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America's Progressive Tax and Transfer System: Federal, State, and Local Tax and Transfer Distributions

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Key Findings

- The U.S. system of taxes and transfers is highly progressive.
- Measuring comprehensive income, inclusive of market-based income and government taxes and transfers, illustrates the total fiscal burden created by a fiscal system.
- Income transfer programs amplify the U.S. federal tax system's progressivity, move the state and local system from moderate regressivity to moderate progressivity, and result in a highly progressive fiscal system overall.
- The lowest quintile experienced a combined tax and transfer rate of negative 127.0 percent, meaning that for each dollar they earned, they received an additional $1.27 from the government, netting transfers (gains) and taxes (losses), while the top quintile had a rate of positive 30.7 percent, meaning on net they paid just under $0.31 for every dollar earned.
- The top quintile funded 90.1 percent, or $1.6 trillion, of all government transfers in 2019. For each dollar of taxes paid, the top quintile received $0.11 in gross government transfers.
- Government transfers account for 59 percent of the bottom quintile's comprehensive income. For each dollar of taxes paid by the bottom quintile, they received $6.17 in gross government transfers.
- Before transfers, total effective fiscal incidence rates were generally progressive: 24.6 percent for the bottom quintile, 24.7 percent for the middle quintile, and 34.5 percent for the top quintile.
- After transfers, total effective fiscal incidence rates were markedly progressive: 10.1 percent for the bottom quintile, 22.4 percent for the middle quintile, and 41.4 percent for the top quintile.

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- Including transfers in income decreased the effective state and local fiscal incidence rate for the bottom quintile by more than 11 percentage points to 7.8 percent. The middle quintile saw a 1 percentage point decrease to 9.9 percent, while the top quintile saw an increase of 2 percentage points to 12.1 percent.

- About one-sixth of the tax burden borne by households in the lowest quintile is not personal taxes—like income, sales, and property taxes—but taxes remitted by businesses that are economically borne by taxpayers—like corporate income taxes, tariffs, severance taxes, and a variety of taxes on capital. Property taxes account for nearly one-third of the tax liability for this cohort, which includes both property taxes remitted directly by lower-income homeowners and those borne indirectly by renters.

Introduction

When policymakers or taxpayers discuss tax policy, the conversation inevitably turns to who pays, who should pay, and how much they should pay. To help inform the discussions, departments of revenue, policy organizations, and other researchers have analyzed where tax revenue comes from and how tax policy affects different groups of taxpayers.

Unfortunately, many studies about tax burdens and the progressivity of the tax system are incomplete—they fail to discuss how government transfers affect households' tax burdens, and they neglect or insufficiently account for the economic incidence of some taxes that are ultimately borne by households. In 2007, the Tax Foundation produced a working paper examining the distribution of government spending and its impact on effective fiscal incidence rates between 1991 and 2004.[1] Now we are updating the study with the latest data, from 2019.

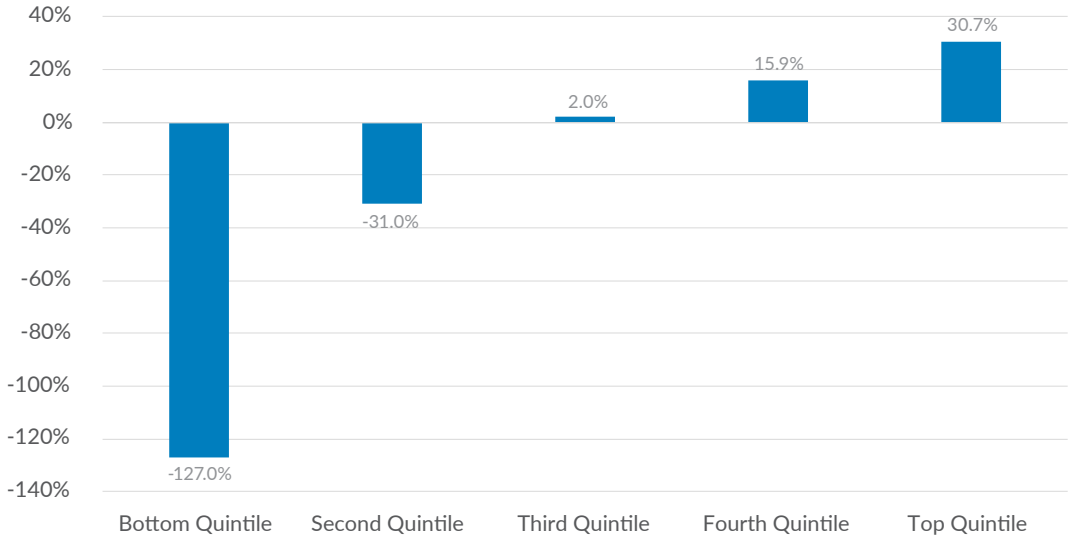
We find that the overall tax and transfer system in the United States is robustly progressive. The lowest quintile of Americans *receives* a net of 127 percent of their market income through the tax and transfer system, accounting for both the taxes they pay and the transfers they receive. At the other end of the spectrum, the top quintile *gives up* 31 percent of their market income due to taxes and transfers. Residents at both ends of the income spectrum pay taxes—directly and indirectly—and receive the benefit of government transfers, but for high earners, tax liability vastly outstrips the value of benefits received, whereas for low income-earners, tax payments pale in comparison to the value of transfers received.

1 Andrew Chamberlain and Gerald Prante, "Who Pays Taxes and Who Receives Government Spending? An Analysis of Federal, State and Local Tax and Spending Distributions, 1991-2004," Tax Foundation, March 22, 2007, https://taxfoundation.org/who-pays-taxes-and-who-receives-government-spending-analysis-federal-state-and-local-tax-and/.

FIGURE 1.

Overall U.S. Tax and Transfer System Is Highly Progressive

Household Effective Rates of Government Taxes and Transfers, 2019



Source: Tax Foundation calculations with BEA, SSA, USCB, CMS, and VA data.

At the federal level, both taxes and transfers are highly progressive, while at the state level, progressivity is largely achieved through transfers. This is unsurprising given the need for states to compete for jobs and investment and given the outsized role of the federal government in creating progressivity.

Our paper examines the burden and distribution of federal, state, and local tax and transfer systems. We first discuss the American approach to progressivity in the tax and transfer systems, then examine the distribution of taxation along the income spectrum before transfers. Later sections explore the implication of these transfers, the relationship between taxation and transfers, and their impact on the American tax systems' progressivity at the national, state, and local levels. We conclude by highlighting some limitations of the study and summarizing the key findings, though one limitation is worth explaining here.

Household income is an annual "snapshot" measure, and thus corresponds imperfectly to wealth or ability to pay. A career middle-income earner might experience a year in the top quintile when selling a home or business, even though this is not representative of their "normal" income. More significantly for this study, some households of comfortable means have little or no income in a given year. There is a certain amount of statistical noise in the lowest quintile, which includes not only low-income, low-net-worth households, but also some affluent or even quite wealthy households that experienced income losses that year. A multimillionaire with a year of significant capital losses can show up in the bottom quintile but still have substantial property holdings and consumption subject to tax. This phenomenon is part of the reason the bottom quintile experiences higher effective rates of the pre-transfer tax burden than the second quintile: it includes some taxpayers who are not, by any measure, poor.

Finally, detailed tables, a glossary of terminology and concepts, and methodological notes can be found in the appendix for readers seeking a better understanding of this study's inputs, but it should be noted here for all readers that our study focuses on the economic, not legal, incidence of taxes. It does not measure who remits tax payments to the government, but rather who is economically affected by a tax. A low-income family that rents an apartment, for instance, is understood in our study to bear a portion of the property tax burden levied on that unit.

The U.S. Approach to Progressivity

Government fiscal policies can be progressive in two ways: either by imposing higher taxes and fees on higher earners or by devoting a greater share of government expenditures to lower-income households. In practice, governments invariably practice both, though the balance varies from country to country and state to state.

While European countries are generally, and correctly, regarded as having more progressive fiscal policies than the United States, this does not generally hold for their tax codes, which generate a far greater share of their revenue from low- and middle-income households than do tax systems in the United States. Instead, under systems of comparatively high and frequently regressive taxes on *all* residents, these countries achieve high levels of progressivity through generous systems of public transfers.

In this, European countries operate much like U.S. states, where systemwide progressivity is achieved through spending. The U.S. federal government, by contrast, combines a highly progressive tax system with a highly progressive transfer system. Local governments, which we treat in combination with state governments, generally have the least progressive systems, because they are not responsible for large-scale social welfare programs, which are within the purview of federal and state governments.

Given the high level of progressivity in the federal tax and transfer system, it makes sense for states to focus more of their efforts on the expenditure side of the ledger. States are in active competition with each other for people, jobs, and investment—all of which are considerably more mobile at the subnational than the international level. Critiques of the regressivity of state and local tax codes, which are often overstated, tend to ignore the progressivity of the state and local tax and transfer system in its entirety. They also tend to treat state fiscal policy in a vacuum, despite the substantial role of the federal government in the American system.

