Congressional Budget Office

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Effective Marginal Tax Rates for Low- and Moderate-Income Workers in 2016

Summary

The effective marginal tax rate (for brevity, hereafter referred to as the marginal tax rate) is the percentage of an additional dollar of earnings that is unavailable to an individual because it is paid in taxes or offset by reduced benefits from government programs. That rate affects people's incentives to work. In particular, when marginal tax rates are high, people tend to respond to the smaller financial gain from employment by working fewer hours, altering the intensity of their work, or not working at all.

In part, income and payroll tax rates determine marginal tax rates. But other features of the tax system and some benefit programs also contribute to marginal tax rates. Certain deductions and tax credits reduce the taxes that eligible taxpayers owe and increase their after-tax income—but those provisions, if the amounts are based on the recipient's income, also contribute to marginal tax rates. Those rates are similarly affected by programs providing cash and in-kind benefits, referred to as means-tested transfers, that target assistance to people of reduced means. The rate at which those benefits phase out with increasing income is also part of the marginal tax rate.

In this report, the Congressional Budget Office takes a two-pronged approach.[1] First, the report shows how several widely applicable tax provisions and various transfer programs would affect the income in 2016 of a hypothetical family consisting of a single parent with one child. Then, using a simulation approach, the report presents CBO's estimates of marginal tax rates from taxes and selected transfers for a representative sample of workers. The hypothetical example is useful for assessing how taxes and transfers interact with earnings under specific circumstances—emphasizing the income after both taxes and transfers of a taxpayer who participates in multiple transfer programs. However, the example is very specific and is not indicative of the distribution of marginal tax rates that low- and moderate-income workers face. Also, many households do not participate in all the transfer programs for which they may be eligible and thus probably face lower marginal tax rates than the family in the example. Using the simulation approach based on a sample of tax returns, CBO estimated marginal tax rates for the population of low- and moderate-income taxpayers, incorporating the likelihood of people's participation in benefit programs.

On the basis of its simulation, CBO finds that low- and moderate-income workers—those with income below 450 percent of federal poverty guidelines (commonly known as the federal poverty level, or FPL)—will face, on average, a marginal tax rate of 31 percent in 2016. That estimate takes into account federal and state individual income taxes, federal payroll taxes, and the phaseout of two transfer programs—benefits from the Supplemental Nutrition Assistance Program (SNAP, formerly the Food Stamp program) and the cost-sharing subsidies for health insurance provided under the Affordable Care Act.[2] On average, statutory rates—the rates set in law that apply to the last

1. This report is an update of Congressional Budget Office, *Effective Marginal Tax Rates for Low- and Moderate-Income Workers* (November 2012), www.cbo.gov/publication/43709. The update incorporates changes in tax law and CBO's modeling since that report was released.

2. The premium assistance tax credits are provided through the individual income tax code and are reflected in both the marginal federal income tax rate and the total marginal tax rate. Unlike the premium assistance tax credits, the cost-sharing subsidies provided under the Affordable Care Act are distributed through the transfer system; hence, they are included in the total marginal tax rate but not in the marginal federal income tax rate.

Note: Numbers in the text and tables may not add up to totals because of rounding.

dollar of earnings—for federal payroll taxes and for the federal income tax will have the largest effect on marginal tax rates. Those rates will vary greatly by earnings and among individuals with the same amount of earnings, with greater variation in the rates for people at lower income levels than at higher income levels.

How Marginal Tax Rates Affect Incentives to Work

When deciding how much to work, people consider not only the higher earnings from working more hours but also the resulting difference in after-tax income—which is market income plus government transfers minus federal taxes.[3] For example, increases in statutory tax rates have two opposing effects among people already working:

- The *substitution effect*, in which marginal tax rates increase. People tend to work fewer hours because other uses of their time become relatively more attractive, and
- The *income effect*, in which after-tax income drops from what people would have otherwise earned. People tend to work more hours because having less after-tax income requires additional work to maintain the same standard of living.

On balance, the first effect appears to be greater than the second. Increases in marginal tax rates, on net, decrease the supply of labor by causing people already in the labor force to work less, according to CBO's assessment of relevant research.[4]

The effects on labor supply are not uniform, however. Groups of workers respond differently to changes in taxes and transfers. For example, married women have historically worked less when marginal tax rates rose than have working-age men, on average.

3. Market income consists of labor income, business income, capital gains (profits realized from the sale of assets), capital income excluding capital gains, income received in retirement for past services, and other sources of income.

4. For further discussion of the evidence on which this assessment is based and about how the responsiveness of 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.

Some changes in government benefits can generate both substitution and income effects that push labor supply in the same direction. As income rises, phasing out a benefit (such as SNAP) increases the marginal tax rate and reduces the incentive to work. SNAP also effectively increases the after-tax income of its recipients—even as the benefit phases out—further discouraging work.

