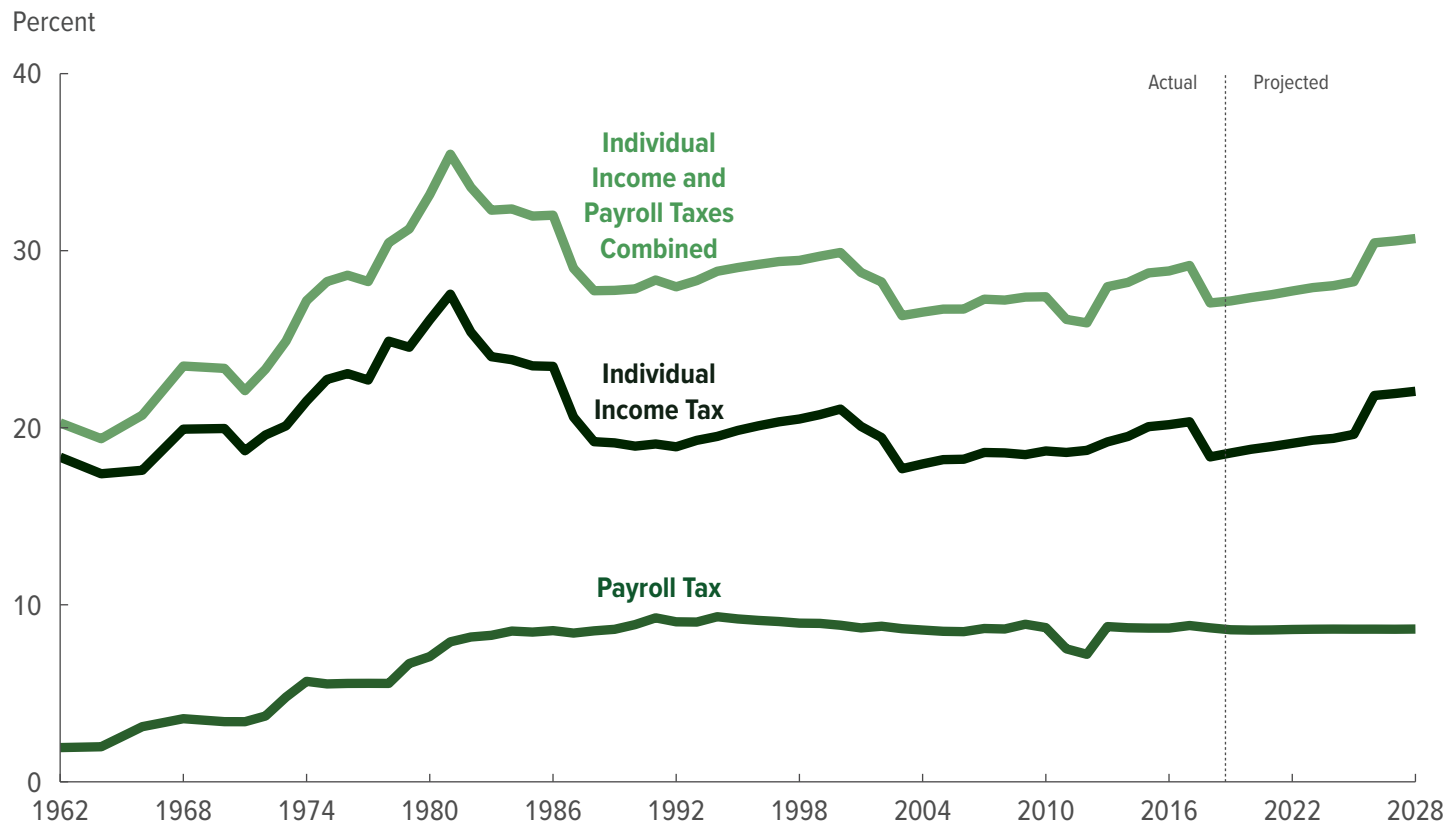


CBO

Marginal Federal Tax Rates on Labor Income: 1962 to 2028



JANUARY 2019

Notes

Unless otherwise indicated, all years referred to in this document are calendar years.

Numbers in the text, tables, exhibits, and figures may not add up to totals because of rounding.

When the rates specified in law include decimals, those more particular values are included instead of rounded values.

The Congressional Budget Office created many of the exhibits in this report using individual income tax data collected by the Internal Revenue Service's Statistics of Income Division.

Estimates for 1987 and later are from CBO's tax model. For more information about that model, see Congressional Budget Office, "An Overview of CBO's Microsimulation Tax Model" (June 2018), www.cbo.gov/publication/54096. Estimates for 1986 and earlier are from a federal tax calculator designed by Jon Bakija of Williams College. For details, see Jon Bakija, *Documentation for a Comprehensive Historical U.S. Federal and State Income Tax Calculator Program* (working paper, Williams College, August 2009), <http://tinyurl.com/bakija> (PDF, 485 KB).

The data underlying the exhibits and figures in this report are posted along with the report on CBO's website (www.cbo.gov/publication/54911).

Abbreviations and Definitions

Abbreviations

ERTA: Economic Recovery Tax Act of 1981

ATRA: American Taxpayer Relief Act of 2012

TRA: Tax Reform Act of 1986

ACA: Patient Protection and Affordable Care Act, the health care provisions of the Health Care and Education Reconciliation Act of 2010, and the effects of subsequent judicial decisions, statutory changes, and administrative actions—often referred to as the Affordable Care Act

OBRA90: Omnibus Budget Reconciliation Act of 1990

OBRA93: Omnibus Budget Reconciliation Act of 1993

EGTRRA: Economic Growth and Tax Relief Reconciliation Act of 2001

2017 Tax Act: Public Law 115-97, originally titled the Tax Cuts and Jobs Act

JGTRRA: Jobs and Growth Tax Relief Reconciliation Act of 2003

Definitions

Marginal tax rate: The percentage of an additional dollar of earnings that is unavailable to an individual because it is paid in taxes.

Statutory tax rates: The rates set in law that apply to the last dollar of income.

Income taxes: For the purposes of this paper, income taxes refer to taxes paid under the individual income tax system as identified on filers' tax forms such as the 1040. They do not include self-employment taxes determined on schedule SE, as those are identified as part of the payroll tax system.

Payroll taxes: For the purposes of this paper, payroll taxes are the taxes on earnings used to finance the Old-Age, Survivors, and Disability Insurance trust funds and the Hospital Insurance trust fund. Those taxes are collected through the Federal Insurance Contributions Act and the Self-Employment Contributions Act. They do not include other taxes typically collected through employers to finance social insurance programs, such as unemployment insurance.



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Marginal Federal Tax Rates on Labor Income: 1962 to 2028

Summary

The marginal federal tax rate on labor income is the percentage of additional income an individual earns that is paid in federal income taxes and payroll taxes. By reducing the compensation a worker retains, those taxes can affect people's incentives to work: People tend to respond to higher marginal tax rates by working fewer hours or choosing not to participate in the labor force at all, whereas people respond to lower marginal tax rates by increasing their working hours and being more likely to participate in the labor force. Because of those effects on labor, the Congressional Budget Office's estimates of the marginal tax rate on labor income inform the agency's projections of economic activity.

This report contains CBO's projections of marginal federal tax rates on labor income from 2018 through 2028 based on current law. So that current trends can be understood in a longer-term context, the projections are accompanied by historical rates that reach back to 1962 (the first year for which information is sufficient for calculating such rates). The agency has examined marginal tax rates using a two-pronged approach. First, using a simulation approach for a representative sample of workers, CBO estimates the economywide marginal tax rate under both the individual income and payroll tax systems and the distribution of marginal tax rates under the individual income tax system across the population. Second, the

report shows how marginal tax rates under both the individual income and payroll tax systems for several different types of hypothetical families have evolved over time.

At the broadest level, that approach has yielded these conclusions:

- For payroll taxes, the economywide marginal rate on labor income grew rapidly between the early 1960s and the early 1980s and has remained fairly stable thereafter.
- For individual income taxes, that rate has fluctuated greatly over the past five decades.
- Marginal tax rates vary widely among families. The rates generally increase with earnings but, because of various features of the tax code, can differ significantly for families with similar earnings.

How Has the Economywide Marginal Tax Rate Changed Over Time?

Offering a different perspective from the marginal rate faced by individuals, the economywide marginal tax rate is the share of additional earnings that would be paid in taxes if all workers experienced an equal percentage increase in labor income. That rate, which incorporates the rules of the payroll tax system and the federal income tax system, also accounts for forms of

labor compensation that are not subject to federal taxes—for instance, many fringe benefits.

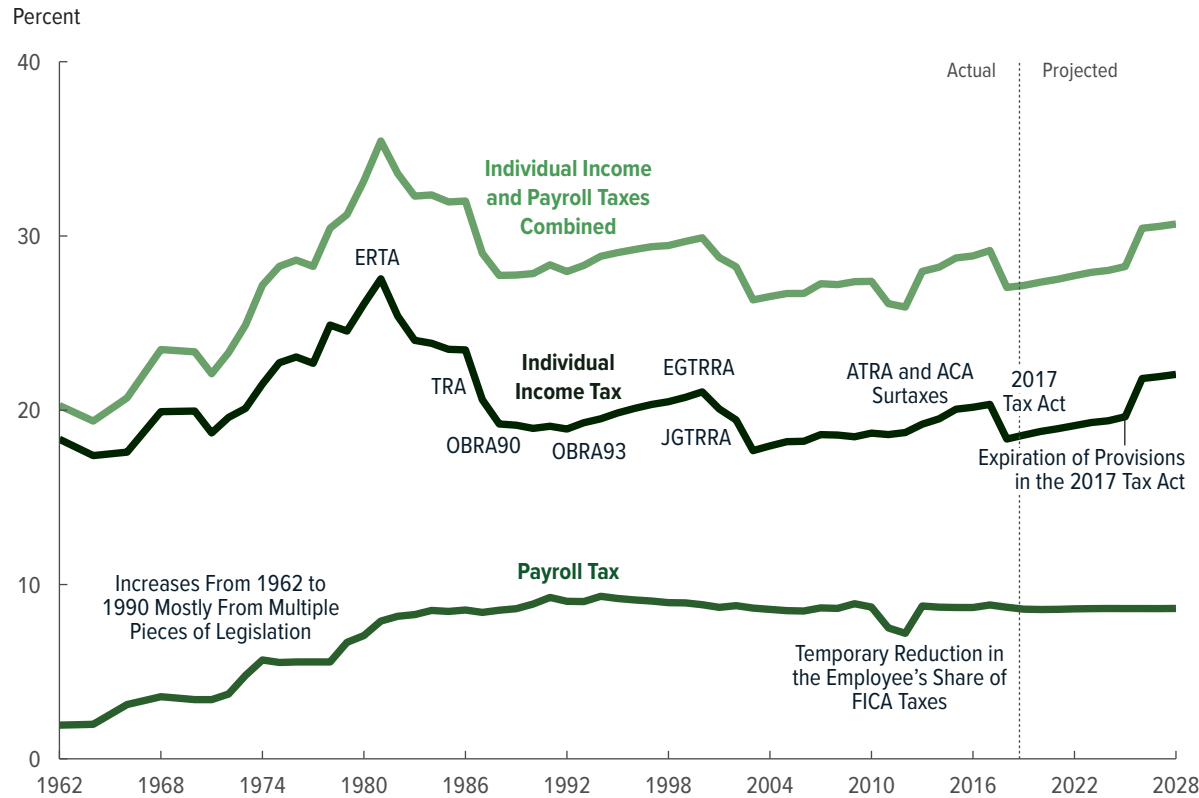
On the basis of its simulations, CBO estimates that the economywide marginal tax rate on labor income was 27 percent in 2018, consisting of 18 percent from individual income taxes and 9 percent from payroll taxes. That overall rate represents a decrease from 29 percent in 2017, largely due to the enactment of Public Law 115-97, referred to here as the 2017 tax act.

CBO expects the marginal rate on labor income to rise slowly over the next several years, as economic growth pushes more income into higher tax brackets. In 2026, after many of the changes that the 2017 tax act made to individual income tax provisions are set to expire, the rate is projected to rise by 2 percentage points: For the concluding two years of the projection period, the rate continues to gradually drift upward, to 31 percent (see Summary Figure 1).

Since 1962, influenced principally by changes in tax laws and growth in labor income, the marginal tax rate on labor income has ranged from about 20 percent to about 35 percent. The rate began the period at about 20 percent, then rose steadily throughout the 1960s and 1970s, before peaking at about 35 percent in 1981. The rate fell to about 28 percent by 1988, and since then, it

Summary Figure 1.

Marginal Tax Rates on Labor Income Under the Individual Income and Payroll Tax Systems



Source: Congressional Budget Office, using individual income tax data collected by the Internal Revenue Service’s Statistics of Income Division.

The economywide marginal tax rate is the change in taxes divided by the change in labor income that follows from a 1 percent increase in labor income for each tax return. For details, see Appendix B.

Labor income consists primarily of wages and salaries but also includes nonwage compensation such as employers’ contributions to employment-based health insurance. For details, see Appendix B.

Projections are consistent with those in CBO’s *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

2017 Tax Act = P.L. 115-97, originally titled the Tax Cuts and Jobs Act; ACA = Affordable Care Act; ATRA = American Taxpayer Relief Act of 2012; EGTRRA = Economic Growth and Tax Relief Reconciliation Act of 2001; ERTA = Economic Recovery Tax Act of 1981; FICA = Federal Insurance Contributions Act; JGTRRA = Jobs and Growth Tax Relief Reconciliation Act of 2003; OBRA90 = Omnibus Budget Reconciliation Act of 1990; OBRA93 = Omnibus Budget Reconciliation Act of 1993; TRA = Tax Reform Act of 1986.

has fluctuated in a fairly narrow range, between 26 percent and 30 percent.

How Has the Distribution of Marginal Individual Income Tax Rates Varied Over Time?

The distribution of marginal tax rates results from many provisions in the individual income tax system. The broadest set of provisions consists of statutory income tax rates, which create marginal tax rates that ranged from 10 percent to 37 percent in 2018. In addition, many deductions and credits apply over specified income ranges. For taxpayers in those ranges, the phasing in and out of those items as income rises causes the marginal rate to differ from the statutory rate. For example, taxpayers whose income makes them eligible for the earned income tax credit could see a marginal rate as low as -45 percent as the credit phases in, meaning that their income after taxes goes up by an additional 45 cents for each additional dollar earned. In contrast, taxpayers with income in the range where the credit phases out could face a marginal tax rate of 21.06 percent from the effect of that phaseout, in addition to the applicable statutory tax rate.

Marginal tax rates under the individual income tax system have varied widely over time among taxpayers, depending on their income and family structure. In the 1960s and 1970s, despite the wider range in statutory tax rates that existed, marginal tax rates were more tightly clustered than in recent years. The increase in the dispersion reflects in part the growing importance of tax provisions targeted to different types of households, such as the earned income tax credit and the child tax credit.

In 2018, CBO estimates, one-fifth of tax filers had marginal individual income tax rates of zero percent and below (as some taxpayers received a net income subsidy from refundable credits), whereas one-fifth faced rates above 22 percent. (In addition, most earners faced a marginal payroll tax rate of 15.3 percent.) Over the coming decade, CBO expects economywide marginal tax rates to rise and the dispersion of rates to increase, especially around the middle of the income distribution.

How Have Marginal Tax Rates for Different Families Varied Over Time?

Marginal tax rates are generally higher for people with higher income, in large part because statutory tax rates rise with income. And some tax benefits phase out for high-income taxpayers. Family structure is another key determinant of marginal tax rates, as statutory rates and key tax credits vary for different types of families.

To show how marginal tax rates for different families vary, CBO has computed illustrative examples. Although drawing overall conclusions about the tax system from the examples is difficult, they show the importance of different features of the system to different families. The agency constructed four hypothetical families of different types: a two-earner married couple with no children; a two-earner married couple with two children; an unmarried parent with one child; and a single childless individual. For each type of family, the agency assumed income (consisting entirely of earnings) at three different levels: the median income (for that type of family), half that, and twice the median. In each instance, CBO

computed marginal individual income and payroll tax rates each year from 1962 to 2028.

Marginal tax rates vary significantly for taxpayers at different income levels. For example, in 2018, a married childless couple with earnings equal to the median income had a marginal rate under the individual income and payroll tax systems of 37 percent, whereas a married childless couple with earnings equal to half of the median had a marginal rate of 27 percent. For most of the hypothetical families, marginal rates are expected to be stable for the next several years and then to rise, in part because of real (inflation-adjusted) growth in income and in part because most of the changes to individual income tax provisions in the 2017 tax act are set to expire after 2025.

Marginal tax rates for most of the hypothetical families have been fairly steady for the past 30 years, with some fluctuations resulting from changes in the statutory rate structure. But for some, marginal rates have been more volatile because changes in median income have moved them into a higher tax bracket or have moved them into or out of the range for a tax credit.

Background

The marginal tax rate on labor income, through its incentive effects, is a key determinant of the effect of the tax system on the number of hours worked. Many of CBO's analyses of the economic effects of changes to tax and benefit policies start by estimating how the change affects marginal tax rates. That calculation, coupled with the agency's analysis of research about the change in the labor supply resulting from a change in tax rates,

produces an estimate of the change in the overall supply of labor. For example, CBO's estimates of the economic effects of the 2017 tax act and of the Affordable Care Act were based in part on analyses of those laws' effects on marginal tax rates on labor income.¹

The Marginal Tax Rate on Labor Income

The marginal tax rate on labor is the percentage of additional labor income paid in taxes. The marginal tax rate is measured by simulating the impact of an additional 1 percent of labor income on an individual's taxes; the rate is calculated by dividing the additional tax burden by the income. For example, if a filer with \$10,000 of earnings is in the 10 percent bracket and earned another 1 percent of income (\$100), the extra earnings would increase his or her taxes by \$10, and the marginal tax rate would be 10 percent. (In contrast, the *average* tax rate is measured by dividing the total taxes owed by total income earned.)

CBO uses a broad definition of labor income: It includes earnings from wages and salaries; fringe benefits, such as employers' contributions to employment-based health insurance; and a portion of the earnings of sole proprietorships and partnerships. The composition of labor income affects the marginal tax rate, as different forms of labor

1. For more details about those analyses, see Congressional Budget Office, *The Budget and Economic Outlook: 2018 to 2028* (April 2018), Appendix B, www.cbo.gov/publication/53651, and Edward Harris and Shannon Mok, *How CBO Estimates the Effects of the Affordable Care Act on the Labor Market*, Working Paper 2015-09 (Congressional Budget Office, December 2015), www.cbo.gov/publication/51065.

income receive different tax treatment. For example, many fringe benefits are not subject to federal taxes, so additional labor income in that form is untaxed.

Factors Affecting Marginal Rates

Many features of the federal tax system affect marginal tax rates on labor income. The most basic sets of provisions are the income and payroll tax rates laid out in law (that is, the statutory tax rates) and the levels of income to which those rates apply (that is, the tax brackets):

- The federal income tax in 2018 had seven statutory rates (10 percent, 12 percent, 22 percent, 24 percent, 32 percent, 35 percent, and 37 percent) that applied to different levels of taxable income.
- Under the payroll tax system, employers and employees each pay a 6.2 percent tax on earnings up to a certain amount for the Old-Age, Survivors, and Disability Insurance Trust Funds and a 1.45 percent tax on all earnings for the Hospital Insurance Trust Fund. An additional tax of 0.9 percent applies to earnings in excess of \$200,000 (\$250,000 for a married couple filing a joint return).

