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10 The Relationship between Tax Rates and Government Revenue

10.1 Introduction

Since 1974, when Arthur B. Laffer first drew his famous curve on a napkin in a Washington restaurant, there has been considerable public debate about the possibility of an inverse relationship between tax rates and government revenue. Pictured in figure 10.1, the Laffer curve plots total revenue against the tax rate and claims to show that two rates exist at which a given revenue can be collected. The tax rate of figure 10.1 generally refers to any particular tax instrument, while revenues generally refer to total tax receipts. An increase in the payroll tax rate, for example, could affect not only its own revenue, but work effort and thus personal income tax revenues.

The upward-sloping portion of the curve is called the "normal" range and the downward-sloping segment is the "prohibitive" range. No rational government would knowingly operate on the latter range in the long run, because the same revenue could be obtained with a lower tax rate. However, with adjustment lags in the private sector and a high social discount rate, such tax rates might be used in the short run. The prohibitive range is said to exist because the high tax rates stifle economic activity, force agents to barter, and encourage leisure pursuits.

The debate has been conducted mostly in the spheres of politics and journalism, and it includes a wide variety of unsupported claims and opinions. These range all the way from the assertion that the prohibitive range does not exist to the claim that "we are well within this range at

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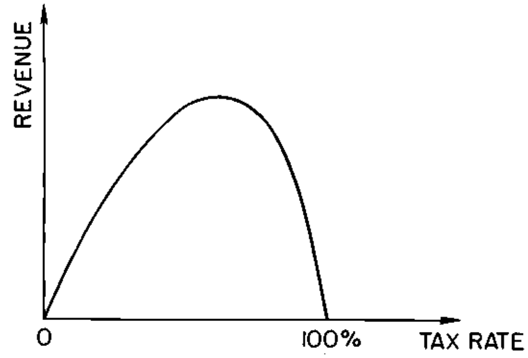

Fig. 10.1 The Laffer curve.

present."[1] Simple theoretical models can show that the prohibitive range does indeed exist, but the U.S. position on the curve is clearly an empirical matter. Despite the obvious importance of this issue for fiscal policy, no serious estimation of the curve, using an economic model, has been made.[2]

Our original equilibrium model is well suited to answering questions related to the Laffer curve. First, we can attempt to determine where on the Laffer curve the United States economy is today, and we can get an idea of the shape of the entire curve. Second, we can learn about the relationship between the curve and critical parameters, such as the elasticities of supply of factor inputs.[3]

In the next section we offer a brief review of some salient points from the debate. A common aspect of previous studies is that a prohibitive range for some local or national economy is always associated with particularly high tax rates, high factor supply elasticities, or both. In section 10.3 we establish the conditions under which a lower tax rate

1. Michael Kinsley (1978) correctly claims that there is no logical necessity for revenues to be zero at 100 percent tax rates, due to nonmonetary incentives for work effort, but he incorrectly infers that "there's no logical reason to assume without proof that the Laffer curve ever reverses direction at all" (p. 38). Laffer (1980) points out that even if a motivated person still works with a 100 percent tax rate, there must be some higher rate that will make him stop. The curve will still have the shape of figure 10.1. The quote in the text is from Laffer 1977, p. 79.

2. Several papers have described models in which there exists the possibility of a prohibitive range. See Canto, Joines, and Laffer 1978 and Beck 1979 for examples. Other empirical papers have found governments operating in this range, as seen in the next section. Also, Kiefer (1978) provides estimates of revenue effects from the DRI, Wharton, and Chase Econometric models. None of these papers plot out the Laffer curve, however, nor do they estimate its relationship to various elasticity parameters.

3. In general, the location of the curve depends on both supply and demand elasticities, consumption and production parameters, and other circumstances in the economy. In wartime, for example, individuals might be willing to work harder at high tax rates to generate larger tax revenues.

could result in higher revenues. These conditions are summarized in a new curve, plotting the appropriate factor supply elasticity against the tax rate. In section 10.4 we use the model to estimate the position of the Laffer curve for various values of the labor supply elasticity. We also plot the combinations of labor supply elasticities and tax rates that put the economy on the boundary between the normal range and the prohibitive range.

