Tax Freedom Day:
A Description of Its Calculation and Answers to Some Methodological Questions

by

Tax Foundation Staff

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Abstract

Tax Freedom Day is calculated by taking taxes paid in the current year divided by the nation's income for that year, which is derived from BEA statistics, and then projected by Tax Foundation economists using economic and budget projections from various sources, most notably the Congressional Budget Office (CBO). This paper contains an overview of the methodology that goes into calculating the nation's Tax Freedom Day.

This paper also addresses some methodological concerns, including those that have been made in the past and some still to this day by the Center on Budget and Policy Priorities (CBPP). Each year, the CBPP releases a criticism of the Tax Foundation's annual calculation of Tax Freedom Day. Their criticisms of Tax Freedom Day have varied over the years, but typically center on essentially one main criticism. They object to Tax Freedom Day to describe the tax burden of the nation as a whole, because it may over- or understate the tax burden faced by particular taxpayers.

I. Tax Freedom Day's Brief Methodology

Tax Freedom Day is calculated by taking taxes paid in the current year according to BEA divided by the nation's income for that year, which is derived from BEA statistics. That number is then multiplied by 365 to obtain the number of days out of 365 that the given fraction would represent. That number date on the calendar is then Tax Freedom Day (ignoring Leap Day). This brief methodology describes how the two components (taxes and the nation's income) are calculated and discusses various timing issues as they relate to when income is earned and when taxes are borne.

The BEA categories of taxes presented in Table 1 are included in Tax Freedom Day along with their appropriate NIPA sources. Note that in order to count the fraction of each tax that is federal versus state and local and to calculate Tax Freedom Day by state, other tables are used. Also, given that some specific components inside broader categories have less up-to-date data, approximations are made for those components using the more recent estimates that are available for the broader categories that they are a part of.

Table 1
What Tax Freedom Day Counts as Taxes

BEA NIPA Tax Category	NIPA Table Source
Personal Current Taxes	Table 3.1, Line 3
Taxes on Production and Imports	Table 3.1, Line 4
Taxes on Corporate Income	Table 6.18D, Line 1
Old-age, survivors, disability, and hospital insurance, Employer Contributions (CGSI)	Table 3.6, Line 4
Unemployment Insurance (CGSI)	Table 3.6, Line 7
Railroad Retirement (CGSI)	Table 3.6, Line 12
Temporary disability insurance (CGSI)	Table 3.6, Line 18
Old-age, survivors, disability, and hospital insurance, Employee Contributions (CGSI)	Table 3.6, Line 22
State unemployment insurance (CGSI)	Table 3.6, Line 28
Railroad retirement (CGSI)	Table 3.6, Line 29
State and local social insurance funds, Employee Contributions (CGSI)	Table 3.6, Line 31
Federal Estate Tax (Capital Transfers Account)	Table 5.10, Line 3
State and Local Estate Tax (Capital Transfers Account)	Table 5.10, Line 9

Note: This table reflects some minor changes to the 2007 TFD methodology. Specifically, this year, not all items in the NIPA Government Account category "Contributions for Government Social Insurance" are counted as taxes. Also, all taxes on corporate income paid by U.S. companies are included, while taxes from the rest of the world are excluded.

Tax Freedom Day's income measure for the nation as a whole is Net National Product (NNP), which is equivalent to "National Income" as defined by BEA.

Each of the tax and income variables for a current year’s Tax Freedom Day is taken from BEA’s estimate for that current year. For most variables, such a measure from BEA is based upon its economic timing, or accrual. However, some variables are mixed and are not necessarily based upon the exact economic timing of the productive activity for when the income was earned (or when the tax is being levied). Furthermore, some income variables that are based on the correct economic timing may have taxes legally imposed on them in a separate period. This brings up a methodological issue that had been brought forth by the CBPP in previous years (prior to 2008 which are still posted on their website as part of the previous years’ reports), and one that is worth discussing.

