changes to the AMT. Before the 2001–2004 legislation, only 14% of taxpayers were slated to pay the AMT in 2010; after the legislation was passed, that number had risen to 31%. Furthermore, the recent tax cuts will more than double the share of AGI subject to the AMT in 2010 from 22% to 50%. Repealing the AMT would cost more than $800 billion over the next decade (2007–2018) in lost revenues if the 2001 tax cuts are allowed to expire as scheduled in 2010; if the tax cuts are extended, the AMT repeal would cost about $1.5 trillion over the next decade. As of this writing, neither political party has been willing to shoulder the responsibility for addressing this problem.7

18.3

Measuring the Fairness of Tax Systems

In March 1990, rioters in London set fire to parked Jaguars and Porsches, smashed store windows, destroyed a Renault showroom, and ultimately caused the injury of over 400 people and the arrest of nearly 350 people. The cause of the riot was a tax reform proposal by British Prime Minister Margaret Thatcher’s government. Thatcher had proposed to replace the system of property taxes (based on real estate value) with a poll tax, a flat charge levied equally on all individuals, regardless whether they were rich, poor, or somewhere in between. The proposal provoked enormous outrage because the tax burden was being shifted away from wealthy citizens owning valuable property and onto poorer citizens, who didn’t previously pay property taxes but would now have to pay the poll tax. Because of the poll tax’s unpopularity, Thatcher was eventually ousted as leader of the Conservative Party and the proposal was quickly abandoned. Thatcher may have gotten off easily: the last attempt to impose such a tax in England, in 1381, led to the beheading of several prominent citizens.8

As this example illustrates, tax fairness is an important concern to citizens worldwide. Yet fairness is an elusive goal: what is a fair tax system to me may seem unfair to you. To carry out the evaluation of a tax system’s fairness requires a particular concept of fairness, or equity, and a means of measuring how a tax system redistributes income to make the distribution more equitable. This section defines the common concepts that are used to measure fairness and the statistics that are used to assess whether tax systems meet those fairness goals. But we must first define some important terms that are used to measure the distributional nature of tax systems.

Average and Marginal Tax Rates

Two key concepts describe the set of tax rates on income. The first is the marginal tax rate, the percentage of the next dollar of taxable income that is paid in taxes. With a system such as that in the United States, the marginal tax rate...
rate rises with income; for those with taxable income below $16,700, the marginal tax rate is 10%, but for those with taxable income above $372,950 the marginal tax rate is 35%.

The second concept is the **average tax rate**, the percentage of total income that is paid in taxes, which is computed as the ratio of total tax payments to total income. The average tax rate for any individual is a weighted average of the marginal rates the individual pays as he or she moves along the tax schedule. For example, suppose that Josh has gross income of $170,000, and has taxable income (after adjustments, deductions, and exemptions) of $150,000 (and no tax credits). His total tax bill is

\[
\begin{align*}
&= (16,700 \times 0.1) + (51,200 \times 0.15) + (69,150 \times 0.25) + \\
&\quad (12,950 \times 0.28) = 30,263.50.
\end{align*}
\]

We compute Josh’s total tax bill by walking him up the marginal rate schedule until we get to his income level. Josh’s marginal rate is 28% because this is the rate he pays on his next dollar of income. His average tax rate is 17.8%, which is his tax bill ($30,263.50) divided by his gross income ($170,000); this is a weighted average of all the marginal rates Josh is paying, where the weights are the share of his income in each tax bracket (including the $20,000 of his income that is not taxed, and therefore faces a zero marginal rate).

### Vertical and Horizontal Equity

Two distributional goals are frequently considered in measuring tax fairness. The first is **vertical equity**, the principle that groups with more resources (higher income, higher wealth, higher profits) should pay higher taxes than do lower-resource groups. This idea is related to the concept of equity discussed in Chapters 2 and 17, which referred to the distribution of resources between higher- and lower-income (or -ability) groups. Concerns over vertical equity in taxation could be motivated, for example, by a utilitarian social welfare function that calls for redistribution from lower to higher marginal utility of consumption groups in society.

Another concept of equity that is often raised in tax policy discussions is **horizontal equity**, the principle that individuals who are similar but who make different economic or lifestyle choices should be treated in the same way by the tax system. Consider two state sales tax systems. One state sets a sales tax of 5% on all goods. Another state implements a system whereby whenever you make a purchase the cashier flips a coin, and you pay no sales tax if it is heads and a 10% sales tax if it is tails. This latter system will raise the same amount of money as the former system on average, but it is much less horizontally equitable because two identical individuals could end up paying very different taxes.

This extreme example clearly illustrates a horizontal inequity, but in reality horizontal inequities are hard to define. Imagine that my friend and I are identical in terms of intelligence, education, and motivation. I choose to spend more of my time at home with my children, while my friend chooses to spend more time on his job. Even though we are the same in many respects, my friend has higher income than I do, and will pay higher income taxes as a result.
Does this outcome violate horizontal equity? On the one hand, we have different amounts of income, so we pay different taxes, which seems horizontally equitable. On the other hand, we are two identical people in terms of abilities and underlying resources, yet because of the different choices we have made we pay different amounts of taxes, which seems horizontally inequitable.