10.2 A Brief Literature Review

The idea of an inverse relationship between tax rates and revenue is not entirely new. In *The Wealth of Nations*, Adam Smith could hardly be more explicit: "High taxes, sometimes by diminishing the consumption of the taxed commodities, and sometimes by encouraging smuggling, frequently afford a smaller revenue to government than what might be drawn from more moderate taxes" ([1776] 1976, 5:414).

The trade literature, as exemplified by Caves and Jones (1973), has always understood the existence of a revenue-maximizing tariff. This pre-Laffer edition contains a hump-shaped tariff revenue curve that looks just like figure 10.1. With respect to internal taxes, Jules Dupuit in 1844 states: "By thus gradually increasing the tax it will reach a level at which the yield is at a maximum . . . Beyond, the yield of tax diminishes. . . . Lastly a tax [which is prohibitive] will yield nothing" (1969, pp. 281–82).

Recent literature has examined this relationship more closely. Canto, Joines, and Laffer (1978) build a simple equilibrium model with one output, two factors, and a labor/leisure choice on the part of a single consumer group. Their utility function includes discounted consumption and leisure of each future period—a formulation very similar to our larger empirical general equilibrium model. Another similarity is that capital is inelastically supplied in any one period, but can grow over time. Labor taxes in these models place a wedge between the wage paid by producers and net wage received by workers. Individuals react to this wedge with an income effect and a substitution effect. In their model, however, government revenues are returned through transfers or are used to buy goods that are perfect substitutes for private goods. This modeling cancels out the income effect and leaves the economy with an unambiguously positive substitution effect and an upward-sloping labor supply.

This way of modeling the economy raises three points. First, as recognized by Canto, Joines, and Laffer, if transfers are given to individuals other than those who pay taxes, and if individuals have different preferences, then income effects do not necessarily cancel. Second, if a government does nothing other than place a distorting wedge into the labor/leisure choice of homogeneous consumers and then return revenues in lump-sum fashion, it necessarily follows that output and welfare would both fall. These authors have not allowed for any positive contribution of a government budget. Their model does not account for the income effect of an efficiency gain that can be associated with correcting market failure by providing a public good. Third, they fail to allow for any complementarity between private and public outputs. Clearly there are public goods such as police protection and transportation systems which act to encourage private production. This complementarity may more than offset the adverse effects of the necessary tax wedge. Thus the "balanced budget" labor supply curve does not have to be upward sloping as these authors insist.

These shortcomings in the Canto, Joines, and Laffer theoretical model are not explicitly corrected in our model. By allowing the labor supply elasticity to take on positive or negative values, however, our model does implicitly take these considerations into account.

We said, above, that no one has used an economic model to estimate the shape of an entire Laffer curve. However, several empirical studies have sought to determine whether some specific tax is being operated at a point where a decrease in tax rates would lead to an increase in revenue collections. For example, Ronald Grieson et al. find the possibility of an inverse relationship between tax rates and revenues for local government in New York: "The inclusion of state taxes lost when economic activity leaves both the city and state would . . . raise the possibility of a net revenue loss as a result of an increase in business income taxes" (1977, p. 179). They find that the nonmanufacturing sector has fewer alternatives to the New York City location and should be taxed more heavily relative to the manufacturing sector, whose response to tax is more elastic. Grieson (1980) finds that this relationship between the two sectors is reversed for Philadelphia, where the nonmanufacturing sector is under greater competitive pressure. As for Philadelphia's position on its own Laffer curve, Grieson finds that "Philadelphia may have been at or very close to the revenue maximizing point . . . before the recent income tax increase, which raises the possibility of it having been in excess of the socially optimal one" (p. 135).