II. Issues Relating to the Timing of Income and Tax Burdens

Trying to identify when a tax burden is borne faces similar issues as trying to determine the economic incidence of a given tax, and often times the two go hand-in-hand. Just as the economic burden of a tax may not be borne by the same individual that remits the check to the government, the economic burden of a tax may not occur in the same period that the check was remitted to the government. If a property owner is suddenly hit with a giant property tax increase while attempting to sell his house, a rational prospective buyer is going to lower her offer price in a way to reflect the future tax payments that she is going to have to make, assuming the value of the government spending financed by the tax hike to the prospective buyer was zero. So although the new buyer will be writing the now larger checks to the local county assessor's office, the previous individual would be bearing the burden of the tax. This would also the mean that the timing of the burden as measured by a reduction in wealth (i.e. Haig-Simons income) would be at the time of the tax increase, not when the new homeowner writes the check to government. (Technically, the ultimate burden of a tax is when the lost utility would take place which is via the wealth loss's causing of a reduction in the person's consumption.)

This issue is not unique to calculating Tax Freedom Day. Every government agency and research organization that calculates average effective tax rates using one-year snapshots (e.g. CBO, the Joint Committee on Taxation, Treasury, and Tax Policy Center) face similar problems relating to the timing of taxes and income. This section discusses the important question of the timing of tax burdens as it relates to three issues: capital gains taxation (and corporate income taxes), taxes on retirement income, and deficit-financing.

It is frequently stated that GDP and NNP do not include capital gains income. Unfortunately, it's not that simple. Retained corporate earnings are included in NNP, which reflect accrued gains in corporate stocks. Although the taxes are not legally paid until the time of sale, an ideal tax measure that was truly based upon Haig-Simons income would actually allocate the tax paid at the time of accrual because Haig-Simons income has indeed increased as a result of the retained earnings. Unfortunately, reliable data for recent years does not exist regarding the length of holding assets, thereby making it difficult to allocate the capital gains tax burden to the year of income accrual.

Some may ask, "Couldn't you do what CBO and others do and count the income as being earned when realized?" The problem with that method is that a similar timing problem emerges with a different tax: the corporate income tax. CBO and Tax Policy Center count the corporate income tax as being paid (indirectly by households who own capital income) to government at the same time as the profits are earned. However, because they do not allocate the full corporate profits amount (only dividends, corporate taxes, and capital gains realizations on previous profits and not retained earnings), their timing of the corporate income tax with corporate income is imperfect. In other words, in a given year, they count the full value of the corporate income tax, yet only part of that year's corporate income. This whole problem stems from the fact that corporate profits are double-taxed: once at the corporate level via the corporate income tax and again at the individual level via dividend and capital gains taxes. In summary, Tax Freedom Day (and Treasury who does it similar to TFD) suffers from an income/tax timing problem on capital gains taxes, while CBO and Tax Policy Center suffer from an income/timing problem on corporate income taxes.

One benefit to the TFD method of counting capital gains income and taxes is that Tax Freedom Day actually counts virtually all stock-related capital gains in the long-run by its counting of retained corporate earnings, while CBO, Tax Policy Center, and others leave a rather large portion of capital gains uncounted because they are never realized. This is mostly due to the favorable capital gains tax treatment that assets receive upon death and the subsequent transfer to heirs. One who inherits a stock only reports the realized gain during his ownership of the stock, meaning that the gain that accrued during the holding period of the deceased is never realized (and never taxed). Tax Freedom Day, like CBO and others, doesn't count it as a tax (and rightly so because it was never actually levied), but over time, TFD does count that capital gains income. This would actually lead TFD's tax rate measure to be *smaller* than CBO, TPC, and others, ceteris paribus.

Finally, because TFD counts "new money" in the denominator and "old money" in the tax numerator, the timing mismatch of TFD typically understates the true tax rate because capital gains and corporate profits tend to increase over time (both real and nominal). The taxes counted in the numerator are based upon capital gains over many past years (i.e. old profits earned) whereas the retained corporate income counted in the denominator is based on this year's current profits (which tend to be much higher largely due to inflation).

Note that it is true that some non-stock capital gains are counted in that tax measure yet whose realizations are never included in TFD's simple income measure. These relate to items such as paintings and other collectibles. However, these items represent a very small fraction of capital gains realizations (less than half of one percent in 2005 according to IRS SOI data). Capital gains related to housing are largely included in TFD (implicitly) via the fact that the annual net imputed rental incomes from housing services calculated by BEA are adjusted for changes in the value of housing services.