Certain deductions, exemptions, and tax credits reduce the taxes that eligible taxpayers owe and increase their after-tax income; if the amounts are based on the recipients' income, those provisions affect marginal tax rates. The provisions include the earned income tax credit, the child tax

credit, personal exemptions, and certain itemized deductions.

Marginal tax rates are also determined by factors other than federal taxes. Programs providing cash and in-kind benefits, referred to as transfers, that target assistance to people of limited means can affect marginal tax rates. When lawmakers target assistance to low-income people, that assistance declines as income rises. That decline in transfer payments is an implicit marginal tax on additional labor income. In addition, most states and some localities levy income taxes, which increase marginal tax rates. In this report, the impact of benefit programs on marginal tax rates is not examined, nor is the impact of state and local income taxes.²

Aggregating Marginal Rates

Marginal rates can be understood in the context of a single taxpayer, but this paper focuses on aggregated measures. One such measure is the economywide marginal tax rate, or the share of additional earnings that would be paid in taxes if all workers experienced an equal percentage increase in labor income. Equivalently, the economywide marginal rate can be thought of as the average marginal tax rate across all taxpayers, with each taxpayer weighted by his or her earnings. That measure is generally used in analyses of the macroeconomic effects of tax changes because changes in

the number of hours worked affect total national income in proportion to the hourly wages of the affected individuals.

CBO also examines marginal rates averaged across subgroups of taxpayers, such as specific family types or deciles of taxpayers in the earnings distribution. In those cases, CBO generally computes averages by giving each taxpayer equal weight. That person-weighted measure represents the experience of a typical taxpayer.

Marginal Tax Rates' Effects on the Incentives to Work

When deciding how much to work, people consider not only the additional earnings from working more hours but also the resulting difference in total after-tax income. For example, increases in tax rates have two opposing effects among people already working:

- When higher marginal tax rates decrease additional after-tax earnings from working more hours, people tend to work fewer hours because other uses of their time become relatively more attractive. Economists refer to that behavior as the substitution effect.
- When total after-tax income drops from what people would have otherwise earned because of higher average tax rates, people tend to work more hours because having less after-tax income requires additional work to maintain the same standard of living. Economists refer to that behavior as the income effect.

2. For an analysis of the effects of transfers and state income taxes on marginal tax rates, see Congressional Budget Office, *Effective Marginal Tax Rates for Low- and Moderate-Income Workers in 2016* (November 2015), www.cbo.gov/publication/50923.

On balance, the first effect appears to be greater than the second.³ The effects on the labor supply are not uniform, however. Groups of workers respond differently to changes in taxes and transfers. For example, married women have historically responded more to changes in marginal tax rates than have men in their prime working years.

3. For a discussion of the evidence on which that assessment is based and information on how the responsiveness of the labor supply varies by income and marital status, see Congressional Budget Office, *How the Supply of Labor Responds to Changes in Fiscal Policy* (October 2012), www.cbo.gov/publication/43674; and Robert McClelland and Shannon Mok, *A Review of Recent Research on Labor Supply Elasticities*, Working Paper 2012-12 (Congressional Budget Office, October 2012), www.cbo.gov/publication/43675.

Marginal rates can affect labor income through channels other than hours worked. In the short term, for example, people's decisions about how hard to work and how to respond to employers' choices about dividing labor income into cash and fringe benefits are based in part on marginal tax rates. In the longer term, marginal tax rates can influence people's decisions about the level of education they attain and their choice of occupation.

Because of those various effects, marginal rates are an important determinant of how the tax system is likely to change labor market behavior. Minimizing tax-induced distortions is one goal of a tax system. Another is raising enough revenues to finance the federal government's spending. And the tax system should raise revenues in a manner

that is equitable, although there is no consensus definition of the term. Goals can also include minimizing complexity and the costs of complying with and collecting taxes. Those objectives are often in conflict, however, and changes to tax policy that improve one dimension often worsen another. The phasing out of many tax preferences with income illustrates those trade-offs. Phasing out a tax benefit increases marginal tax rates and adds complexity to the tax system; but at the same time, the phasing out of a benefit causes revenues to be higher than they otherwise would be and generally increases the progressivity of the tax system, by raising taxes on higher-income taxpayers—a result that many would characterize as more fair.

The Marginal Tax Rate on Labor Income Under the Federal Payroll Tax System

Background

The marginal payroll tax rate is an important component of the economywide marginal tax rate on labor income. Most income from wages and self-employment is subject to payroll taxes, which are the primary source of funding for Social Security's Old-Age, Survivors, and Disability Insurance (OASDI) program and Medicare's Hospital Insurance (HI) program. In 2018, over 96 percent of wages and self-employment earnings were from jobs covered by OASDI.

Employers and employees share responsibility for the OASDI and HI taxes. In assessing the effects of those taxes, CBO allocates the employee's share of payroll taxes to the households paying those taxes. The agency also allocates the employer's share of payroll taxes to employees—a view that implies an employee's salary and wages would be correspondingly higher if payroll taxes did not exist.

Most labor income comes in forms of compensation that are subject to payroll taxes. But certain forms of labor income, such as many employer-provided fringe benefits, are exempt from taxation.

In addition, some labor income is never reported to the tax authorities. For example, a substantial proportion of proprietors' income, which consists largely of labor income, is estimated to go unreported to the tax system.

Payroll taxes reduce returns from working just as income taxes do. Consequently, they affect people's decisions about how much to work. But because earning more and paying more in Social Security taxes (up to the taxable maximum) would entitle workers to higher future Social Security benefits, the effect of the taxes paid during an individual's working years may be offset somewhat by the promise of those future higher benefits.¹ The net effect—the true “tax”—is the portion of the incremental OASDI tax not offset in the future by increased benefits. Even so, some people may not be aware of the linkage or give it great weight in their decisions to work in the current period.

1. In some cases, benefits are only loosely based on one's work record—for instance, married or widowed beneficiaries can receive benefits based on their spouse's work history, rather than their own. In other cases, adding earnings can greatly increase benefits, for workers with few years of earnings, for instance.

For simplicity, CBO did not attempt to divide the tax into its gross and net components, so this report presents marginal payroll tax rates without accounting for future benefits.

The proper treatment of the HI tax is less ambiguous. Under the Medicare program, once workers have earned credit for 40 quarters of contributions, they are eligible to start receiving the total benefit at age 65. In 2018, workers received a credit for each \$1,320 in earnings and could accumulate up to four credits per year. Because workers receive no benefits for earning above \$5,280 per year, any amount beyond that is a tax. Once workers have accumulated 40 quarters, any additional HI tax paid over their lifetime does not affect their benefits. Thus, the HI portion of payroll taxes is much closer to a pure tax than is the OASDI portion.

Key Points

The economywide marginal payroll tax rate on labor income grew rapidly between the early 1960s and the early 1980s and has remained fairly stable thereafter. CBO projects the marginal rate to decline slightly in the next decade.

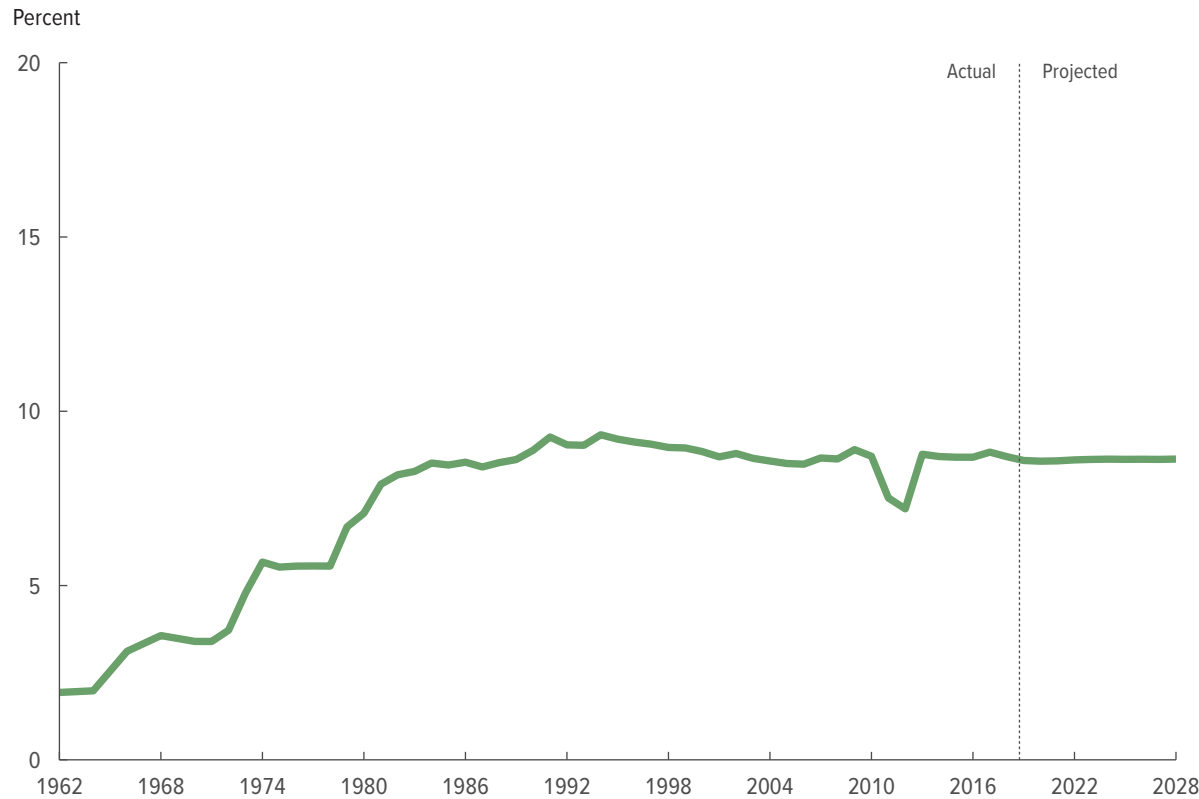
Statutory tax rate increases were the main cause of the increases between the early 1960s and the early 1980s. Statutory rates have been largely stable since then.

Changes to the composition and distribution of labor income have lowered the economywide marginal payroll tax rate over time and are projected to continue to do so.

- The composition of labor income has changed so that the share of labor income subject to payroll taxes has declined since the 1960s, causing the economywide marginal payroll tax rate to be lower than it would otherwise be; CBO projects that share to be relatively stable for the next 10 years.
- The percentage of earnings below the OASDI taxable maximum has dropped since the early 1980s, causing the economywide marginal payroll tax rate to be lower than it would otherwise be. CBO projects that share to continue to fall for the next 10 years.

Exhibit 1.

Marginal Tax Rate on Labor Income Under the Payroll Tax System



Source: Congressional Budget Office, using individual income tax data collected by the Internal Revenue Service’s Statistics of Income Division.

The economywide marginal tax rate is the change in taxes divided by the change in labor income that follows from a 1 percent increase in labor income for each tax return. For details, see Appendix B.

Labor income consists primarily of wages and salaries but also includes nonwage compensation such as employers’ contributions to employment-based health insurance. For details, see Appendix B.

Projections are consistent with those in CBO’s *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

The estimated economywide marginal payroll tax rate on labor income (the share of additional earnings that would be paid in payroll taxes if all workers experienced an equal percentage increase in labor income) in 2018 was 8.7 percent. That rate is lower than the 15.3 percent statutory rate because a portion of earnings was above the taxable maximum for OASDI and some components of labor compensation, such as fringe benefits, are not subject to federal payroll taxes.

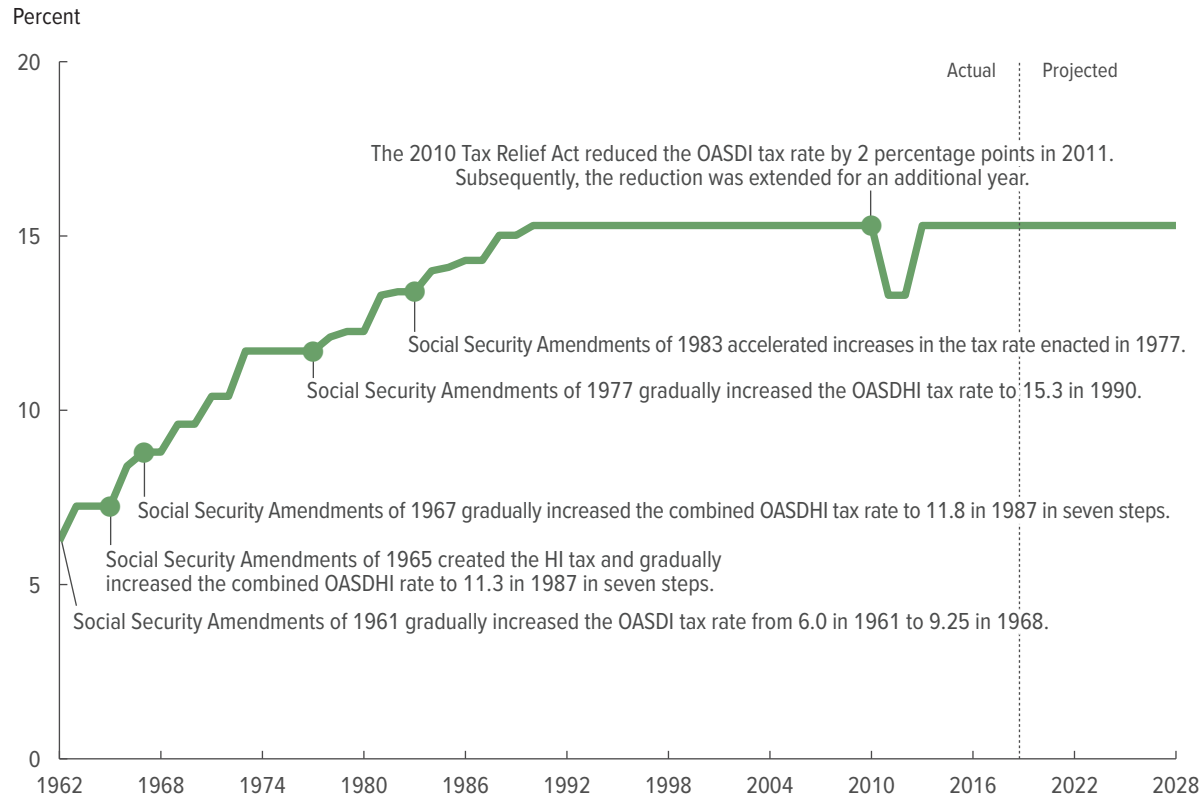
CBO projects that rate to decline slightly over the next decade, to 8.6 percent in 2028, largely because, by the agency’s estimates, an increasing share of earnings will go to people whose earnings are in excess of OASDI’s taxable maximum.

From 1962 through 1990, the combined OASDI and HI tax rate increased steadily, from 1.9 percent to 9.0 percent, mostly because of legislation that raised the statutory tax rate and the taxable maximum. The marginal tax rate remained relatively stable throughout the 1990s and 2000s, with a slight decline resulting from a greater concentration of wages above the taxable maximum.

A temporary tax cut reduced the statutory OASDI rate in 2011 and 2012, causing a concurrent drop in the marginal rate. That decline was reversed in 2013, with the expiration of the tax cut and the imposition of an additional statutory HI tax of 0.9 percent on high earnings. ♦

Exhibit 2.

Statutory Rates on Labor Income Under the Payroll Tax System



Source: Congressional Budget Office.

From 1962 to 1983, the combined employee-employer tax rate on wages and salaries differed from the rate on self-employment earnings. In those cases, the rate on wages and salaries is displayed.

HI = Hospital Insurance; OASDHI = Old-Age, Survivors, Disability, and Health Insurance; OASDI = Old-Age, Survivors, and Disability Insurance.

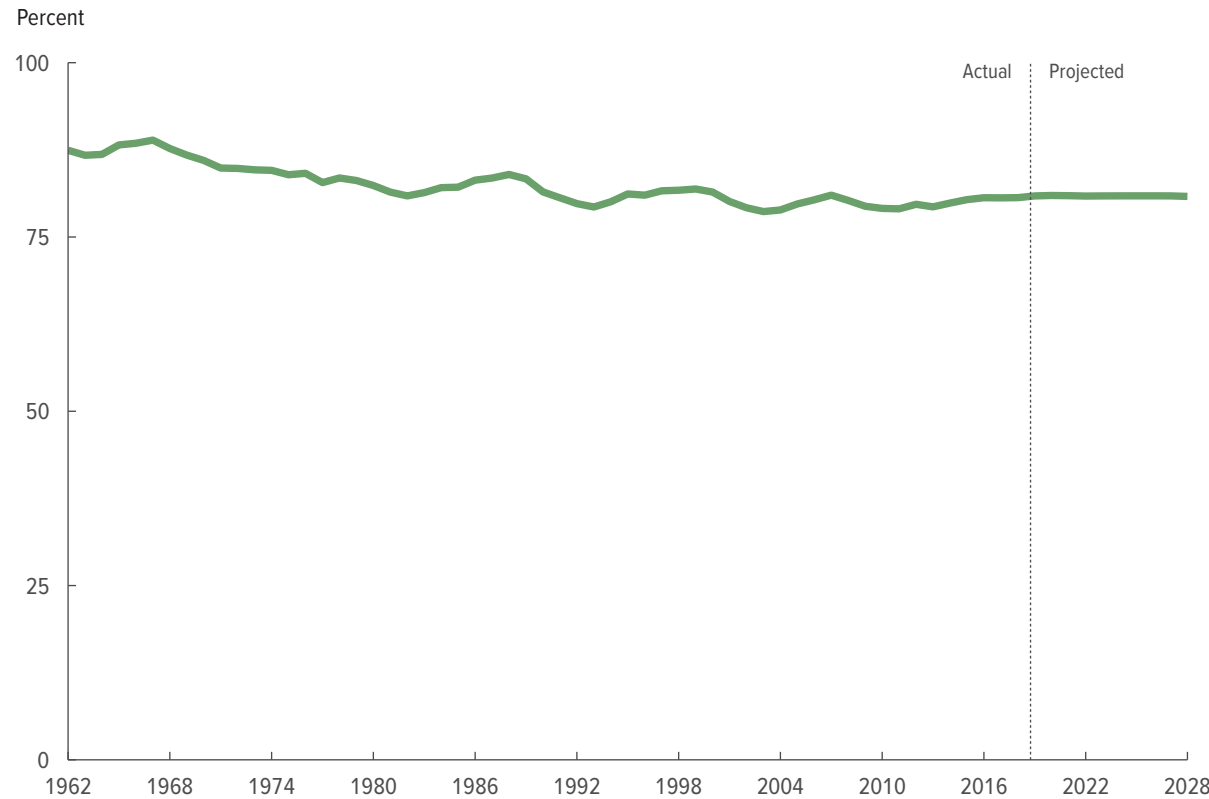
Statutory payroll tax rates rose substantially between the early 1960s and the early 1980s, contributing to the rise in marginal tax rates.