Income After Taxes and Transfers: A Hypothetical Example

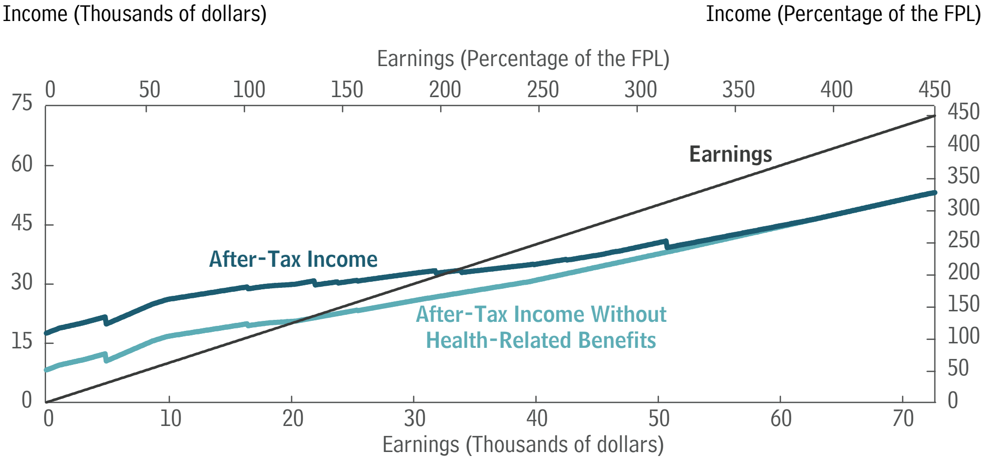
CBO examined the after-tax income of a hypothetical family—consisting of a single parent with one child—as the parent's earnings increase from zero to 450 percent of the FPL in $100 increments in 2016. (The FPL varies by household size. For a household of two in 2016, the FPL will be $16,150, CBO estimates.) In this example, the family lives in Pennsylvania and, when eligible on the basis of income, will receive benefits from Temporary Assistance for Needy Families (TANF), SNAP, Medicaid, the Children's Health Insurance Program (CHIP), and cost-sharing subsidies for health insurance.[5] The parent's only source of income apart from those government benefits will be from earnings, which are subject to federal and state income taxes as well as federal payroll taxes. To some extent, refundable tax credits—including the earned income tax credit (EITC), the additional child tax

5. This example uses Pennsylvania because its statutory income tax rate and phaseout rules for transfer programs are generally similar to those found in many other states in 2015. Pennsylvania has a state income tax rate of 3.07 percent for income in excess of the tax threshold. That rate is within 1 percentage point of the lowest statutory rate in 20 states—although the level at which income becomes taxable varies from state to state, and 7 states have no income tax at all. Pennsylvania has not, however, enacted a state earned income tax credit as 26 states and the District of Columbia have. As 29 other states and the District of Columbia did, Pennsylvania expanded Medicaid to cover individuals with income up to 138 percent of the FPL in 2015, and children in higher-income households are eligible for CHIP. Eligibility and benefit rules for SNAP are generally the same nationwide, but the benefit amount depends on housing costs, which vary among states.

   Those means-tested transfers were selected because they are entitlements to eligible individuals or, for TANF, states. Housing Choice Vouchers, which were included in the analysis of a hypothetical scenario in the 2012 report, are excluded from this example because it is a discretionary program and funding is determined by annual appropriations. The number of households receiving housing vouchers depends, then, on the amount of appropriations for the program, and not all eligible households receive those benefits. In 2013, only a quarter of households eligible for federal housing assistance (which includes project-based rental assistance and public housing) received those benefits, and almost half of households receiving housing vouchers were either elderly or disabled.

Figure 1.

The Relationship Between Earnings and After-Tax Income for a Hypothetical Single Parent With One Child, 2016



At low levels of earnings, refundable tax credits and means-tested transfers would boost after-tax income above earnings in 2016. As earnings rise, however, those benefits would phase out and tax liabilities would increase, causing after-tax income to grow more slowly than earnings

Source: Congressional Budget Office.

Notes: After-tax income was calculated as the sum of earnings and transfers (from TANF, SNAP, Medicaid, CHIP, and the cost-sharing subsidies for health insurance) minus tax liabilities (from federal individual income taxes, state individual income taxes, and federal payroll taxes). State income taxes and transfer benefits from TANF and SNAP were computed by using stylized rules based on those in effect in Pennsylvania in 2015. See Congressional Budget Office, *Effective Marginal Tax Rates for Low- and Moderate-Income Workers* (November 2012), www.cbo.gov/publication/43709, for more information regarding the estimation of the state taxes and transfers.