Why a local government might find itself in or close to the prohibitive range of tax rates is not difficult to understand. When a government serves a very small geographic area, and when transportation out of the area is inexpensive, then the possibility of migration can result in very high factor supply elasticities.

Perverse revenue effects are more likely from selective tax cuts than from general tax cuts, if the selective cuts can be directed at individuals or activities that are unusually sensitive to tax rates. Hausman (1983) simulates tax cuts separately for husbands and for wives. He does not find that tax rates are in the prohibitive range, but he does find that tax cuts for wives result in a smaller loss of revenue because wives exhibit higher labor supply elasticity. Feldstein, Slemrod, and Yitzhaki find that capital realizations are very sensitive to the effective tax rate: "An important implication of this high coefficient is that a reduction in the tax rate on capital gains would actually increase the total revenue collected" (1980, p. 786). Two points serve to mitigate the strength of this result. First, a capital gains tax cut might unlock a flood of realizations in the short run, without necessarily increasing revenues in the long run. Second, the capital gains tax cut is likely to increase corporate-retained earnings, decrease the dividends paid out, and thus reduce personal tax revenue from dividends.

The general impression one gets from these empirical studies is that taxes on individual sectors, or small geographic areas, or special groups may be in or close to the prohibitive range. For particular economic activities with high elasticities, tax rates approach the prohibitive range sooner than they would elsewhere in the economy.

One study that deals with the United States as a whole is the study by Canto, Joines, and Webb (1979). They evaluate the 1964 tax cuts, which included the reduction of the top marginal rate in the personal income tax from 91 percent to 70 percent. They determine that it was equally likely that the Kennedy tax cuts may have increased or decreased revenues. For Sweden, Charles Stuart (1981) finds tax rates in the prohibitive range. Using a fairly simple two-sector model, he concludes that Sweden's current 80 percent marginal tax rate exceeds the revenue-maximizing rate. Thus, we have a reason for perverse revenue behavior other than high elasticities for particular economic activities. In these studies, perverse revenue effects are explained by particularly high tax rates.[4]

10.3 Another Simple Curve

We have stressed that this debate focuses on high marginal tax rates, high factor supply elasticities, or a combination of both. By emphasizing the large incentive effect of tax cuts, the "supply siders" imply that they believe the relevant elasticities are large. The entire debate reduces to the empirical matter of determining the relevant parameter values. If supply elasticities are high enough, the economy could be in the prohibitive range.

The very location of Laffer's curve in the rate-revenue space of figure 10.1 depends on the supply elasticity of the factor being taxed. If that

4. Other themes from this literature include minimum wage laws, regulation of business, nonmarket activity, and the complexity of tax rules. The Laffer curve itself focuses on tax rates, however, so this chapter will consider different tax rates and assume unchanged complexity. The relevant elasticity for this exercise would provide not just the response of labor supply, but the response of taxable labor supply.

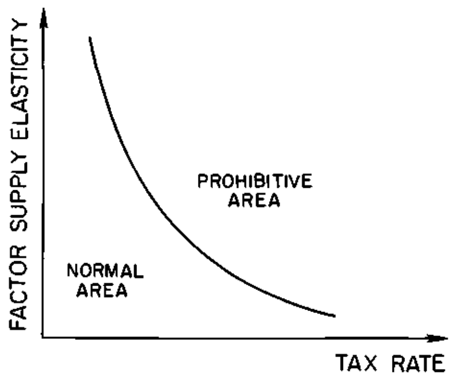

Fig. 10.2 Elasticities, tax rates, and the Laffer curve.

elasticity were fairly low, the total revenue maximizing point would be at a high tax rate for that factor, and the converse. One can imagine a third dimension on that diagram giving different elasticity values. The hill would then be converted into a ridge, running from a low tax rate and high elasticity combination to a high rate and low elasticity pair. The crest of that ridge is plotted in figure 10.2. Everything to the southwest of that curve signifies the normal area, where raising rates increases revenue, and northeast of the curve is the prohibitive area, where no rational government would knowingly operate. Each point on the curve shows the tax rate that maximizes total revenue for a given elasticity.

