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What's Wrong With the Laffer Curve?

Philip Mirowski

*Why, we grow rusty and you catch us at the very point of decadence
—by this time tomorrow we might have forgotten everything we ever
knew. That's a thought, isn't it? We'd be back where we started—
improvising.*

Tom Stoppard
*Rosencrantz and Guildenstern
Are Dead (Act I)*

The subject of this paper first arose when the author was engaged in teaching a principles of economics course to undergraduate students. Here and there an intrepid soul or two began asking about the new-fangled “supply-side” economics they had encountered in the press or in discussions with friends of recent politics. My initial temptation was to slough off such questions with a contemptuous reference to “voodoo economics”; but the quickest way to lose the respect of a class is to attempt to stifle honest curiosity with ridicule. Incongruously enough, when I sought seriously to research their queries, I discovered that some very respected members of the economics profession had resorted to that very same tactic. James Tobin, for instance, wrote in a letter to the U.S. House and Senate budget committees concerning the Kemp-Roth bill that “the idea embodied in the ‘Laffer Curve’ is as ancient as it is trivial. The mere conceptual possibility of inefficiently excessive taxation is no basis for fiscal action by serious legislative bodies.”¹ In an even stronger letter, Robert Solow wrote to the same committee in 1978 that “the ‘analytical’ foundations for these proposals seem to have been discussed so far mainly in the pages of the newsmagazines and the *Wall Street Journal*. It is encouraging that we have not yet reached the stage of making policy on the basis of a media hype.”² In the intervening period, we have witnessed the enactment

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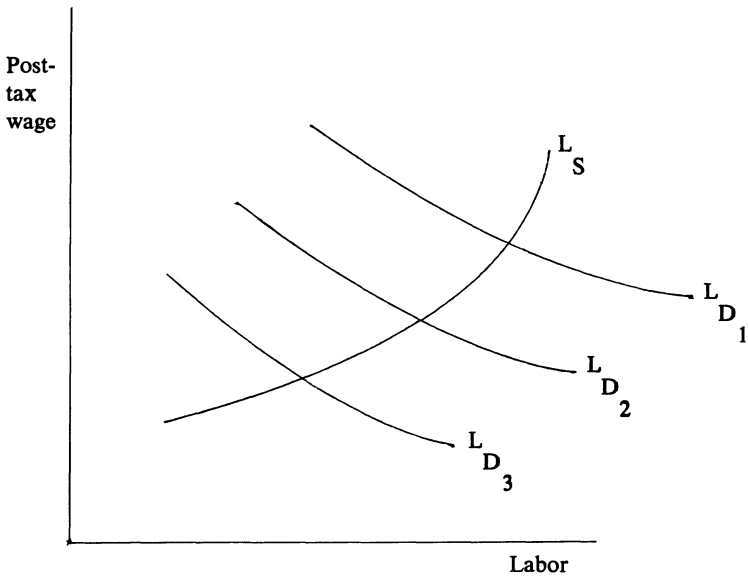
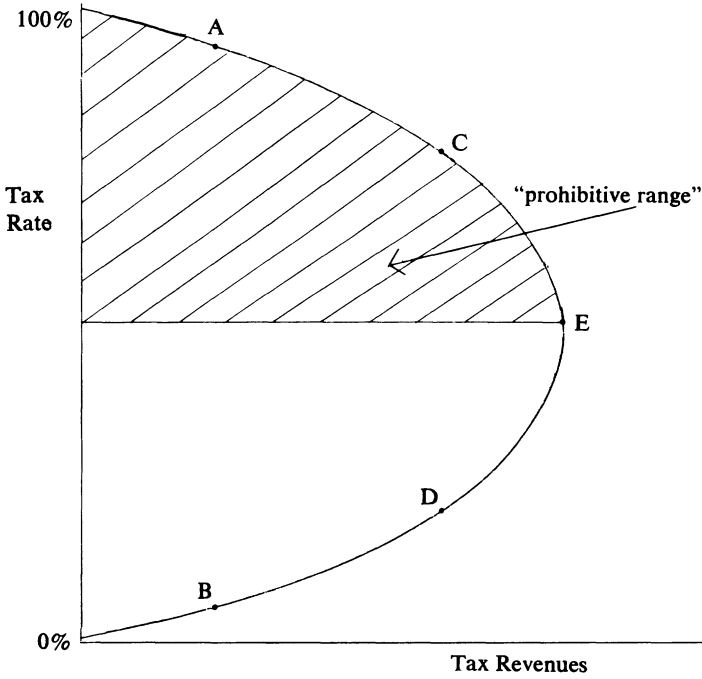
of a Kemp-Roth-style tax cut, and notwithstanding, serious academic analysis is still hard to find. While there is much disagreement over what precisely is the substance of “supply-side” economics, we shall restrict ourselves to a deliberate consideration of the logical merits and drawbacks of that notorious analytical construct, the “Laffer Curve.” Is it a tautology, a theory, or merely a pretext for a preordained political position?