Health-related benefits consist of the premium assistance tax credit, Medicaid, CHIP, and cost-sharing subsidies for health insurance. Under the eligibility rules in Pennsylvania in 2015, eligibility for Medicaid and CHIP is limited to individuals whose income is below 138 percent of the FPL and 314 percent of the FPL, respectively. The value of Medicaid benefits is taken from CBO's projections of the nationwide average cost per adult and child to both federal and state governments in 2016; the average cost of Medicaid for the child is also used as the value of CHIP benefits. The value of the premium assistance tax credit is based on CBO's projections of average reference premiums for single coverage and a family policy covering an adult and child in 2016 nationwide.

This example incorporates the assumption that the taxpayer files as a head of household, has one child, and when eligible on the basis of earnings, claims the EITC, CTC, and premium assistance tax credit; that all income is from earnings; and that the taxpayer has itemized deductions worth 18 percent of income and claims the greater of those deductions or the standard deduction.

CHIP = Children's Health Insurance Program; CTC = child tax credit; EITC = earned income tax credit; FPL = federal poverty guidelines (commonly known as the federal poverty level); SNAP = Supplemental Nutrition Assistance Program; TANF = Temporary Assistance for Needy Families.

credit, and the premium assistance tax credit—will offset those tax liabilities, and the parent will receive money back from the government if the value of the credits exceeds the amount of the income taxes owed.

At very low income levels, the worker would be exempt from income taxes, and the value of refundable tax credits and transfers would boost after-tax income above earnings (see Figure 1). In this example, marginal tax rates are lowest when income is below 50 percent of the FPL—even briefly becoming negative (–31 percent) as additional earnings result in larger payments from the EITC and child tax credit. As earnings rose, however, tax liabilities would increase and the amount of benefits and refundable tax credits would decrease—causing after-tax income to generally grow more slowly than earnings. The combination of the phaseout of the EITC and SNAP benefits, the 10 percent federal income tax bracket, and the 15.3 percent federal payroll tax causes a sharp increase in marginal tax rates, which average 75 percent over a narrow range of income (from 115 percent to 126 percent of the FPL). The wide fluctuations in after-tax income and marginal tax rates diminish at higher levels of income. If earnings for this family increased above 206 percent of the FPL, after-tax income would fall below earnings because income tax and payroll tax liabilities (before accounting for credits) would exceed the sum of transfer payments and refundable tax credits. In that income range, marginal tax rates for this family would generally be between 28 percent and 61 percent.

Health-related benefits (in this example, Medicaid, CHIP, the premium assistance tax credit, and the cost-sharing subsidy) would raise this family's after-tax income by as much as $9,400 in 2016.[6] If earnings rose above 138 percent of the FPL, the parent would no longer be eligible for Medicaid but would qualify for the premium assistance tax credit and cost-sharing subsidy.[7] The child would lose eligibility for CHIP if the family's income reached 314 percent of the FPL, and the drop in after-tax income would be partially offset by the increase in the premium assistance tax credit to subsidize insurance coverage for the family.[8] Although eligibility for the premium assistance tax credit potentially extends until a family's income exceeds 400 percent of the FPL, CBO estimates that the credit would fully phase out before this hypothetical family's income reached that point because the premium would be less than the family's expected contribution based on its income.

This example shows after-tax income for a hypothetical family that participates in multiple transfer programs. In general, not all families who are eligible for a transfer will participate in the program.[9] An estimated 62 percent of lower-income families did not receive those means-tested transfers in 2013, either because they did not meet additional nonfinancial requirements or because they were eligible but did not apply for benefits. Of those who received transfers, most participated in only one program.[10]

Effective Marginal Tax Rates in 2016

Marginal tax rates depend on individuals' financial characteristics (such as income), their nonfinancial characteristics (such as the presence of children in the family), and whether they participate in means-tested programs. Hence, the distribution of marginal tax rates across the low- and moderate-income population depends on the distribution of income and on the extent of taxpayers' participation in transfer programs, as well as on the mix of demographic characteristics.

Overall Distribution

CBO estimates that in 2016, about 48 percent of low- and moderate-income taxpayers under age 65 with earnings will face a marginal tax rate between 10 percent and 19 percent under the federal income tax system, and 23 percent will face a higher rate (see Figure 2).[11] When federal payroll taxes, state income taxes, and benefits from SNAP and the cost-sharing subsidies for health insurance are included, the marginal tax rates are much higher: Only 16 percent of taxpayers will face marginal tax rates between 10 percent and 19 percent, and 78 percent will face higher rates.[12] More than half will face marginal tax rates between 20 percent and 39 percent.

To provide context for the marginal tax rates that this group would face, CBO compared the distribution of

6. The amount of the family's health benefits depends greatly on the valuation of health insurance coverage, which can vary by source. In this scenario, the individual does not have employment-based health insurance, whose value tends to be substantial for people who have it. People with such health insurance are generally ineligible for the premium assistance tax credit and cost-sharing subsidies, and if the child was insured, he or she would be ineligible for CHIP. The value of Medicaid is taken from CBO's projections of average cost per participant in 2016.