When considering the economic incidence of taxes on earners across the income spectrum, it becomes apparent that progressive intentions do not always yield a progressive reality. Income and capital-based taxes on business activity, tariffs on imported goods, and property taxes on rental units are all borne by taxpayers across the income spectrum, even if they are not the ones legally obligated to remit the tax.

After accounting for transfers, effective fiscal incidence rates are highly progressive, with the bottom quintile facing an effective federal, state, and local rate of 10.1 percent, while the middle quintile bears 22.4 percent, and the top quintile faces a 41.4 percent burden. Even though much of this progressivity stems from the federal government, a similar effect is visible at the state and local level as well, with state and local effective rates ranging from 7.8 percent for the bottom quintile to 12.1 percent for the top quintile.

Finally, to say that the lowest quintile has a total federal, state, and local effective fiscal incidence rate of 10.1 percent is not to say that the tax and transfer system reduces that person's income by about one-tenth. Rather, this is the effective tax burden on their total income including transfers, which account for 59 percent of the bottom quintile's effective income.

Households in the bottom quintile received an effective net tax-and-transfer *benefit* of $1.27 for every dollar they earned in income—in other words, a tax-and-transfer rate of -127.0 percent. Households in the top quintile, on the other hand, experienced an effective *reduction* of $0.31 for every dollar they earned in income. Due to the highly progressive tax and transfer system, a household in the bottom quintile earned an average of $22,491 in pre-tax and transfer income but had approximately $54,900 in post-tax and transfer income, since they received an estimated $32,409 in net government transfers.

The Distribution of Tax Burdens

The comprehensive burden of a tax system can be assessed in three ways: by nominal amounts of tax borne; by effective fiscal incidence rates excluding government transfers; and by effective fiscal incidence rates including government transfers. We look at each measure in turn as well as the distribution of government transfers.

Estimated Tax Burden in Nominal Dollars

We begin by examining the amount of tax borne by each household income quintile in 2019. The top quintile bears the majority of the total tax burden, bearing five times more than the middle quintile and nearly 23 times the bottom quintile. At the state and local level, the top quintile bears an amount nearly as large as all other quintiles combined, $3.23 trillion in taxes, compared to $142 billion borne by the lowest quintile.

On average, households in the top quintile had a total estimated tax burden of $125,748 in 2019, consisting of $89,055 in federal taxes and $36,693 in state and local taxes. The middle and bottom quintiles bore a much smaller total tax burden of $24,451 and $5,524, respectively.[2] Notably, these tax burdens include taxes paid on economic activity underwritten by transfer payments, not just on their pre-transfer market income, which makes more of a difference for low-income households.

2 See Appendix C, Table 4, for a detailed breakdown of household tax burdens by tax type.

TABLE 1.

Federal, State, and Local Tax Burdens by Quintile and Household, 2019

	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile
Total Tax Burden (Billions)	$142	$292	$628	$1,145	$3,230
Total Federal Tax Burden (Billions)	$32	$104	$351	$733	$2,288
Total State Tax Burden (Billions)	$110	$188	$277	$413	$943
Total Tax Burden per Household	$5,524	$11,386	$24,451	$44,580	$125,748
Federal Tax Burden per Household	$1,248	$4,053	$13,678	$28,516	$89,055
State and Local Tax Burden per Household	$4,275	$7,332	$10,773	$16,064	$36,693

Source: Bureau of Economic Analysis; Tax Foundation calculations.

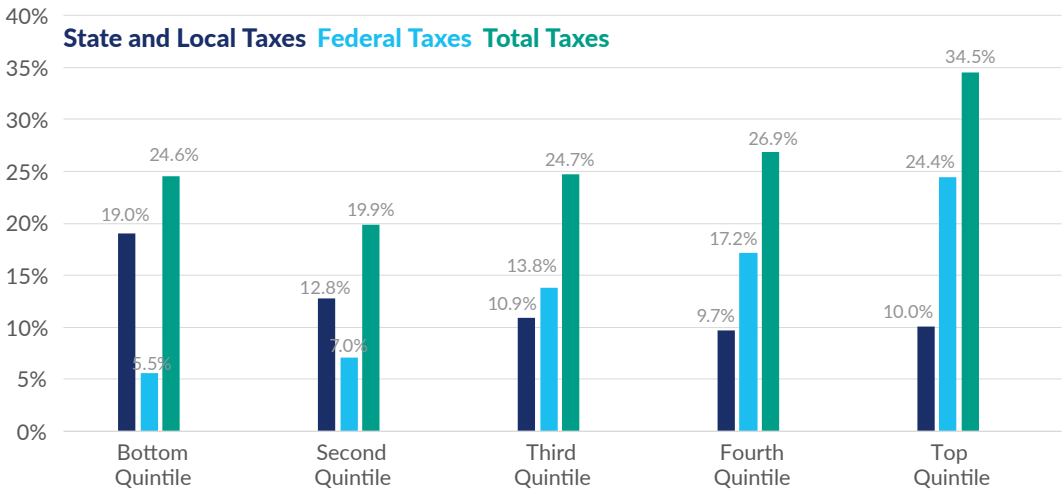
Effective Fiscal Incidence Rates on Market-Derived Income

A second approach to examining the burden of a tax system is to consider effective fiscal incidence rates on market-derived income. Effective fiscal incidence rates illustrate the estimated tax burden as a share of comprehensive income. Market-derived income includes all earned income from active participation in a job or business venture as well as all passive income resulting from the receipt of dividends, interest, or rent and excludes public or private transfers.

FIGURE 2.

Households' Federal Tax Burdens Are Progressive, State and Local Tax Burdens Are Regressive, before Transfers

Household Effective Fiscal Incidence Rates before Transfers, 2019



Source: Tax Foundation calculations with BEA, SSA, USCB, CMS, and VA data.

Figure 2 illustrates the effective fiscal incidence rates at each level of government absent the impact of income transfer programs. In the absence of transfers, the federal tax system is progressive, while the state and local tax system is regressive. The result is an overall tax system that resembles something of a fishhook, where incidence rates at the bottom quintile are slightly higher than at the

second quintile, after which the progressive pattern resumes. Part of this effect can be explained by high-net-worth households that experienced negative income flows in the snapshot year.

Prior to government transfers, the bottom quintile faced an effective federal fiscal incidence rate of 5.6 percent, the middle quintile 13.8 percent, and the top quintile 24.4 percent.

Isolating state and local government effective fiscal incidence rates before transfers, the subnational system is markedly regressive. The bottom quintile of households realized a tax burden equivalent to 19 percent of their market-derived household income, the middle quintile's burden was 10.9 percent, and the top quintile's burden was 10.1 percent.

A key reason for the regressivity in the state and local system is the inclusion of more consumption-based taxes, which tend to be borne by consumers. While consumption taxes are economically efficient in that they only tax people for what they use, the burden falls harder on lower-income households because they consume a larger portion of their income than higher-income households do. Additionally, many of the services consumed by higher-income households are excluded from sales tax bases. Though in dollar terms, higher-income households pay more in total consumption taxes, effective fiscal incidence rates for state sales taxes are higher for lower-income households.[3] Moreover, commercial property taxes are often higher than residential property taxes, which actually works against many lower-income households despite superficially seeming like a progressive measure targeting businesses, since multi-unit rental properties are assessed as commercial rather than residential.

The Impact of Transfer Programs on Effective Fiscal Incidence Rates

A third approach to examining a tax system's burden is assessing effective fiscal incidence rates including government transfer programs. Government transfers can account for a significant portion of many lower-income households' ability to pay for goods and services. Because money is fungible, meaning a dollar from one source can be interchanged with a dollar from another, households can shift market-derived income to other uses when they receive government transfers. As households consume other goods or services they would not otherwise have been able to afford, they may also end up paying more in taxes.

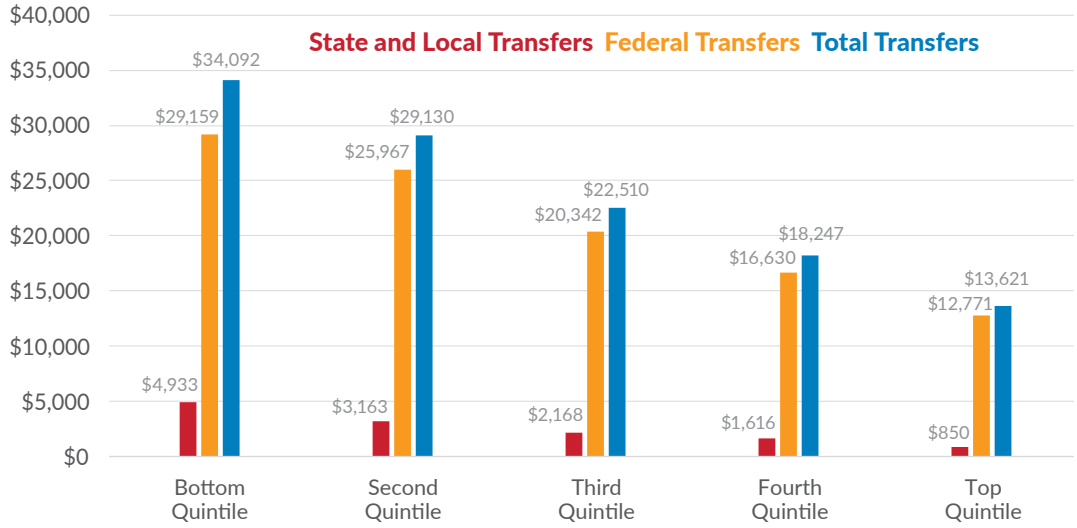
Transfers at both levels of government have progressive distributions. The bottom quintile receives the largest share of gross transfers from the federal government (27.8 percent) and from state and local government (38.7 percent), while the top quintile received the smallest shares of federal and state and local gross transfers, 6.7 and 12.2 percent, respectively. Gross federal transfers made up the largest share of transfers for the top four quintiles, while the bottom quintile had a larger share of state and local transfers, the result of the state portion of Medicaid and other means-tested social assistance programs.