The Structure of the Laffer Curve

The Laffer Curve was first made public in various newspapers and in Jude Wanniski’s book *The Way the World Works* in 1978.³ I quote Wanniski’s explanation of the curve, which corresponds to our Figure 1, for the purposes of accuracy:

When the tax rate is at one hundred percent, all production ceases in a monetary economy. People will not work in the money economy if all the fruits of their labor are confiscated by the government. . . . On the other hand, if the tax rate is zero, people can keep one hundred percent of what they produce in the money economy. There is . . . no government barrier to production, so production is maximized. Output of the money economy is limited only by the desire of workers for leisure; because the tax rate is zero, government revenues are also zero. . . . Point *a* represents a very high tax rate and very low production. Point *b* represents a very low tax rate and very high production. Yet they each yield the same revenue to the government. . . . The shaded area shows the prohibitive range for government, where rates are unnecessarily high and can be reduced with gains in both output and revenue.⁴

Wanniski was convinced that the United States was in the “prohibitive range,” although no evidence for that case was presented in his book. The only specification of the underlying structure of the Laffer Curve that would shed some light on that question appeared three months later in a rather unorthodox outlet for economic theory, the *Proceedings* volume of the meetings of the business and economics section of the American Statistical Association (ASA).⁵ This particular paper constructed a mathematical model of a one-good world with two factors of production, *stocks of both of which were taken as given in supply*. The model assumed the form of a static neoclassical optimization problem, employing a conventional well-behaved Cobb-Douglas production function, and assumed that factors were paid their marginal products prior to taxation. The only behavioral relations in the model were the supply functions of the two factors, whose only arguments in turn were the rates of return paid to the two factors *after* the exaction of the tax. Their entire argument can be summarized employing the diagram in Figure 2.



Because the supply function of labor (and the treatment of capital is precisely symmetrical) is only a function of post-tax wages, it purportedly remains fixed given an exogenous change in the rate of taxation of wages. In contrast, the labor demand curve (which is derived from the production function) has as its sole argument the wage in pre-tax terms; thus exogenous rises in the wage tax will shift the demand schedule. For example, suppose L_D represents the demand for labor, with a wage tax rate of zero. As the wage tax is raised into the positive range, the schedule of marginal productivity given by the technology remains unchanged, but the post-tax wage has uniformly fallen, shifting the curve to L_{D_t} . Further exogenous increases of the tax rate shift the labor demand curve toward the origin, lowering equilibrium employment *and* the equilibrium post-tax wage, and therefore, by implication, aggregate output. Since output is a monotonically decreasing function of the tax rate on either factor, and tax revenues are calculated by multiplying the appropriate tax rate times the aggregate factor incomes, one is left with an initially rising and subsequently falling schedule of aggregate tax revenue as a function of the tax rate: that is, the Laffer Curve.

Curiously enough, up to the present (late 1981) there has been no further theoretical elaboration of the curve by supply-side economists, even though interest in this construct has blossomed due to the economic policies of the Reagan administration. Recent articles by Arthur Laffer and others merely refer back to the 1978 *Proceedings* paper for theoretical justification.⁶ The purpose of the present article is to subject that model to the critical scrutiny sadly lacking in popular media presentations and in recent introductory textbooks.⁷ This article will conclude with some brief suggestions as to why supply-side economists will have to abandon the Laffer Curve as a serious pedagogic device for motivating their chosen political programs.

What's Wrong With the Laffer Curve?

Existing criticisms of the Laffer Curve appear to fall into one of four categories: (1) questions about the magnitudes of elasticities of incentives; (2) problems of empiricism; (3) the omission of other potentially relevant variables; and (4) a subsidiary controversy about the size of the 'underground economy.' We shall briefly examine each in turn.