7. The premium assistance tax credit and cost-sharing subsidies partially offset the additional expenditures associated with purchasing health insurance coverage through the exchanges. Such expenditures are not subtracted from the measure of after-tax income used in the analysis.

8. The relationship between after-tax income and earnings differs by state, family composition, and sometimes the selection of a health insurance plan. For taxpayers in states that have not expanded Medicaid as allowed under the Affordable Care Act, after-tax income drops when earnings exceed the state's Medicaid income limit and rises at 100 percent of the FPL—when the premium assistance tax credit and cost-sharing subsidies generally start in those states. In all states, the amount of the premium assistance tax credit depends on the premium for the second-lowest-cost silver plan—a plan that pays about 70 percent of the costs of covered benefits—offered through the exchange in the taxpayer's area, which can vary with the number of family members covered, the ages of the people covered, and tobacco use. To receive cost-sharing subsidies, taxpayers must claim the premium assistance tax credit and enroll in a silver plan.

9. For example, an estimated 24 percent of households that are eligible for SNAP and have earnings do not receive those benefits. See Department of Agriculture, *Trends in Supplemental Nutrition Assistance Program Participation Rates: Fiscal Year 2010 to Fiscal Year 2013* (August 2015), http://go.usa.gov/3eVBJ.

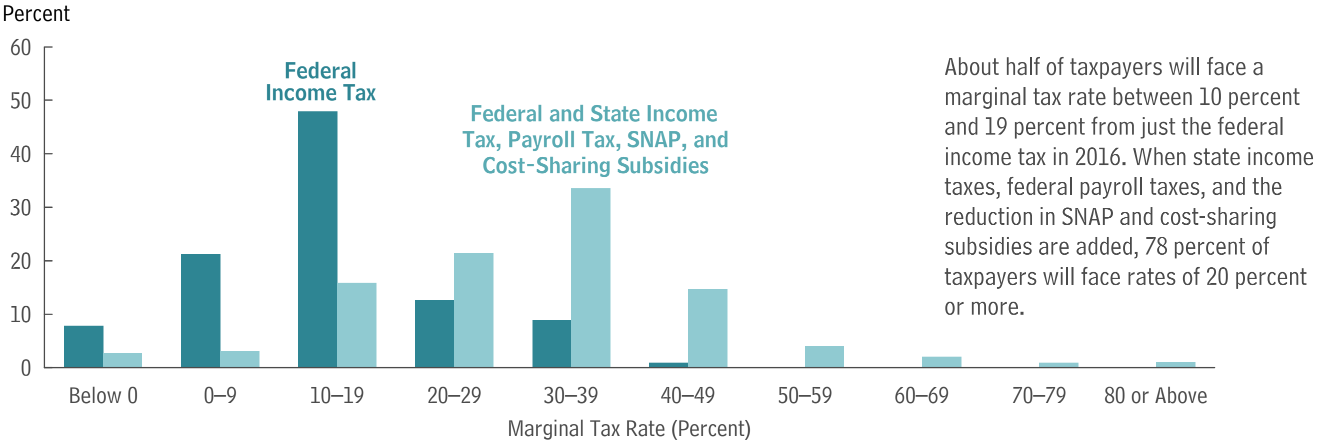
10. CBO's estimate is based on the 2014 Current Population Survey Annual Social and Economic Supplement (CPS ASEC). See Congressional Budget Office, *Effective Marginal Tax Rates for Low- and Moderate-Income Workers* (November 2012), Box 1, www.cbo.gov/publication/43709, for more details on estimates of participation in multiple programs for 2010.

11. In this report, *taxpayers* refers to tax filing units, which consist of individuals or married couples and any dependents claimed on the federal income tax return. Individuals who do not file income tax returns are also organized into tax filing units; they face marginal tax rates from payroll taxes and reduced SNAP benefits.

12. The simulated marginal tax rates do not include all tax provisions or transfers that affect marginal tax rates. For example, this analysis does not include benefits from TANF. The omitted tax provisions and transfers generally increase the overall marginal tax rate. The total effect is relatively small, however, because those omissions would affect only a small share of taxpayers in this sample.

Figure 2.

Marginal Tax Rates for Low- and Moderate-Income Taxpayers, 2016



Source: Congressional Budget Office based on data from the Internal Revenue Service and the Census Bureau.

Notes: The taxpayers considered in this analysis are those under the age of 65 who have earnings, whose adjusted gross income is below 450 percent of the federal poverty guidelines, and who do not receive disability income (which includes Social Security Disability Insurance or workers' compensation) or Supplemental Security Income.

The marginal tax rates are generally based on 2016 law, with the exception of state income taxes which are calculated using state tax laws in place in 2013. The marginal tax rates are based on taxpayers' compensation before their employers' share of payroll taxes is deducted.

SNAP = Supplemental Nutrition Assistance Program.