A statutory payroll tax rate of 15.3 percent applies to most income from wages and self-employment. Those payroll taxes help fund Social Security’s OASDI program and Medicare’s HI program. Employers and employees each pay a 6.2 percent OASDI tax on earnings up to a certain amount (\$128,400 in 2018) and a 1.45 percent HI tax on all earnings. Beginning in 2013, workers with earnings above certain amounts (\$200,000 for individuals and \$250,000 for married couples) pay an additional 0.9 percent HI tax on earnings above those amounts. (The effects of that additional HI tax are not shown in the figure, because the tax generally applies at earnings levels above the OASDI taxable maximum.)

The current rate of 15.3 percent has been in place since 1991 (with the exception of the temporary 2 percentage-point reduction in 2010 and 2011). Before that point, a series of laws incrementally raised the OASDI tax rate from 6.0 percent in 1960 to 12.4 percent. The HI tax took effect in 1966 at 0.7 percent, split evenly between the employer and the employee. The rate was gradually increased until it reached 2.9 percent in 1986, and it then remained at that level until 2013, when the additional tax first became applicable to high earners. For all other workers, however, the HI tax rate remains at 2.9 percent. ♦

Exhibit 3.

Labor Income Subject to Payroll Tax as a Share of Total Labor Income



Source: Congressional Budget Office.

Labor income consists primarily of wages and salaries but also includes nonwage compensation such as employers' contributions to employment-based health insurance. For details, see Appendix B.

Projections are consistent with those in CBO's *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

The share of labor income subject to payroll taxes has declined since 1962, making the increases in economywide marginal payroll tax rates smaller than they would have been otherwise. In 2018, 81 percent of labor income was subject to at least some portion of payroll taxes. The remaining 19 percent was not subject to federal payroll taxes because it was paid in the form of nontaxable fringe benefits, was earned by workers in jobs not covered by the Social Security or Medicare systems, or was not reported to the tax authorities. (Labor income in excess of the OASDI taxable maximum is considered subject to taxation here because the HI tax applies to that income.)

CBO expects the share of labor income subject to payroll taxes to be fairly constant over the next decade. By the agency's projections, small increases in the share of compensation devoted to employment-based health insurance will be offset by declines in other fringe benefits.

Over the past several decades, the share of labor income subject to payroll taxes declined from around 90 percent to around 80 percent, because a greater share of compensation came from sources not subject to taxes, especially payments for employment-based health insurance premiums. That decline occurred despite changes in law that reduced the number of jobs not covered by the Social Security or Medicare systems. Income from self-employment has been a fairly constant share of labor income over the period.

The changes in the portion of labor income subject to taxes affect the economywide marginal tax rate. CBO estimates that the composition of a marginal dollar of labor income is identical to the overall composition of labor income, with one exception: Only a small portion of marginal labor income takes the form of employment-based health insurance, because those benefits are usually offered in a fixed amount and a worker earning additional income would have little flexibility to change them in the near term. ♦

Exhibit 4.

Share of Workers and Share of Earnings Below the OASDI Taxable Maximum



Source: Congressional Budget Office, using individual income tax data collected by the Internal Revenue Service’s Statistics of Income Division.

Projections are consistent with those in CBO’s *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

OASDI = Old-Age, Survivors, and Disability Insurance.

The percentage of earnings below the OASDI taxable maximum has dropped since the early 1980s, causing the economywide marginal payroll tax rates to be lower than it would have been otherwise. (Workers in jobs covered by the OASDI system with total earnings below the taxable maximum face a higher marginal payroll tax rate than workers with higher earnings.)

In 2018, 94 percent of workers in jobs covered by the OASDI system had all of their earnings below the taxable maximum (\$128,400). In total, 82 percent of covered earnings was below the taxable maximum. CBO projects that the share of workers with earnings above the taxable maximum will remain stable through 2028 but that earnings growth will be more rapid for high earners than for low earners. Consequently, the share of earnings below the taxable maximum is projected to drop by 2 percentage points by 2028.

In the 1960s and 1970s, several laws raised the taxable maximum. Those changes caused both the share of workers and the share of earnings below the maximum to increase, resulting in an increase in the economywide marginal rate.

Starting in 1982, the taxable maximum was set to grow with changes in overall wages according to an automatic formula. Since that time, the share of earners with income in excess of the taxable maximum has remained relatively stable, but the earnings of those workers have grown more rapidly than average wages in the economy. Consequently, the share of earnings subject to the OASDI tax has declined. ♦

The Marginal Tax Rate on Labor Income Under the Federal Individual Income Tax System

Background

Most labor income is subject to the individual income tax. The marginal tax rate faced by a taxpayer depends on many provisions of the individual income tax law as well as the taxpayer's characteristics—including the amount of income, marital status, and the presence of children.

Tax Liability

To determine federal income tax liability, a taxpayer first computes taxable income. Although most types of income are taxable, some (such as public assistance) are not taxed at all, and others (such as Social Security) are only partially taxed. Next, a taxpayer subtracts allowable adjustments (such as contributions to individual retirement accounts) and deductions to determine taxable income. A taxpayer can either claim the standard deduction (a flat dollar amount) or itemize deductions for certain expenses (such as home mortgage interest or charitable contributions). Before 2018, taxpayers could claim exemptions for themselves and their dependents, but the 2017 tax act temporarily repealed those exemptions for 2018 through 2025.

The taxpayer's income tax liability is then calculated by applying a schedule of statutory tax rates to taxable income. For any taxpayer, the portion

of taxable income that falls within a given bracket faces the statutory tax rate for that bracket.

The income tax liability can be reduced by any credits for which the taxpayer is eligible. Credits can be either nonrefundable or refundable. A nonrefundable tax credit offsets an individual's tax liability, reducing it dollar for dollar. A refundable tax credit also offsets tax liabilities, but eligible individuals and businesses receive the full amount of the credit even if they do not have any taxes to offset. As a result, they receive money from the government, on net, rather than owing taxes. Examples of tax credits include the fully refundable earned income tax credit and the partially refundable child tax credit.

Factors Affecting Marginal Rates

A taxpayer's family situation affects the marginal tax rate because it alters income tax liability. Marital status matters because statutory rates apply at different income levels depending on whether a taxpayer files as single, a head of household (an unmarried person who covers most of the costs of maintaining a household for his or her dependents), or married; in addition, the amount of the standard deduction also varies with marital status. The number and age of dependents, together with certain other criteria, determine eligibility

for various credits. Not all families are required to file income tax returns, although many families with income below the filing threshold still file tax returns to receive refundable credits.

Although many provisions in the individual income tax system affect marginal tax rates, some apply to a relatively narrow group of taxpayers, whereas others are wider in scope. The broadest set of provisions is the statutory income tax rate brackets. In addition to the set of statutory rate brackets, many deductions and credits apply only over specified income ranges. For taxpayers in those ranges, the phasing in and phasing out of those items causes the marginal rates to differ from the applicable statutory rates. In such cases, marginal tax rates equal the sum of the taxpayer's statutory rate and all applicable phase-in or phaseout rates.

Individual income tax law has changed dramatically over the past 55 years, with the top statutory rate rising and falling several times. Numerous legislative changes have altered the number of brackets and corresponding rates, introduced or altered deductions and exemptions, and created tax credits with phase-ins and phaseouts that affect the marginal tax rates faced by some families.

Key Points

The economywide individual marginal income tax rate on labor income has fluctuated greatly over the past five decades.

- The rate grew rapidly in the 1960s and 1970s in response to high inflation and an unindexed tax structure.
- Changes to tax policy in the early 1980s substantially lowered marginal tax rates.
- Since then, the individual marginal tax rate has risen in response to real growth in income, although that trend has been offset through periodic legislative changes to the tax code.
- CBO projects the marginal rate to increase over the next decade, particularly after 2025,

as many of the changes that the 2017 tax act made to individual income tax provisions expire.

- Changes to the composition and distribution of labor income have affected the marginal individual income tax rate.
- The share of labor income subject to income taxes has declined since the 1960s, causing the economywide marginal income tax rate to be lower than it would otherwise be, but CBO projects that share to be relatively stable for the next 10 years.
- The percentage of earnings accruing to high earners has increased since the early 1980s, causing the economywide marginal income tax rate to be higher than it would otherwise be.

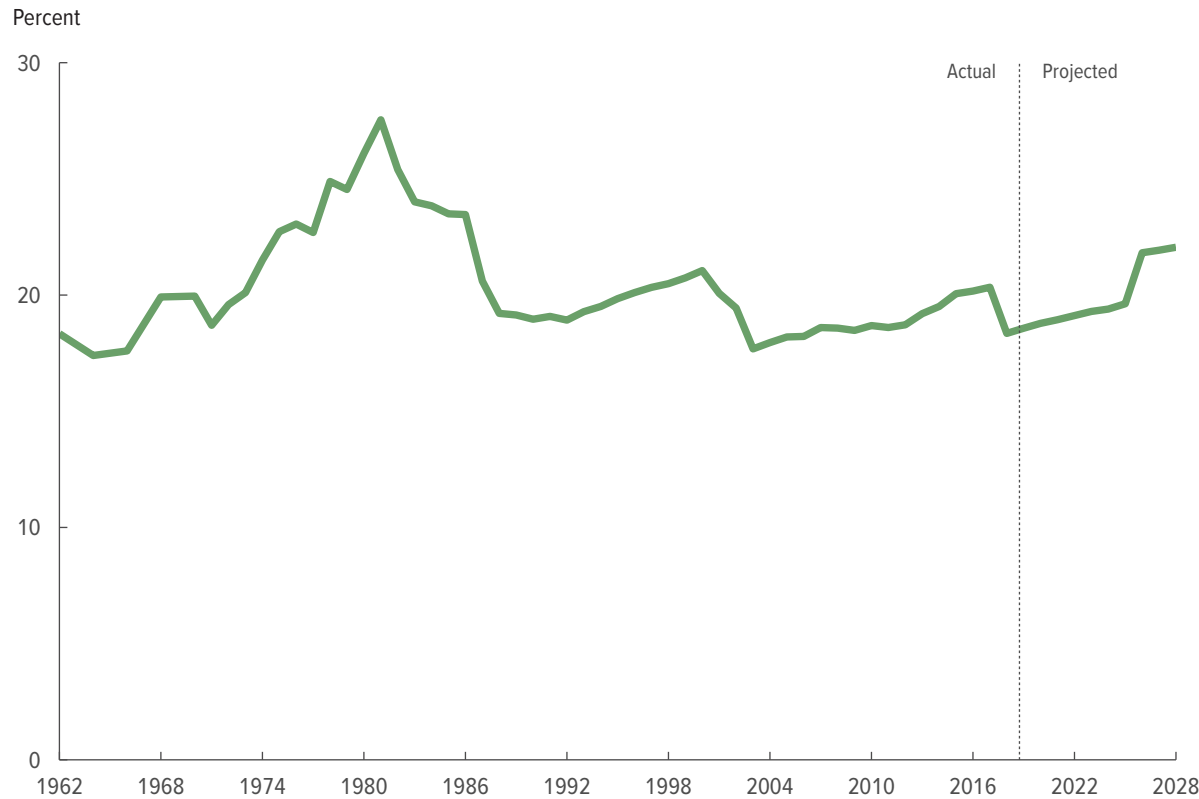
CBO projects that share to continue to rise for the next 10 years.

The structure of the individual income tax system has evolved substantially over time in ways that have affected the marginal tax rate.

- In the 1960s and 1970s, the tax code had many statutory brackets covering a wide range of income, but the rate structure was greatly simplified in the 1980s.
- Some elements of the tax code, particularly the presence of tax credits with phase-ins and phaseouts tied to earnings, have caused some filers to face marginal rates that are very different from their statutory rates. The importance of such provisions has increased substantially.

Exhibit 5.

Marginal Tax Rate on Labor Income Under the Individual Income Tax System



Source: Congressional Budget Office, using individual income tax data collected by the Internal Revenue Service’s Statistics of Income Division.

The economywide marginal tax rate is the change in taxes divided by the change in labor income that follows from a 1 percent increase in labor income for each tax return. For details, see Appendix B.

Labor income consists primarily of wages and salaries but also includes nonwage compensation such as employers’ contributions to employment-based health insurance. For details, see Appendix B.

Projections are consistent with those in CBO’s *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

In 2018, CBO estimates, the economywide marginal income tax rate on labor income was 18.4 percent. That rate is about 2 percentage points lower than in 2017, principally because of the 2017 tax act. CBO expects the marginal rate on labor income to rise slowly over the next several years—largely reflecting the effects of real income growth’s moving more income into higher tax rate brackets, often referred to as real bracket creep. In CBO’s projections, the rate rises by 2.2 percentage points in 2026, after changes to many individual provisions of the 2017 tax act expire, and then continues to gradually drift upward, reaching 22.1 percent by 2028.

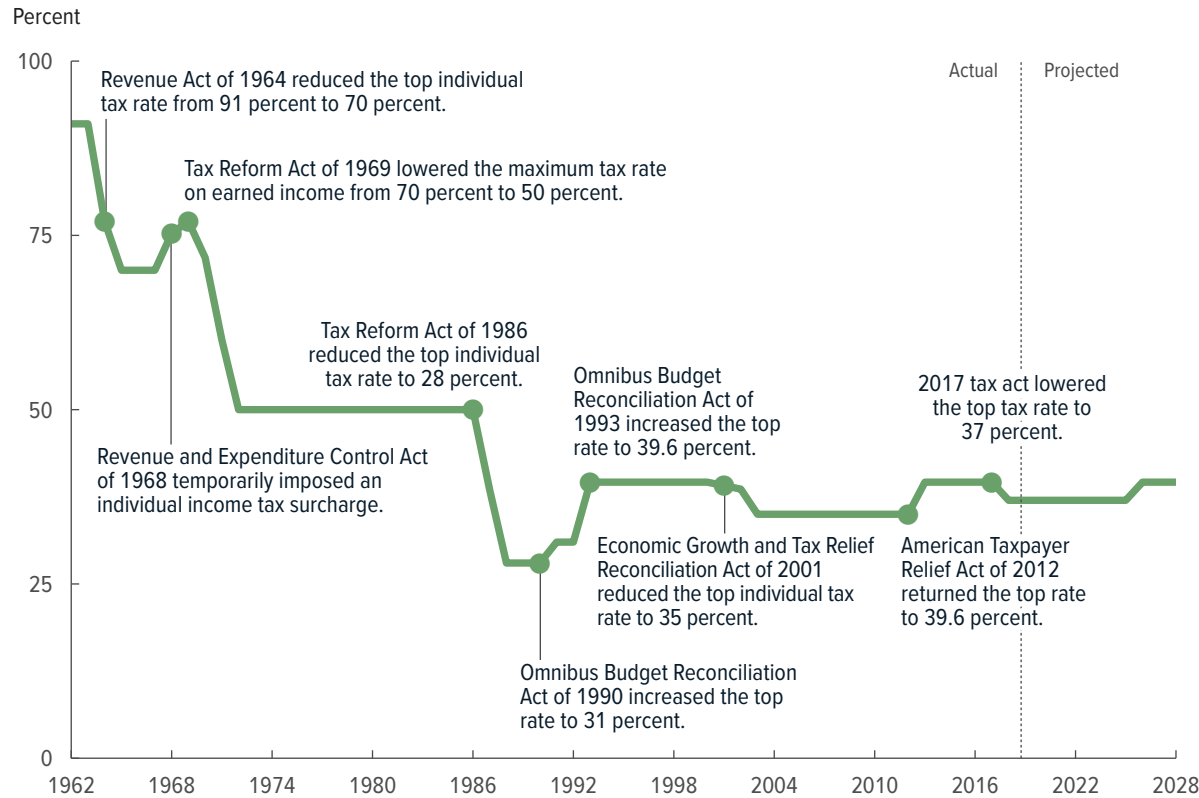
Over the past 55 years, the marginal income tax rate on labor income has ranged from 17 percent to 28 percent. The marginal rate peaked in 1981, because high inflation in much of the 1970s pushed more taxpayers into high tax brackets. The Economic Recovery Tax Act of 1981 caused the thresholds for tax brackets, personal exemptions, and the standard deduction to be adjusted annually for inflation.

That legislation in 1981 and later tax legislation in 1986 had the combined effect of lowering the marginal tax rate by about 8 percentage points. The marginal rate rose throughout the 1990s, driven both by legislative changes and by rapid growth in income for the highest-income taxpayers. Marginal rates fell again in the early 2000s, as tax law changes in 2001 and 2003 took effect.

Since 2003, the marginal income tax rate has generally crept up. Between 2009 and 2017, the rate rose by 1.9 percentage points. Much of that increase stemmed from the enactment of the American Taxpayer Relief Act of 2012, which increased rates for the highest-income taxpayers. ♦

Exhibit 6.

Statutory Rates for the Highest Earners of Labor Income Under the Individual Income Tax System



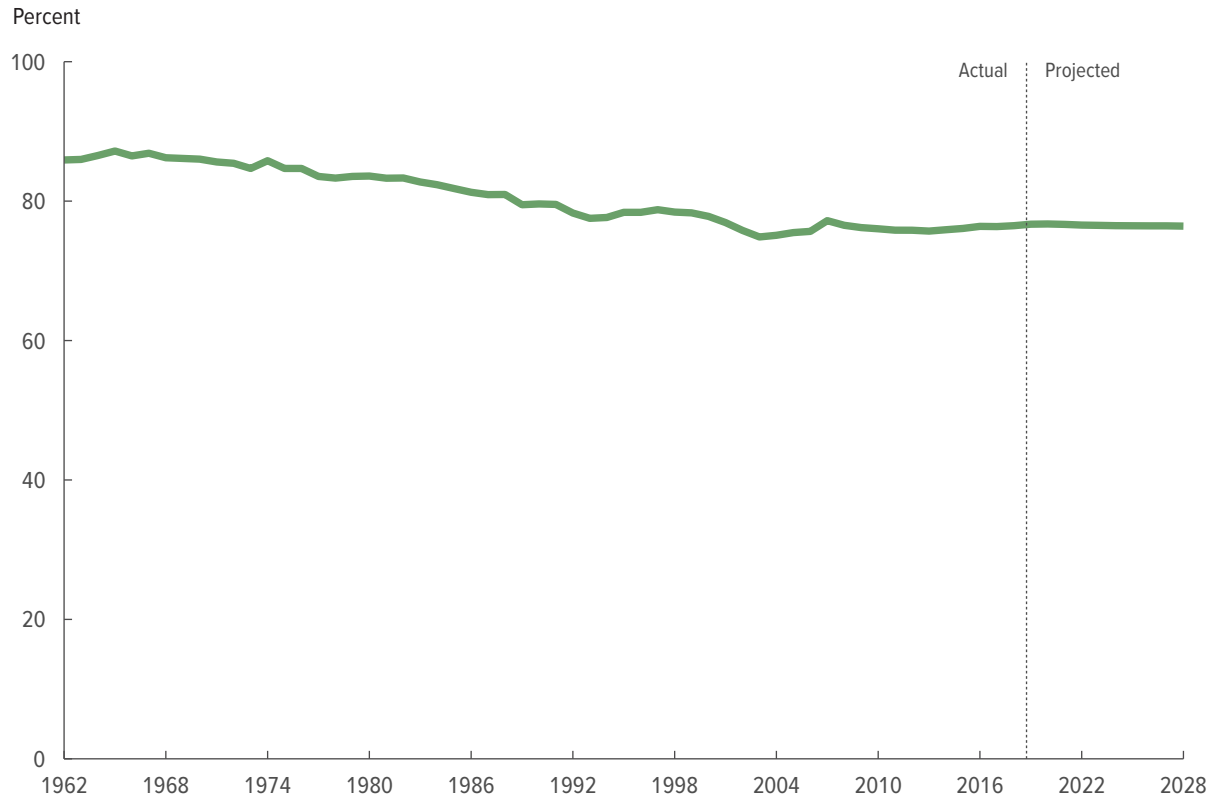
Source: Congressional Budget Office.