Suppose, for a simple example, that homogeneous labor L is taxed at the proportional rate t. Labor demand and supply are based, respectively, on the gross-of-tax wage w and the net-of-tax wage $w(1 - t)$, in constant elasticity forms:

$$L_d = Aw^{\epsilon_d}, \qquad \epsilon_d < 0; \tag{10.1}$$

$$L_s = B[w(1-t)]^{\epsilon_s}, \qquad \epsilon_s > 0. \tag{10.2}$$

Tax revenue R is equal to twL, so differentiation and algebra provide:

$$\frac{\partial R}{\partial t} = wL\left[1 + \frac{\partial L}{\partial t} \cdot \frac{t}{L} + \frac{\partial w}{\partial t} \cdot \frac{t}{w}\right]. \tag{10.3}$$

Setting equation (10.3) equal to zero, we have three equations that can be solved for w, L, and the revenue-maximizing tax rate t. Since $L_s = L_d$ in this partial equilibrium system, we can use equations (10.1) and (10.2) to express w as a function of t. Substituting that w back into equation (10.1), we can also express L as a function of t. Differentiating these expressions, substituting into equation (10.3), and solving for t, we have:[5]

5. Equation (10.4) is derived somewhat differently in Blinder 1981.

$$t = \frac{\epsilon_d - \epsilon_s}{\epsilon_d(1 + \epsilon_s)}. \qquad (10.4)$$

If $\epsilon_d > -1$ (demand is inelastic), then higher tax rates can always achieve more revenue. If $\epsilon_d < -1$, however, then the relationship between t and ϵ_s will look like figure 10.2:

$$\frac{\partial t}{\partial \epsilon_s} = \frac{-1}{(1 + \epsilon_s)^2}\left(\frac{1 + \epsilon_d}{\epsilon_d}\right) < 0, \text{ and} \qquad (10.5)$$

$$\frac{\partial^2 t}{\partial \epsilon_s^2} = \frac{2}{(1 + \epsilon_s)^3}\left(\frac{1 + \epsilon_d}{\epsilon_d}\right) > 0, \qquad (10.6)$$

so the curve slopes down and is convex to the origin. The easiest case to see is where $\epsilon_d = -\infty$ so that $t = 1/(1 + \epsilon_s)$. Then the revenue-maximizing rate approaches one as ϵ_s goes to zero (inelastic supply), and it approaches zero as ϵ_s becomes infinite (infinitely elastic supply).[6]

In summary, those who find an inverse relationship between tax rates and revenues must believe that the relevant elasticity is high, that the relevant tax rate is high, or both. Those who find a normal range must believe that one or both of these parameters is low. Finally, those who deny the existence of an inverse relationship at any tax rate might really just believe that the uncompensated supply elasticity is zero or negative (or that demand is inelastic).[7]

10.4 Estimation of Laffer Curves

Supply side advocates refer to several different types of taxes when they claim an inverse relationship between a particular tax rate and government revenue. The curve in figure 10.2 could be plotted by varying a product tax rate against the price elasticity of demand for that product, or by plotting capital tax rates against the elasticity of savings with respect to the net-of-tax return to capital.

Over forty simulations were performed in seeking a prohibitive area for capital taxes. Using the dynamic version of the model, tax rates were

6. Several points are manifest. First, this analysis oversimplifies by using a given elasticity for all tax rates to find the revenue-maximizing point. As the tax rate varies, so would equilibrium prices, incomes, and preference parameters like the factor supply elasticity. Second, a given time frame is implied since elasticities might increase as more time is allowed for adjustment. Third, neither elasticities nor tax rates have to be positive. The southwest quadrant contains a symmetrical curve showing the maximum revenue loss from a subsidy. Finally, note that similar analyses can be performed with respect to ϵ_d, the labor demand elasticity.

