



United States Congress

Joint Economic Committee

EST. 1946

Republicans

Monthly Debt Update Methodology

Overview

Inspired by popular products such as Joint Economic Committee Republicans' State Inflation Tracker updates (see for example the state update from [Arizona](#)), as well as Congressman David Schweikert's Daily Debt Monitor, Joint Economic Committee Republicans have created the Monthly Debt Update. This document is a comprehensive presentation of the most recent data on the U.S. national debt, synthesized and formatted using the Python coding language. The code downloads and cleans data from sources such as the U.S. Department of the Treasury's FiscalData.gov and the Congressional Budget Office (CBO).

All data and charts update automatically when the report is generated each month. The code is run on the fourth business day of each month, when the Monthly Statement of the Public Debt data is released by the U.S. Department of the Treasury.

In this methodology document we provide sources and descriptions of the data series used. Furthermore, we explain the calculations that are made for each series of data presented. This document is organized in the order that the data is displayed in the report, separated into the following sections: National Debt Growth, Interest Rate on U.S. Debt, and Composition of U.S. Debt.

National Debt Growth

This section presents data on the growth of the national debt. Data comes from the U.S. Department of the Treasury "Debt to the Penny" dataset.¹ This dataset provides information about the total outstanding public debt and is updated each day, displaying data from the previous business day. Data series included are total public debt, intragovernmental debt, and debt held by the public.

Calculations

- To calculate the change in gross national debt from one and five years ago, the value from one and five years ago is subtracted from the gross national debt value presented in the most recent period.
- To estimate the change in the rate of debt growth over various periods, such as day, minute, and second, the total change in the debt over the past year is divided by the amount of given intermediate periods each year. Note that "days" in this calculation are calendar days, not business days.

¹ U.S. Department of the Treasury, "Debt to the Penny," <https://fiscaldata.treasury.gov/datasets/debt-to-the-penny/debt-to-the-penny>.

- Estimating the change per person and per household constitutes dividing the given numerator over the total population or quantity of households in the most recently available year of data.²
- To project the estimated date that the next rounded trillion-dollar mark will be reached (for example, if gross national debt is \$34.4 trillion, the date at which it is projected to reach the \$35 trillion mark), the three-year average daily growth rate and the current value of the gross national debt less the next-trillion-dollar integer are calculated. The number of days between the current date and the date of the next trillion-dollar mark is calculated according to the three-year growth average. This number is added to the current date.
 - We use the three-year growth rate average because using this time horizon limits the impact of short-run drastic changes in debt growth or stagnation on the projection (as longer time horizon averages would), but still allows for substantial adjustments in the rate of debt growth to impact the forecast (as would growth averages over shorter time horizons).
- To forecast the number of days to add an additional trillion dollars to the debt, one trillion dollars is divided by the 3-year average daily debt growth rate.

Visualizations

- Debt Increase: The line chart displays a 12-month moving average of the daily increase in the gross national debt over the past 30 years. We use a moving average to mitigate the volatility of the data. Because the U.S. Department of the Treasury reports the data for each business day, the moving average includes only business days.
- Annual Debt Levels: The bar chart offers a comparative view of annual gross national debt levels over the past decade, using the value of debt up to the current month (if the current month is July, the July value is presented; if the month is November, the November value is presented, etc.) of each of the last 10 years.
- Data for both series comes from the U.S. Department of the Treasury “Debt to the Penny” dataset.

Interest Rate on U.S. Debt

This section presents data on the interest rates and costs of U.S. debt. Data comes from the U.S. Department of the Treasury “Average Interest Rates on U.S. Treasury Securities,”³ and “Federal Investments Program: Interest Cost by Fund,”⁴ datasets, as well as the most recently released Congressional Budget Office (CBO) “10-Year Budget Projections,”⁵ dataset.

² Both data sources are retrieved from the St. Louis Federal Reserve’s FRED Database. U.S. Census Bureau, “America’s Families and Living Arrangements,” November 2023, Table AVG1, <https://www.census.gov/data/tables/2023/demo/families/cps-2023.html>; World Bank Group, “Population, total – United States,” World Development Indicators, <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=US>.