Statutory tax rates are an important determinant of the marginal tax rate. For any taxpayer, the portion of taxable income that falls within a given bracket faces the statutory tax rate for that bracket. The top statutory rate is the tax rate that applies to the last dollar of earnings for the highest-income earners.

Over the past 50 years, nine major tax laws have changed the top statutory tax rate. Most recently, the 2017 tax act lowered the top statutory rate from 39.6 percent to 37 percent in 2018. The top rate is scheduled to return to 39.6 percent in 2026, when most of the individual income tax provisions of the act expire. Top rates were much higher in the 1960s and 1970s, although few people fell in the top brackets. A series of legislative changes brought the rate on the highest earners down from 91 percent in 1962 to 28 percent in 1988. Since 1993, the top rate has ranged between 35 percent and 39.6 percent. ♦

Exhibit 7.

Share of Total Labor Income Subject to Individual Income Taxes



Source: Congressional Budget Office.

Labor income consists primarily of wages and salaries but also includes nonwage compensation such as employers' contributions to employment-based health insurance. For details, see Appendix B.

Projections are consistent with those in CBO's *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

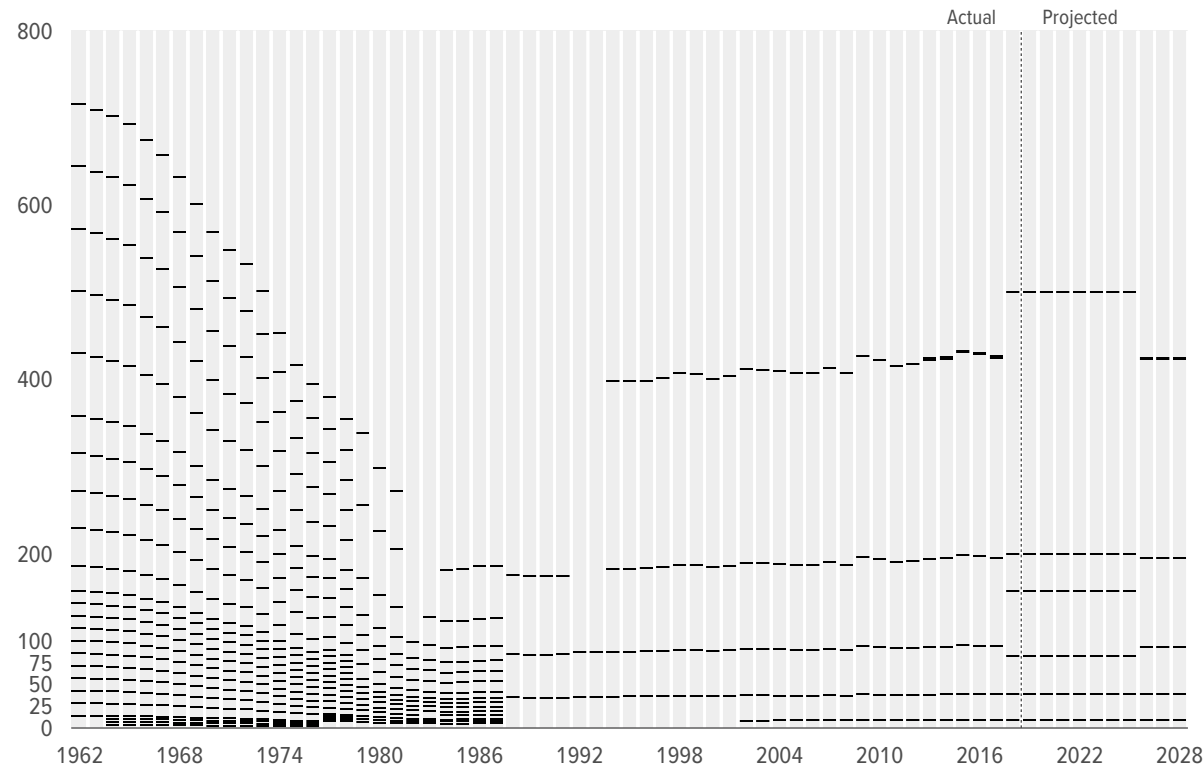
In 2018, according to a broad measure, labor income in the United States totaled \$11.7 trillion. Over three-quarters of that income was reported on individual income tax returns, and that proportion is expected to remain stable over the next 10 years. Reported labor income is lower than total income mostly because certain forms of labor income, such as many employer-provided fringe benefits, are exempt from taxation. In addition, some workers are not required to file because their income is very low, and some labor income is never reported to tax authorities.

The share of labor income that was reported on tax returns during the 1960s was about 10 percentage points higher than today. That share fell throughout subsequent decades, mostly because fringe benefits became a larger share of total labor income. Income from self-employment has been a fairly constant share of labor income over the past several decades. For the past decade, the ratio of reported labor income to total income has been fairly stable. ♦

Exhibit 8.

Individual Income Tax Brackets for a Single Filer

Income, Thousands of 2018 Dollars



Source: Congressional Budget Office.

Each dash marks a threshold between brackets. Brackets start at \$0 for each year (although from 1977 to 1987 the rate for the first bracket was zero percent).

Bracket amounts, in 2018 dollars, are adjusted for inflation using the chained consumer price index for all urban consumers. For years before 2000 (that is, before the Bureau of Labor Statistics calculated the chained measure), CBO adjusted the consumer price index for all urban consumers to approximate the slower growth of the chained measure.

Not displayed are two brackets in 1962 and 1963 and one bracket in 1964 with thresholds greater than \$800,000 in 2018 dollars. In 2018 dollars, the omitted 1962 brackets start at \$1,074,800 and \$1,433,100, the omitted 1963 brackets start at \$1,064,200 and \$1,418,900, and the omitted 1964 bracket starts at \$1,403,951.

For 1988 to 1990, a 5 percent surtax applied to a portion of income in the 28 percent bracket. For the sake of classification, CBO considered the result to be a separate 33 percent tax bracket.

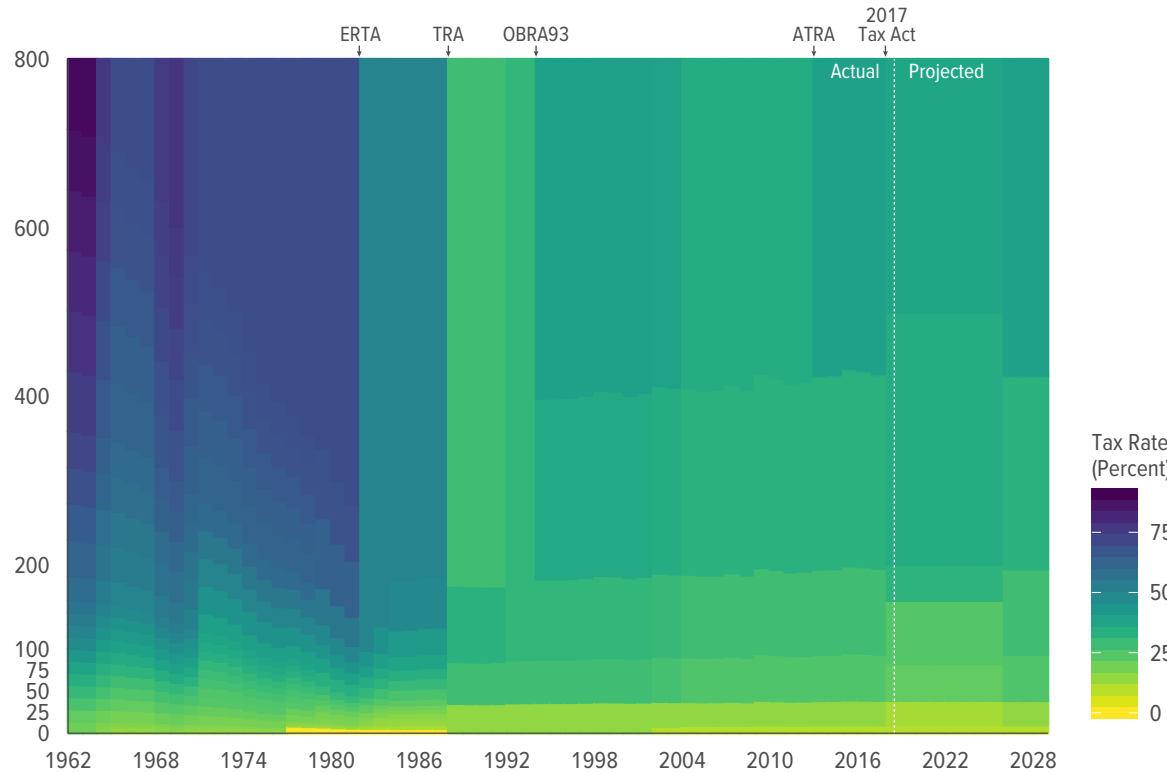
In 2018, the federal income tax had seven brackets that applied to different levels of taxable income. The bottom bracket applied to taxable income between \$0 and \$9,525, whereas the top rate applied to all taxable income above \$500,000 (\$600,000 for married couples filing a joint tax return). Over the next eight years, the income ranges for the brackets will hold steady in real terms, because the brackets are indexed to inflation using the chained consumer price index for all urban consumers. In 2026, after the expiration of most individual income tax provisions in the 2017 tax act, the entry point for the top bracket is scheduled to fall to \$425,100 (in 2018 dollars). In contrast, the entry points for the next three highest brackets are scheduled to rise to \$423,400, \$194,700, and \$93,300 (in 2018 dollars).

Over time, the number of tax brackets has been reduced. In 1962, the tax schedule for a single filer had 24 separate brackets; the highest bracket started at incomes comparable to over \$1.4 million today (not shown in figure). The entry points for the higher brackets declined in real terms over the next 20 years, as inflation reduced the real values of the unindexed brackets. The 1986 tax act substantially reduced the number of brackets: After 1987, the number of brackets declined to four. The Omnibus Budget Reconciliation Act of 1993 then increased the number of the brackets to five and boosted the entry point for the highest bracket beginning in 1994. The general structure of the brackets has changed only slightly since then. ♦

Exhibit 9.

Statutory Individual Income Tax Rates for a Single Filer

Income, Thousands of 2018 Dollars



Source: Congressional Budget Office.

Bracket amounts, in 2018 dollars, are adjusted for inflation using the chained consumer price index for all urban consumers. For years before 2000 (that is, before the Bureau of Labor Statistics calculated the chained measure), CBO adjusted the consumer price index for all urban consumers to approximate the slower growth of the chained measure.

Not displayed are two brackets in 1962 and 1963 and one bracket in 1964 with thresholds greater than \$800,000 in 2018 dollars. In 2018 dollars, the omitted 1962 brackets start at \$1,074,800 and \$1,433,100, the omitted 1963 brackets start at \$1,064,200 and \$1,418,900, and the omitted 1964 bracket starts at \$1,403,951.

For 1988 to 1990, a 5 percent surtax applied to a portion of income in the 28 percent bracket. For the sake of classification, CBO considered the result to be a separate 33 percent tax bracket.

The Tax Act of 1969 reduced the maximum rate on earnings to 60 percent in 1971 and 50 percent in years after 1971.

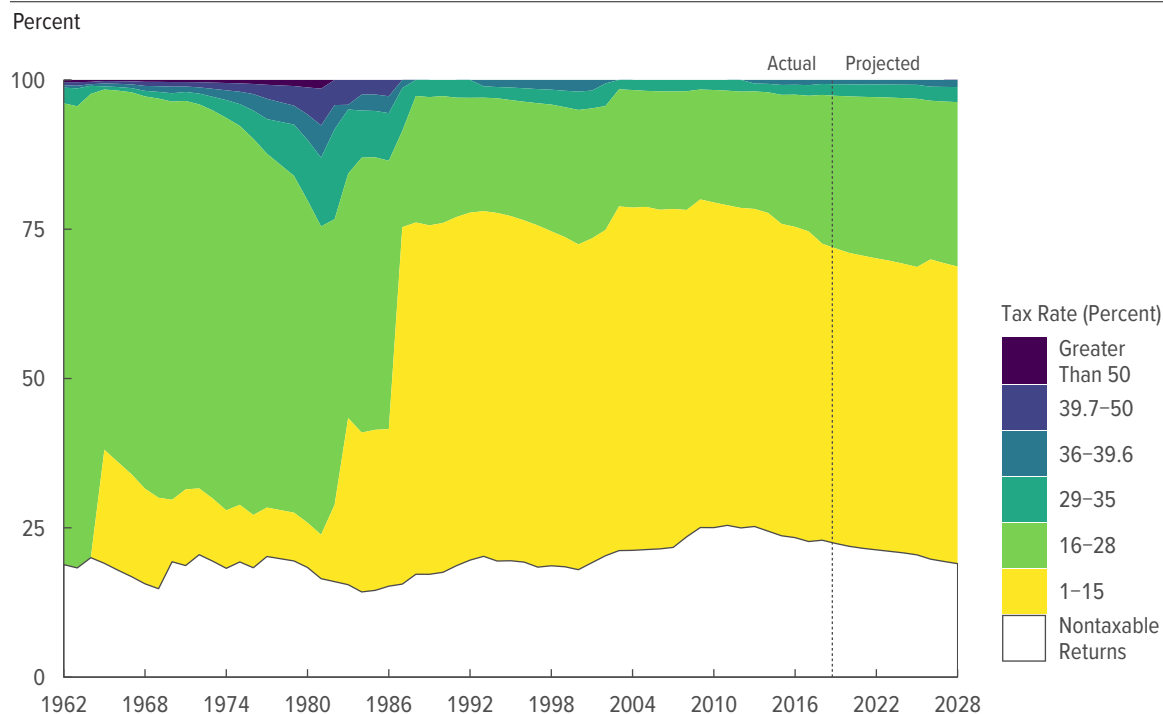
2017 Tax Act = P.L. 115-97, originally titled the Tax Cuts and Jobs Act; ATRA = American Taxpayer Relief Act of 2012; ERTA = Economic Recovery Tax Act of 1981; OBRA93 = Omnibus Budget Reconciliation Act of 1993; TRA = Tax Reform Act of 1986.

In 2018, the federal income tax had statutory rates of 10 percent, 12 percent, 22 percent, 24 percent, 32 percent, 35 percent, and 37 percent. Those rates are scheduled to remain unchanged until after 2025, when most individual income tax provisions in the 2017 tax act expire. At that point, the rates are scheduled to revert to what existed from 2013 to 2017: 10 percent, 15 percent, 25 percent, 28 percent, 33 percent, 35 percent, and 39.6 percent.

Rates on high-income filers have been reduced over time. In 1962, the highest rate was 91 percent, and taxable income over \$100,300 (in 2018 dollars) faced a rate of 50 percent or higher. Rates on high income were reduced sharply in the 1980s: After the enactment of the Tax Reform Act of 1986, the highest earners faced a rate of 28 percent. The Omnibus Budget Reconciliation Act of 1993 added a 31 percent bracket, and the Omnibus Budget Reconciliation Act of 1990 introduced rates of 36 percent and 39.6 percent. The Economic Growth and Tax Relief Reconciliation Act of 2001 reduced rates and introduced a 10 percent bracket, and the American Taxpayer Relief Act of 2012 reintroduced the 39.6 percent rate in 2013. ♦

Exhibit 10.

Percentage of Returns Classified According to Their Statutory Individual Tax Rate



Source: Congressional Budget Office, drawing from Daniel Baneman and James R. Nunns, *Income Tax Paid at Each Tax Rate, 1958–2009 (Updated)* (Tax Policy Center, October 2011), <https://tinyurl.com/y723tzpd>, and using individual income tax data collected by the Internal Revenue Service’s Statistics of Income Division.

Projections are consistent with those in CBO’s *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

For 1988 to 1990, a 5 percent surtax applied to a portion of income in the 28 percent bracket. For the sake of classification, CBO considered the result to be a separate 33 percent tax bracket.

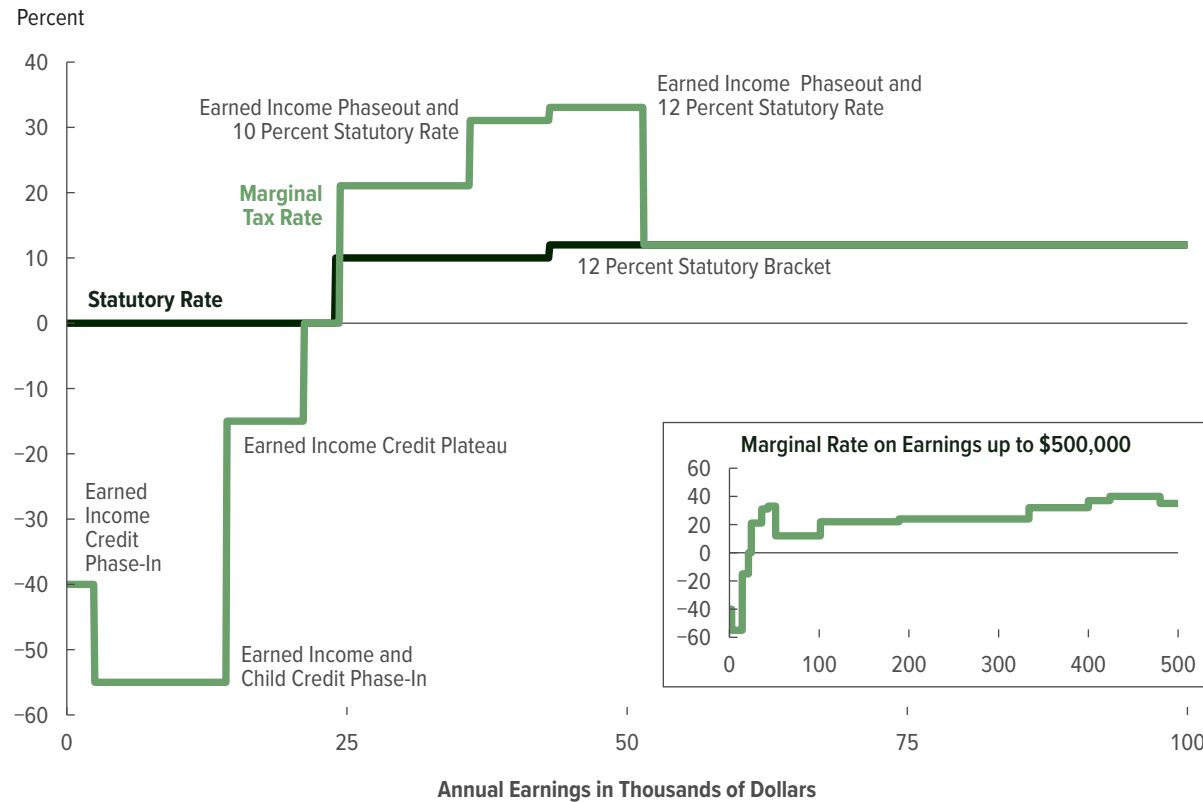
A tax filer’s statutory tax rate is the rate that applies in his or her highest tax bracket. For 2018, CBO projects, roughly one-quarter of returns filed will not report any taxable income after credits, and nearly half of returns will be in the 10 percent or 12 percent statutory rate bracket. Only 3 percent of returns will fall into the top two brackets. The percentage of returns facing a statutory rate at or under 15 percent is projected to decrease over the next 10 years, as real income growth is expected to push some filers into higher tax brackets.