3 See Appendix C, Table 5 for a detailed account of effective fiscal incidence rates by type of tax for each income quintile before transfers.

Gross Government Transfer Payments

As Figure 3 illustrates, federal transfers are much larger in dollar terms than state and local transfers. The average household in the bottom quintile received an estimated $34,092 in total gross government transfers, made up of $29,159 in federal transfers and $4,933 in state and local transfers. By comparison, the average household in the middle quintile received $22,510 in transfers, while the average household in the top quintile received $13,621.

FIGURE 3.
Government Transfers Are Progressive at Every Level
Average Gross Government Transfers per Household, 2019



Source: Tax Foundation calculations with BEA, SSA, USCB, CMS, and VA data.

The gross transfer figures do not consider associated taxes that pay for the various programs. Before funds can be distributed to qualifying households, they must first be collected through taxation. To avoid double counting income, the tax cost of government transfers must be subtracted from the amount of transfers received. Failing to do so would make government transfer programs appear less progressive than they actually are.

It may be surprising to learn that the top quintile accrued nearly $350 billion in government transfers, programs normally thought of as helping lower-income earners.[4] It is perhaps less of a surprise when one considers that the measure includes Medicare and retirement programs like Social Security, which have broad eligibility criteria.

Overall, households earned $18.2 trillion of market income, with $7.8 trillion going to the top quintile, $2.8 trillion to the middle quintile, and $1.4 trillion to the bottom quintile after transfers.

4 To see how much each quintile received in total gross transfers and at each level of government, refer to Appendix E, Table 2.

TABLE 2.

Total Comprehensive Household Income by Quintile, 2019

	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile
Total Comprehensive Household Income (Billions)	$1,410	$2,107	$2,807	$4,097	$7,801

Source: Tax Foundation calculations with BEA, SSA, USCM, CMS, and VA data.

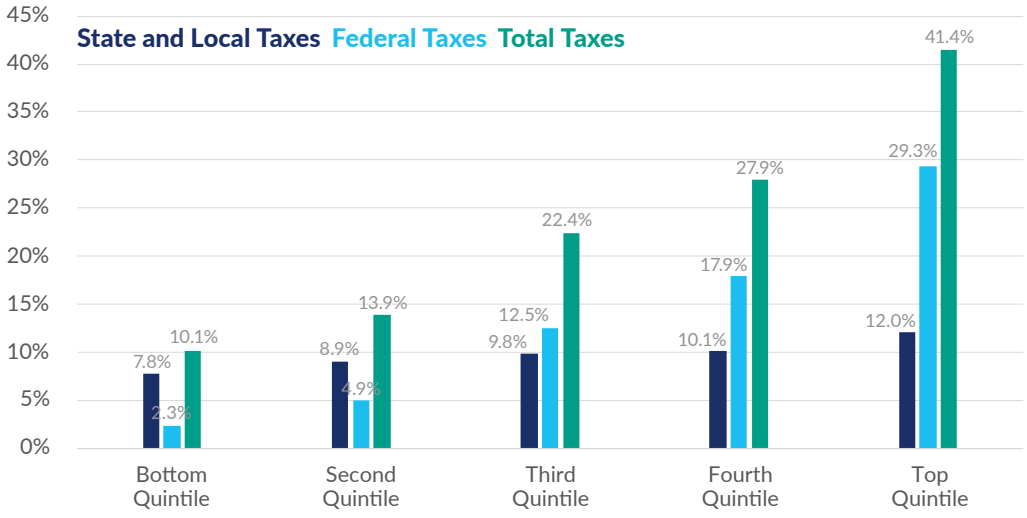
Including income transfer programs presents a more complete picture of how the fiscal system affects households, as illustrated in Figure 4. It becomes clear that all levels of the U.S. tax and transfer system have a progressive impact on taxpayers. After transfers, the top quintile had a combined effective fiscal incidence rate of 41.4 percent compared to 22.4 percent for the middle quintile and 10.1 percent for the bottom quintile.

A careful comparison between Figure 2 and Figure 4 shows the effective fiscal incidence rates of the top and bottom quintiles changed dramatically after transfers. The top quintile's total effective fiscal incidence rate increased by nearly 7 percentage points while the same rate for the bottom quintile fell by 14.5 percentage points. This is because, after accounting for the taxes necessary for redistribution to occur, the transfer system effectively redistributed $1.7 trillion, which dramatically alters the denominator in each quintile.

FIGURE 4.

Progressivity of Households' Tax Burdens Increased at All Levels of Government, after Transfers

Household Effective Federal, State, and Local Fiscal Incidence Rates after Transfers, 2019



Source: Tax Foundation calculations with BEA, SSA, USCB, CMS, and VA data.

The top two quintiles were responsible for the income redistributed to the bottom three quintiles, with the top quintile responsible for funding 90.5 percent ($1.6 trillion). In all, the bottom quintile received $832.5 billion of redistributed income. The second and third quintiles of households received the remaining net transfers.[5]

With transfers included in income, the effective federal and combined fiscal incidence rates for the bottom three quintiles decreased while the rates for the top two quintiles increased relative to the respective pre-transfer rates.

The effective state and local tax rates also become progressive across the income distribution. The effective fiscal incidence rate for the bottom quintile decreased more than 11 percentage points to 7.8 percent. The middle quintile saw a 1 percentage point decrease in its effective rate to 9.9 percent, while the top quintile saw an effective state and local fiscal incidence rate increase of 2 percentage points to 12.1 percent.[6]

When the cost of government transfers was subtracted from gross transfers received, the fiscal incidence of the tax and transfer system becomes even clearer. After accounting for the tax burden to fund transfer programs attributable to transfer income, the bottom quintile came out $32,409 ahead, on average. A household in the middle quintile came out $10,180 ahead, while the average top quintile household paid $60,989 to fund transfer programs.[7]

TABLE 3.

Household Effective Fiscal Incidence Rates before and after Transfers

	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile
Before Transfers					
Effective Fiscal Incidence Rate	24.6%	19.9%	24.7%	26.9%	34.5%
Effective Federal Fiscal Incidence Rate	5.6%	7.1%	13.8%	17.2%	24.4%
Effective State and Local Fiscal Incidence Rate	19.0%	12.8%	10.9%	9.7%	10.1%
After Transfers					
Effective Fiscal Incidence Rate	10.1%	13.9%	22.4%	28.0%	41.4%
Effective Federal Fiscal Incidence Rate	2.3%	4.9%	12.5%	17.9%	29.3%
Effective State and Local Fiscal Incidence Rate	7.8%	8.9%	9.9%	10.1%	12.1%

Source: Tax Foundation calculations with BEA, SSA, USCB, CMS, and VA data.

The effective transfer rates, measured as net transfer amounts divided by comprehensive household income, across the income distribution are also highly progressive. Figure 7 illustrates that 59 percent of comprehensive income for households in the bottom quintile came from government transfers. The share declines sharply across the rest of the income distribution. For the second quintile, 30 percent of comprehensive household income came from net government transfers compared to only 9 percent of income for the middle quintile. Meanwhile, the taxes used to fund transfer programs reduced the top quintile's market-derived income by 16.7 percent, an amount equivalent to 20 percent of its comprehensive household income.

5 Refer to Appendix E, Table 2 for each quintile's share of redistributed market income after taxes.

6 Refer to Appendix C, Table 6 for a detailed account of effective fiscal incidence rates by type of tax for each income quintile after transfers.

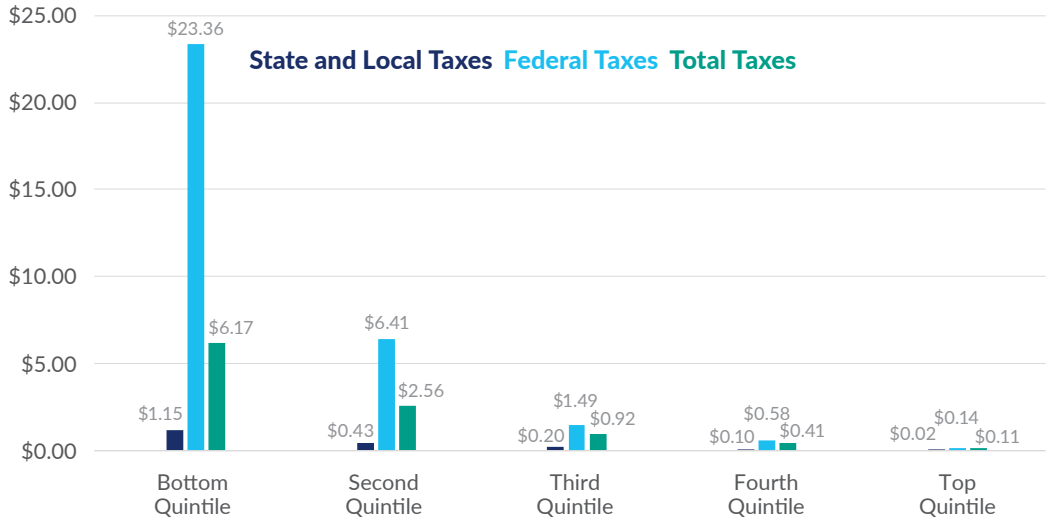
7 Refer to Appendix E, Table 2 for the average net transfer amount per household by quintile.