7. A zero uncompensated elasticity can mask a high compensated elasticity, however. Hausman (1981) points out that while the former is relevant to determine actual factor supply (and thus the tax base and revenues), the latter is relevant for the efficiency cost of distortions.

raised to 83 percent of gross capital income, savings elasticities were increased to 4.0, and equilibria were calculated out fifty years in the future. Normally, discount rate problems arise in determining whether the present value of revenues has increased or decreased. In this case, however, not a single period of the raised-tax sequence of equilibria had lower revenues than the corresponding period of the benchmark sequence. Inverse relationships may exist for high effective rates of tax on certain types of real capital income for certain individuals. No overall inverse relationship was discovered in this model, however, because the tax distortion applies to the savings decision, while savings are only an increment to the capital tax base. More than fifty years would be required for the tax base reduction to offset a tax rate increase and result in lower revenues. For this reason, the example used here is the labor tax against the labor supply elasticity.

In our basic model, the tax on labor used by industry averages 10 percent of net factor payments. The personal income tax takes another 24.9 percent of marginal labor income, weighting the twelve marginal tax rates by labor income of each group. The total wedge thus takes 31.8 percent of marginal labor income gross of all tax.[8] This overall marginal rate is the relevant single parameter for summarizing incentive effects in the model, and this is the parameter varied in simulations for the horizontal axes of figures 10.1 and 10.2. The overall average rate is 19.2 percent, dividing total labor taxes by gross labor income.

Marginal tax rates determine incentives, but average tax rates by definition determine revenues. A more progressive tax structure will therefore attain an earlier revenue maximum. For this reason, progressivity should not be altered in simulating alternative tax rates. Unfortunately, however, there is no unambiguous measure of progressivity. Simulations in this chapter will hold constant the first of three possible progressivity measures defined in Musgrave and Musgrave (1980). The effect of this selection is that the same number of percentage points are added to or subtracted from all average *and* marginal labor tax rates of all consumers when a rate change is simulated. Such changes are summarized by referring to changes in the 31.8 percent overall marginal rate on gross labor income. Thus labor tax rate changes can be thought of as changes in the proportional payroll tax rate or as changes in all average and marginal personal tax rates, on labor income only.

8. The model defines labor income as net of the 10 percent factor tax on industries, but gross of the personal income tax on individuals. For a marginal dollar of this labor income, \$1.10 is the gross-of-tax payment, \$.10 is the payroll tax, and \$.249 is the marginal personal tax paid, averaged over the twelve groups. The total marginal tax rate is thus (.1 + .249)/1.10, which equals 31.8 percent except for rounding. By the same formula for different groups, personal marginal rates between 1 percent and 40 percent imply total marginal rates between (.1 + .01)/1.10, which equals 10 percent, and (.1 + .4)/1.10, which equals 45.5 percent.

Government transfers are modeled as lump-sum payments to consumer groups in proportion to their observed 1973 receipts from Social Security, unemployment compensation, food stamps, and other welfare programs. We recognize that supply side advocates may prefer to model these payments as additional work disincentives, increasing the wedge between labor's marginal product and leisure's implicit price. Though lawmakers probably do not intend to subsidize leisure, some programs have that effect. The incentive depends on the program's ability to isolate important characteristics such as age, disability, and number of dependents who make the recipient unable to work. If this intention is successful, the payments will not have a substitution effect. The income effect of transfer programs could also reduce labor supply, but this effect is captured in the model.[9]

The 1973 data set shows total tax revenue of $362.54 billion. Because of the parameter calibration procedures described in chapter 6, this amount of revenue will be collected in the first period of *any* base-case sequence, so long as tax rates are unchanged. Simulations with labor tax rates other than 31.8 percent will have revenues that depend on the elasticity, and it becomes necessary to specify the disposition of extra revenues. One possibility is simply to allow a budget surplus or deficit. If a surplus implies lower future taxes, however, individuals may react to an effective tax rate different from the specified rate for the simulation. Higher revenues must eventually be spent or returned. A second possibility is to increase public expenditures on the nineteen industry outputs of the model. Though government spending has no macroeconomic effects on inflation or unemployment in this model, it does have a microeconomic effect on the pattern of demands for commodities. It indirectly affects the demand for capital and labor through the different factor ratios of production. Instead, we return additional revenues to consumers in lump-sum fashion, in proportion to their original after-tax incomes.[10]

