun 30 | Fiscal Year 1953 Budget |
| 1954 | 69,795,000,000 | 72,763,000,000 | Jun 30 | Fiscal Year 1954 Budget |
| 1955 | 66,028,000,000 | 68,751,000,000 | Jun 30 | Fiscal Year 1955 Budget |
| 1956 | 75,136,000,000 | 63,830,000,000 | Jun 30 | Fiscal Year 1956 Budget |
| 1957 | 71,029,000,000 | 73,595,000,000 | Jun 30 | Fiscal Year 1957 Budget |
| 1958 | 69,117,000,000 | 83,893,000,000 | Jun 30 | Fiscal Year 1958 Budget |
| 1959 | 68,270,000,000 | 74,400,000,000 | Jun 30 | Fiscal Year 1959 Budget |
| 1960 | 78,457,000,000 | 77,100,000,000 | Jun 30 | Fiscal Year 1960 Budget |
| 1961 | 78,313,000,000 | 84,000,000,000 | Jun 30 | Fiscal Year 1961 Budget |
| 1962 | 101,887,000,000 | 83,000,000,000 | Jun 30 | Fiscal Year 1962 Budget |
| 1963 | 109,700,000,000 | 93,693,000,000 | Jun 30 | Fiscal Year 1963 Budget |
| 1964 | 115,530,000,000 | 112,196,000,000 | Jun 30 | Fiscal Year 1964 Budget |
| 1965 | 119,700,000,000 | 119,700,000,000 | Jun 30 | Fiscal Year 1965 Budget |
| 1966 | 134,480,000,000 | 123,490,000,000 | Jun 30 | Fiscal Year 1966 Budget |
| 1967 | 149,600,000,000 | 145,500,000,000 | Jun 30 | Fiscal Year 1967 Budget |
| 1968 | 190,600,000,000 | 168,106,000,000 | Jun 30 | Fiscal Year 1968 Budget |
| 1969 | 187,792,000,000 | 178,100,000,000 | Jun 30 | Fiscal Year 1969 Budget |
| 1970 | 193,743,000,000 | 210,100,000,000 | Jun 30 | Fiscal Year 1970 Budget |
| 1971 | 188,392,000,000 | 202,103,000,000 | Jun 30 | Fiscal Year 1971 Budget |
| 1972 | 208,649,000,000 | 217,539,000,000 | Jun 30 | Fiscal Year 1972 Budget |
| 1973 | 232,225,000,000 | 220,785,000,000 | Jun 30 | Fiscal Year 1973 Budget |
| 1974 | 264,932,000,000 | 255,982,000,000 | Jun 30 | Fiscal Year 1974 Budget |
| 1975 | 280,997,000,000 | 295,000,000,000 | Jun 30 | Fiscal Year 1975 Budget |
| 1976 | 300,005,000,000 | 297,520,000,000 | Jun 30 | Fiscal Year 1976 Budget |
| 1977 | 355,559,000,000 | 351,262,000,000 | Jun 30 | Fiscal Year 1977 Budget |
| TQ 1977 ^d | 81,232,000,000 | 81,900,000,000 | Sep 30 | Fiscal Year 1977 Budget |
| 1978 | 399,561,000,000 | 393,000,000,000 | Sep 30 | Fiscal Year 1978 Budget |
| 1979 | 463,302,000,000 | 439,600,000,000 | Sep 30 | Fiscal Year 1979 Budget |
| 1980 | 517,112,000,000 | 502,600,000,000 | Sep 30 | Fiscal Year 1980 Budget |
| 1981 | 599,272,000,000 | 599,988,000,000 | Sep 30 | Fiscal Year 1981 Budget |
| 1982 | 617,766,000,000 | 711,780,000,000 | Sep 30 | Fiscal Year 1982 Budget |
| 1983 | 600,562,000,000 | 666,118,000,000 | Sep 30 | Fiscal Year 1983 Budget |
| 1984 | 666,486,000,000 | 659,702,000,000 | Sep 30 | Fiscal Year 1984 Budget |
| 1985 | 734,088,000,000 | 745,127,000,000 | Sep 30 | Fiscal Year 1985 Budget |
| 1986 | 769,215,000,000 | 1,059,983,000,000 | Sep 30 | Fiscal Year 1986 Budget |
| 1987 | 854,353,000,000 | 850,400,000,000 | Sep 30 | Fiscal Year 1987 Budget |
| 1988 | 909,303,000,000 | 916,681,000,000 | Sep 30 | Fiscal Year 1988 Budget |
| 1989 | 991,190,000,000 | 964,700,000,000 | Sep 30 | Fiscal Year 1989 Budget |
| 1990 | 1,031,963,900,000 | 1,059,300,000,000 | Sep 30 | Fiscal Year 1990 Budget |
| 1991 | 1,055,041,000,000 | 964,700,000,000 | Sep 30 | Fiscal Year 1991 Budget |
| 1992 | 1,091,279,000,000 | 1,059,300,000,000 | Sep 30 | Fiscal Year 1992 Budget |

| Fiscal Year | Actual Revenues | Estimated Revenue | FY Ending | Source of Estimates |
|-------------|-------------------|-------------------|-----------|-------------------------|
| 1993 | 1,154,401,000,000 | 1,165,400,000,000 | Sep 30 | Fiscal Year 1993 Budget |
| 1994 | 1,258,627,000,000 | 1,252,700,000,000 | Sep 30 | Fiscal Year 1994 Budget |
| 1995 | 1,351,830,000,000 | 1,342,200,000,000 | Sep 30 | Fiscal Year 1995 Budget |
| 1996 | 1,453,062,000,000 | 1,251,300,000,000 | Sep 30 | Fiscal Year 1996 Budget |
| 1997 | 1,579,292,000,000 | 1,353,800,000,000 | Sep 30 | Fiscal Year 1997 Budget |
| 1998 | 1,721,798,000,000 | 1,415,500,000,000 | Sep 30 | Fiscal Year 1998 Budget |
| 1999 | 1,827,464,000,000 | 1,495,200,000,000 | Sep 30 | Fiscal Year 1999 Budget |
| 2000 | 2,025,218,000,000 | 1,566,800,000,000 | Sep 30 | Fiscal Year 2000 Budget |
| 2001 | 1,991,030,000,000 | 1,742,700,000,000 | Sep 30 | Fiscal Year 2001 Budget |

Notes:

1. In 1843, the U.S. changed the fiscal year from one commencing on January 1st and ending on December 31st to one commencing on July 1st and ending on June 30th. As a transitional devise, the *Report on Finances, 1842* provides an estimate for the first half of 1843, which is denoted here as TQ 1843.
2. In certain years, the U.S. Treasury does *not undertake* (nut) revenue forecasts for the upcoming fiscal year. Sometimes this omission is not explained in the budget report, and, in others, the budget document attributes such omissions to the difficulty (impossibility) of providing meaningfully accurate forecasts.
3. The relevant documents are *not available* (na) in local libraries.
4. In Fiscal Year 1977, the U.S. changed the fiscal year from one commencing on July 1st and ending on June 30th to one commencing on October 1st and ending on September 30th. As a transitional devise, the *FY 1977 Budget* reports an estimate for the July - September 1977 quarter, which denoted here as TQ 1977.

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