The most prevalent mode of criticism of the Laffer Curve since its inception has been to admit that taxation might act to dampen individual incentives to supply factors of production, but then to point out that the magnitudes of known elasticities are not large enough to produce the

implied sizes of output contraction in the “prohibitive range” of the Laffer Curve. Studies of high-income persons find small alterations of hours of work across differing tax brackets,⁸ while econometric estimates of income and substitution effect elasticities with respect to marginal tax rates show magnitudes close to zero for adult males. However, there is some evidence that married females and teenagers do have an appreciable elasticity of labor supply with respect to after-tax wages.⁹ Given the propensity of the supply-siders to fault the government for the breakup of the family and moral order, they would be loathe to suggest that a massive tax cut will induce wives everywhere to abandon home and hearth in order to rush into the labor market while husbands maintain the status quo ante. Moreover, some economists have suggested that the overall elasticity of labor supply would have to be sixteen times larger than existing estimates for there to be an actual contraction of tax revenues.¹⁰ To a large extent, supply-side economists have simply ignored the implications of these empirical findings.

An obvious explanation of these empirical results is the fact that hours of work in the primary as opposed to the secondary labor markets are not matters of discretion for the individual worker. There, hours of work are set by institutional considerations: the conventional eight-hour day, the negotiated fifteen-minute coffee break, obligatory overtime assignments, and so forth. This explanation conflicts with the world views of both supply-side and neoclassical economists, who see all market activities as ultimately the reflection of individual tastes and preferences.

Some supply-side economists who are aware of this criticism have suggested that all institutional considerations are effectively irrelevant, due to the fact that existing empirical work on labor supply has ignored alterations of the intensity of work within the measured hour, absenteeism rates, and rates of job turnover.¹¹ These phenomena purportedly are all intimately related to labor productivity, react with appreciable alacrity to changes in taxation, and therefore should be interpreted as component parts of the supply-siders’ notion of “effort.”¹² Further attempts to dissociate themselves from previous estimates of labor supply elasticities involve rejection of cross-sectional empirical studies, since the individual’s labor supply is supposedly the outcome of an optimal plan over the whole life horizon. Because almost no previous empirical work has taken account of these issues, the cumulative effect of these supply-side criticisms is simply to deny the validity of all previous work done on labor supply.

However much supply-side economists deride existing empirical work on supply elasticities, they do not themselves feel impelled to re-estimate those elasticities in a manner conformable to their own criteria. This spe-

cific reaction to empiricism is indicative of the larger stance toward empiricism displayed by the supply-side school in general. While as a matter of course the supply-siders deride the empirical work of conventional economists, they themselves rarely attempt to produce evidence of even equivalent quality. This was apparent even in the early discussions of the Laffer Curve, when Laffer was called before Congress to testify on the then-proposed Kemp-Roth tax cut. Senator Packwood questioned Laffer point-blank on his method of empirically determining the peak of the Laffer Curve; Laffer openly evaded the question. Senator Packwood then doggedly pressed the question.

SENATOR PACKWOOD: Now, let's go back to finding this optimum again, because obviously, if indeed you can define it and we can arrive at it . . .

MR. LAFFER: I cannot measure it frankly, but I can describe to you what the characteristics of it are; yes, sir.¹³

Yet minutes later Laffer insisted that in the United States most tax rates were in his so-called "prohibitive range": that is, *beyond* the peak of the curve. The track record of the simultaneous media blitz of 1978 was equally misleading, with *Newsweek* actually printing a Laffer Curve with an arrow purportedly identifying the actual U.S. position as in the "prohibitive range."¹⁴

Not only the quantitative but also the qualitative shape of the curve is itself in substantial doubt. All supply-siders motivate the shape of the curve as follows: at a zero tax rate there is a zero yield by definition; at a 100 percent tax rate no one has any incentive to work so there is no yield; and finally, at some positive tax rate there is some positive tax yield. Simply draw a freehand connection between these three points and one discovers that the function must first slope upward and then must bend backward. But what if the third point at the tax rate of 100 percent is not correct or does not exist? Then, patently, we have no reason to believe that the curve ever bends backward. And what would a world with a 100 percent tax rate look like? Either it must be a place where the state owns everything and refuses to reimburse anyone according to their productive contribution (although it may pay them according to need: the prototype communist state), or else it is a purely imaginary state where no one ever gets paid at all. In the former case, although there is no country run strictly on communist principles, one might observe that people in many socialist countries have not eschewed all work. In the latter case, one might observe that a society where no one was paid would cease to be a society in a matter of a few days. The only conclusion to be drawn from these observations is that the third point on the curve *could not logically exist*; and with it, the

“prohibitive range” vanishes from the graph. Even as a hypothetical thought experiment, the curve runs into severe conceptual difficulties.