9. The difference between paying people who don't work and paying people not to work is the difference between a marginal payment with incentive effects and a lump-sum payment. Legally, an employee must be laid off to be eligible for unemployment compensation. A worker can ask to be laid off, but employers may be reluctant to circumvent the intent of the law. These transfers are not automatically and fully available to nonworkers. Similarly, AFDC payments are designed to select recipients by particular characteristics, maximizing the lump-sum effect and minimizing disincentive effects. Social Security payments are higher for the blind or disabled. Finally note that these transfers, to the extent that they are disincentives, do not always apply to marginal hours. Most individuals who take an extra hour of leisure do not become eligible for transfers at all. Laffer (1980) is correct, however, that if transfer payments include a means test, work disincentives can be large for some individuals.

10. This lump-sum rebate has no direct effect on prices since no tax rates are altered. It could have an indirect effect on prices of the simulated equilibrium, however, since consumers include the income in their expanded budgets for purchase of commodities and leisure according to their own preference patterns. This disposition of revenues corresponds exactly to that of Canto, Joines, and Laffer (1978), reviewed in section 10.2. By symmetry, a decrease in revenue is accompanied by a lump-sum charge on consumers in the same

The results from over sixty simulations are summarized in table 10.1. The first column shows the total revenue resulting from different labor tax rates using the basic model's value of .15 for the labor supply elasticity with respect to the net-of-tax wage. The "observed" total revenue of $362.54 billion corresponds to the basic tax rate of 31.8 percent, and total revenues are positively related to tax rates, up to a tax that is 70.0 percent of gross labor income. Beyond that rate, revenues start to fall.

Like Canto, Joines, and Laffer (1978), this model ignores production-encouraging aspects of any public goods made possible through increased revenue. As a result, national income (GNP) falls by $223 billion when the elasticity is .15 and the tax rate is raised to 70.0 percent. Though the return to the fixed capital stock rises, labor supply falls off by 30 percent. The gross-of-tax wage rises, but the net-of-tax wage falls in the new equilibrium. If the increased leisure is valued at the net-of-tax wage, then the $223 billion income fall is offset by a $173 billion leisure gain, with $50 billion net loss in real terms. These calculations use the geometric mean of the Paasche and Laspeyres price indexes.

Any column of data from table 10.1 can be used to plot an example of figure 10.1, as was done in figure 10.3 for the .15 elasticity. In any of these Laffer curve diagrams, the actual 1973 U.S. economy is represented by .318 on the labor tax rate axis. If the various tax rates, transfers, and elasticities are reasonable as modeled, then the U.S. economy is well down the normal range of the curve. For those who prefer a high elasticity, figure 10.4 plots another Laffer curve. The 4.0 labor supply elasticity and current tax rates place the United States well onto the prohibitive range.

In the 4.0 elasticity case, even the small jump from a 31.8 percent labor tax rate to a 34.7 percent rate causes an 8 percent fall in labor supply, a $65 billion reduction in national income, a $45 billion increase in the value of leisure, and a net welfare loss of $20 billion in real terms. A small tax cut with this high elasticity results in symmetrical increases in labor supply, output, and welfare. All tax cuts increase welfare in this model because revenue is replaced with lump-sum charges as in Canto, Joines, and Laffer (1978). Such opportunities may not in fact be available.

Underlined in each column of table 10.1 is the maximum revenue point for that elasticity. These tax rate and elasticity combinations correspond to points on a curve like figure 10.2. When plotted for this example, the curve is shown in figure 10.5. On this curve, with tax rates as modeled, the labor supply elasticity would have to be at least 3.0 to put the United States over the peak and into the prohibitive range. Alternatively, if the supply elasticity were at least 1.0 and the true overall tax rate were at least

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proportions. Total government tax revenues are defined to be inclusive of income returned to consumers, and exclusive of any lump-sum charges necessary to keep government spending on commodities constant.