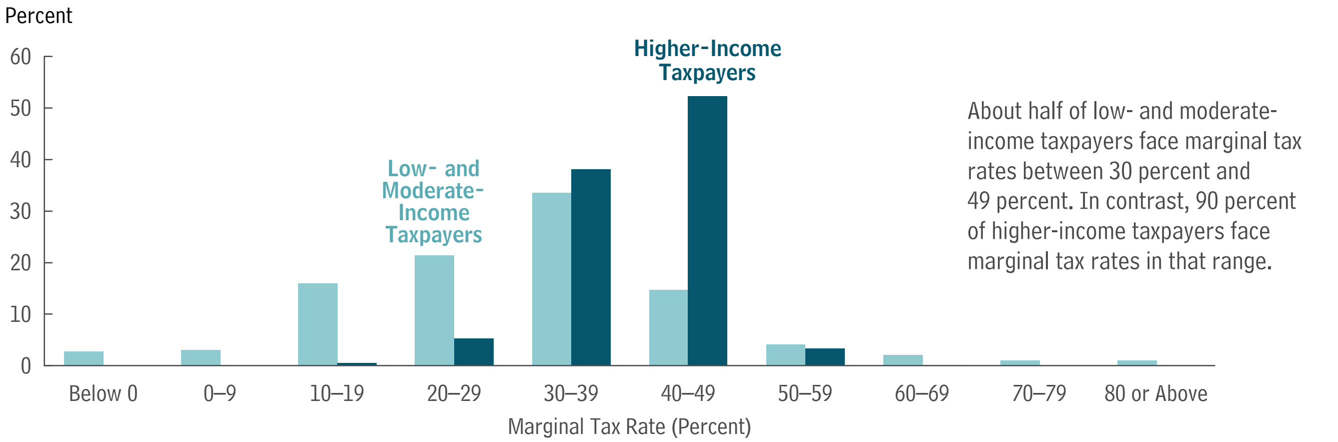
marginal tax rates among low- and moderate-income workers with the distribution of such rates that higher-income workers face. Almost all workers with incomes above 450 percent of the FPL will face marginal tax rates above 19 percent in 2016, with 90 percent of higher-income taxpayers facing rates between 30 percent and 49 percent from the combination of federal income taxes (most of those taxpayers are in the 15 percent or 25 percent tax bracket), the 15.3 percent payroll tax rate, and state income taxes (see Figure 3). Compared with higher-income taxpayers, a larger share of low- and moderate-income taxpayers will face marginal tax rates below 30 percent or above 49 percent. About 43 percent of low- and moderate-income taxpayers will face marginal tax rates below 30 percent, compared with about 6 percent of higher-income taxpayers.

On average, the marginal tax rate for low- and moderate-income taxpayers will be 31 percent in 2016, according to CBO's estimates (see Table 1). The main contributors to the total marginal tax rates will be federal payroll taxes and statutory rates for the federal income tax, both of which will apply to most taxpayers in the sample CBO analyzed:

- *Federal Payroll Taxes*. Almost all taxpayers in the sample will be subject to federal payroll taxes, which will cause marginal tax rates to rise by about 14 percentage points.
- *Federal Individual Income Taxes.* For the federal income tax, taxpayers with income below 450 percent of the FPL will face, on average, a marginal tax rate of 11 percent. Statutory rates will account for 9 percentage points of that amount, on average.
- *Refundable Tax Credits.* Because most low- and moderate-income taxpayers do not receive refundable tax credits, those provisions have little net effect on the total marginal tax rate, though they can have a relatively large effect on the marginal tax rate for those who are affected. The premium assistance tax credit, for example, will raise marginal tax rates by an estimated 12 percentage points for recipients but will add only about 1 percentage point to the total rate because only about 9 percent of the sample are estimated to receive the credit. Although more taxpayers receive the EITC and child tax credit than the premium assistance tax credit, those credits result in smaller increases in the total marginal tax rate. On average, the EITC increases the total marginal tax rate by 1 percentage point, whereas the child tax credit reduces the total marginal tax rate by 2 percentage points. Over some income ranges, the EITC and child tax credit increase as earnings rise, resulting in negative marginal income tax rates in those ranges.

Figure 3.

Marginal Tax Rates for All Taxpayers, 2016



Source: Congressional Budget Office based on data from the Internal Revenue Service and the Census Bureau.

Notes: The taxpayers considered in this analysis are those under the age of 65 who have earnings and who did not receive disability income (which includes Social Security Disability Insurance or workers' compensation) or Supplemental Security Income. Low- and moderate-income taxpayers have adjusted gross income below 450 percent of the federal poverty guidelines; higher-income taxpayers have adjusted gross income above 450 percent of the federal poverty guidelines.

The marginal tax rates include the combined effects of federal and state individual income taxes, federal payroll taxes, and benefits from the Supplemental Nutrition Assistance Program (SNAP) and cost-sharing subsidies for health insurance generally on the basis of 2016 law. State income taxes were calculated using state tax laws in place in 2013. The marginal tax rates were based on taxpayers' compensation before their employers' share of payroll taxes is deducted.