The supply-siders are understandably sensitive with regard to this point, and have two responses to it. The first, proposed by Wanniski, is that empiricism is irrelevant because “the electorate” instinctively knows where the maximum point is in its own country.¹⁵ The second, endorsed by most other supply-siders, is to relinquish quantitative empiricism in favor of “story-telling,” that is, recounting past instances of tax cuts that were followed by accelerated economic growth. The same few stories are repeated by all of the published members of the supply-side cadre: the 1964 Kennedy tax cut, the tax cut engineered by Laffer and Puerto Rican governor Romero Barcelo in 1978, and the Mellon-Harding tax cuts of 1921. The fallacy of this latter tactic is that most economists would agree that tax cuts by themselves tend to induce macroeconomic expansion. Since supply-siders ignore all of the logical elements other than tax cuts that conventionally comprise a narrative macroeconomic history, they in essence provide no evidence to differentiate themselves from conventional doctrines, and therefore do not avoid the issue of the whereabouts of the “prohibitive range.”

The only published quantitative attempt to confront the problem of empiricism by supply-siders was an article by three students of Laffer on the 1964 tax cut.¹⁶ This article began by admitting that the only legitimate way to deal with the issue was to estimate econometrically the underlying structure of the Laffer Curve, but then proceeded to admit that it did not seem possible.¹⁷ Instead, the authors chose to fit naive ARIMA (autoregressive moving average) models to quarterly federal personal income tax receipts for the period 1956_i to 1963_{iv}, and to quarterly federal corporate income tax receipts for the period 1952_{iv} to 1962_{iv}, both deflated by the Consumer Price Index. Next, they used these estimated models to predict deflated receipts for the next few years, and defined these artificial series as counterfactual receipts “as if” a tax cut had not gone into effect in 1964. Finally, they compared the synthetic series of receipts to the actual historical series, and defined the difference as the “impact of the Kennedy tax cut.”

Unfortunately this procedure lacks both a theoretical and a statistical rationale. ARIMA models are statistics without theory *par excellence*, since they involve regressing a single time series variable upon its own lagged values. Further, while ARIMA models have proven to be useful for quick and inexpensive short-term forecasts, it is well known that their mean squared forecast error increases quite rapidly outside of a one- or two-period ahead forecast.¹⁸ They should never be used for eight- or

sixteen-period ahead forecasts, nor would there be any expectation that they could sensibly represent a counterfactual world within such a time frame.

This evident fondness for single-variable models brings us to the third conventional criticism of supply-side economics: the accusation that these models omit variables and effects not only relevant but crucial to any understanding of the macroeconomy. For example, there is no single tax rate for any actor, much less any economy; and if that axis of the Laffer Curve is intended to represent some aggregate of rates, then the whole concept falls prey to problems of differential tax responses and their appropriate method of aggregation.

Moreover, this problem is simply the tip of the iceberg, since in order to address it one must possess a reasonably well articulated model of the interactions of the key sectors of the macroeconomy: specifications of what is exogenous and what is endogenous, the lines of causation and their identifying restrictions. All supply-side models are clear on this point: there is only one operational exogenous variable—the tax rate—and there is only one line of causality—government hindrance of the market mechanism. Levels of investment and consumption, interest rates, the distribution of employment, corporate leverage, sectoral imbalances, the balance of trade, raw material supplies: all these and more need not be modelled or considered, since in an ideal state they will take care of themselves. James Tobin has suggested that aggregate demand effects are felt more rapidly than are supply-side effects, and therefore are justified in commanding more attention; but surely this can only be a conjectural statement, because one cannot compare the relative speeds and magnitudes of impacts without a model incorporating all of the relevant possibilities. No such model has been proposed by either the Keynesians or the supply-siders.¹⁹

The fourth conventional criticism of supply-side theory is that no one knows the extent of the “underground economy,” and that hopes that thousands of surreptitious characters will suddenly mend their ways and file their 1040s are slim indeed. Few would maintain that there is no tax evasion in the United States. To relate this to the Laffer Curve, however, one would have to maintain that (a) the dollar magnitude of evasion is very large, and that (b) the elasticity of evasion behavior with respect to tax rates is itself quite large. The first point is not supported by Internal Revenue Service attempts to gauge its magnitude; the second point is anyone’s guess. By their very nature, these points both are and will remain unmeasurable, and therefore speculation about their relationship to tax cuts will remain speculation. In any event, it is important to note that the

derivation of the Laffer Curve has nothing to do with tax evasion; it is a subsidiary question, separate from supply-side economics proper.