Throughout the 1960s, fewer than 0.5 percent of tax filers faced a statutory rate of 50 percent or more, and the number of tax filers facing rates higher than 28 percent fluctuated between 2 percent and 4 percent. In the 1970s, the share of tax filers in high rate brackets began to grow rapidly. By 1981, 1.5 percent of returns fell into tax brackets with tax rates of 50 percent and higher, and almost one-quarter fell into brackets with rates higher than 28 percent. The rapid increase occurred despite stability in the tax law because the tax system was not indexed for inflation and rapid inflation in the 1970s pushed many taxpayers up the rate schedule.

The Economic Recovery Tax Act of 1981 and the Tax Reform Act of 1986 greatly reduced the share of taxpayers in high statutory rate brackets. By 1988, fewer than 3 percent of tax filers were in brackets higher than 28 percent, and three-quarters were in brackets of 15 percent and lower. The percentage of returns in the various categories remained fairly stable in the following decades, with some variation based on changes in the top statutory rate. ♦

Exhibit 11.

Marginal Tax Rate for a Hypothetical Married Couple With Two Children and Earnings Up to \$100,000 Who File Jointly Under the Individual Income Tax System, 2018



Source: Congressional Budget Office.

The marginal rate here is defined as the change in taxes divided by the change in earnings.

Rates displayed are for a filer taking the standard deduction.

The schedule of statutory tax rates is a major determinant of the marginal tax rate, but many other provisions contribute to a taxpayer’s marginal tax rate. Those provisions include deductions and tax credits, if the amounts are based on the recipient’s earnings.

The hypothetical family in this example—a married couple with two children, who claim the standard deduction—has a marginal tax rate of -55 percent if it has earnings between \$2,500 and \$14,290. As the couple’s earnings increase, so does the amount of earned income tax credit and child tax credit that they receive. But as earnings rise above \$24,340, the earned income tax credit is reduced for each additional dollar earned, increasing the marginal rate over the phaseout range by 21.06 percentage points. Once the couple’s income exceeds \$51,482, they no longer receive any earned income tax credit and their marginal rate settles at 12 percent.

If their earnings exceed \$100,000, they face increasingly higher statutory rates—increasing from 12 percent to 22 percent, 24 percent, 32 percent, and 35 percent, until peaking at 37 percent once taxable earnings exceed \$600,000. The only difference between the marginal and statutory rates in this example would result from the phaseout of the \$4,000 in child tax credit, which begins at \$400,000 in earnings. The credit phases out by 5 percent for each \$1,000 earned until being eliminated entirely once earnings exceed \$480,000. By CBO’s estimates, of all married couples filing jointly in 2018, 39 percent had income of more than \$100,000, and 12 percent had income in excess of \$200,000. ♦

The Dispersion of Marginal Individual Income Tax Rates

Background

Whereas the economywide measure of the marginal federal tax rate on labor income is useful in understanding how fluctuations over time in that rate may have affected the economy, it can mask more significant changes experienced by particular groups of taxpayers. That variation is especially true under the individual income tax system, in which a graduated rate structure, exemptions, deductions, and tax credits all affect marginal tax rates. The progressive nature of the individual income tax system means that taxpayers with higher earnings generally face higher marginal tax rates than do taxpayers with lower earnings. But taxpayers with comparable earnings can still face very different marginal rates, depending on their family structure and the presence of other forms of income and deductions.

Key Points

Marginal tax rates under the individual income tax system vary widely:

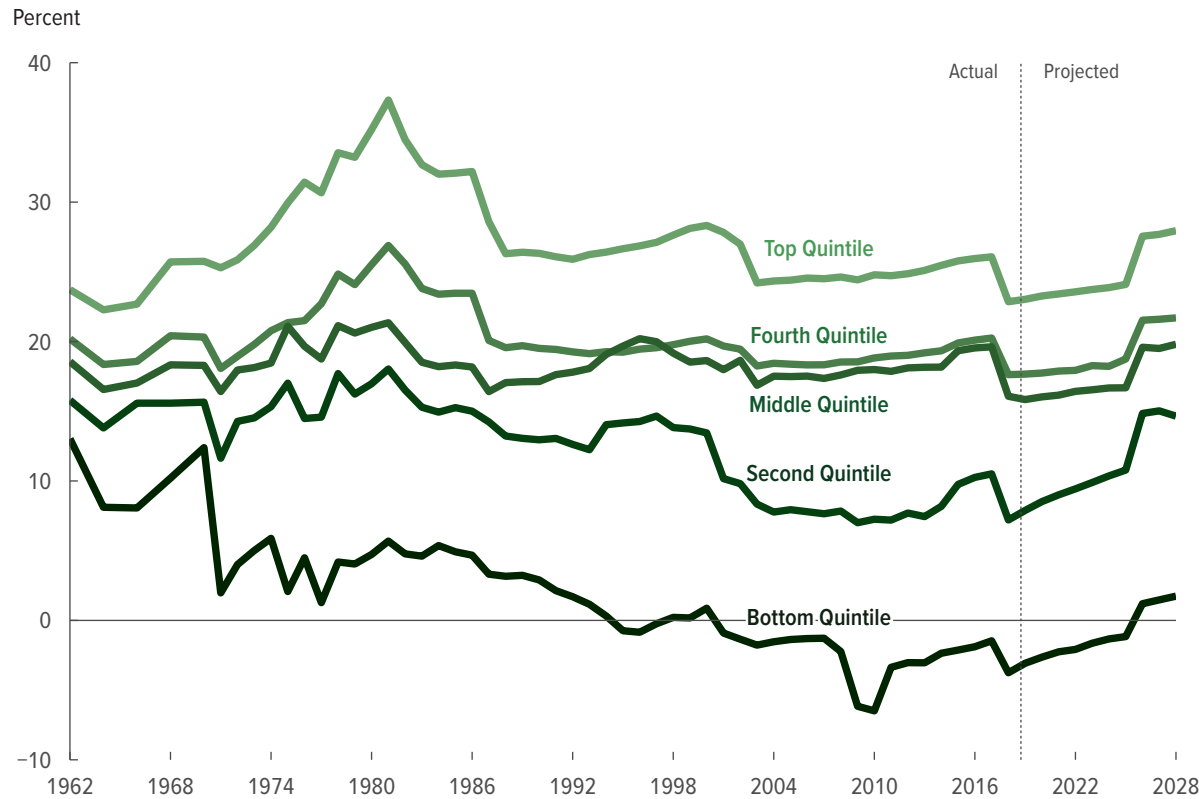
- In 2018, one-fifth of workers had marginal tax rates of zero percent and below.
- In 2018, one-fifth faced marginal tax rates above 22 percent.
- On average, higher-income filers face higher marginal individual income tax rates than lower-income filers.
- The marginal rates faced by filers within an income group can vary dramatically, particularly among low-income filers.

Marginal tax rates differ significantly by family type:

- On average, married filers face higher marginal individual income tax rates than do unmarried filers; the major reason for the difference is that married filers typically have higher income.
- On average, single filers without children currently face higher marginal individual income tax rates than do those with children, but that difference is projected to disappear with the expiration of certain provisions of the 2017 tax act at the end of 2025.

Exhibit 12.

Marginal Income Tax Rates Under the Individual Income Tax System by Earnings Quintile



Source: Congressional Budget Office, using individual income tax data collected by the Internal Revenue Service’s Statistics of Income Division.

The marginal rate here is defined as the change in taxes divided by the change in earnings that follows from a 1 percent increase in earnings for each tax return.

Each quintile contains an equal number of filing units; nonfilers are not included.

Projections are consistent with those in CBO’s *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

Under the individual income tax system, higher earners generally face higher marginal income tax rates than do lower earners because statutory tax rates increase with income. In 2018, on average, the top fifth of earners faced a marginal rate of 22.9 percent; the middle fifth, 16.1 percent; and the lowest fifth, -3.8 percent, according to CBO’s estimates. (A negative marginal tax rate implies that after-tax income rises as earnings rise, which occurs because some tax credits increase with earnings.) Because of the 2017 tax act, all of those rates are lower than the ones experienced in 2017.

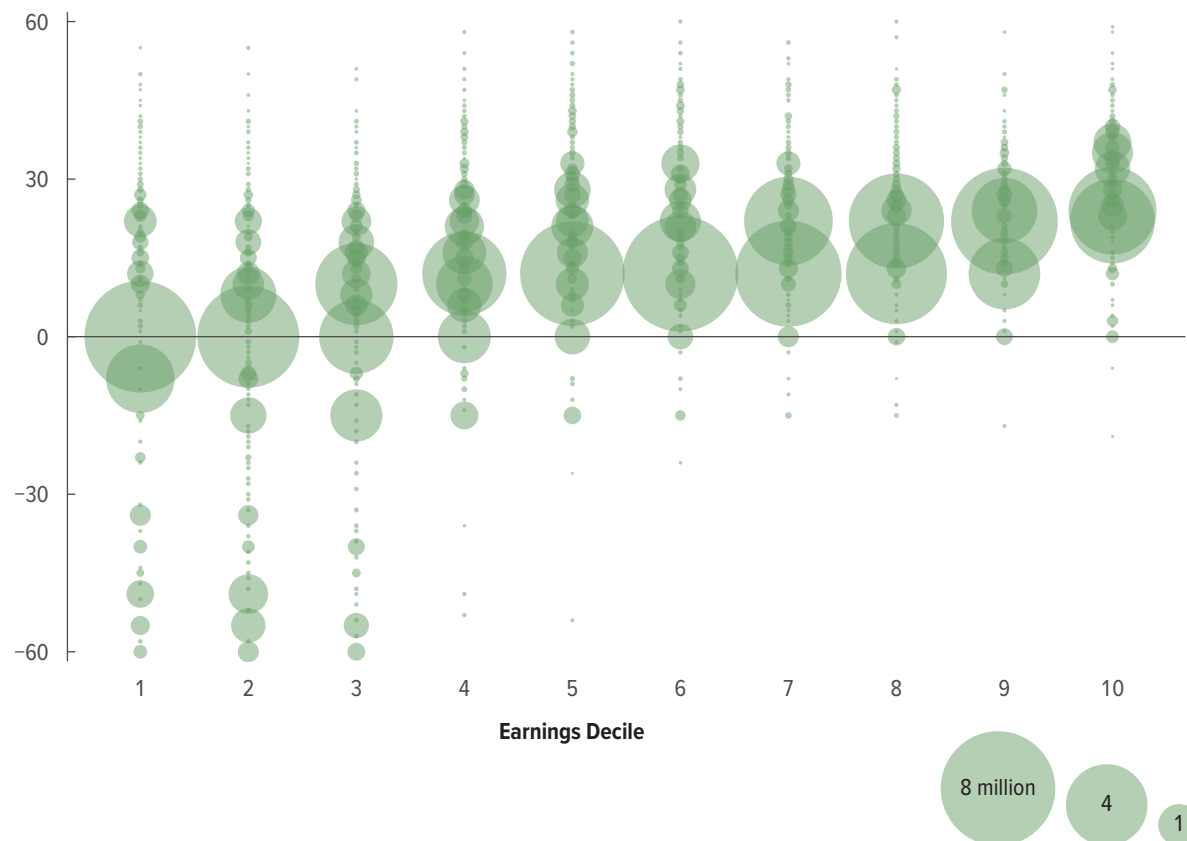
CBO expects the average marginal rate on labor income to rise slowly over the next several years for all income groups, largely reflecting the effects of income growth’s moving more income into higher tax rate brackets. The rate is projected to rise for all groups in 2026, after major changes that the 2017 tax act made to the individual income tax expire, and then continue to gradually drift upward.

A combination of legislated changes in the tax code and the interaction of the code with rapid inflation caused the marginal tax rates on higher income groups to rise substantially through the 1960s and 1970s. Marginal tax rates were fairly steady for middle income groups and fell for low earners. Since 1987, the marginal rate on earnings has drifted down for most groups. For the highest earners, those changes have been largely driven by changes to the statutory rate structure. For the lowest earners, expansions of refundable credits and new low tax brackets have been the main cause of the decline. ♦

Exhibit 13.

Distribution of Marginal Tax Rates Under the Individual Income Tax System by Earnings Decile, 2018

Marginal Tax Rate (Percent)



Taxpayers with similar earnings can have very different tax liabilities and marginal rates for many reasons, including their nonlabor income, family structure, and eligibility for deductions for tax credits.

In 2018, marginal income tax rates varied among taxpayers with similar earnings across the income distribution, with the greatest variation among low earners. Within the lowest decile of earners, some taxpayers had negative marginal rates, in some cases as low as -60 percent. But other taxpayers had marginal rates of 25 percent or even higher. The variation within deciles diminishes for the higher deciles. But even within the highest decile, considerable variation exists, with some taxpayers facing marginal rates below 20 percent and others facing rates in excess of 40 percent. ♦

Source: Congressional Budget Office, using individual income tax data collected by the Internal Revenue Service’s Statistics of Income Division.

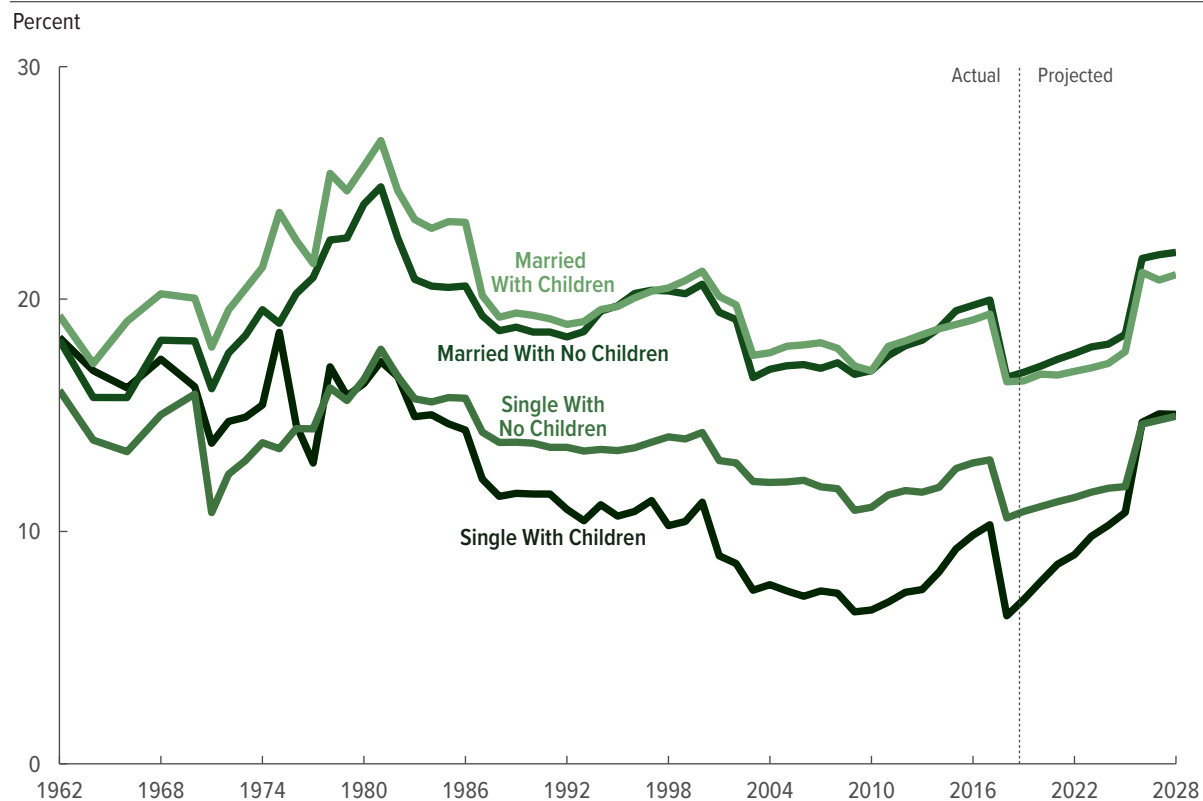
The area of a circle represents the number of filers within a given decile that are taxed at the marginal rate (rounded to the nearest whole number) indicated by the position of the center of the circle.

The marginal rate here is defined as the change in taxes divided by the change in earnings that follows from a 1 percent increase in earnings for each tax return.

Each decile contains an equal number of filing units; nonfilers are not included.

Exhibit 14.

Marginal Tax Rates Under the Individual Income Tax System for Different Types of Families



Source: Congressional Budget Office, using individual income tax data collected by the Internal Revenue Service’s Statistics of Income Division.

The marginal rate here is defined as the change in taxes divided by the change in earnings that follows from a 1 percent increase in earnings for each tax return.

Projections are consistent with those in CBO’s *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

Tax liabilities and marginal tax rates under the individual income tax system vary on the basis of the composition of the family. For example, marital status determines the taxpayer’s filing status and statutory tax rate schedule, and the presence of children has traditionally affected eligibility for dependent exemptions, the child tax credit, and the earned income tax credit. (However, the 2017 tax act eliminated dependent exemptions from 2018 through 2025.) In addition, other characteristics that affect taxes, such as the amount of earnings and the presence of itemized deductions, vary among different types of families.

In 2018, married couples, with and without children, faced marginal tax rates of around 16 percent on average. Single filers had significantly lower marginal rates, in large part because they also typically had lower income. And among single filers, those with children faced lower marginal rates than did those without.