- *State Individual Income Taxes.* State income taxes will contribute about 3 percentage points to the total marginal tax rate, on average.

- *Transfers to Low-Income People.* Two assistance programs outside the tax system—SNAP and cost-sharing subsidies for health insurance—will also raise marginal tax rates significantly for beneficiaries but have a much smaller effect on the total rate. The phaseout of SNAP benefits will add 14 percentage points to recipients' marginal tax rates. But because only 21 percent of the people in the sample are SNAP beneficiaries, the phaseout will raise the total marginal tax rate, on average, by just 3 percentage points. Similarly, because 7 percent of taxpayers receive cost-sharing subsidies for health insurance, those subsidies will raise the total effective marginal rate by less than a percentage point.[13]

Estimates of marginal tax rates are sensitive to the choice of weights applied to the sample of taxpayers. To derive the overall estimates above, CBO estimated the average rate for all taxpayers by multiplying each marginal tax rate by an estimate of the total number of taxpayers paying that rate, summing those products, and then dividing by the estimate of the total number of taxpayers. That calculation yields the average of 31 percent discussed above.

In another approach, CBO multiplied each marginal tax rate by an estimate of the total amount of reported earnings subject to that rate, summing all those values, and dividing by the estimate of the total amount of earnings. The latter approach yields a better estimate of how the marginal tax rates might affect total economic output. On that earnings-weighted basis, CBO estimates, the marginal tax rate for low- and moderate-income taxpayers under age 65 will be 34 percent, on average, in 2016. The earnings-weighted marginal tax rate is higher because statutory rates in the federal and state income tax systems rise with income, and provisions such as the EITC phaseout have a greater effect on taxpayers as their income increases.

Distribution by Earnings Group

To examine how marginal tax rates vary by earnings, CBO grouped taxpayers in the sample according to their earnings in relation to the FPL in 2016 (less than

13. The amount of the cost-sharing subsidies declines in increments—first when income exceeds 150 percent of the FPL, then at 200 percent of the FPL, and finally at 250 percent of the FPL when it is eliminated. A marginal tax rate of zero from the cost-sharing subsidies applies unless the increase in taxpayers' income crosses one of those thresholds.

Table 1.

Contributions of Tax Provisions and Benefits to Marginal Tax Rates for Low- and Moderate-Income Taxpayers, 2016

	Weighted by Taxpayer			Weighted by Earnings		
	Share of Taxpayers Affected by Provision (Percent)	Marginal Rate Effect for Those Affected (Percent)	Contribution to Total Marginal Rate (Percentage points)	Share of Earnings Affected by Provision (Percent)	Marginal Rate Effect for Those Affected (Percent)	Contribution to Total Marginal Rate (Percentage points)
Federal Payroll Taxes	99.0	14.0	13.9	99.2	13.9	13.8
Federal Individual Income Taxes[a]	96.6	11.6	11.2	97.9	15.6	15.3
Marginal statutory rate (Regular income tax)	96.5	9.3	9.0	97.7	12.1	11.9
EITC	28.2	3.7	1.0	17.3	10.8	1.9
Phase-in	6.9	-21.6	-1.5	1.5	-24.1	-0.4
Plateau	3.9	0	0	1.8	0	0
Phaseout	17.4	14.5	2.5	14.0	16.0	2.2
Child tax credit	30.2	-7.0	-2.1	45.8	-4.3	-2.0
Premium assistance tax credit	9.4	12.3	1.2	8.9	13.2	1.2
Alternative minimum tax	0.1	27.8	0	0.2	27.8	0.1
State Individual Income Taxes	60.0	4.4	2.6	69.7	4.8	3.4
SNAP[b]	20.8	14.3	3.0	13.6	11.2	1.5
Cost-Sharing Subsidies for Health Insurance	7.1	9.5	0.7	5.7	10.1	0.6
Interactions Among Tax Provisions[c]	17.1	-0.6	-0.1	30.3	-0.7	-0.2
Average Marginal Tax Rate (Percent)			**31.3**			**34.3**

Source: Congressional Budget Office based on data from the Internal Revenue Service and the Census Bureau.

Notes: The taxpayers considered in this analysis are those under the age of 65 who have earnings, whose adjusted gross income is below 450 percent of the federal poverty guidelines, and who do not receive disability income (which includes Social Security Disability Insurance or workers' compensation) or Supplemental Security Income.

The marginal tax rates are generally based on 2016 law, with the exception of state income taxes which are calculated using state tax laws in place in 2013. The marginal tax rates are based on taxpayers' compensation before their employers' share of payroll taxes is deducted.