Put differently, for every dollar borne in taxes, the average household in the bottom 20 percent received $6.17 in gross income transfers, the average household in the middle 20 percent received $0.92, and the top 20 percent received $0.11. In totality, the current tax and transfer system is highly progressive.

FIGURE 5.

Bottom 20 Percent Receives $6.17 for Every Dollar Borne in Taxes, Top 20 Percent Receives $0.11

Government Transfers Received per Dollars Borne in Taxes, 2019



Source: Tax Foundation calculations with BEA, SSA, USCB, CMS, and VA data.

Finally, it is possible to combine these data to calculate an effective fiscal incidence rate as a percentage of pre-tax income. Households in all quintiles benefit from gross government transfers, since some transfer programs, like Social Security and Medicare, are broadly available. However, social spending is concentrated among lower- and middle-income households, while tax burdens are concentrated on higher earners, resulting in a tax-and-transfer system that more than doubles the income of households in the bottom quintile while reducing after-tax and transfer income by 30.7 percent for the top quintile of filers. The middle quintile pays slightly more in taxes than it receives in government transfers.

TABLE 4.

Household Effective Rates of Government Taxes and Transfers, 2019

	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Fifth Quintile
Household Effective Rates of Gov't Taxes and Transfers	-127.0%	-31.0%	2.0%	15.9%	30.7%

Limitations

This study only considered the impact of cash and in-kind transfer programs on effective tax burdens. Other studies, including the 2007 Tax Foundation working paper, considered the effect expenditures on a broader range of public goods had on effective fiscal incidence rates. However, since public goods are by definition nonrivalrous and nonexclusionary they present unique data limitations. It is difficult to derive how much benefit the average household receives from such public goods as national defense, fire protection, or road networks for example. Attempting to derive that value would be a significant undertaking and unlikely to add meaningfully to a household's economic income. As a result, we focused exclusively on government expenditures that took place through the government transfer programs specified earlier.

As mentioned previously, the bottom income quintile likely includes several wealthy households. Aggregating data into quintiles, while a common way of analyzing the income spectrum, can mask important observations that may become apparent at the decile or centile level. This is especially salient in a study of income where wealthy households may end up in the lowest quintile simply because significant financial losses offset the revenue earned that year. Income is not wealth, yet many taxes, particularly property taxes, can be paid out of or reflect a household's accumulation of wealth. Some indications in this study that suggest this may be the case include the number of vehicles owned and the education level attained by the members of households in the lowest income quintile. Examining this quintile in greater detail is an opportunity for future research.

In-kind and cash transfers are important factors to consider in any discussion of household income. Especially among lower-income families, transfers amount to a large share of their comprehensive income. As our study illustrates, a complete measure of federal, state, and local taxes and transfers reveals a highly progressive fiscal system. Though in isolation, certain components of the system, such as state and local taxes, are regressive, a complete accounting of tax and transfer policies shows the final outcome is highly progressive. Leaving transfers out of the picture understates the tax burden on high-income earners, overstates the burden on low-income earners, and fails to inform the policy debate over who should pay and how much.

Conclusion

The importance of accurately defining taxpayers' burdens lies in the implications for the economy and the motivation for the transfer system. Tax policies are often evaluated on their progressivity or regressivity in a vacuum, without an adequate understanding of the broader system in which they operate. When, at times, progressivity is in tension with other goals, including neutrality and an orientation toward economic growth, policymakers deserve to have a proper understanding of the overall progressivity of the tax and transfer system, and the different levers that are used to achieve it, so they can better evaluate if and how to prioritize progressivity in discrete cases.

States compete with each other for residents, jobs, and capital investment, all of which are much more mobile at the subnational than at the international level. To a significant degree, the federal government has long been the primary source of progressivity—through both taxes and transfers—

enabling state governments to pursue other worthy aims through their own tax codes. This does not end the conversation about progressivity in state and local taxes, particularly when a proposal lacks clear benefits along other dimensions. But the overall U.S. tax and transfer system is overwhelmingly progressive, and understanding the extent—and source—of that progressivity is essential for lawmakers considering the trade-offs associated with each tax policy decision.

Appendix A

Methodology and Surveys

Our study relies on two national surveys, the Consumer Expenditure Survey (CEX) and the Current Population Survey (CPS) to determine the income earned, share of taxes paid, and redistribution conducted across the spectrum of income earners.

The CEX is administered by the U.S. Census Bureau and maintained by the Bureau of Labor Statistics. Its purpose is to provide "data on expenditures, income, and demographic characteristics of consumers in the United States." Additionally, the CEX is the "only Federal household survey to provide information on the complete range of consumers' expenditures and income."[8]

The CEX is conducted on a quarterly basis and respondents are asked a series of questions pertaining to the previous three months. Collecting sufficient data for a given calendar year requires the integration of the last three quarters of the year of interest and the first quarter of the following year. We used surveys conducted in the last three quarters of 2019 and the first quarter of 2020.

The CPS is a monthly national survey sponsored jointly by the U.S. Census Bureau and the Bureau of Labor Statistics. Its primary purpose is to collect data pertinent to the labor force, but it also includes supplemental questions that focus on a variety of other social and economic topics.[9] For ease of access and useability, all CPS data was accessed from IPUMS-CPS.[10]

We rely on the CEX as the primary source for estimating the allocation of government transfers and the CPS as the primary source for estimating the allocation of household tax burdens.

We sourced household income data from the CEX and divided the data into five equal parts, or quintiles.[11] We determined the share of each spending and taxation variable attributable to each income quintile by first tabulating how many or how much of the variable of interest each income quintile reported in the respective survey. Then we multiplied the share of each variable by the total revenue (or spending) of the corresponding tax (or transfer) type reported in 2019. Each quintile contains approximately 25,690,200 households. For purposes of determining household estimates, we divided the aggregate estimate for each quintile by 25,690,200.

Income and Taxation Measures

For consistency and comprehensiveness, our study uses income and tax figures sourced from the Bureau of Economic Analysis' National Income and Product Accounts whenever possible.[12] To ensure the most accurate allocation of transfers and taxes, we reference additional sources including

8 See U.S. Bureau of Labor Statistics, "Consumer Expenditure Survey, CE Methods," last updated Sept. 9, 2021, https://www.bls.gov/cex/pumd-getting-started-guide.htm#_edn7.

9 See United States Census Bureau, "Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS)," last updated Oct. 8, 2021, https://www.census.gov/programs-surveys/saipe/guidance/model-input-data/cpsasec.html.

10 Sarah Flood, Miriam King, Renae Rodgers, Steven Ruggles, J. Robert Warren, and Michael Westberry, *Integrated Public Use Microdata Series, Current Population Survey: Version 10.0* (Minneapolis, MN, 2022), https://doi.org/10.18128/D030.V10.0.

11 U.S. Bureau of Labor Statistics, "Consumer Expenditure Surveys: CE Methods, PUMD Data Files," last updated Nov. 8, 2022, https://www.bls.gov/cex/pumd_data.htm#stata.

12 For the full list of NIPA tables referenced, see Appendix B.

the Centers for Medicare and Medicaid Services,[13] the Social Security Administration,[14] and the Department of Veterans Affairs.[15]

To generate a more inclusive estimate of the income households have available to pay for expenses, including taxes, the study relies on comprehensive household income: net national product plus the value of net government income transfers.

Net national product (NNP) is defined as the "market value of goods and services produced by labor and property supplied by U.S. residents, less the value of fixed capital used up in production."[16] Equivalently, NNP is gross national product minus the depreciation of capital assets.

Using NNP ensures an inclusive measurement of market income because it captures the value of all stock-related capital gains which reflect the present value of expected future corporate earnings.[17]

Government income transfers are defined in this study as Medicare; Medicaid; the Child Health Insurance Program; supplemental security income; payments from the social security trust fund, including disability and old age benefits; housing and community services; unemployment income; disability income; veterans' benefits; military pension and disability payments; public housing assistance; and housing subsidies.[18]

To arrive at the comprehensive income numbers, we allocated NNP in 2019 according to how much each quintile reported earning in the CPS. Then, we added transfer payments to each quintile in proportion to the share of government transfers each quintile reported receiving in the CPS. Lastly, to avoid counting income twice (once when earned and again when transferred), we subtracted the value of government transfers from household incomes in proportion to the total tax paid by the respective segment of the income distribution.