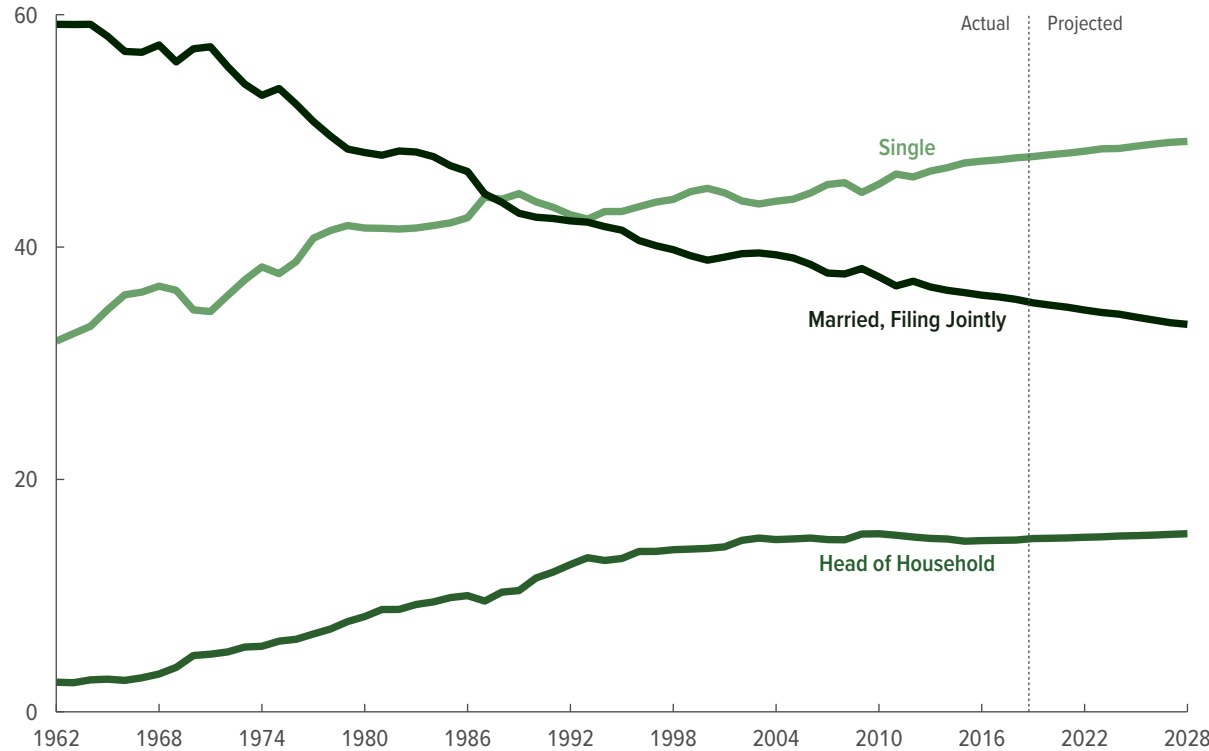
In the next several years, marginal rates are expected to rise gradually for all family types. They are projected to rise rapidly with the expiration of certain provisions of the 2017 tax act at the end of 2025 and then resume a gradual upward drift.

Earlier, in the 1960s, marginal rates for different types of families were generally similar. In the 1970s, married couples saw much larger increases in marginal rates. Since the early 1980s, rates have generally declined for all family types, with the largest declines among single parents. ♦

Exhibit 15.

Composition of Filings by Family Structure

Percentage of All Filing Units



Source: Congressional Budget Office, using individual income tax data collected by the Internal Revenue Service’s Statistics of Income Division.

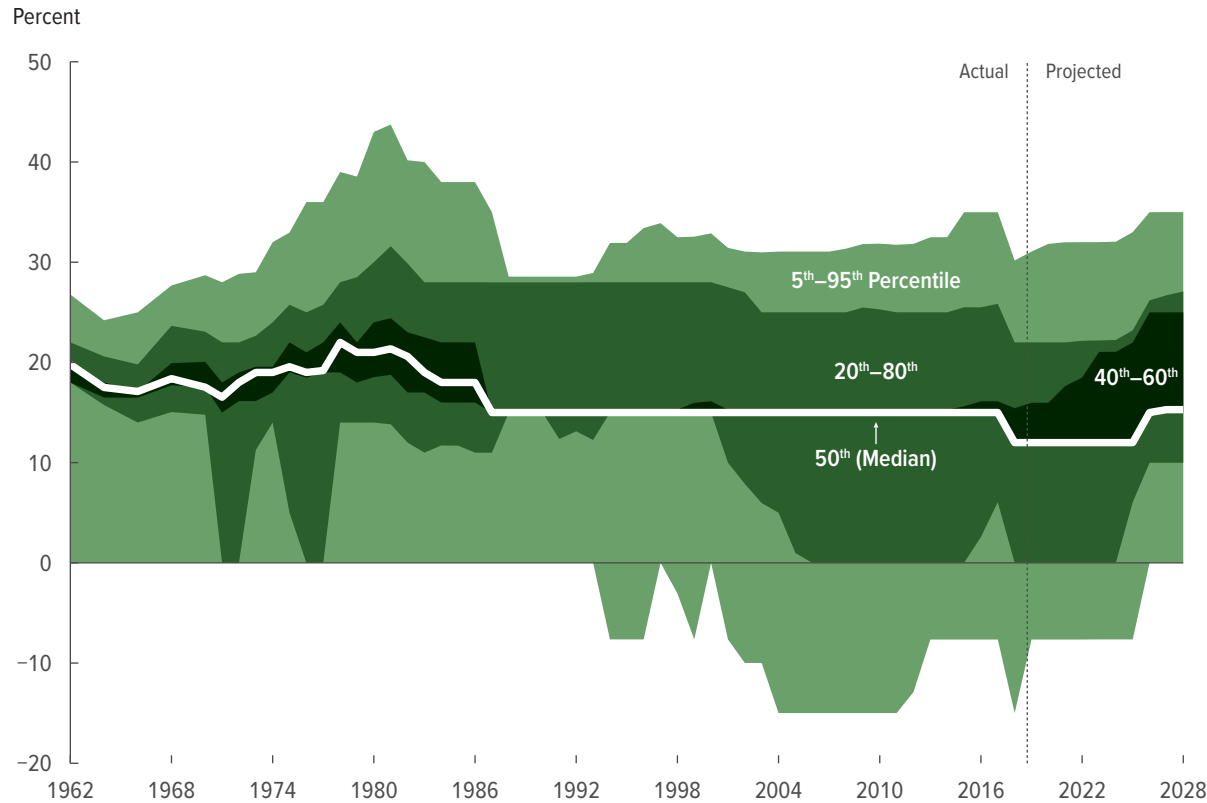
Projections are consistent with those in CBO’s *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

As the structure of families has changed over time, so has the composition of filings. The portion of tax returns from married couples filing jointly has declined, while the portion of returns from people filing as single or as a head of household has increased. (Although those three filing types do not constitute all possibilities, they covered an estimated 98 percent of all filers in 2018.)

In 1962, 59 percent of all returns were filed by married couples filing jointly. By 2018, the number had dropped to 35 percent. Single filers increased as a portion of total filers from 32 percent to 48 percent. The percentage of single parents with children (head-of-household filers) as a portion of the total increased fivefold from 1962 to 2018, with most of that increase occurring by the mid-1990s. Those trends are estimated to continue through CBO’s 10-year projection window. ♦

Exhibit 16.

Range of Marginal Individual Income Tax Rates



Source: Congressional Budget Office, using individual income tax data collected by the Internal Revenue Service’s Statistics of Income Division.

The marginal rate here is defined as the change in taxes divided by the change in earnings that follows from a 1 percent increase in earnings for each tax return.

Percentiles are based on the ordering of marginal rates by filing unit.

Projections are consistent with those in CBO’s *The Budget and Economic Outlook: 2018 to 2028*, published in April 2018.

Marginal tax rates under the individual income tax system vary widely among taxpayers depending on their earnings, family structure, and other characteristics. In 2018, one-fifth of taxpayers had marginal individual income tax rates of zero percent and below, whereas one-fifth experienced marginal tax rates above 22 percent. Over the upcoming decade, as overall marginal rates rise, CBO expects some increase in the dispersion of marginal rates, especially near the middle of the earnings distribution.

Despite the larger range in statutory tax rates, in the 1960s and 1970s marginal tax rates were more tightly clustered than in recent years. In 1962, a spread of 4 percentage points separated the filer at the 20th percentile from the filer at the 80th percentile. That gap grew substantially in subsequent decades.

In the middle of the distribution, the difference between the marginal rate of the filer at the 40th and 60th percentiles has been very small over the past 50 years. In fact, following enactment of the Tax Reform Act of 1986, there was no difference in rates in that range for much of the period from 1987 to 2013. ♦

Combined Individual and Payroll Marginal Tax Rates for Hypothetical Families

Background

Economywide measures of marginal tax rates are an important metric for evaluating the tax system. However, those measures have limitations because they combine all factors affecting marginal tax rates, making it difficult to disentangle changes in tax law and changes in income and demographics over time. To provide another perspective on marginal rates, CBO has calculated a series of marginal rates for hypothetical households over the 1962–2028 period.

Specifically, CBO estimated the marginal tax rate for four different families: a single filer with no children, a married two-earner couple with no children, a married two-earner couple with two children, and a single filer with one child. For each of those types of families, marginal tax rates were estimated at three different income levels: the median income, half of the median income, and twice the median income for that family type.

In the examples, all income is from wages and salaries; in addition, taxpayers itemize deductions worth 18 percent of income and claim the greater of those deductions or the standard deduction. (Roughly half of the itemized deductions are assumed to be for state and local taxes, and the rest are for charitable contributions and mortgage interest.) For purposes of calculating payroll taxes for the married couples, the examples split earnings evenly between the two spouses. The following exhibits highlight interesting changes to the marginal rates among the types of families but do not attempt an exhaustive explanation of all the factors contributing to the year-to-year changes.

Key Points

Marginal rates for families at a particular point in the income distribution have varied substantially over time.

- Some changes result from legislative changes.

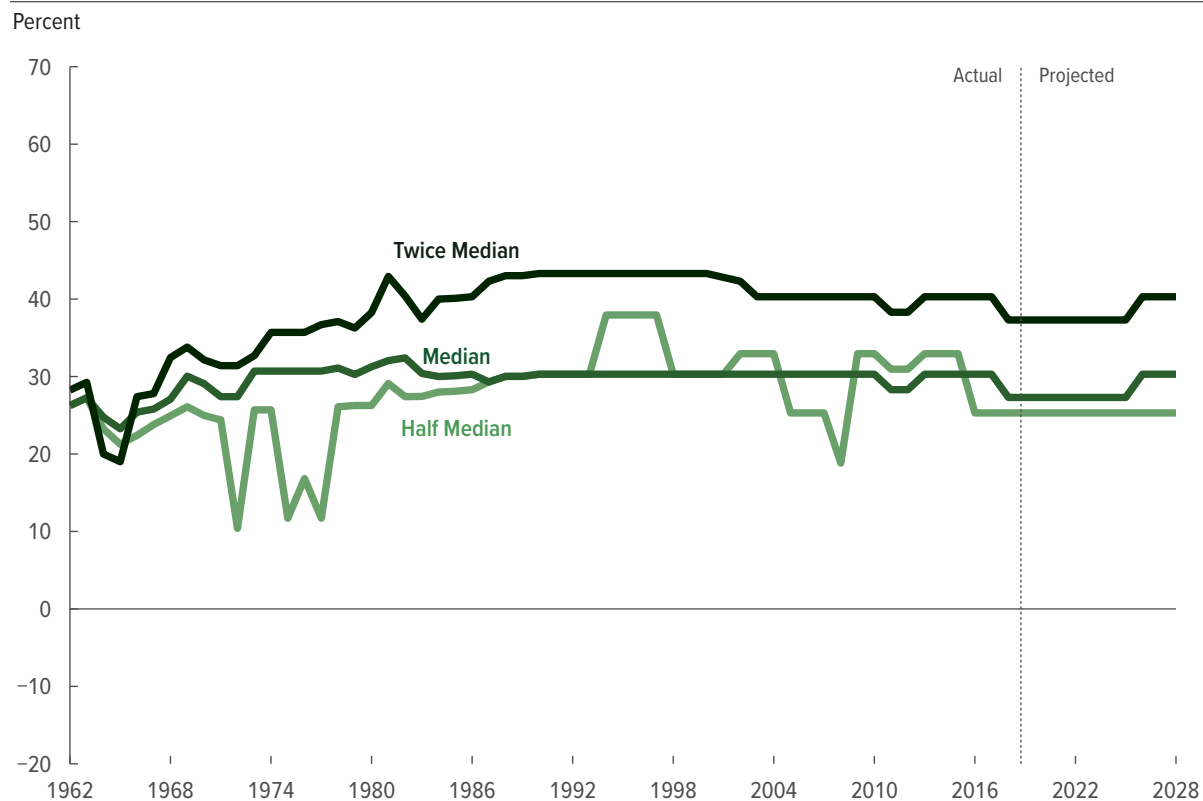
- Some changes result from shifts in the income distribution that, for instance, move the median income into a new bracket or out of the phaseout range for a credit.

Although filers with higher income usually face higher marginal rates because of the system's progressive structure, such is not always the case. In particular, lower-income families with children often face high marginal tax rates when they are in the range in which the earned income tax credit phases out.

Some of the differences in marginal tax rates among filers with the median income for different types of families result from the substantial differences in the median income, rather than from differences in how the tax code treats different family structures.

Exhibit 17.

Marginal Tax Rates for a Hypothetical Single Filer With No Children



Source: Congressional Budget Office.

In 2018, the median income for this type of filer was about \$32,200, according to CBO’s estimates.

The marginal rate here is defined as the change in taxes divided by the change in wages and salaries that follows from a 1 percent increase in wages and salaries.

The filing status is assumed to be head of household.

For details about the values used for median income, see Appendix B.

CBO’s illustrative example incorporates several assumptions: that a filer’s itemized deductions will equal 18 percent of his or her income and that 52 percent of those deductions will be from state and local taxes, 27 percent will be from home mortgage interest, and 21 percent will be from charitable contributions. Filers can choose the greater of itemized deductions or the standard deduction.

By CBO’s estimates, in 2018, the median single filer with no children had an income of about \$32,200. The marginal rate for that person was 27.3 percent—15.3 percent from payroll taxes and 12 percent from individual income taxes. A person earning half the median was in the 10 percent income tax bracket and therefore faced a combined marginal rate of 25.3 percent, and a person earning twice the median was in the 22 percent income tax bracket and therefore faced a combined marginal rate of 37.3 percent.

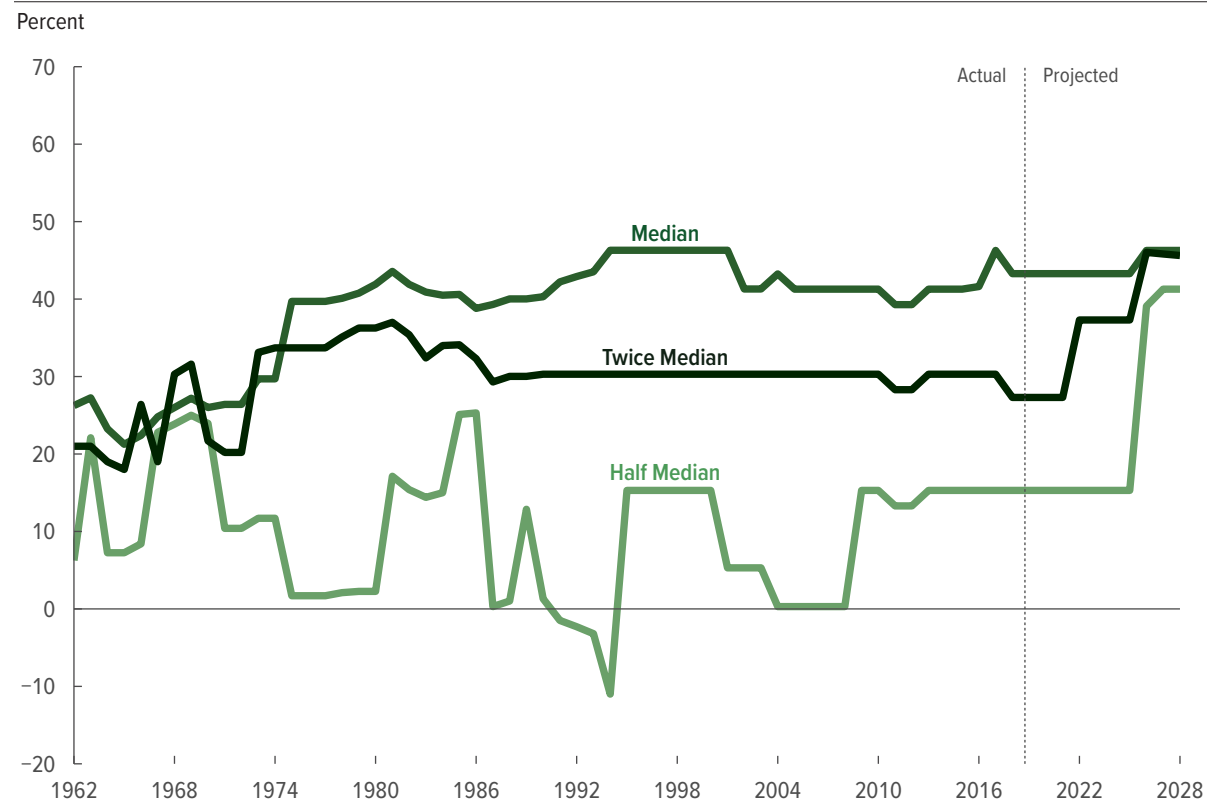
Marginal rates for each of those groups are expected to be stable for the next several years. In 2026, the expiration of most individual income tax provisions in the 2017 tax act is projected to cause statutory rates to rise for the median and twice-median earners, pushing up their marginal tax rates. The marginal tax rate for the half-median earner is unchanged.

Marginal rates for single filers with no children earning the median income and twice the median have been fairly steady for the past 30 years. The changes in marginal rates for those groups primarily derived from changes in the statutory rate structure.

Marginal rates for single filers with no children earning half the median have been significantly more volatile. That volatility occurred because income for such single earners is near several thresholds that affect marginal tax rates, so the marginal rate rises and falls depending on whether the taxpayer is in the 10 percent or 15 percent bracket or in the earned income tax credit phase-in or phaseout range. ♦

Exhibit 18.

Marginal Tax Rates for a Hypothetical Single Filer With One Child



Source: Congressional Budget Office.

In 2018, the median income for this type of filer was about \$32,000, according to CBO’s estimates.

The marginal rate here is defined as the change in taxes divided by the change in wages and salaries that follows from a 1 percent increase in wages and salaries.

For details about the values used for median income, see Appendix B.

CBO’s illustrative example incorporates several assumptions: that a filer’s itemized deductions will equal 18 percent of his or her income and that 52 percent of those deductions will be from state and local taxes, 27 percent will be from home mortgage interest, and 21 percent will be from charitable contributions. Filers can choose the greater of itemized deductions or the standard deduction.