The reader may have noted from the tone of my summaries of these conventional criticisms that while they are substantial and important, they are not decisive and will not ultimately sway the undecided. One reason supply-siders have come to influence the economics profession in America is that up to the present, the profession has accepted the basic theoretical premises of the supply-side program and chosen to quibble over the magnitudes of various effects, or to exhort the supply-siders to augment their analysis with some intellectually responsible empiricism.²⁰ This is the substance of the oft-heard refrain that the supply-siders are “looking at models that have not been tested or studied in depth.”²¹ A cruder version sometimes found in the news media suggested that even though their case is weak, why not let the Reagan administration try it and see what happens?

These attitudes display a disturbing anti-intellectualism shared by George Gilder and Wanniski. First, the “try it and see” attitude will not discriminate between true and false models, because no one will accept the Reagan tax program as a deliberate test of the Laffer Curve. By December 1981, in the face of rapidly escalating unemployment and ballooning deficit projections, Arthur Laffer was attempting to disassociate himself from the impending debacle by insisting that Reagan’s cuts had not gone far enough. But more importantly, the problem is *not* that supply-side models have never been *tested*; the problem is that supply-side ideas have never been logically *argued*, and are therefore fundamentally incapable of ever being tested. I would like to suggest that supply-side economics is not a theory at all, but rather a concerted attempt to ignore or suppress much that has been learned about the macroeconomy in the last fifty years. It is upon these grounds that supply-side economics must be rejected, and not upon the rather unavailing cavil that economists feel distressed about this or that “assumption.”

Let us begin with some narrow and concrete objections, and from these move on to the broader questions of economic theory upon which the Laffer Curve runs aground. One fault shared by all supply-side writers is their persistent and nearly willful confusion over the difference between a cross-sectional argument and a time series argument. Putting it plainly, just because you or I wish to work more when our taxes are lowered does not mean that we will be able to do so. Suppose we did a cross-sectional study of the marginal impact upon incentives of a progressive tax rate structure and found that the rates in the highest brackets did significantly reduce incentives and effort, whereas for the rest of the population the

effects were insignificant. One could plot the tax revenues per income bracket against the progressively rising rates to arrive at a crypto-Laffer curve. Supply-siders in that case have argued that tax cuts for the wealthy would result in expansion of the whole economy over time. This, however, is a *non sequitur* because at the very least one would have to know the effects of the tax cut upon the distribution of income, and consequently the further effects of this alteration upon spending flows and thus macroeconomic fluctuations. The reason supply-siders do not make a logically sufficient case in this instance is that they would have to make their implicit intermediate step explicit: they must presume that a worsening of the distribution of income is conducive to macroeconomic expansion. If this were not true, then any "Laffer Curve" derived from cross-sectional evidence could reveal nothing about the equivalent Laffer Curve at a macroeconomic point in time.

Secondly, Laffer and company have misunderstood and/or misrepresented the theoretical content of neoclassical economics. This is nowhere more evident than when it comes to the issue of income effects, especially with reference to the idea that rises in wages may cause a slackening of effort because of the income effect: a possibility that is an anathema to the supply-siders. Laffer brushes this serious qualification aside by insisting, "It has been long recognized that within a closed general equilibrium system, a change in relative prices will not ordinarily entail any aggregate income effect."²² He caps this assertion by citing a page from J. R. Hicks's classic, *Value and Capital*. If one turns to that page, however, one reads:

How probable is it that income effects will cancel out in this way? If buyers and sellers are similar people, and more or less similarly situated, then it is highly probable that the income effect will cancel out. . . . Of course it would be very lucky if things work out exactly in this way. Generally there will be a net increase or net decrease in excess demand as a result of the redistribution of income between buyers and sellers. . . . Therefore, when dealing with the problems of the stability of exchange, it is a reasonable method of approach to *begin by assuming* that income effects do cancel out, and then to inquire what difference it makes if there is a net income effect in one direction or another.²³ (Emphasis added.)