Table 10.1 **Total Revenue Associated with Each Labor Tax Rate (in billions of 1973 dollars)**

Rate on Gross Labor Income[a]	Labor Supply Elasticity with Respect to Net-of-Tax Wage										
	.15	.50	1.00	1.50	1.75	2.00	2.50	3.00	4.00	5.00	6.00
.166									332.06		
.209									350.30		
.249									360.59	366.55	371.37
.267									363.16	367.74	371.45
.285								360.28	364.27	367.43	369.94
.301								361.99	364.00		
.318	362.54	362.54	362.54	362.54	362.54	362.54	362.54	362.54	362.54	362.54	362.54
.332							363.36	362.04			
.347					367.96	366.25	363.21	360.62	356.35		
.361					369.50	366.87					
.374				374.07	370.30	366.76	360.58		346.58		
.387					370.38						
.399				375.78	369.92	364.60					
.411				375.79							
.422	433.36		393.37	375.30	367.42				318.61		

.444			395.79	
.464			396.73	
.473			396.72	
.482			396.37	263.94
.499	477.25		394.89	
.558		448.11		
.571	509.35	448.50		
.583		448.36		
.625	526.41			
.659	533.36			
.687	536.35			
.693	536.64			
.700	536.75			
.705	536.74			
.722	535.95			
.741	533.50			
.750	531.82			
.785	520.46			
.850	477.06			
.875	449.23			

[a]Simulations were made selectively to save computational expense. Not all possible rates are reported. These rates on gross income include Social Security taxes and personal income taxes at the overall marginal rate, all as a fraction of gross labor income.

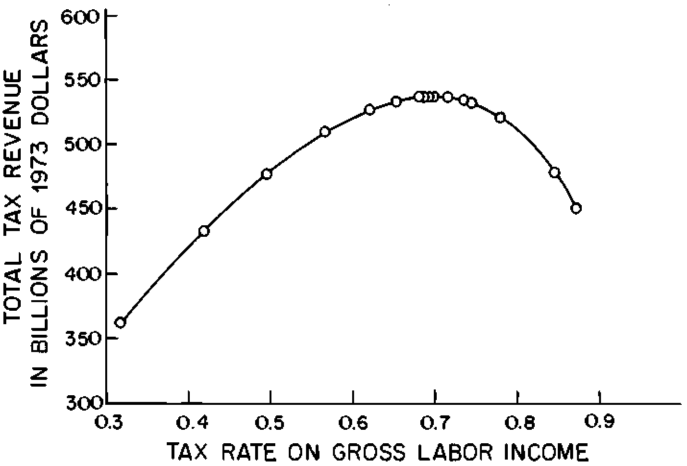

Fig. 10.3 Laffer curve for a labor supply elasticity of 0.15.

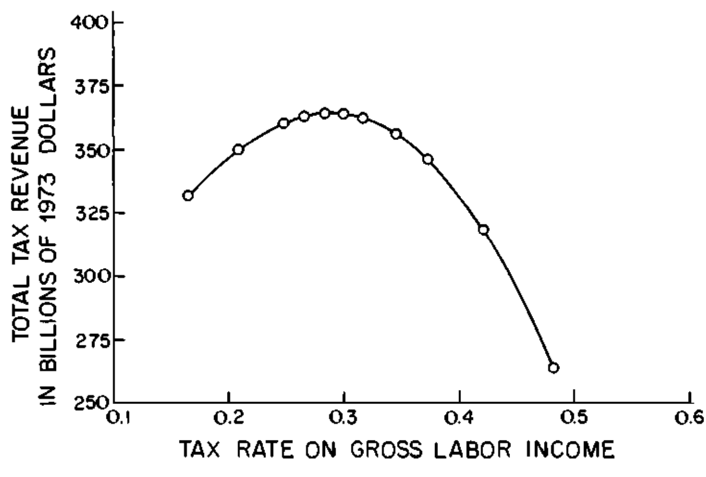

Fig. 10.4 Laffer curve for a labor supply elasticity of 4.0.