Like all statistical agencies that calculate tax burdens on an annual basis, Tax Freedom Day also has a timing issue regarding retirement income. On the income side, Tax Freedom Day counts retirement income under a Haig-Simons method – as it accrues. Therefore, a person's pension fund that he uses to buy products at age 65 or so would actually be counted as being earned throughout the individual's life (employer contributions plus accrual returns to the assets). Unfortunately, in most cases, the taxes are paid upon distribution (except for ROTH IRAs), thereby leading to a mistiming of taxes paid to income earned. However, CBO and Tax Policy Center face similar issues, and their solution is to double-count income over a given individual's life span. That is, they count the income when it is both being earned as compensation and when an individual takes it as a distribution. Overall, the degree to which Tax Freedom Day is incorrect in respect to its estimate of the taxes imposed on retirement income would depend upon the net effect in a given year of the demographic shifts that have taken place over time. But on average, this mistiming would actually be understating the tax burden due to the same "old money" - "new money" situation described earlier. Those paying taxes on a given year's distribution of retirement income that was accrued over the past forty years (i.e. "old money") would typically be small relative to the current year pension contributions and accruals that were being earned in the current time period (i.e. “new money”).

Another timing issue that many tax burden studies face is the question of what to do about current year deficits. Should we assume Ricardian equivalence and assume that current year deficits are equivalent to current year taxes? Or should we merely count the taxes paid in a given year regardless of the spending level? Tax Freedom Day follows the mainstream assumption of only including those taxes paid in the given year, independent of the spending level. However, for disclosure purposes, this year’s TFD report provides an estimate of what Tax Freedom Day would be if deficits were to be counted as current year taxes.

III. Average Tax Burden vs. Middle-Income Tax Burden

The CBPP alleges that Tax Freedom Day is misleading because it provides an average tax burden for the economy as a whole, rather than for specific subgroups of taxpayers who may face higher or lower tax burdens than this average.

For example, in 2000 total local, state and federal taxes comprised 33.6 percent of net national income, implying a nationwide average tax burden of 33.6 percent of income. The CBPP criticizes this figure on the grounds that—like all averages—it masks the fact that individual taxpayers may face higher or lower effective tax burdens than this overall figure.

In an attempt to demonstrate this point, the CBPP compares the Tax Foundation's 2005 estimate of the nation's average federal tax burden of 20.2 percent with a Congressional Budget Office (CBO) estimate of 14.2 percent for the tax burden of the middle income quintile as defined by CBO. Clearly this comparison is irrelevant for what Tax Freedom Day is measuring. Tax Freedom Day compares *total* U.S. tax collections with *total* U.S. income. It does not provide a distributional analysis of the effective tax burdens faced by taxpayers in different income ranges—for example, those in the middle income quintile, or in the top income quintile, or for married households with children falling in the fourth quintile. Tax Freedom Day is an economy-wide average of the amount of the nation's income absorbed by governments in the form of taxes at all levels.

When understood in this way, the CBPP's comparison of Tax Freedom Day with CBO estimates of middle-income tax burdens relies on a misconception of Tax Freedom Day estimates. The tax burden of those in the middle-income quintile simply is not the same as a nationwide overall average that includes all U.S. taxpayers.

The proper comparison between CBO and Tax Foundation figures would be a comparison of *total federal tax burden* estimates from each organization. When compared in this way, Tax Foundation figures are comparable to CBO estimates. For example, in 2005 CBO estimates a total effective federal tax rate for all taxpayers of 20.5 percent, while the Tax Foundation estimates it at 20.2 percent. The difference between the two estimates is due to some methodological differences, mostly as they relate to the income concept.

Do Only the Middle 20 Percent Matter?

The CBPP appears to assert that the relevant measure of tax burdens for policymakers is the tax burden faced by the middle one-fifth of U.S. taxpayers. This assertion is hard to justify economically. First, it excludes fully 80 percent of U.S. taxpayers, ignoring the tax burden faced by both the lowest- and highest-income earners. Policymakers should formulate tax policy with *all* taxpayers in mind.