³ U.S. Department of the Treasury, “Average Interest Rates on U.S. Treasury Securities,” <https://fiscaldata.treasury.gov/datasets/average-interest-rate-streasury-securities/average-interest-rates-on-u-s-treasury-securities>.

⁴ U.S. Department of the Treasury, “Federal Investments Program: Interest Cost by Fund,” <https://fiscaldata.treasury.gov/datasets/fip-interest-cost-by-fund/federal-investments-program-interest-cost-by-fund>.

⁵ Congressional Budget Office (CBO), “10-Year Budget Projections,” Table 1-2, <https://www.cbo.gov/data/budget-economic-data>.

Calculations

- The most recent CBO 10-year budget projections are used to calculate net interest as a share of outlays in a given fiscal year. Net interest outlays are taken from Table 1-1 and are divided by the total outlay forecast for each respective fiscal year from the same table.
- The average interest rate on national debt is the value presented as “Total Marketable,” in the “Average Interest Rate on U.S. Treasury Securities,” dataset. Values for one and five years ago are taken relative to the same month from 12 and 60 months ago, respectively.
- To calculate the total amount of interest paid to trust funds, totals for cumulative trust fund interest payments from the “Federal Investments Program: Interest Cost by Fund,” dataset are summed for each period. The totals for the most recent 12 months are calculated, as well as the most recent monthly period.

Visualizations

- Interest Rate by Security Type over time: The line chart presents the average interest rates for total marketable debt, bills, notes, and bonds over the past five years.
- Interest Rate by Type, current: The bar chart presents the most recent month’s average interest rates for total marketable debt, bills, notes, and bonds.
- Data for both series comes from the “Average Interest Rates on U.S. Treasury Securities” dataset.

Composition of U.S. Debt

This section presents data on the composition of U.S. debt. Data comes from the U.S. Department of the Treasury’s “Treasury Securities Auctions Data,”⁶ and “Monthly Statement of Public Debt,”⁷ datasets. Data also comes from the Treasury Borrowing Advisory Committee’s Quarterly Refunding Documents.⁸

Calculations

- The bid-to-cover ratio for the differing Treasury maturities (4 week, 10-year, and 30-year) comes from the “Treasury Securities Auctions Data” dataset, presenting the value from the most recently available period.
- Data on the total public debt profile comes from the “Monthly Statement of the Public Debt” dataset. Nominal debt values are taken for each of the categories of Treasury securities from the most recent month. Categories include bills (4-52 weeks), notes (2-10 years), bonds (20-30 years), and other securities (which include Treasury Inflation Protected Securities [TIPS], Cash Management Bills [CMB], Floating Rate Notes [FRN], and all other publicly held debt). Percent shares of the total public debt profile are calculated using the nominal value of the total of each type of security by the total publicly held debt profile in the given period.

⁶ U.S. Department of the Treasury, “Treasury Securities Auctions Data,” <https://fiscaldata.treasury.gov/datasets/treasury-securities-auctions-data/treasury-securities-auctions-data>.

⁷ U.S. Department of the Treasury, “Monthly Statement of Public Debt,” <https://fiscaldata.treasury.gov/datasets/monthly-statement-public-debt/summary-of-treasury-securities-outstanding>.

⁸ U.S. Department of the Treasury, “Quarterly Refunding Documents,” Treasury Borrowing Advisory Committee (TBAC), <https://home.treasury.gov/system/files/221/2024-3rd-Quarter.xls>.

- The share of debt maturing in the next 12 months data comes from the “% debt maturing next 12-36 mths” tab of the “Quarterly Refunding Documents – Quarterly Release Data” Excel spreadsheet.
- The average maturity of U.S. debt comes from the “Avg. mat. of debt outstanding,” tab of the same Excel spreadsheet as the bullet above. The average maturity from one and five years ago takes data from 12 and 60 months prior to the current period, respectively.

Visualizations

- Composition of U.S. Debt by Security Type over time: The line chart presents percentage shares of the total publicly held debt profile over the past five years.
- Composition of U.S. Debt by Security Type, current: The bar chart presents total nominal values as well as percentage shares of the composition of U.S. publicly held debt in the most recent period.
- Data from both series is from the “Monthly Statement of the Public Debt” dataset.