Tax Revenue versus Tax Rates: A Discussion of the Laffer Curve

Named for economist Arthur Laffer, the Laffer curve is one of the few macroeconomic concepts with which the general public has at least a passing familiarity. However, it also is not well understood even by many who reference it. Economist Hal Varian once noted, "It has been said that the popularity of the Laffer curve is due to the fact that you can explain it to a Congressman in six minutes and he can talk about it for six months."[1] This brief explains what the Laffer curve is and its implications for economic policy.

In its most general form, the Laffer curve depicts the relationship between tax rates and the revenue the government receives–that is, a single tax rate exists that maximizes the amount of revenue the government obtains from taxation. Figure 1 below represents a graphical depiction of a Laffer curve.
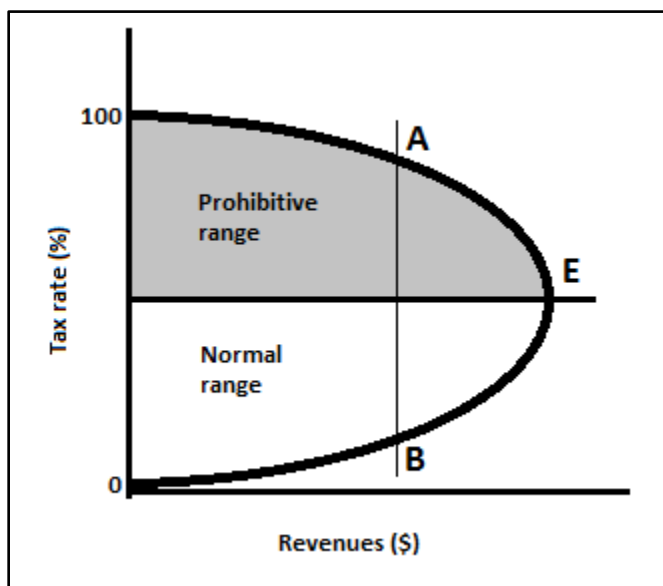

Figure 1. General form of a Laffer curve.

The vertical axis of Figure 1 depicts the tax rate as a percentage, while the horizontal axis depicts revenues received in dollars. At both a tax rate of 0 percent and 100 percent total tax revenues equal zero. Point *E* represents the tax rate at which total revenues are maximized.[2] The horizontal line through point *E* that bisects the curve represents two ranges of tax rates in terms of their relationship to revenues. Tax rates below this line indicate the *normal range* of rates, in which an increase in the tax rate corresponds to an increase in total revenues. Tax rates above this line correspond to the *prohibitive range*, in which an increase in tax rates results in a decrease in total revenues. Thus, any tax rate other than the rate corresponding to point *E* results in less revenue collected from the tax. Point *E*, notably, only represents the rate at which total tax revenues are maximized, not the optimal tax rate in terms of the rate that

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[1] Varian, H.R. (1989) "What Use is Economic Theory?" Available online at
http://people.ischool.berkeley.edu/~hal/Papers/theory.pdf. Accessed 1 May 2017.
[2] While point *E* in Figure 1 may appear to represent the midpoint between tax rates of 0 and 100 percent, it does not necessarily indicate a tax rate of 50 percent maximizes total revenues.

creates the fewest distortions in the economy. The vertical line through the curve marked by points *A* and *B* demonstrates how, because of the symmetric nature of the curve, two different tax rates can result in the same amount of total revenue. Point *A* represents a relatively high tax rate, slightly below 100 percent. Point *B*, conversely, represents a relatively low tax rate, slightly above 0 percent. Yet as the vertical line indicates the total tax revenue collected under these two rates is the same according to the Laffer curve. Points *A* and *B*, respectively, indicate that in theory, a high rate on a relatively small tax base generates the same revenue as a low tax rate on a relatively large tax base.

The general form of the Laffer curve in Figure 1 does not specify the type of tax rates the government levies. While economists have studied numerous applications, the Laffer curve is usually used to describe the behavior of individual income tax rates levied either by the federal or a state government. In many analyses, economists use the Laffer curve to specifically refer to *marginal income tax rates*–the rate of tax paid on an additional dollar of income.

Laffer describes the curve as illustrating two effects of tax rates on tax revenues.[3] The first effect is the *arithmetic effect*, the increase (decrease) in tax revenues that results from an increase (decrease) in the tax rate. The second–and much more controversial–effect is the *economic effect*, the increase (decrease) in tax revenues resulting from a decrease (increase) in tax rates because of the incentives (disincentives) created to increase (decrease) work, output, and employment. Essentially the economic effect of the Laffer curve holds that reducing tax rates will motivate people to work more and produce more, leading to more revenue; raising tax rates produces the opposite effect. Laffer notes that the two effects are always in the opposite direction, so that the impact of a change in tax rates on revenues is not necessarily immediately clear. In order for a decrease in tax rates to increase revenues, for example, the rate must lie within the prohibitive range of tax rates as illustrated in Figure 1. In this range the economic effect is positive and larger than the arithmetic effect.

Significantly, Laffer states that the curve ". . . does not say whether a tax cut will raise or lower revenues." He maintains that what happens to revenues as a result of a tax rate change depends on a number of factors, such as ". . . the tax system in place, the time period being considered, the ease of movement into underground activities, the level of tax rates already in place," and "the prevalence of legal and accounting-driven tax loopholes. . ." Thus, individuals who argue the Laffer curve always holds that a tax cut leads to an increase in tax revenues– whether for good or for ill–misrepresent what it hypothesizes.

The Laffer curve has been controversial throughout its forty-year-plus history. One of the chief criticisms inflicted against it is determining where a current tax system lies on the curve; i.e., where the tax rate is in relation to point *E* in Figure 1. Some economists developed a formula that uses income elasticities and other parameters to determine the rate at which point *E* occurs. This formula finds that the rate equals around 70 percent.[4] Other economists also

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[3] Laffer, A.B. (2004) "The Laffer Curve: Past, Present, and Future." Executive Summary Backgrounder No. 1765. The Heritage Foundation.

[4] Matthews, D. (2010) "Where does the Laffer curve bend?" *The Washington Post*. 9 August. Available online at http://voices.washingtonpost.com/ezra-klein/2010/08/where_does_the_laffer_curve_be.html. Accessed 2 May 2017.

venture the rate corresponding to point *E* lies in the range of 70 percent; however, other economists contend the rate is considerably lower. Another criticism of the Laffer curve is a lack of empirical evidence. Arthur Laffer cites several instances in U.S. history and in other countries as examples of "Laffer curve effects." However, the inherent complexities of most systems of taxation as well as other complicating factors make isolating the impacts of specific rate changes difficult in practice. This situation leads to another criticism of the Laffer curve, which is because it focuses on a single rate, it oversimplifies the analysis of tax rate changes.

In conclusion, the Laffer curve continues to influence policymakers at the state and national level both in and outside of the U.S. It is an economic concept with ardent defenders and equally ardent detractors. However, the Laffer curve's most significant contribution may be how it serves as a jumping off point for serious economic policy discussions involving the structure of income tax systems and how individuals respond to these different structures.