Broader, economy-wide tax burden estimates such as Tax Freedom Day remain as a useful gauge of overall tax burdens for policymakers.

IV. Tax Freedom Day by State and State-Local Tax Burdens

As part of the annual Tax Freedom Day publication, the Tax Foundation makes projections for each state's Tax Freedom Day using the most up-to-date data and projections from various agencies, as well as the most up-to-date information on state and local tax law changes. Historically, the Tax Foundation has also produced in conjunction with Tax Freedom Day a break out of each state's federal and state and local tax burden. The state and local tax average rates are then ranked. For 2008, however, the Tax Foundation will not be releasing a projection for state and local tax burdens for the current year in the same exact manner as it has done in the past. This is due to the revisions being made to the methodology, in particular the issue of tax exporting, as well as the fact that sufficient data does not yet exist to make a solid state-by-state projection for 2008 given the current economic uncertainty. Later this spring, once more data is available, the Tax Foundation will release updated estimates for 2007 state-and-local tax burdens (and for previous years), and possibly projections for 2008.

The CBPP has historically criticized the release of Tax Freedom Day estimates by state. The CBPP argues that such estimates mislead a state's residents into thinking that their overall tax rate (federal plus state/local) is the result of state and local policies. It should be noted that the Tax Freedom Day report every year explicitly addresses this possible misconception, citing the fact that most of a state's overall tax burden is the result of federal tax policies. But that fact still doesn't mean an average tax rate imposed on a state's residents is useless. On the flip side, however, the CBPP then delves into a criticism of Tax Freedom Day by state for relying on projections for state-by-state tax collections. But these two criticisms don't really go hand-in-hand. If Tax Freedom Day by state is truly misleading people into thinking that state policies are to blame even though federal policies really make up the largest fraction of people's tax bills, then any incorrect projection of state-and-local level tax collections given the lagged data used would have little effect on Tax Freedom Day projections by state. But with regards to the lagged data, the CBPP asserts that the Tax Foundation relies on data that is 2-3 years old, and that is not entirely true. Tax Freedom Day projections for 2008 actually used 2007 state government tax collections from the Census Bureau. For local tax collections (mostly property taxes), the Tax Foundation does rely on data that is 2-3 years old, but projections are made forward using state level indicators.

Finally, the CBPP claims that Tax Freedom by state is misleading people because it accounts for the economic incidence of taxes such as the severance taxes imposed on oil companies by the Alaskan state government, or the fact that the Tax Freedom Day by state estimates don't assume residents of Delaware pay all of the corporate income tax of its residents. Economic incidence in tax burden studies is a reality. In fact, the CBO study cited in the same CBPP critique of Tax Freedom Day makes many economic incidence assumptions that differ from the legal incidence of the tax, most notably the fact that employees are assumed to bear the burden of the employer portion of the federal payroll tax. There is really no difference in accounting for the economic incidence when doing geographical incidence analysis (as Tax Freedom Day by state does) and accounting for it when doing distributional incidence analysis (as the CBO and Tax Policy Center studies frequently cited by CBPP do).

V. Conclusion

Tax Freedom Day's calculation is relatively simple. It is calculated by taking taxes paid in the current year according to BEA divided by the nation's income for that year, which is derived from BEA statistics and various economic projections. That number is then multiplied by 365 to obtain the number of days out of 365 that the given fraction would represent. That number date on the calendar is then Tax Freedom Day (ignoring Leap Day).

Despite the relative simplicity of Tax Freedom Day, its methodology has been questioned in recent years by the Center on Budget and Policy Priorities. Each of the CBPP criticisms as they relate to 2008 Tax Freedom Day suffer from one of three setbacks: (1) some of the criticisms no longer apply; (2) the CBPP itself has a double-standard whereby many of its own publications suffer from similar problems that they argue TFD faces; and (3) the distributional concerns are largely irrelevant for what Tax Freedom Day is measuring, which is the nation's tax burden.

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Tax Foundation
2001 L Street NW, Suite 1050
Washington, DC 20036
Ph: (202) 464-6200
Fax: (202) 464-6201
www.taxfoundation.org