EITC = earned income tax credit; FPL = federal poverty guidelines; SNAP = Supplemental Nutrition Assistance Program.

a. Provisions of the federal individual income tax listed here do not add up to the marginal federal individual income tax rate because not all provisions of the tax code are shown.

b. The marginal tax rate from SNAP reflects the change in annual benefits resulting from an increase in income. Because eligibility and benefits are determined on the basis of monthly income, SNAP recipients can receive benefits for only part of the year. CBO estimates a marginal tax rate from SNAP of 19.8 percent on a taxpayer-weighted basis and 16.0 percent on an earnings-weighted basis, on average, in the months a taxpayer receives SNAP benefits.

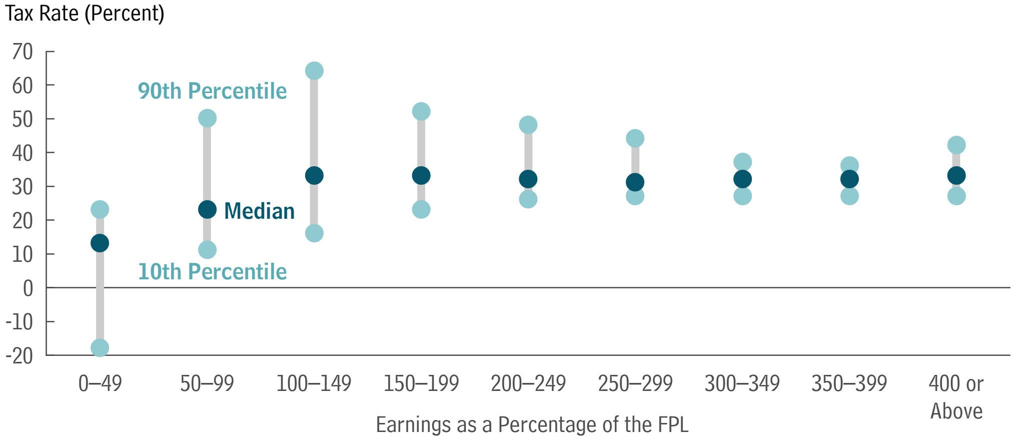
c. Accounts for the deductibility of state income taxes on federal income tax returns for people who itemize.

50 percent of the FPL, 50 percent to 99 percent of the FPL, and so on). At low levels of income, marginal tax rates rapidly increase when workers begin to owe federal income taxes and enter the 10 percent statutory rate bracket (see Figure 4). CBO estimates that the median marginal tax rate will rise sharply, from 14 percent (for those with earnings of less than 50 percent of the FPL) to 34 percent (for taxpayers with earnings between 100 percent and 149 percent of the FPL). The median marginal tax rate then will level off to between 32 percent and 34 percent among groups with higher earnings. Those taxpayers typically face the 15 percent statutory rate in the federal income tax, the 15.3 percent federal payroll tax rate, and state income taxes.

Marginal tax rates also vary widely among taxpayers with similar earnings in relation to the FPL, particularly among those with earnings of less than 150 percent of the FPL. Much of that variation is due to differences in family characteristics, which affect eligibility for refundable tax credits and assistance programs and the extent to which people take up those benefits. (Some eligible people do not.) As earnings in relation to the FPL increase, taxpayers are less likely to be eligible for the refundable tax credits and SNAP, and so the variation in marginal tax rates decreases. According to CBO's estimates, in 2016 40 or more percentage points will separate the 10th and 90th percentiles of marginal tax rates among subgroups

Figure 4.

Range of Marginal Tax Rates Between the 10th and 90th Percentiles for Low- and Moderate-Income Taxpayers, by Earnings Group, 2016



The median marginal tax rate will rise sharply across groups of taxpayers with earnings below 150 percent of the FPL in 2016. Over that income range, the dispersion of marginal tax rates will be much wider than among higher-income taxpayers, largely because nonfinancial criteria will affect eligibility for refundable tax credits and means-tested transfers.

Source: Congressional Budget Office based on data from the Internal Revenue Service and the Census Bureau.

Notes: The taxpayers considered in this analysis are those under the age of 65 who have earnings, whose adjusted gross income is below 450 percent of the federal poverty guidelines, and who do not receive disability income (which includes Social Security Disability Insurance or workers' compensation) or Supplemental Security Income. Taxpayers were grouped on the basis of their earnings in relation to the FPL, which could differ from their adjusted gross income in relation to the FPL.

The marginal tax rates include the combined effects of federal and state individual income taxes, federal payroll taxes, and benefits from the Supplemental Nutrition Assistance Program and cost-sharing subsidies for health insurance, generally on the basis of 2016 law. State income taxes were calculated using state tax laws in place in 2013. The marginal tax rates are based on taxpayers' compensation before their employers' share of payroll taxes is deducted.

FPL = federal poverty guidelines (commonly referred to as the federal poverty level).

of taxpayers with earnings below 150 percent of the FPL in 2016, whereas fewer than 20 percentage points will separate the 10th and 90th percentiles among subgroups of taxpayers with earnings above 250 percent of the FPL. For example, the marginal tax rate at the 10th percentile among taxpayers with earnings between 100 percent and 149 percent of the FPL is 17 percent; at the 90th percentile, the rate is 65 percent. For taxpayers with earnings above 400 percent of the FPL, those marginal rates are 28 percent and 43 percent, respectively.