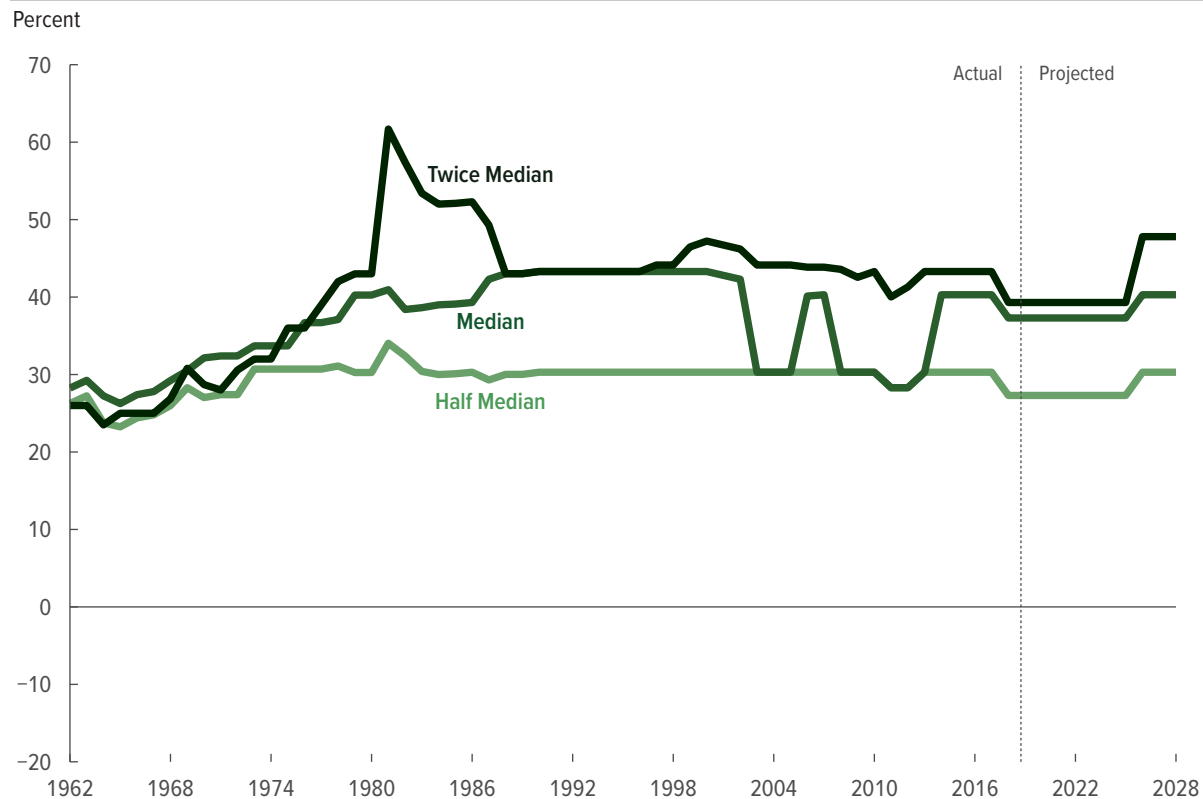
In 2018, by CBO’s estimates, the median single filer with one child had an income of about \$32,000. The marginal rate for such a filer was 43.28 percent—15.3 percent from payroll taxes and 12 percent from the statutory individual income tax rate and 15.98 percent from the phaseout of the earned income tax credit. A single filer with one child earning twice the median faced a lower marginal rate—27.3 percent—because he or she was in the same income tax bracket but past the phaseout range of the earned income tax credit. Such a person earning half the median faced a 15.3 percent marginal rate, exclusively from payroll taxes; the person owed no income tax because his or her income was less than the standard deduction and was between the phase-in and phaseout ranges of the earned income tax credit.

For each of those hypothetical taxpayers, marginal rates are projected to be flat for the next few years, then to rise in future years, partly because of real growth in income and partly because of the expiration of most individual income tax provisions in the 2017 tax act. For the half-median earner, CBO projects that earnings will reach the phaseout range of the earned income tax credit in 2025, causing a sharp increase in the person’s marginal tax rate. The twice-median earner is projected to move into a higher tax bracket because of earnings growth, and the median earner is affected only by the statutory rate increase with the expiration of most individual income tax provisions in the 2017 tax act.

Marginal rates for such filers earning the median income or twice the median have been fairly steady for the past 30 years. The changes in marginal rates for those groups were largely due to changes in the statutory rate structure. For such filers earning half the median, marginal rates have been significantly more volatile because their income put them near the threshold for the earned income tax credit. ♦

Exhibit 19.

Marginal Tax Rates for a Hypothetical Married Two-Earner Couple With No Children



Source: Congressional Budget Office.

In 2018, the median income for this type of filer was about \$112,300, according to CBO’s estimates.

The marginal rate here is defined as the change in taxes divided by the change in wages and salaries that follows from a 1 percent increase in wages and salaries.

For details about the values used for median income, see Appendix B.

CBO’s illustrative example incorporates several assumptions: that a filer’s itemized deductions will equal 18 percent of his or her income and that 52 percent of those deductions will be from state and local taxes, 27 percent will be from home mortgage interest, and 21 percent will be from charitable contributions. Filers can choose the greater of itemized deductions or the standard deduction.

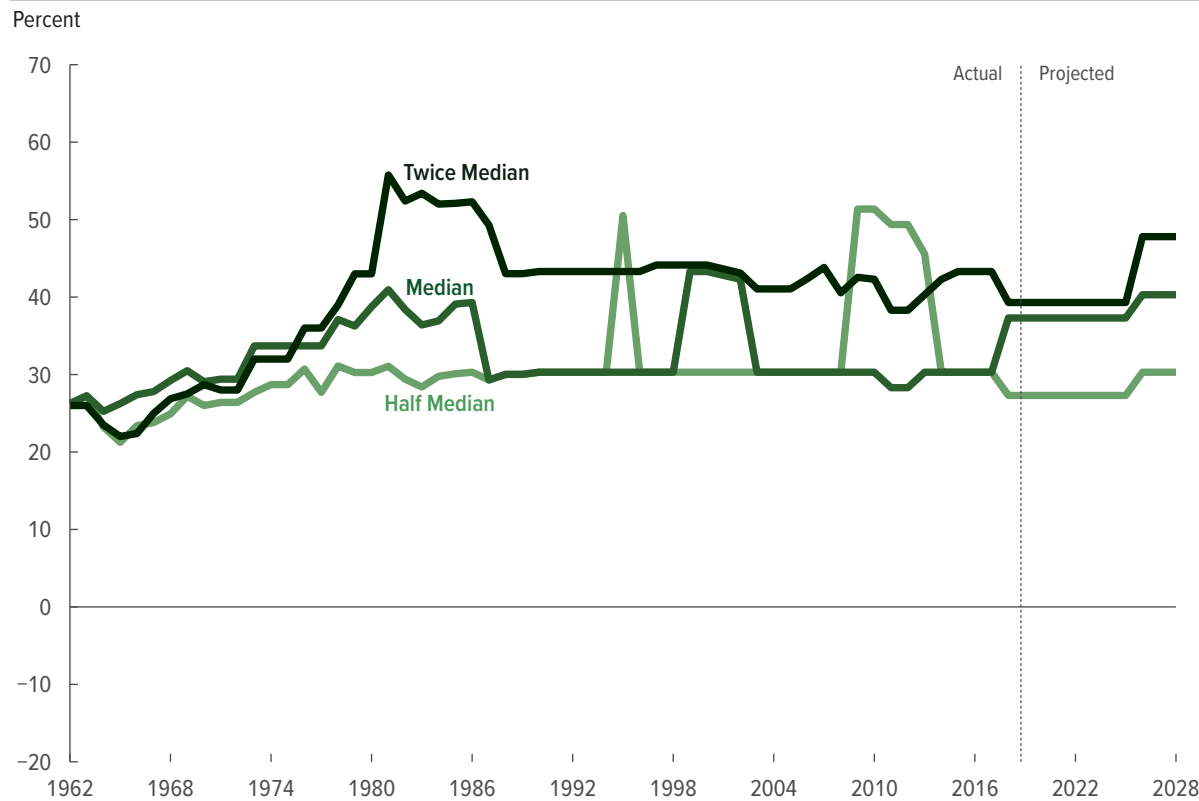
According to CBO’s estimates, in 2018, the median married two-earner couple with no children had an income of about \$112,300. The marginal rate for them was 37.3 percent—15.3 percent from payroll taxes and 22 percent from individual income taxes. Such filers earning twice the median faced a 39.3 percent marginal rate, owing to a slightly higher individual income tax rate. Such filers earning half the median faced a 27.3 percent marginal rate, resulting from payroll taxes and from being in the 12 percent individual income tax bracket.

For those hypothetical taxpayers, marginal rates are projected to be flat for the next few years, then to rise in 2026, with the expiration of most individual income tax provisions in the 2017 tax act. For the median and half-median earners, the rate increase reflects the higher statutory rates that are scheduled to prevail after those provisions expire. For the twice-median earners, the increase in the marginal rate is much larger because that household is projected to be subject to the alternative minimum tax, a parallel tax system that applies to some high-income filers, in 2026 and beyond.

Marginal rates for those half-median and twice-median earners have been fairly steady for the past 30 years. Since 1987, the rate for the family at twice the median has ranged from 39 percent to 49 percent. The range for the family at half the median has ranged from 27 percent to 30 percent. But for the family earning the median income, marginal rates have been significantly more volatile, ranging from 28 percent to 43 percent. Much of that variation has occurred depending on whether median income in a particular year placed that filer in the 15 percent bracket or a higher bracket. ♦

Exhibit 20.

Marginal Tax Rates for a Hypothetical Married Two-Earner Couple With Two Children



Source: Congressional Budget Office.

In 2018, the median income for this type of filer was about \$112,300, according to CBO’s estimates.

The marginal rate here is defined as the change in taxes divided by the change in wages and salaries that follows from a 1 percent increase in wages and salaries.

For details about the values used for median income, see Appendix B.

CBO’s illustrative example incorporates several assumptions: that a filer’s itemized deductions will equal 18 percent of his or her income and that 52 percent of those deductions will be from state and local taxes, 27 percent will be from home mortgage interest, and 21 percent will be from charitable contributions. Filers can choose the greater of itemized deductions or the standard deduction.

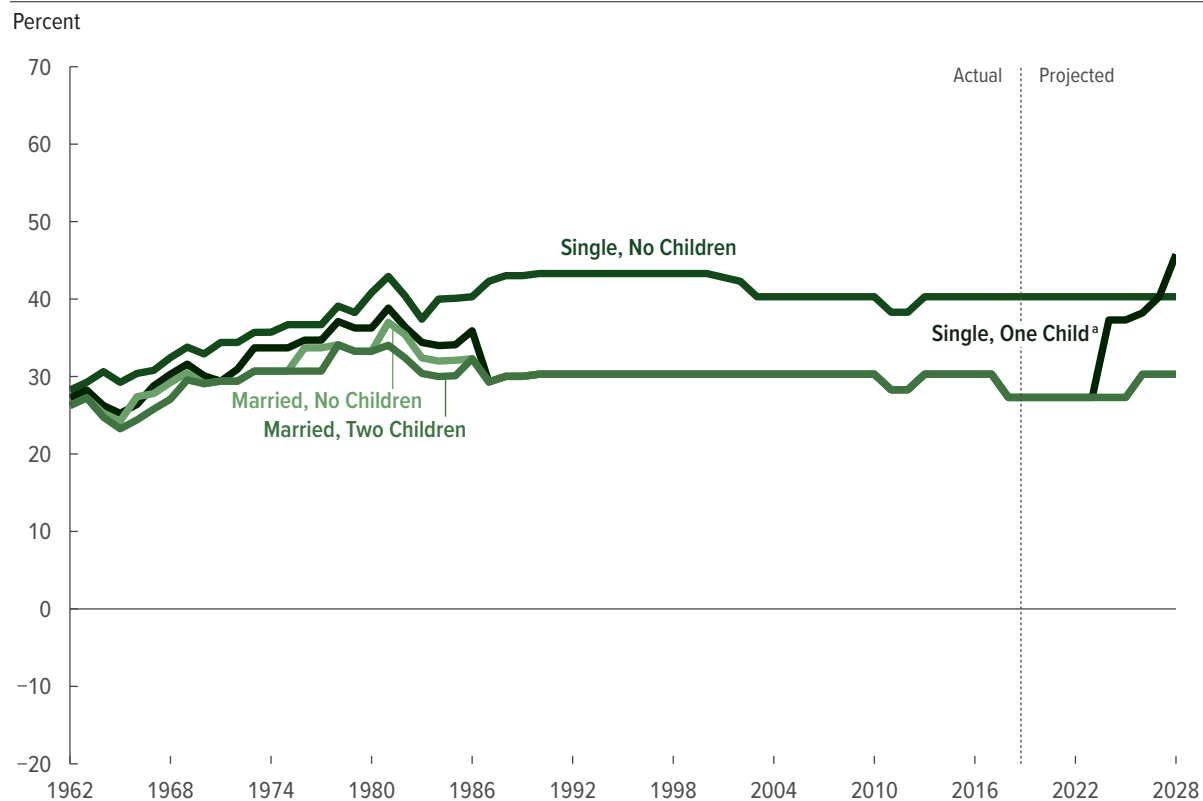
In 2018, CBO estimates, the median married two-earner couple with two children had an income of about \$112,300. The marginal rate for them was 37.3 percent—15.3 percent from payroll taxes and 22 percent from individual income taxes. Such filers earning twice the median faced a 39.3 percent marginal rate, owing to a slightly higher individual income tax rate. Such filers earning half the median faced a 27.3 percent marginal rate, resulting from payroll taxes and from being in the 12 percent individual income tax bracket.

For those hypothetical taxpayers, marginal rates are projected to be flat for the next few years, then to rise in 2026, with the expiration of most individual income tax provisions in the 2017 tax act. The rates are identical to the rates faced by the married couples with no children (shown in the previous exhibit).

Marginal rates for the twice-median earners with two children have been fairly steady for the past 30 years. Both the filers with the median income and the filers with half of the median income faced the same 30 percent marginal rate for much of the period from 1987 to 2007, though both filers occasionally faced much higher rates. Also, after legislation increased the range of earnings subject to the earned income tax credit for married couples filing jointly, the couple with two children earning half the median was affected by the credit’s phaseout from 2009 to 2013. ♦

Exhibit 21.

Marginal Tax Rates for Different Types of Families With Median Earnings



Source: Congressional Budget Office.

The marginal rate here is defined as the change in taxes divided by the change in wages and salaries that follows from a 1 percent increase in wages and salaries.

For details about the values used for median income, see Appendix B.

CBO’s illustrative example incorporates several assumptions: that a filer’s itemized deductions will equal 18 percent of his or her income and that 52 percent of those deductions will be from state and local taxes, 27 percent will be from home mortgage interest, and 21 percent will be from charitable contributions. Filers can choose the greater of itemized deductions or the standard deduction.

a. The filing status is assumed to be head of household.

One challenge in comparing the changes in marginal rates over time faced by single and married filers both with and without children is that the median incomes for those four groups are quite different. By considering a family in each group with the same income—the median income for all families—it is possible to more clearly observe the effects of the tax treatment of different family types and sizes on marginal rates.

In 2018, a single filer with no children with earnings of about \$62,500 (the median for all families) faced a marginal tax rate of 40.3 percent—15.3 percent in payroll taxes plus the 25 percent income tax bracket. Married filers with and without children and a single filer with a child with that income faced the same payroll tax rate but fell in the 12 percent tax bracket (as the tax bracket covered a larger income range for those filing categories).

Over the next decade, the single filer with no children and with median earnings is projected to see no change in his or her marginal rate, and married filers would see only a small change attributable to the statutory rate that is scheduled to occur with the expiration of most provisions affecting the individual income tax in the 2017 tax act. In contrast, the marginal rate for the single filer with a child is projected to rise sharply because the median income (for all families) in 2024 is high enough to push that filer into a higher bracket.

Before the tax laws of the 1980s, the marginal tax rates were similar for the four family types earning the median income. After the enactment of the Tax Reform Act of 1986, which broadened tax brackets for the married and head-of-household filing statuses by more than it did for the single filing status, marginal rates diverged. ♦

Appendix A: Changes to the Federal Tax System

To provide a reference, the Congressional Budget Office has compiled this list of major changes to the federal tax system since 1962. It draws from a more extensive treatment by a researcher at the Department of the Treasury.¹

Individual Income Tax

The Tax Reform Act of 1964 (Public Law 88-272):

- Lowered the top rate from 91 percent to 70 percent and lowered other rates as well;
- Increased the number of brackets, creating four between \$0 and \$2,000 of income, rather than one; and
- Created a minimum standard deduction of \$300 plus \$100 per person.

The Revenue and Expenditure Control Act of 1968 (P.L. 90-364) created a temporary 10 percent tax surcharge.

The Tax Reform Act of 1969 (P.L. 91-172):

- Extended the previous income tax surcharge,

- Set up a bracket structure for single filers different from the one for a married couple filing separately,
- Increased the personal exemption from \$600 to \$750,
- Increased the minimum standard deduction to \$1,000 and increased the percentage-based standard deduction, and
- Lowered the maximum rate on earnings to 50 percent.

The Revenue Act of 1978 (P.L. 95-600):

- Reduced rates,
- Decreased the number of brackets,
- Increased the personal exemption from \$750 to \$1,000, and
- Increased the standard deduction.

The Economic Recovery Tax Act of 1981 (P.L. 97-34):

- Gradually cut individual tax rates, reducing the top rate from 70 percent to 50 percent;

- Indexed brackets to inflation starting in 1985; and
- Indexed the standard deduction and personal and dependent exemptions to inflation starting in 1985.

The Tax Reform Act of 1986 (P.L. 99-514):

- Reduced rates, lowering the top rate to 28 percent;
- Imposed a surtax of 5 percent for high-income filers;
- Created an effective rate of 33 percent within a certain income range;
- Reduced the number of brackets;
- Increased the value of personal exemptions; and
- Increased the value of the standard deduction.

The Omnibus Budget Reconciliation Act of 1990 (P.L. 101-508):

- Raised the top rate to 31 percent,
- Added a new income tax bracket,

1. Jerry Tempalski, *Revenue Effects of Major Tax Bills*, OTA Working Paper 81 (Office of Tax Analysis, Department of the Treasury, September 2006), <https://go.usa.gov/xEY3E> (PDF, 772 KB).

- Temporarily phased out exemptions for high-income earners, and
- Temporarily limited itemized deductions for high-income earners.

The Omnibus Budget Reconciliation Act of 1993 (P.L. 103-66):

- Increased the top rate to 39.6 percent,
- Increased the number of brackets by adding 36 percent and 39.6 percent brackets,
- Made the phaseout of personal exemptions for high-income earners permanent, and
- Made the limit on itemized deductions for high-income earners permanent.

The Tax Relief Act of 1997 (better known as the Taxpayer Relief Act of 1997, P.L. 105-34) created the child tax credit.

The Economic Growth and Tax Relief Reconciliation Act of 2001 (P.L. 107-16):

- Gradually lowered individual rates, including dropping the top rate to 35 percent and establishing a new bracket at 10 percent (whereas the lowest bracket previously was at 15 percent);
- Gradually repealed the phaseout of personal exemptions for high-income earners and increased exemptions from the alternative minimum tax;

- Increased the standard deduction for married couples filing jointly and gradually repealed the limit on itemized deductions for high-income earners; and
- Increased the child tax credit and made the credit partially refundable on the basis of earnings.

The Jobs and Growth Tax Relief Reconciliation Act of 2003 (P.L. 108-27):

- Accelerated the rate cuts enacted in the Economic Growth and Tax Relief Reconciliation Act,
- Increased exemptions from the alternative minimum tax, and
- Accelerated the increase in the child tax credit enacted in the Economic Growth and Tax Relief Reconciliation Act.