46.4 percent, then again U.S. taxes could be operating irrationally. The continuum of figure 10.5 allows the reader to select a plausible tax rate and elasticity combination to determine whether the United States is now in the prohibitive area. We must say, however, that our knowledge of labor supply behavior leads us to believe that it is extremely unlikely that the United States is now operating in the prohibitive range of tax rates.[11]

11. See chapter 6 for our review of the literature on labor supply elasticities.

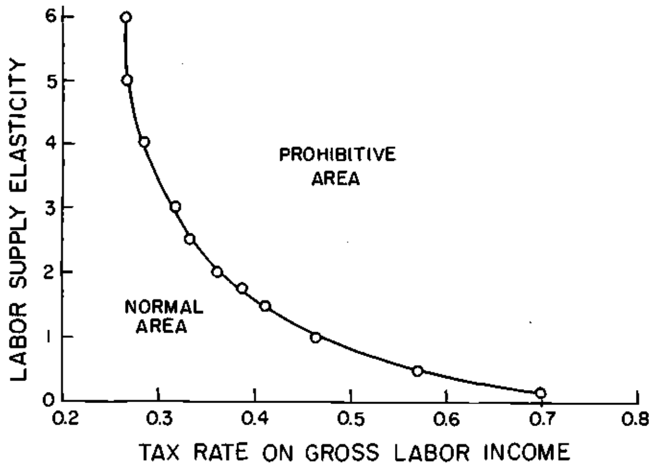

Fig. 10.5 Combinations of elasticities and tax rates that generate maximum revenue.

10.5 Conclusion

In this chapter we considered a number of analytical and empirical arguments about the relationship between tax rates and government revenues. Using our general equilibrium model we were able to plot this relationship for a variety of values of the labor supply elasticity. We found that the U.S. economy *could* conceivably be operating in the prohibitive range for taxes on labor, but that reasonable estimates of an aggregate labor supply elasticity and of an overall marginal labor tax rate are both low enough to suggest that broad-based cuts in labor tax rates would not increase revenues.

The tax rate and elasticity relationship can be applied to other federal, state, or local taxes to find circumstances where a particularly high tax rate on real income or a particularly high elasticity could place a tax in the prohibitive area. A tax on purely nominal capital gains, for example, or an underallowance for depreciation can result in high effective tax rates on some types of real capital income. Future research could investigate the responsiveness of these particular investments to high effective rates. The "marriage penalty," which places a secondary worker in the higher marginal tax bracket of his or her spouse, may represent another high rate of tax on an elastically supplied factor.[12] Welfare programs that make recipients ineligible at a given income level imply effective marginal tax

12. Feenberg and Rosen (1983) simulate the effects of four proposals to reduce or eliminate the marriage penalty. Each has its own welfare effects and redistributions, but none imply higher revenue.

rates of 100 percent or higher. Also, the high elasticity argument is particularly applicable for state and local governments since factors are generally more mobile within national boundaries. McGuire and Rapping (1968, 1970) find labor supply elasticities of 20 to 100 for particular states or industries. This mobility implies that one jurisdiction cannot charge higher tax rates than its neighbors and may apply increasingly to international factor flows.

Finally, though the results of this chapter tend to reject the notion of an inverse relationship between major U.S. tax rates and government revenues, they do not necessarily invalidate the claim that these tax rates and revenues should be lowered. Even on the normal range, taxes may be higher than desired by voters. Preferences can change over time, fewer public goods may now be demanded, and the electorate can legitimately request a tax decrease. Though incentive effects can still be important without perverse revenue effects, the point is that the economics of the tax revolt are less the economics of incentive effects and more the economics of public choice.