Changes From CBO's 2012 Report

This report reflects changes in law and changes to CBO's modeling since the release of the 2012 CBO report *Effective Marginal Tax Rates for Low- and Moderate-Income Workers*. In particular, the marginal tax rates incorporate changes made by the American Taxpayer Relief Act of 2012. Those changes include the permanent extension of the federal income tax brackets originally set by the Economic Growth and Tax Relief Reconciliation Act (with an added 39.6 percent bracket for higher-income taxpayers), the temporary extension of the American Opportunity Tax Credit, the temporary expansions of the EITC and child tax credit, the permanent indexation of the alternative minimum tax to inflation, and certain provisions that affect very high income taxpayers (the limitation on itemized deductions and the phaseout of the personal exemption). In addition, a temporary reduction in the federal payroll tax expired at the end of 2012, causing marginal tax rates to be higher in 2016 than in 2012.[14] It also incorporates more recent CBO estimates for premium assistance tax credits and cost-sharing subsidies for health insurance. In a departure from the 2012 report, the sample includes people who did not file a tax return.[15] CBO now estimates that the taxpayer-weighted marginal tax rate in 2012 was 28.6 percent, whereas CBO previously estimated a rate of 30.0 percent under 2012 law.[16]

14. In 2011 and 2012, the employee's portion of the federal payroll tax was temporarily reduced by 2 percentage points, causing the combined payroll tax rate to fall from 15.3 percent to 13.3 percent. The estimates of the 2012 marginal tax rate in the 2012 report reflected that reduction.

15. See "Changes to the Estimates of Effective Marginal Tax Rates for 2012," posted along with this report's supplemental data on CBO's website, for further discussion of the changes in CBO's modeling since the 2012 report.

16. Supplemental data showing marginal tax rates for 2012, simulated using the current approach, are posted along with this report on CBO's website.

Analytic Method

CBO used its microsimulation tax model to estimate marginal tax rates. That model is based on a 2006 public-use sample of about 150,000 tax returns augmented with data from the Census Bureau's 2007 Annual Social and Economic Supplement to the Current Population Survey.[17] The result is a representative sample of the population that includes taxpayers who filed a federal individual income tax return as well as people who did not file. CBO adjusted the data to reflect projections in 2016 of the population's income and certain demographic characteristics (the projected size of the population and the distribution by age, sex, and marital status). In CBO's view, those adjusted data based on the 2006 tax returns may better represent the distribution of income that will exist in 2016 than would more recent data based on a sample of tax returns filed during or shortly after the most recent recession. The sample is restricted to people under age 65 with earnings, whose adjusted gross income is below 450 percent of the FPL and who do not receive disability benefits (which include Social Security Disability Insurance and workers' compensation) or Supplemental Security Income.

Federal income and payroll tax liabilities and SNAP benefits are generally calculated by using tax and program parameters under current law for 2016; SNAP benefits, the premium assistance tax credit, and cost-sharing subsidies for health insurance are, in addition, calibrated to CBO's March 2015 baseline projections for 2016.[18] State marginal tax rates are calculated by applying state tax laws in place in 2013 to the sample of tax returns.[19]

This Congressional Budget Office report was prepared at the request of the Ranking Member of the Senate Finance Committee. It provides updates to a previous publication, titled *Effective Marginal Tax Rates for Low- and Moderate-Income Workers*, that was issued in November 2012. In keeping with CBO's mandate to provide objective, impartial analysis, the report contains no recommendations. Shannon Mok of CBO's Tax Analysis Division prepared the report with guidance from Janet Holtzblatt and David Weiner. Molly Dahl, Ed Harris, Sarah Masi, Alexandra Minicozzi, Kurt Seibert, Robert Stewart, and Marvin Ward provided helpful comments. Jeffrey Kling, John Skeen, and Robert Sunshine reviewed the report; Gabe Waggoner edited it; and Jeanine Rees prepared it for publication. This report is available on CBO's website (www.cbo.gov/publication/50923).

Keith Hall
Director

17. The public-use sample of tax returns is designed to represent income tax returns filed in 2006. To protect the identity of taxpayers, the Internal Revenue Service modifies information in various fields so that the resulting records do not contain complete information from any individual tax return.

18. For details of how CBO projected SNAP benefits, see Congressional Budget Office, *The Effects of Potential Cuts in SNAP Spending on Households With Different Amounts of Income* (March 2015), Appendix, www.cbo.gov/publication/49978.

19. Jon Bakija of Williams College created the state tax calculator that CBO used; 2013 was the latest year for which the tax rules for each state had been modeled. 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), http://tinyurl.com/bakija (PDF, 485 KB).