The American Taxpayer Relief Act of 2012 (P.L. 112-240):

- Made most rates and brackets enacted in the Economic Growth and Tax Relief Reconciliation Act permanent but allowed the top rate to rise to the level in place before that law, 39.6 percent;
- Increased exemptions to the alternative minimum tax, indexed the exemptions and alternative minimum tax brackets to inflation, and reinstated the phaseout of personal exemptions for high-income earners;

- Reinstated the limit on itemized deductions for high-income earners; and
- Made the expanded child tax credit permanent and temporarily lowered the threshold for refundability.

The 2017 tax act (originally called the Tax Cuts and Jobs Act of 2017, P.L. 115-97):

- Lowered all statutory rates (the top one to 37 percent) except for those at 10 percent and 35 percent;
- Maintained the same number of brackets but changed the thresholds for some brackets and indexed tax brackets and other tax parameters to inflation using the chained consumer price index (instead of the consumer price index), resulting in smaller increases in the brackets and other thresholds in future years;
- Eliminated personal exemptions;
- Introduced a new 20 percent deduction for pass-through income, increased the standard deduction, set new limits on itemized deductions but repealed the previous limit on itemized deductions by high-income earners; and
- Further expanded the child tax credit.

Payroll Tax

The Social Security Amendments of 1961 gradually increased the combined employer-employee rate, previously set at 6 percent, to 9.25 percent by 1968.

The Social Security Amendments of 1965:

- Introduced the Hospital Insurance tax,
- Gradually increased the combined employer-employee rate from 7.25 percent in 1965 to 11.3 percent by 1987, and
- Increased the earnings base from \$4,800 to \$6,600, beginning in 1966.

The Social Security Amendments of 1967:

- Accelerated and expanded previous increases in the combined employer-employee rate and
- Increased the earnings base from \$6,600 to \$7,800 beginning in 1968.

The Social Security Amendments of 1971:

- Gradually increased the combined employer-employee rate and
- Increased the earnings base to \$9,000 beginning in 1972.

The Social Security Amendments of 1972 increased the combined employer-employee rate.

The Social Security Amendments of 1973:

- Increased the combined employer-employee rate and
- Increased the earnings base to \$13,200 in 1974.

The Social Security Amendments of 1977:

- Gradually increased the combined employer-employee rate to 15.3 percent in 1990 and

- Increased the earnings base on an ad hoc basis through 1981 and set the base to automatically adjust with average wages after 1981.

The Social Security Amendments of 1983 accelerated scheduled increases of the combined employer-employee rate.

The Omnibus Budget Reconciliation Act of 1993 (P.L. 103-66) removed the maximum taxable earnings base and subjected all earnings to the Hospital Insurance tax beginning in 1994.

The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (P.L. 111-312) reduced the employee's portion of the payroll tax funding Old-Age, Survivors, and Disability Insurance by 2 percentage points in 2011, for a combined employee-employer rate of 13.3 percent.

The Temporary Payroll Tax Cut Continuation Act of 2011 (P.L. 112-78) extended the 2 percentage-point reduction in the payroll tax funding Old-Age, Survivors, and Disability Insurance through 2012.

Appendix B: Data and Methods

In this report, the Congressional Budget Office examines marginal rates using a two-pronged approach. First, using a simulation approach on a representative sample of workers, CBO estimates the economywide marginal tax rate under both the payroll and individual income tax systems and the distribution of marginal tax rates under the individual income tax system across the population. Next, to provide context for its main analysis, the report shows how marginal tax rates under both the individual income and payroll tax systems for several hypothetical families have evolved over time.

The Simulation Approach

Here are the methodological details for CBO's estimates of marginal tax rates:

Data

CBO's estimates of marginal rates are calculated using the Internal Revenue Service's Statistics of Income (SOI) Individual Income tax file, a nationally representative sample of individual income tax returns that has increased from roughly 90,000 returns around 1980 to more than 300,000 returns in recent years. CBO's use of SOI files starts with those for 1962, because beginning in that year, the files contain sufficient information to calculate marginal rates for all filers. SOI files are not available for 1963, 1965, 1967, or 1969. The latest SOI file available at the time this analysis

was undertaken was for tax year 2015. For the projections over the 2016–2028 period, CBO uses the same methods as those used for the agency's *Budget and Economic Outlook: 2018 to 2028*, produced in April of 2018.

Tax-filing units are the primary unit of analysis. Married couples filing jointly and unmarried filers are each counted as a single unit. For married couples filing jointly, the marginal payroll tax rate is the average for the two spouses, with value for each spouse weighted according to his or her earnings. Marginal rates are not estimated for nonfilers. However, the economywide marginal rate implicitly adjusts for nonfiling by adjusting the overall marginal tax rates for differences between labor income identified in the Department of Commerce's national income and product accounts (NIPAs) and labor income that appears on tax forms.

Estimating Marginal Tax Rates

Marginal tax rates are calculated by simulating the effect on taxes of a 1 percent increase in earnings for each tax return. Taxes are first simulated on the basis of observed income for each return. Then, taxes are simulated after increasing the labor income of each return by 1 percent. The marginal rate is defined as the change in taxes divided by the change in labor income. For 1987 and years after, those simulations use CBO's individual income

tax model.¹ For years prior to 1987, marginal rates are simulated using a calculator developed by Jon Bakija of Williams College.²

For years after 2000, payroll tax marginal rates are calculated using the same simulation approach. For years before 2000, the SOI data do not contain the information necessary to divide earnings for married couples filing jointly into each spouse's income. CBO estimated the marginal payroll tax rate in those years on the basis of aggregate information tabulated by the Social Security Administration.

This paper focuses solely on the impact of federal marginal tax rates and does not address state income taxes. Furthermore, the payroll taxes examined include only those used to finance the Old-Age, Survivors, and Disability Insurance and Hospital Insurance Trust Funds and do not include smaller taxes, such as the federal and state taxes used to finance unemployment insurance.

1. For information about that model, see Congressional Budget Office, "An Overview of CBO's Microsimulation Tax Model" (June 2018), www.cbo.gov/publication/54096.
2. For more details, see Jon Bakija, *Documentation for a Comprehensive Historical U.S. Federal and State Income Tax Calculator Program* (working paper, Williams College, August 2009), <https://tinyurl.com/bakija> (PDF, 485 KB).

Aggregating Across Taxpayers

CBO uses different approaches to average marginal rates across taxpayers. The economywide marginal rate is defined as the share of additional income that would be paid in taxes if all workers experienced an equal percentage increase in labor income. (Alternatively, the economywide marginal rate can be thought of as the average marginal tax rate across all taxpayers, with each taxpayer weighted by his or her earnings.) The measure is generally used in analyses of the macroeconomic effects of tax changes because changes in the number of hours worked affect total national income in proportion to the hourly wages of the affected individuals.

In contrast, CBO also examines marginal rates averaged across subgroups of taxpayers, such as specific family types or deciles of the earnings distribution. In those cases, the agency generally averages across taxpayers giving each taxpayer equal weight. That person-weighted measure represents the experience of a typical taxpayer.

Family types are defined on the basis of marital status and the presence of dependents as reported on the tax return. Specifically, married taxpayers, whether filing separately or jointly, are considered married. All other taxpayers are considered unmarried. The presence of children is based on whether the taxpayer claims an exemption for children, whether the children live at home or away from home.

Earnings quintiles and deciles are constructed by ranking each return by the joint earnings on that return. Quintiles have equal numbers of returns, as do deciles.

Measuring Labor Income

CBO also uses different measures of labor income when examining the distribution of marginal tax rates and the economywide rate. The measure used in the distributional estimates is a narrow measure, including wage income that is reported on a tax return and self-employment income. That narrow measure does not account for sources of labor income that are not subject to taxation.

In contrast, CBO's estimates of the economywide marginal rate on labor are based on the broader definition of labor income used in the national income and product accounts. That measure is generally used in analysis of the macroeconomic effects of tax changes because it relates most closely to gross domestic product. It considers the portion of labor income that is not subject to taxation. Although most labor income as measured in the national income and product accounts is subject to taxation, some forms of labor income, such as many employer-provided fringe benefits, are exempt from taxation. In addition, some labor income is never reported to the tax authorities.

The share of labor income subject to taxation has declined over the past several decades as a greater share of compensation comes from sources not subject to payroll taxes, especially payments for employment-based health insurance premiums. From the 1960s to the 1990s, those benefits almost doubled as a share of labor income, from 9 percent to 18 percent, driven by rapid growth in the cost of health insurance. The share of labor income going to wages has declined by a comparable amount. (See Figure B-1.)

CBO estimates that the composition of a marginal dollar of labor income is identical to the overall

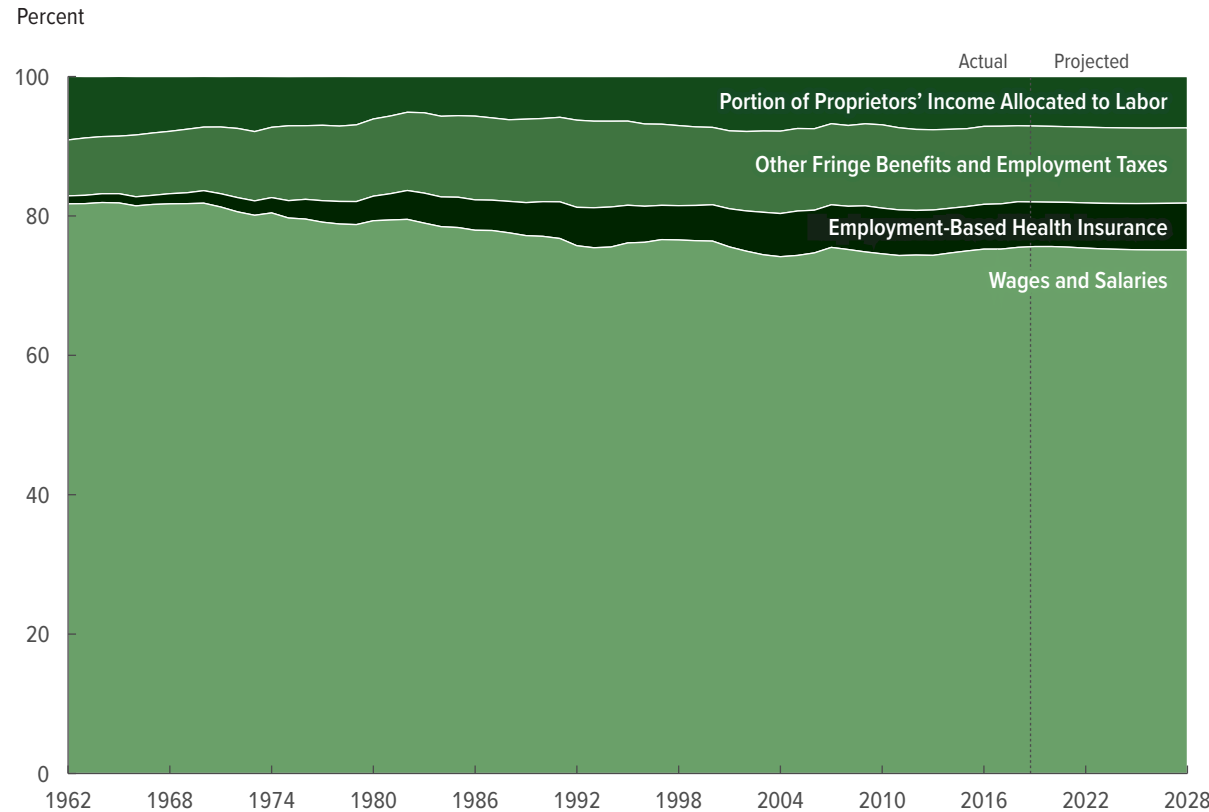
composition of labor income, with one notable exception: Only a small portion of marginal labor income takes the form of employment-based health insurance, because those benefits are usually offered in a fixed amount by employers and a worker earning additional income would have little flexibility to change them in the near term.

Here are the details of CBO's estimates of the various components of labor income as recorded in the national income and product accounts and the corresponding tax rates (see Table B-1):

- Wages and salaries reported on tax forms are the largest component of labor income. In 2018, wages and salaries accounted for 68 percent of all labor income.
- Self-employment income derived from labor and reported on tax forms accounted for 3.5 percent of total labor income. Self-employment income includes returns on labor and returns on capital. CBO estimates that 61 percent of self-employment income derived from labor.
- Wages, salaries, and self-employment income not reported on tax forms but identified from the national income and product accounts represented an additional 8.6 percent of labor income in 2018 (4.6 percent from wages and salaries, and 4.0 percent from self-employment). That income was not reported on tax forms because the filers did not meet the threshold required to report income or because people avoided or evaded their responsibility to pay taxes. The unreported portion made up a small share of all wage and salary income, but unreported self-employment income was

Figure B-1.

Composition of Labor Income



Source: Congressional Budget Office.

- larger than the reported component, indicating substantial tax avoidance and evasion.
- Employees' contributions to defined contribution accounts like 401(k) and 403(b) accounts and thrift savings plans made up 2.5 percent of labor income in 2018. Those amounts do not show up on tax forms and

are not subject to federal income tax, but withdrawals from those accounts are taxable. To simplify the calculations of marginal rates on labor income, CBO assumes that the effective marginal rate on contributions to such accounts is the same as the rate on wages and salaries. The amounts are subject to the federal

payroll taxes that finance Social Security and Medicare.

- Employers' contributions to employment-based health insurance are not generally subject to federal income and payroll taxes. High-cost plans are an exception; starting in 2022, a 40 percent excise tax will be levied on single coverage plans with premiums above \$10,200 per year and family coverage plans with premiums above \$27,500 per year. CBO and the staff of the Joint Committee on Taxation estimate that, initially, 1 out of every 10 people will be affected, although most will avoid the tax through changes in their health insurance coverage. Employers' contributions for employment-based health insurance made up 6.5 percent of total compensation in 2018.
- Employers' contributions to pension plans made up 4.6 percent of total compensation in 2018. Those contributions are not subject to taxation when they are deposited in pension funds, but payments made to pensioners out of those funds are taxable. To simplify the calculation of marginal rates on labor income, CBO assumes that the effective marginal rate on payments to pension funds is the same as the marginal tax rate on wages and salaries.
- Employers' contributions to payroll taxes are typically half of the total liability, with some exceptions. The employer's share of those taxes, paid on behalf of the employee, made up the final 5.4 percent of total labor income in 2018.

Table B-1.

Composition and Tax Rate on Components of Labor Income as Reported in the National Income and Product Accounts, by Source, 2018

Percent

Income Source	Share of		Marginal Tax Rate		
	Total Labor Income	Marginal Labor Income	Total	Individual Income Tax	Payroll Tax
Wages and Salaries					
Wages Reported on Individual Income Tax Returns	68.0	73.9	32.9	21.9	11.0
Employees' Contributions to Defined Contribution Accounts ^a	2.5	2.5	32.9	21.9	11.0
Untaxed Wages ^b	4.6	4.6	0	0	0
Self-Employment Income					
Self-Employment Income Reported on Individual Income Tax Returns	3.5	3.5	29.8	21.6	8.2
Untaxed Self-Employment Income ^c	4.0	4.0	0	0	0
Other Labor Income					
Employers' Contributions to Employment-Based Health Insurance	6.5	0.7	0	0	0
Employers' Contributions to Social Security	5.4	5.4	0	0	0
Employers' Contributions to Pension Plans ^a	4.6	4.6	21.9	21.9	0
Group Life Insurance	0.8	0.8	0	0	0
Total	100.0	100.0	27.1	18.5	8.7

Source: Congressional Budget Office.

The economywide marginal tax rate is the change in taxes divided by the change in labor income that follows from a 1 percent increase in labor income for each tax return.

- a. Income tax is deferred on employers' pension contributions and on employees' contributions to defined contribution accounts, so the marginal tax rate on these depends on the tax law and taxpayers' circumstances when the pension is distributed or the funds withdrawn. CBO assigns them the same marginal tax rate as cash wages and salaries.
- b. This is the residual between wage and salary income estimated in the national income and product accounts and reported to the Internal Revenue Service.
- c. This is the residual between the labor portion of proprietors' income estimated in the national income and product accounts and self-employment income as reported to the Internal Revenue Service.

- Group life insurance is another component of labor income, although it is relatively small, constituting less than 1 percent in 2018.

Hypothetical Examples

CBO also calculated a series of rates for hypothetical families of different types. Here are the methodological details:

Data

For each hypothetical example, median income is based on tabulations by the Census Bureau, using the following tables presenting historical income:

- Table H-11, Size of Household by Median and Mean Income. For the median income of a single filer with no children, CBO used the Census Bureau's information presented for households with one person.³
- Table F-10, Presence of Children Under 18 Years Old by Type of Family—Families by Median and Mean Income. For the median income of a single filer with one child, CBO used the information presented for a "female householder, no husband present, one or more children under 18 years old."⁴
- Table F-7, Type of Family (All Races) by Median and Mean Income. For the median income for both a married couple with no children and a married couple with two children, CBO used the information for

3. See <https://go.usa.gov/xEWbz>.

4. See <https://go.usa.gov/xEWbS>.

“married couple families, wife in paid labor force.”⁵

- Table H-6, Regions—by Median and Mean Income. For the median income of all families, CBO used the information presented for the United States.⁶

Census values are used from 1962 to 2016. Outcomes for years after 2016 are calculated using per capita wage growth as projected in CBO’s *Budget and Economic Outlook: 2018 to 2028*, which was published in April of 2018.

Measuring Marginal Tax Rates

For its hypothetical examples, CBO estimates marginal tax rates using the same calculators as

5. See <https://go.usa.gov/xEWbS>.

6. See <https://go.usa.gov/xEWjq>.

it uses in the simulation approach. Taxes are first calculated at each multiple of the median income. Then labor income is increased by 1 percent, and taxes are recalculated. The examples incorporate several assumptions: that a filer’s itemized deductions will equal 18 percent of his or her income and that 52 percent of those deductions will be from state and local taxes, 27 percent from home mortgage interest, and 21 percent from charitable contributions. Filers can choose the greater of itemized deductions or the standard deduction.

Measuring Labor Income

For its hypothetical examples, CBO assumes all labor income to be wages. Also, because the marginal rates shown in the hypothetical examples include payroll taxes, the employer’s share of payroll taxes is added to the denominator.



About This Document

This report aims to enhance the Congressional Budget Office's transparency by describing the marginal tax rates that affect people's incentives to work and that inform the agency's projections of revenues and economic activity. In keeping with CBO's mandate to provide objective, impartial analysis, the report makes no recommendations.

Kurt Seibert prepared the report with guidance from Edward Harris and John McClelland. Rebecca Spavins (formerly of CBO) contributed to the development of the methodology used in this report. David Burk, Janet Holtzblatt (formerly of CBO), Junghoon Lee, Bayard Meiser, Kevin Perese, Chayim Rosito, Ellen Steele, Julie Topoleski, Jeff Werling, and Christopher Williams provided helpful comments. Jon Bakija of Williams College, Dan Feenberg of the National Bureau of Economic Research, Frank Sammartino of the Urban-Brookings Tax Policy Center, Kyle Pomerleau and Steve Entin of the Tax Foundation, and Richard Prisinzano of the Penn Wharton Budget Model also provided helpful comments. (The assistance of external reviewers implies no responsibility for the final product, which rests solely with CBO.)

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CBO continually seeks feedback to make its work as useful as possible. Please send any feedback to communications@cbo.gov.

Keith Hall
Director
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