Terminology and Concepts

The following terms and concepts are instrumental for interpreting the data in this paper:

Tax Incidence. Our study does not measure who remits tax payments to the government; that is, we do not analyze the legal incidence of who writes the check to pay the tax to the government. Rather, our study measures who is economically affected by taxes; that is, the economic incidence or burden of a tax.

13 Centers for Medicare and Medicaid Services, "Financial Management Report for FY 2019," last updated December 6, 2022, https://www.medicaid.gov/medicaid/financial-management/state-expenditure-reporting-for-medicaid-chip/expenditure-reports-mbescbes/index.html.

14 Social Security Administration, *Annual Statistical Supplement to the Social Security Bulletin, 2020*, last updated Dec. 6, 2022, https://www.ssa.gov/policy/docs/statcomps/supplement/2020/index.html.

15 U.S. Department of Veterans Affairs, "National Center for Veterans Analysis and Statistics: 2019 Expenditures," last updated Dec. 6, 2022, https://www.va.gov/vetdata/expenditures.asp.

16 See Bureau of Economic Analysis, "Net National Product," https://www.bea.gov/help/glossary/net-national-product-nnp.

17 Andrew Chamberlain and Gerald Prante, "Who Pays Taxes and Who Receives Government Spending? An Analysis of Federal, State and Local Tax and Spending Distributions, 1991-2004," Tax Foundation, March 2007.

18 For specific transfer amounts see Appendix C, Table 3.

Who actually bears the burden of a tax depends largely on the price elasticity of demand and the price elasticity of supply. Price elasticity is a relatively complex topic but can be distilled to a consumer or producer's willingness to pay for a good or service in the face of price changes.[19]

Since the share of a tax is a matter of price elasticity, which is a function of prices, the exact share of a tax borne by a producer or consumer can be difficult to determine and can shift over time. Also, determining accurate estimates of price elasticities for every item tracked in the CEX would be extremely challenging (if even possible) due to data limitations. As a rule, discretionary items are more price elastic than necessities. However, some seemingly discretionary items are also addictive or habit-forming, which leads otherwise elastic prices to become price inelastic. Therefore, this study does not rely directly on elasticity estimates for tax allocation. Instead, we rely primarily on accepted economic theory, including that of price elasticity, to allocate tax incidence for various goods and services across the factors of production.[20]

For the purposes of our estimates, we use the following assumptions about how the tax burden affects people in the economy. Individual income taxes and social insurance taxes fall entirely on respective earners. The majority of consumption taxes and many excise taxes fall on consumers. Business-related taxes fall 50 percent on labor and 50 percent on capital under the assumption that businesses are able to shift much of their taxation to labor and consumers in the form of fewer jobs, lower wages, or higher prices for finished goods and services. Other taxes, like severance taxes and motor fuel taxes, fall partly on consumers and partly on owners of capital. We outline the tax incidence theory and statistical allocator of revenue for each tax type in Appendix C, Tables 1 and 2.

Net national product (NNP) is defined as the "market value of goods and services produced by labor and property supplied by U.S. residents, less the value of fixed capital used up in production."[21] Equivalently, NNP is gross national product minus the depreciation of capital assets.

Net government income transfer is the difference remaining after subtracting the cost of taxes, or program funding cost (PFC), attributable to each quintile (q) from gross government transfer payments (GTP).

Comprehensive household income (CHI) is the sum of a household's market-derived income, or its portion of net national product, plus the amount of cash or in-kind income the household receives in net government income transfers

$$CHI = NNP_h + (GTP_h - PFC_h)$$

19 Price elasticity relates the percentage change in quantity demanded (or supplied) to the percentage change in price. If a good is price inelastic, then a 10 percent increase in price would result in a less than 10 percent decrease in the quantity of goods purchased. A good is price elastic when a 10 percent increase in price results in a greater than 10 percent decrease in the quantity of goods purchased. A good is unit elastic if a 10 percent increase in price would result in a 10 percent decrease in the quantity of goods purchased. Elasticity is thus a function of a consumer's (or a producer's) willingness to pay for a good or service (or business input) and can be affected by such things as necessity, preference, or substitutability. If the price elasticity of supply is greater than the price elasticity of demand, the consumer will bear a greater share of the tax than the producer. Conversely, if the price elasticity of demand is greater than the price elasticity of supply, the producer will bear more of the tax. The ability of a producer to pass on a tax to a consumer and the willingness of the consumer to bear a tax is thus a function of overall price competitiveness, the preferences of individual consumers, and the availability of suitable substitutes.

20 Factors of production include land, labor, and capital. (Some also include entrepreneurship as a factor of production.)

21 See Bureau of Economic Analysis, "Net National Product," https://www.bea.gov/help/glossary/net-national-product-nnp.

Effective fiscal incidence rate [or the effective tax burden] (EFI) refers to a group's estimated tax burden relative to that group's comprehensive household income

$$EFI = \frac{est\ tax\ burden}{CHI}$$

Importantly, while the concepts are related, an effective fiscal incidence rate is not the same as an effective tax rate. An ***effective tax rate*** should be understood as the total amount of tax a party pays as a share of that party's total market-derived income. An effective fiscal incidence rate is the amount of tax a party is estimated to bear—directly and indirectly—relative to the party's comprehensive income—market-derived and net transfer program income.

Appendix B

U.S. Bureau of Economic Analysis, National Income and Product Accounts, Referenced Sept. 30, 2022

Table	Name	Reference Link
1.7.5	"Relation of Gross Domestic Product, Gross National Product, Net National Product, National Income, and Personal Income"	https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbImNhdGVnb3JpZXMiLCJTdXJ2ZXkiXSxbIk5JUEFfVGFibGVfTGlzdCIsIjQzIl0sWyJGaXJzdF9ZZWFyIiwiMjAxOSJdLFsiTGFzdF9ZZWFyIiwiMjAxOSJdLFsiU2NhbGUiLCItOSJdLFsiU2VyaWVzIiwiQSJdXX0=
2.1	"Personal Income and Its Disposition"	https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbImNhdGVnb3JpZXMiLCJTdXJ2ZXkiXSxbIk5JUEFfVGFibGVfTGlzdCIsIjU4Il0sWyJGaXJzdF9ZZWFyIiwiMjAxOSJdLFsiTGFzdF9ZZWFyIiwiMjAxOSJdLFsiU2NhbGUiLCItOSJdLFsiU2VyaWVzIiwiQSJdXX0=.
3.2	"Federal Government Current Receipts and Expenditures"	https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbImNhdGVnb3JpZXMiLCJTdXJ2ZXkiXSxbIk5JUEFfVGFibGVfTGlzdCIsIjg3Il0sWyJGaXJzdF9ZZWFyIiwiMjAxOSJdLFsiTGFzdF9ZZWFyIiwiMjAxOSJdLFsiU2NhbGUiLCItOSJdLFsiU2VyaWVzIiwiQSJdXX0=
3.3	"State and Local Government Current Receipts and Expenditures"	https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbImNhdGVnb3JpZXMiLCJTdXJ2ZXkiXSxbIk5JUEFfVGFibGVfTGlzdCIsIjg4Il0sWyJGaXJzdF9ZZWFyIiwiMjAxOSJdLFsiTGFzdF9ZZWFyIiwiMjAxOSJdLFsiU2NhbGUiLCItOSJdLFsiU2VyaWVzIiwiQSJdXX0=
3.4	"Personal Current Tax Receipts"	https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbImNhdGVnb3JpZXMiLCJTdXJ2ZXkiXSxbIk5JUEFfVGFibGVfTGlzdCIsIjg5Il0sWyJGaXJzdF9ZZWFyIiwiMjAxOSJdLFsiTGFzdF9ZZWFyIiwiMjAxOSJdLFsiU2NhbGUiLCItOSJdLFsiU2VyaWVzIiwiQSJdXX0=
3.5	"Taxes on Production and Imports"	https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbImNhdGVnb3JpZXMiLCJTdXJ2ZXkiXSxbIk5JUEFfVGFibGVfTGlzdCIsIjkwIl0sWyJGaXJzdF9ZZWFyIiwiMjAxOSJdLFsiTGFzdF9ZZWFyIiwiMjAxOSJdLFsiU2NhbGUiLCItOSJdLFsiU2VyaWVzIiwiQSJdXX0=
3.12	"Government Social Benefits"	https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbImNhdGVnb3JpZXMiLCJTdXJ2ZXkiXSxbIk5JUEFfVGFibGVfTGlzdCIsIjExMCJdLFsiRmlyc3RfWWVhciIsIjIwMTkiXSxbIkxhc3RfWWVhciIsIjIwMTkiXSxbIlNjYWxlIiwiLTkiXSxbIlNlcmllcyIsIkEiXV19
3.17	"Selected Government Current and Capital Expenditures by Function"	https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbImNhdGVnb3JpZXMiLCJTdXJ2ZXkiXSxbIk5JUEFfVGFibGVfTGlzdCIsIjEyMCJdLFsiRmlyc3RfWWVhciIsIjIwMTkiXSxbIkxhc3RfWWVhciIsIjIwMTkiXSxbIlNjYWxlIiwiLTkiXSxbIlNlcmllcyIsIkEiXV19
5.11	"Capital Transfers Paid and Received, by Sector and Type"	https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbImNhdGVnb3JpZXMiLCJTdXJ2ZXkiXSxbIk5JUEFfVGFibGVfTGlzdCIsIjM0MyJdLFsiRmlyc3RfWWVhciIsIjIwMTkiXSxbIkxhc3RfWWVhciIsIjIwMTkiXSxbIlNjYWxlIiwiLTkiXSxbIlNlcmllcyIsIkEiXV19

Appendix C

APPENDIX C TABLE 1.