If Laffer had bothered to read to the end of the book, he would have found this passage:

Where my analysis seems to have been defective is that it did not take sufficient trouble with this income effect. (I was too much in love with the simplification which comes from assuming that income effects cancel out when they appear on both sides of the market.) . . . Instability through

asymmetric income effects is, however, a perfectly general possibility, which runs through static, as well as dynamic, analysis.²⁴

Clearly there is no “general recognition” that income effects cancel; even more threatening to Mr. Laffer’s world-view, the existence of those shifting non-zero income effects calls into question the very stability and efficacy of the market mechanism.

This lack of coherent exposition of neoclassical theory extends to Laffer’s own theoretical attempt to provide analytical foundations for the Laffer Curve. The *ASA Proceedings* model of 1978 is incapable of providing logical support for the assertions that accompany it. First, the only relations modelled are those of a Cobb-Douglas technology in a one-good world and two behavioral supply functions for the two inputs. No problems of effective demand are ever allowed, since there are no postulated demand equations for output, nor is consumer or investor spending behavior modelled. Since the analysis is cast in the form of a static optimization problem and quantities of available factors are fixed and given, full employment and everything it entails has been assumed: macroeconomics itself has been ruled out of bounds. One needs either a dictator or a phantasmic auctioneer to explain how this optimum is brought about. Secondly, Laffer confines his technology to a unit elasticity of substitution because if technological substitution were more elastic, the producers could effectively avoid using the more highly taxed input, and aggregate output would not necessarily contract. Thirdly, Laffer works with a one-good world because he needs a monotonic relationship between “marginal productivity” and factor payments: a relationship which most neoclassical theorists would now admit does not necessarily hold outside of a one-good world.²⁵

Given the imperfect supply-sider presentations of the neoclassical theories which they claim for their own, it is not surprising that their indictments of conventional economists are also flawed. The most glaring case of unconscious projection on their part is their accusation that everyone except supply-side partisans are partial-equilibrium theorists, whereas supply-side economics is the real or true general equilibrium theory.²⁶ As should now be apparent, supply-side economists are equally, if not more, guilty of their own indictment than the neoclassicals or the Keynesians. They do not incorporate demand behaviors into their models; they work with naive one-good models where actors have no options over levels and timing of spending; they employ neoclassical demand and supply diagrams without once worrying about the *ceteris paribus* conditions. True general equilibrium theorists are often the first to point out that simple uni-

directional causal relationships, like that running from tax rates to aggregate output, are compromised in an adequately specified general equilibrium model.

Perhaps most significantly, supply-side theorists in a single chorus maintain that they are trying to revive Say's Law as a serious foundation of their analysis.²⁷ They reject Keynes's liquidity preference and seem to believe in the total neutrality of money: "The electorate does not view money as a storehouse (sic) of value. . . . It will not exchange its labor for money not needed for transactions."²⁸ They appear to believe that the level of equilibrium aggregate output is set entirely independently of all spending behaviors: "Immediate output can expand through debt finance, but the electorate understands that future output will have to fall *precisely* by that amount" (emphasis added).²⁹ Laffer and his cohorts are pressing for a revival of Say's Law precisely at the moment in the history of neo-classical economics when a consensus has arisen that received microeconomics was logically incompatible with received macroeconomics, because "either Walras's Law (or its corollary, Say's Law) is incompatible with Keynesian economics, or Keynes had nothing fundamentally new to add to orthodox economic theory."³⁰ Keynes's major contribution to economic theory has been interpreted to be the idea that neoclassical price theory lacks a determinate theory of aggregate output, particularly when optimal prices are not set by an auctioneer or other *deus ex machina*. The problem in the past, as Roy Weintraub explains in his excellent survey of this literature, has been that "economists have tried to cut economic phenomena into micro and macro when, in fact, the appropriate 'cut' is between models of coordination success and models of coordination failure."³¹ Static neoclassical optimization models are models of coordination success that have no room for systemic failure. When Laffer or Wanniski insist upon the tenability of Say's Law, they are claiming that the modern economy can never experience an internal coordination failure, thus ignoring the most profound economic insight of the twentieth century; and they are blind to the fact that there is no plausible or credible explanation of the successful coordination outcomes in the static demand and supply models they employ. A clarion call to resurrect Say's Law in the face of these objections is a call to "forget everything we ever knew." It is nothing less than intellectual Luddism.