Whenever the amount of taxes paid depends on choices made by individuals, such a dilemma will exist: individuals of identical underlying resources who make different choices will pay different amounts of tax. The only time that horizontal inequities are unambiguous is when taxes differ for reasons independent of choice, such as in the previous random taxation example. Thus, violations of horizontal equity are ultimately in the eye of the beholder, an unfortunate fact because horizontal equity concerns are constantly raised in tax debates and are often distorted to fit the views of the proponents or opponents of a particular tax proposal.9

**Measuring Vertical Equity**

While horizontal equity is often difficult to define and measure, there are more standard measures of vertical equity that are central to debates over tax policy. Most analysts conclude that to be vertically equitable tax systems must be **progressive**: effective average tax rates must rise with income, so that the rich pay a higher share of their income in taxes than do the poor. (For example, a progressive tax system would be one in which individuals pay 10% of their income in tax at an income of $10,000, but they pay 30% of their income in tax at an income of $100,000.) Tax systems in which the effective average tax rate does not change with income are **proportional** tax systems, since everyone pays the same proportion of his or her income in taxes. (For example, individuals pay 15% of income in taxes regardless of whether they earn $10,000 or $100,000.) Tax systems in which effective average tax rates fall with income are **regressive** tax systems. (For example, individuals pay 15% of their income in tax at an income of $10,000, but pay only 10% of their income in tax at an income of $100,000.)

**APPLICATION**

**The Political Process of Measuring Tax Fairness**

As the previous discussion suggests, measuring tax fairness can be challenging. There are several different ways to measure fairness, and politicians are likely to choose the one that best fits their agendas in advocating or opposing a tax change. An excellent example of this process is the debate over the income tax cuts proposed by President Bush and signed into law by Congress in 2003.

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9 Vertical and horizontal equity are illustrations of the “ability to pay” approach to tax fairness. There is an entirely different approach called the “benefits” approach, which states that tax fairness should be measured by comparing the tax burdens borne by individuals to the benefits they receive from the public sector. This principle is rarely used in tax policy debates, but we do discuss the importance of tax-benefit linkages in Chapter 20.

10 Lee and Friedman (2003).
These tax cuts accelerated already scheduled reductions in income tax rates, expanded tax breaks for married couples, increased the credit paid to families with children, and increased tax breaks for corporations.

Democratic critics opposed these tax cuts on grounds of “fairness.” They pointed out, for example, that 44% of the tax reductions from this bill would go to the top 1% of taxpayers. The Bush administration acknowledged that fact but responded by pointing out that these top taxpayers already pay 38% of all income taxes. So this reduction in their tax bill was roughly in proportion to their existing income tax payments. Thus, in the view of the bill’s proponents, this was a fair reduction in taxes for those paying the most in taxation today.

Democrats responded by highlighting that while the top 1% of taxpayers pay 38% of income taxes, they pay only 30% of all taxes, since our payroll tax system is less progressive than our income tax system (because the payroll tax rate is flat rather than rising, and because the base of taxation for OASDI taxes is capped for high earners). So the top 1% was getting a tax break (44% of the tax cut) that was far out of proportion to its share of total payments (30% of total taxes paid). This, they contended, was unfair.

The administration fired back by noting that 34 million families with children would receive an average tax cut of $1,549 each. But critics noted that this was a misleading use of the word “average.” These average figures were inflated by the fact that the lion’s share of the tax cut accrues to households with the highest incomes. As economist and New York Times columnist Paul Krugman put it, “When Bill Gates enters a bar, the average net worth of the patrons soars, but that doesn’t make everyone in the bar a billionaire.”

While it is true that 34 million families with children would get a $1,549 tax cut on average, this average consisted of both 10 million families that would receive a tax cut of less than $100 and 200,000 families (with incomes over $1 million per year) receiving a $93,500 tax cut. Families in the middle of the income distribution received an average tax cut of only $217.

As is often said in Washington, D.C., where you stand on an issue depends on where you sit. For most Republicans, this tax cut fairly rewarded those who were most burdened by the current income tax. For most Democrats, this tax cut unfairly rewarded the rich out of proportion to their current overall tax burden. Neither party to the debate really emphasized the economist’s generally preferred measure of the distributional effects of tax policies, which is how they affect the after-tax distribution of income. Progressive tax reforms will narrow the after-tax distribution of income; regressive tax reforms will widen it. According to the non-partisan Tax Policy Center’s evaluations of both the 2001 and 2003 tax cuts, the lowest quintile of the income distribution saw their after-tax incomes rise by 0.7% as a result of these tax cuts, while the top quintile saw their after-tax incomes rise by 4.4%, and the top 0.1% of taxpayers saw their after-tax incomes rise by 7.5%. Clearly, by this measure, the tax changes were highly regressive, resulting in a widening in the after-tax distribution of incomes.  

12 Elmendorf et al., 2008.