Federal Taxes, Incidence Assumptions, and Statistical Allocators

Federal Taxes	Incidence Assumptions	Statistical Allocator
Individual Income Taxes	Falls entirely on individual income earners	100% federal income tax liability, After Credits [CEX: ftaxo_py]
Contributions for Government Social Insurance	Falls entirely on labor	100% FICA taxes
Corporate Income Taxes	Falls 50% on labor, 50% on capital	100% business tax allocator (50% on wages/salaries; 50% on owners of capital) [CEX: fsalarym, stockx]
Federal Excise Taxes—Gasoline	Falls 50% on gasoline consumers, 50% on same allocation as corporate income tax	50% "Gas and Oil" [CEX: gasmopq]; 50% business tax allocator [CEX: fsalarym, stockx]
Federal Excise Taxes—Alcoholic Beverages	Falls on consumers of alcoholic beverages	100% "Alcoholic Beverages" [CEX: alcbevpq]
Federal Excise Taxes—Tobacco	Falls on consumers of tobacco products	100% "Tobacco and Smoking Related Products" [CEX: tobaccpq]
Federal Excise Taxes—Diesel Fuel	Falls on same allocation as corporate income tax	100% business tax allocator [CEX: fsalarym, stockx]
Federal Excise Taxes—Air Transport	Falls half on consumers of airport services and half on same allocation as corporate income tax	50% Airline Transportation Expenditures [CEX: tairfarc]; 50% business tax allocator [CEX: fsalarym, stockx]
Federal Excise Taxes—All Other Excises	Falls on consumers in proportion to their total consumption expenditures	100% "Total Expenditures" [CEX: totexppq]
Federal Customs Duties, etc.	Falls on consumers in proportion to their total consumption expenditures	100% "Total Expenditures" [CEX: totexppq]
Estate and Gift Taxes	Falls on members of highest income group	Top 1% of household income

Source: Tax Foundation.

APPENDIX C TABLE 2.

State and Local Taxes, Incidence Assumptions, and Statistical Allocators

State and Local Taxes	Incidence Assumptions	Statistical Allocator
Individual Income Taxes	Falls on individual income earners	100% state income tax liability [CPS: stataxac]
Corporate Income Taxes	Falls 50% on labor, 50% on capital	100% business tax allocator (50% on wages/salaries; 50% on owners of capital) [CEX: fsalarym, stockx]
Personal Property Taxes	Falls on payers of tangible personal property taxes	100% "Other personal taxes" [CEX: proptxpq]
Personal Motor Vehicle Licenses	Falls on owners of automobiles	100% "Number of vehicles in consumer unit" [CEX: vehq]
Other State and Local Property Taxes	Falls proportional to total household money income	100% household income [CEX: hhincomerep (constructed)]
General Sales Taxes	Falls on consumers in proportion to expenditures on taxable goods and services	100% "Taxable General Sales" [CEX: 'totexppq' less 'fdhomepq'; 'houspq' less 'othlodpq'; 'utilpq'; 'gasmopq'; 'trnothpq'; 'healthpq'; 'educapq'; 'cashcopq'; 'perinspq'
Gasoline Excise Taxes	Falls 50% on gasoline consumers, 50% on same allocation as corporate income tax	50% "Gas and Oil" [CEX: gasmopq]; 50% business tax allocator [CEX: fsalarym, stockx]
Alcoholic Beverages Excise Taxes	Falls on consumes of alcoholic beverages	100% "Alcoholic Beverages" [CEX: alcbevpq]
Tobacco Excise Taxes	Falls on consumers of tobacco products	100% "Tobacco and Smoking Related Products" [CEX: tobaccpq]
Public Utilities Taxes	Falls on consumers of public utility services	100% "Utilities, Fuels, and Public Servcies" [CEX: utilpq]
Insurance Receipts Taxes	Falls on consumers of insurance services	100% insurance expenditures allocator [CEX: 'vehinspq', 'mrpinspq', 'lifinspq', 'hlthinpq']
Other Selective Sales Taxes	Falls on consumers in proportion to their total consumption expenditures	100% "Total Expenditures" [CEX: totexppq]
Motor Vehicle Licenses on Productions and Imports	Follows same allocation as corporate income tax	100% business tax allocator (70% on wages/salaries; 30% on owners of capital) [CEX: fsalarym, stockx]
Severance Taxes	Falls 50% on consumers of energy, 50% on same incidence as corporate income tax	50% energy allocator [CEX: 'ntlgaspq'; 'elctrcpq', 'fuloilpq', 'othflspq', 'gasmopq']; 50% business tax allocator [CEX: fsalarym, stockx]
Property Taxes	Falls 50% on individual homeowners and renters, 50% on same allocation as corporate income tax	50% housing expenditures [CEX: houspq]; 50% business tax allocator [CEX: fsalarym, stockx]
Special Assessments Taxes	Falls 50% on individual homeowners and renters, 50% on same allocation as corporate income tax	50% housing expenditures [CEX: houspq]; 50% business tax allocator [CEX: fsalarym, stockx]
Other Taxes on Production and Imports	Follows same allocation as corporate income tax	100% business tax allocator [CEX: fsalarym, stockx]
Estate and Gift Taxes	Falls on members of highest income group	Top 1 percent of household income

APPENDIX C TABLE 3.

Government Spending Classified as Transfer Payments, Calendar Year 2019

Item	Calendar Year 2019 Amount
Federal	
Housing and Community Services	$16,800,000,000
Housing Assistance[1]	$16,800,000,000
Health	$1,251,100,000,000
Medicaid	$386,200,000,000
Medicare	$787,100,000,000
Veteran's Health Benefits and Services	$77,800,000,000
Income Security	$1,426,200,000,000
Disability	$150,800,000,000
Retirement	$1,005,500,000,000
Welfare and Social Services[2]	$194,700,000,000
Other[3]	$75,200,000,000
Total Federal	**$2,694,100,000,000**
State and Local	
Health	$211,761,600,000
Medicaid	$211,200,000,000
CHIP	$561,600,000
Income Security	$115,300,000,000
Benefits from Social Insurance Funds[4]	$16,400,000,000
Welfare and Social Services[5]	$71,700,000,000
Unemployment	$27,200,000,000
Total State and Local	**$327,061,600,000**
Total Federal, State, and Local Transfers	**$3,021,161,600,000**

1 Composed of Government Social Benefits and Grants in Aid to State and Local Governments

2 Composed of Supplemental Nutrition Assistance Program, supplemental security income, and grants in aid to state and local governments for welfare and social services

3 For composition see note 7 on NIPA Table 3.12; also composed of grants in aid to state and local governments for unemployment and other income security

4 Composed of temporary disability insurance and workers' compensation

5 Composed of family assistance; supplemental security income; general assistance; energy assistance; expenditures for food under supplemental program for women, infants, and children; foster care; adoption assistance; and payments to nonprofit welfare institutions

APPENDIX C TABLE 4.

Average Dollar Tax Burden by Type of Tax per Household, Calendar Year 2019

	Quintiles of Household Income				
	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile
Total Tax Burden	**$5,524**	**$11,386**	**$24,451**	**$44,580**	**$125,748**
Federal Taxes					
Income	-$214	-$767	$3,850	$11,197	$52,178
Payroll	$621	$3,404	$7,919	$14,353	$28,557
Corporate Income	$297	$626	$838	$1,484	$4,949
Gasoline	$61	$111	$159	$230	$451
Alcoholic Beverages	$29	$43	$63	$90	$153
Tobacco	$85	$92	$107	$110	$61
Diesel Fuel	$14	$30	$40	$71	$235
Air Transport	$32	$60	$88	$153	$469
Other Excise	$51	$72	$96	$130	$215
Customs Duties, Etc.	$273	$384	$518	$697	$1,156
Estate & Gift	$0	$0	$0	$0	$631
Total Federal Taxes per Household	**$1,248**	**$4,053**	**$13,678**	**$28,516**	**$89,055**
State and Local Taxes					
Property Taxes (Real)	$1,677	$2,494	$3,157	$4,592	$10,928
General Sales and Gross Receipts Taxes	$1,203	$1,894	$2,977	$4,136	$7,158
Individual Income Taxes	$161	$1,020	$2,154	$3,805	$10,677
Other Taxes on Production and Imports	$100	$211	$283	$501	$1,671
Corporate Income Taxes	$103	$218	$292	$518	$1,726
Gasoline Excise Taxes	$134	$233	$309	$438	$930
Other Excise Taxes	$288	$405	$546	$735	$1,218
Public Utilities Taxes	$133	$180	$210	$245	$314
Insurance Receipts Taxes	$104	$147	$180	$222	$347
Personal Motor Vehicle License Taxes	$86	$135	$169	$199	$240
Tobacco Excise Taxes	$135	$145	$168	$174	$97
Motor Vehicle Licenses on Production & Imports	$17	$36	$49	$86	$287
Severance Taxes	$40	$64	$74	$105	$243
Special Assessments Taxes	$32	$48	$61	$88	$210
Personal Property Taxes	$31	$47	$59	$88	$183
Estate and Gift Taxes	$0	$0	$0	$0	$206
Alcoholic Beverages Excise Taxes	$21	$32	$47	$67	$114
Other Personal Taxes	$8	$24	$38	$63	$143
Total State and Local Taxes Per Household by Quintile	**$4,275**	**$7,332**	**$10,773**	**$16,064**	**$36,693**

Source: Tax Foundation calculations from Bureau of Economic Analysis reports.

