What is a progressive tax?

When policy-makers discuss “fair” taxes, the concept of progressivity is always part of the discussion. What is progressivity? How is it measured? Why have a progressive tax? This Tax Fact focuses on the economic reasoning behind progressive taxes and the different ways a progressive tax can be determined and measured.

What is a progressive tax? How is it measured?

A tax is progressive if people with higher incomes (or wealth) pay a larger percentage of their income (or wealth) in taxes than people with lower incomes (or wealth). The simplest way to measure the progressivity of a tax is the average tax rate, which is defined as total tax payable divided by total pre-tax income (or wealth). If the average tax rate goes up as the income level goes up, a tax is considered to be progressive.

For example, consider Jack and Jill, who earn $10,000 and $50,000, respectively. Table 1.1 shows three different types of taxation that could be imposed on Jack and Jill:

Table 1. Average tax rates for Jack and Jill by different types of tax

	Jack ($10,000 income per year)		Jill ($50,000 income per year)	
	Tax payable	Average tax rate	Tax payable	Average tax rate
Tax A: 10% Flat Tax Rate	$1000	10%	$5000	10%
Tax B: $5000 lump sum tax	$5000	50%	$5000	10%
Tax C: 10% on first $10,000 and 50% above $10,000	$1000	10%	$21,000	42%

Tax A, where each person is taxed “a flat” 10% of their income regardless of income level, is a proportional tax because the average tax rate does not change as the income level changes. Both Jack and Jill pay 10% of their income in taxes and that percentage remains constant even if Jack or Jill starts to earn more income. As a result, Jill pays more tax than Jack because Jill earns more than Jack.

Tax B, a lump sum tax where Jack pays 50% of his income and Jill pays 10%, is regressive because the average tax rate drops as the income level increases. All lump sum taxes – taxes defined as flat dollar amounts – are regressive because those with lower incomes use a larger percentage of their income to pay the lump sum tax.

Tax C has a graduated marginal tax rate design and is progressive because Jack pays 10% of his income in tax, while Jill pays 42% of her income in tax. This type of tax design raises the average tax rate as income increases. Every individual's first $10,000 is subject to a 10% tax rate, but every dollar earned above $10,000 is subject to a 50% tax. As a result, as an individual earns more income, a bigger share of their income will be taxed at 50%, and the average tax rate increases and approaches 50% as income grows.

Progressivity: both an absolute and relative concept

Progressivity can be thought of as an absolute concept, where a tax is progressive as long as the average tax rate increases with income level. However, it can also be thought of as a relative concept, as a tax can be more or less progressive than other taxes or at different points in time. In fact, since taxes change over time, it is beneficial for policy-makers to determine whether the change results in a more or less progressive tax. To better understand the difference between absolute and relative progressivity, consider the example provided in Table 2:

Table 2. Relative versus absolute progressivity

	Jack ($10,000 income per year)		Jill ($50,000 income per year)	
	Tax payable	Average Tax Rate	Tax payable	Average Tax Rate
Tax C: 10% on first $10,000 and 50% above $10,000	$1000	10%	$21,000	42%
Tax D: 10% on first $10,000 and 25% above $10,000	$1000	10%	$11,000	22%

Tax C is the same tax used in Table 1. Tax C is progressive since Jill has an average tax rate of 42% and Jack has an average tax rate of 10%. After some time, the government proposes a tax cut, called Tax D, where the top tax rate drops from 50% to 25%. Table 2 shows the resulting changes in Jack and Jill's average tax rate due to the tax cut. Since the tax cut keeps the same 10% tax rate on the first $10,000, Jack does not benefit and his average tax rate remains constant at 10%. However, Jill does benefit from the cut in the top tax rate. Her average tax rate drops from 42% to 22%, reducing her tax payable by $10,000. Like Tax C, Tax D remains progressive; Jill still has a higher average tax rate than Jack. However, Tax D is less progressive, relative to Tax C, because the average tax rate for Jill (who represents high income earners) declines. This example shows how a tax may be less progressive relative to another tax (or over time) but remain, in and of itself, a progressive tax.

Why have a progressive tax?

Economists justify progressive taxation in a number of ways. Adam Smith wrote in his Inquiry into the Nature and Causes of the Wealth of Nations (1776) that "the subjects of every state ought to contribute towards the support of the government, as nearly as possible, in proportion to their respective abilities" [1]. This was an early articulation of the "capacity to pay" principle – the idea that those with greater capacity should pay more.

The law of diminishing marginal utility has also been used to justify progressive taxes. Applied in a taxation context it is the idea that, for example, $10 of extra income for a low-income individual is worth more to that individual than an extra $10 to a high-income individual. That being the case, this justifies taxing the extra $10 of the high-income individual more heavily than the low-income individual.

In practice, “utility” is difficult to measure. What is clear is that there are public expectations that our tax system is “fair” and that progressivity needs to be a feature of this system. Making every tax progressive would introduce complexity and inefficiency, so in practice progressivity is delivered through particular taxes – notably the personal income tax. As the Asprey Review (1975) noted – the personal income tax system in particular is “an admirable vehicle for fairness” [2].

This highlights another important point: judgements around the “fairness” of a particular tax can be misleading. Such judgements should be formed with respect to the tax and transfer system as whole **[see our related Tax Fact #20, “What is a Progressive Tax (and Transfer) System?”].**

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[1] Smith, Adam, (1776), An Inquiry into the Nature and Causes of the Wealth of Nations, Oxford University Press, London.

[2] Asprey, K. W., Parsons, R. W, Full Report January 31 1975, Taxation Review Committee Australia, Commonwealth Taxation Review Committee, Commonwealth of Australia, Canberra.

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