APPENDIX C TABLE 5

Effective Total, Federal, State, and Local Fiscal Incidence Rates by Type of Tax before Transfers, 2019

	Deciles of Household Income				
	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile
Total Tax Burden	**24.6%**	**19.9%**	**24.7%**	**26.9%**	**34.5%**
Federal Taxes					
Income	-1.0%	-1.3%	3.9%	6.8%	14.3%
Payroll	2.8%	5.9%	8.0%	8.7%	7.8%
Corporate Income	1.3%	1.1%	0.8%	0.9%	1.4%
Gasoline	0.3%	0.2%	0.2%	0.1%	0.1%
Alcoholic Beverages	0.1%	0.1%	0.1%	0.1%	0.0%
Tobacco	0.4%	0.2%	0.1%	0.1%	0.0%
Diesel Fuel	0.1%	0.1%	0.0%	0.0%	0.1%
Air Transport	0.1%	0.1%	0.1%	0.1%	0.1%
Other Excise	0.2%	0.1%	0.1%	0.1%	0.1%
Customs Duties, etc.	1.2%	0.7%	0.5%	0.4%	0.3%
Estate & Gift	0.0%	0.0%	0.0%	0.0%	0.2%
Total Federal Taxes	**5.6%**	**7.1%**	**13.8%**	**17.2%**	**24.4%**
State and Local Taxes					
Property Taxes (Real)	7.5%	4.4%	3.2%	2.8%	3.0%
General Sales and Gross Receipts Taxes	5.3%	3.3%	3.0%	2.5%	2.0%
Individual Income Taxes	0.7%	1.8%	2.2%	2.3%	2.9%
Other Taxes on Production and Imports	0.4%	0.4%	0.3%	0.3%	0.5%
Corporate Income Taxes	0.5%	0.4%	0.3%	0.3%	0.5%
Gasoline Excise Taxes	0.6%	0.4%	0.3%	0.3%	0.3%
Other Excise Taxes	1.3%	0.7%	0.6%	0.4%	0.3%
Public Utilities Taxes	0.6%	0.3%	0.2%	0.1%	0.1%
Insurance Receipts Taxes	0.5%	0.3%	0.2%	0.1%	0.1%
Personal Motor Vehicle License Taxes	0.4%	0.2%	0.2%	0.1%	0.1%
Tobacco Excise Taxes	0.6%	0.3%	0.2%	0.1%	0.0%
Motor Vehicle Licenses on Production & Imports	0.1%	0.1%	0.0%	0.1%	0.1%
Severance Taxes	0.2%	0.1%	0.1%	0.1%	0.1%
Special Assessments Taxes	0.1%	0.1%	0.1%	0.1%	0.1%
Personal Property Taxes	0.1%	0.1%	0.1%	0.1%	0.1%
Estate and Gift Taxes	0.0%	0.0%	0.0%	0.0%	0.1%
Alcoholic Beverages Excise Taxes	0.1%	0.1%	0.0%	0.0%	0.0%
Other Personal Taxes	0.0%	0.0%	0.0%	0.0%	0.0%
Total State and Local Taxes	**19.0%**	**12.8%**	**10.9%**	**9.7%**	**10.1%**

Sources: U.S. Census Bureau; Bureau of Economic Analysis; Tax Foundation calculations.

APPENDIX C TABLE 6.

Effective Total, Federal, State, and Local Fiscal Incidence Rates by Type of Tax after Transfers, 2019

	Deciles of Household Income				
	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile
Total Tax Burden	**10.1%**	**13.9%**	**22.4%**	**28.0%**	**41.4%**
Federal Taxes					
Income	-0.4%	-0.9%	3.5%	7.0%	17.2%
Payroll	1.1%	4.1%	7.2%	9.0%	9.4%
Corporate Income	0.5%	0.8%	0.8%	0.9%	1.6%
Gasoline	0.1%	0.1%	0.1%	0.1%	0.1%
Alcoholic Beverages	0.1%	0.1%	0.1%	0.1%	0.1%
Tobacco	0.2%	0.1%	0.1%	0.1%	0.0%
Diesel Fuel	0.0%	0.1%	0.1%	0.1%	0.1%
Air Transport	0.1%	0.1%	0.1%	0.1%	0.2%
Other Excise	0.1%	0.1%	0.1%	0.1%	0.1%
Customs Duties, etc.	0.5%	0.5%	0.5%	0.4%	0.4%
Estate & Gift	0.0%	0.0%	0.0%	0.0%	0.2%
Total Federal Taxes	**2.3%**	**4.9%**	**12.5%**	**17.9%**	**29.3%**
State and Local Taxes					
Property Taxes (Real)	3.1%	3.0%	2.9%	2.9%	3.6%
General Sales and Gross Receipts Taxes	2.2%	2.3%	2.7%	2.6%	2.4%
Individual Income Taxes	0.3%	1.2%	2.0%	2.4%	3.5%
Other Taxes on Production and Imports	0.2%	0.3%	0.3%	0.3%	0.6%
Corporate Income Taxes	0.2%	0.3%	0.3%	0.3%	0.6%
Gasoline Excise Taxes	0.2%	0.3%	0.3%	0.3%	0.3%
Other Excise Taxes	0.5%	0.5%	0.5%	0.5%	0.4%
Public Utilities Taxes	0.2%	0.2%	0.2%	0.2%	0.1%
Insurance Receipts Taxes	0.2%	0.2%	0.2%	0.1%	0.1%
Personal Motor Vehicle License Taxes	0.2%	0.2%	0.2%	0.1%	0.1%
Tobacco Excise Taxes	0.2%	0.2%	0.2%	0.1%	0.0%
Motor Vehicle Licenses on Production & Imports	0.0%	0.0%	0.0%	0.1%	0.1%
Severance Taxes	0.1%	0.1%	0.1%	0.1%	0.1%
Special Assessments Taxes	0.1%	0.1%	0.1%	0.1%	0.1%
Personal Property Taxes	0.1%	0.1%	0.1%	0.1%	0.1%
Estate and Gift Taxes	0.0%	0.0%	0.0%	0.0%	0.1%
Alcoholic Beverages Excise Taxes	0.0%	0.0%	0.0%	0.0%	0.0%
Other Personal Taxes	0.0%	0.0%	0.0%	0.0%	0.0%
Total State and Local Taxes	**7.8%**	**8.9%**	**9.9%**	**10.1%**	**12.1%**

Source: Tax Foundation calculations with BEA, SSA, USCB, CMS, and VA data.

APPENDIX C TABLE 7.

Federal, State, and Local Tax Share by Type of Tax, Calendar Year 2019

	Quintiles of Household Income					
	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile	Total
Total Tax Burden	**2.5%**	**5.3%**	**11.7%**	**21.4%**	**59.1%**	**100%**
Federal Taxes						
Individual Income Taxes	-0.3%	-1.2%	5.8%	16.9%	78.8%	100%
Payroll Taxes	1.1%	6.2%	14.4%	26.2%	52.1%	100%
Corporate Income Taxes	2.9%	6.9%	11.6%	20.7%	57.9%	100%
Gasoline Excise Tax	6.2%	11.0%	15.8%	22.7%	44.3%	100%
Alcoholic Beverages Excise Tax	7.6%	11.3%	16.7%	23.9%	40.6%	100%
Tobacco Excise Tax	18.8%	20.1%	23.4%	24.2%	13.5%	100%
Diesel Fuel Excise Tax	2.9%	6.9%	11.6%	20.7%	57.9%	100%
Air Transport Excise Tax	3.6%	7.2%	11.6%	20.4%	57.2%	100%
Other Excise Tax	9.0%	12.7%	17.1%	23.0%	38.2%	100%
Customs Duties, etc.	9.0%	12.7%	17.1%	23.0%	38.2%	100%
Estate & Gift Taxes	0.0%	0.0%	0.0%	0.0%	100.0%	100%
Total Federal Taxes	**0.9%**	**2.9%**	**10.1%**	**21.1%**	**65.1%**	**100%**
State and Local Taxes						
Property Taxes (Real)	7.0%	10.6%	14.5%	21.4%	46.6%	100%
General Sales and Gross Receipts Taxes	6.9%	10.9%	17.1%	23.8%	41.2%	100%
Individual Income Taxes	0.9%	5.7%	12.1%	21.4%	59.9%	100%
Other Taxes on Production and Imports	2.9%	6.9%	11.6%	20.7%	57.9%	100%
Corporate Income Taxes	2.9%	6.9%	11.6%	20.7%	57.9%	100%
Gasoline Excise Taxes	6.2%	11.0%	15.8%	22.7%	44.3%	100%
Other Excise Taxes	9.0%	12.7%	17.1%	23.0%	38.2%	100%
Public Utilities Taxes	12.3%	16.6%	19.4%	22.7%	29.0%	100%
Insurance Receipts Taxes	10.4%	14.7%	17.9%	22.2%	34.7%	100%
Personal Motor Vehicle License Taxes	10.4%	16.3%	20.4%	24.0%	28.9%	100%
Tobacco Excise Taxes	18.8%	20.1%	23.4%	24.2%	13.5%	100%
Motor Vehicle Licenses on Production & Imports	2.9%	6.9%	11.6%	20.7%	57.9%	100%
Severance Taxes	7.2%	11.8%	14.7%	21.3%	45.0%	100%
Special Assessments Taxes	7.0%	10.6%	14.5%	21.4%	46.6%	100%
Personal Property Taxes	7.6%	11.5%	14.4%	21.6%	44.8%	100%
Estate and Gift Taxes	0.0%	0.0%	0.0%	0.0%	100.0%	100%
Alcoholic Beverages Excise Taxes	7.6%	11.3%	16.7%	23.9%	40.6%	100%
Other Personal Taxes	3.1%	8.5%	13.9%	22.7%	51.9%	100%
Total State and Local Taxes	**5.5%**	**9.6%**	**14.7%**	**22.0%**	**48.2%**	**100%**

Source: U.S. Census Bureau; Bureau of Economic Analysis; Tax Foundation calculations.

APPENDIX C TABLE 8.

Percentage of Each Quintile's Total Tax Burden by Type of Tax by Level of Government, 2019

	Quintiles of Household Income				
	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile
Federal Taxes					
Individual Income Taxes	-17.2%	-18.9%	28.1%	39.3%	58.6%
Payroll Taxes	49.7%	84.0%	57.9%	50.3%	32.1%
Corporate Income Taxes	23.8%	15.4%	6.1%	5.2%	5.6%
Gasoline Excise Taxes	4.9%	2.7%	1.2%	0.8%	0.5%
Alcoholic Beverages Excise Taxes	2.3%	1.1%	0.5%	0.3%	0.2%
Tobacco Excise Taxes	6.8%	2.3%	0.8%	0.4%	0.1%
Diesel Fuel Excise Taxes	1.1%	0.7%	0.3%	0.2%	0.3%
Air Transport Excise Taxes	2.5%	1.5%	0.6%	0.5%	0.5%
Other Excise Taxes	4.1%	1.8%	0.7%	0.5%	0.2%
Customs Duties, etc.	21.9%	9.5%	3.8%	2.4%	1.3%
Estate & Gift Taxes	0.0%	0.0%	0.0%	0.0%	0.7%
Total Federal Taxes	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
State and Local Taxes					
Property Taxes (Real)	39.2%	34.0%	29.3%	28.6%	29.8%
General Sales and Gross Receipts Taxes	28.1%	25.8%	27.6%	25.7%	19.5%
Individual Income Taxes	3.8%	13.9%	20.0%	23.7%	29.1%
Other Taxes on Production and Imports	2.3%	2.9%	2.6%	3.1%	4.6%
Corporate Income Taxes	2.4%	3.0%	2.7%	3.2%	4.7%
Gasoline Excise Taxes	3.1%	3.2%	2.9%	2.7%	2.5%
Other Excise Taxes	6.7%	5.5%	5.1%	4.6%	3.3%
Public Utilities Taxes	3.1%	2.5%	1.9%	1.5%	0.9%
Insurance Receipts Taxes	2.4%	2.0%	1.7%	1.4%	0.9%
Personal Motor Vehicle License Taxes	2.0%	1.8%	1.6%	1.2%	0.7%
Tobacco Excise Taxes	3.2%	2.0%	1.6%	1.1%	0.3%
Motor Vehicle Licenses on Production & Imports	0.4%	0.5%	0.5%	0.5%	0.8%
Severance Taxes	0.9%	0.9%	0.7%	0.7%	0.7%
Special Assessments Taxes	0.8%	0.7%	0.6%	0.6%	0.6%
Personal Property Taxes	0.7%	0.6%	0.5%	0.6%	0.5%
Estate and Gift Taxes	0.0%	0.0%	0.0%	0.0%	0.6%
Alcoholic Beverages Excise Taxes	0.5%	0.4%	0.4%	0.4%	0.3%
Other Personal Taxes	0.2%	0.3%	0.4%	0.4%	0.4%
Total State and Local Taxes	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: U.S. Census Bureau; Bureau of Economic Analysis; Tax Foundation calculations.

APPENDIX C TABLE 9.

Household Effective Rates of Government Taxes and Transfers

	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Fifth Quintile
Transfers as Share of Market Income	151.6%	50.9%	22.7%	11.0%	3.7%
Effective Rate of Taxes and Transfers	-127.0%	-31.0%	2.0%	15.9%	30.7%

Source: U.S. Census Bureau; Bureau of Economic Analysis; Tax Foundation calculations.

Appendix D

Income Quintile Thresholds

Bottom Quintile	$0 - $25,555
Second Quintile	$25,556 - $50,000
Third Quintile	$50,001 – $79,526
Fourth Quintile	$79,527 – $130,000
Top Quintile	$130,001 +

Source: U.S. Census Bureau Current Population Survey.

Appendix E

APPENDIX E TABLE 1.

Federal, State, and Local Taxes Allocated in the Current Study, Calendar Year 2019

	Calendar Year 2019 Amount (Billions of Dollars)	NIPA Source
Federal Taxes		
Payroll Taxes (Contributions for Government Social Insurance)	1,409.2	Table 3.2 Line 10
Individual Income Taxes	1,701.8	Table 3.4 Line 3
Corporate Income Taxes	210.5	Table 3.2 Line 8
Estate and Gift Taxes	16.2	Table 5.11 Line 19
Gasoline Excise Taxes	26.0	Table 3.5 Line 5
Customs Duties, Etc.	77.8	Table 3.5 Line 15
Air Transport Excise Taxes	20.6	Table 3.5 Line 9
Other Excise Taxes	14.5	Table 3.5 Line 14
Diesel Fuel Excise Taxes	10.0	Table 3.5 Line 8
Alcoholic Beverages Excise Taxes	9.7	Table 3.5 Line 6
Tobacco Excise Taxes	11.7	Table 3.5 Line 7
Total Federal Taxes	**3,508.0**	
State and Local Taxes		
Property Taxes (Real)	645.5	Table 3.5 Line 38
General Sales and Gross Receipts Taxes	499.5	Table 3.5 Lines 21 & 22
Individual Income Taxes	512.2	Table 3.4 Line 9
Other Taxes on Production and Imports	82.6	Table 3.5 Lines 36, 41, & 42
Corporate Income Taxes	95.8	Table 3.3 Line 11
Gasoline Excise Taxes	51.9	Table 3.5 Line 25
Other Excise Taxes	89.2	Table 3.5 Lines 30 & 33
Public Utilities Taxes	28.0	Table 3.5 Lines 28 & 32
Insurance Receipts Taxes	28.2	Table 3.5 Line 29
Personal Motor Vehicle License Taxes	22.5	Table 3.4 Line 10
Tobacco Excise Taxes	19.0	Table 3.5 Line 27
Motor Vehicle Licenses on Production & Imports	12.7	Table 3.5 Line 40
Severance Taxes	13.5	Table 3.5 Line 34
Special Assessments Taxes	11.2	Table 3.5 Line 39
Personal Property Taxes	11.5	Table 3.4 Line 11
Estate and Gift Taxes	7.2	Table 5.11 Line 20
Alcoholic Beverages Excise Taxes	7.7	Table 3.5 Line 26
Other Personal Taxes	7.8	Table 3.4 Line 12
Total State and Local Taxes	**2,146.0**	

Source: Bureau of Economic Analysis: National Income and Product Accounts.

APPENDIX E TABLE 2.

Gross Transfers Amounts, Share of Redistributed Market Income, and Net Government Transfers by Quintile, Calendar Year 2019

	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Fifth Quintile
Total Amount of Gross Transfers Received (Billions)	$875.8	$748.4	$578.3	$468.8	$349.9
Total Amount of Gross Federal Transfers Received (Billions)	$749.1	$667.1	$522.6	$427.2	$328.1
Total Amount of Gross State and Local Transfers Received (Billions)	$126.7	$81.3	$55.7	$41.5	$21.8
Share of Redistributed Market Income	48.1%	36.8%	15.1%	-9.5%	-90.5%
Government Transfers Received Less Taxes Paid per Household	$32,409	$24,775	$10,180	-$6,375	-$60,989

Source: Tax Foundation calculations with BEA, SSA, USCB, CMS, and VA data.