Notes

1. James Tobin, letter dated 3 August 1978, in U.S., Congress, Joint Committee on the Budget, *Leading Economists' Views of Kemp-Roth* (Washington, D.C.: U.S. Government Printing Office, August 1978), p. 163.
2. Robert M. Solow, letter dated 27 July 1978, in *Economists' Views*, p. 148.
3. For documentation and further elaboration of this statement, see Philip Mirowski and Larry Bach, "The Origin and Propagation of the Laffer Curve," discussion paper, Department of Economics, Tufts University, June 1981.
4. Jude Wanniski, *The Way the World Works* (New York: Basic Books, 1978), pp. 97–8.
5. Victor Canto, Douglas Joines, and Arthur Laffer, "Taxation, GNP, and Potential GNP," *Proceedings of the American Statistical Association*, Annual Meeting, San Diego, California, August 14–17, 1978, Business and Economics Section; pp. 122–30.
6. Arthur Laffer, "Supply-Side Economics," *Financial Analysts' Journal* (September–October 1981), and "Government Expectations and Revenue Deficiencies," *Cato Journal* 1 (Spring 1981).
7. See, for example, Thomas Hailstones, *A Guide to Supply-Side Economics* (Richmond: Dame, 1982).
8. See George Break, "Income Taxes and Incentives to Work," *American Economic Review* (1957): 529–49; D. B. Fields and W. T. Stanbury, "Income Taxes and Incentives to Work," *American Economic Review* (June 1971); and *Theoretical and Empirical Aspects of the Effects of Taxation on the Supply of Labor* (Paris: Organization for Economic Cooperation and Development, 1975).
9. See the many studies cited in U.S., Congress, Congressional Budget Office, *An Analysis of the Kemp-Roth Tax Cut Proposal* (Washington: U.S. Government Printing Office, October 1978), pp. 14–16; and C. V. Brown, *Taxation and the Incentive to Work* (Oxford: Oxford University Press, 1980); and Harvey Rosen, "What is Labor Supply and How Do Taxes Affect It?" *American Economic Review* (May 1980): 171–76.
10. Don Fullerton, "On the Possibility of an Inverse Relationship Between Tax Rates and Government Revenues," National Bureau of Economic Research Working Paper no. 467, April 1980.
11. This insistence on a productive hour different from the measured clock hour has interesting parallels with Marx's concept of "intensity" in his labor theory of value. See Karl Marx, *Capital*, vol. 1 (New York: Vintage, 1977), pp. 533–35.
12. See David Henderson, "Limitations of the Laffer Curve," *Cato Journal* (Spring 1981); and Paul Craig Roberts, "The Breakdown of the Keynesian Model," *The Public Interest* (1978).
13. Hearings before the Subcommittee on Taxation, 28 and 29 June 1978 (Washington: U.S. Government Printing Office, 1978), pp. 259–60.
14. Rich Thomas, "The Tax Revolt's Guru," *Newsweek*, 26 June 1978, pp. 24–25.
15. Jude Wanniski, *The Way*, p. 100.

16. Victor Canto, Douglas Joines, and Robert Webb, "Empirical Evidence on the Effects of Tax Rates on Economic Activity," *Proceedings of the American Statistical Association*, Business and Economics Section, 1979.
17. *Ibid.*, p. 35.
18. G. E. Box and G. M. Jenkins, *Time Series Analysis* (San Francisco: Holden-Day, 1976), chap. 5.
19. James Tobin, letter dated 3 August 1978, *Leading Economists'*, p. 163. Michael Evans has been paid a staggering amount of money to develop a "supply-side econometric model" by the U.S. Congress after his recantation of Keynesian theory in the Jan. 1980 *Challenge*, but as yet no results have appeared in any of the academic economics literature.
20. "'My entire department is teaching supply-side economics,' said Burton Malkiel, chairman of the economics department at Princeton University." Quoted in Karen Arenson, "Supply-Side Economics Commands New Respect," *New York Times*, 5 March 1981, p. D14. In the same article, Paul Samuelson says he will include supply-side concepts in his next edition of the *Principles*.
21. Arenson, "Supply-Side Commands." In a crude sense, the Laffer curve had been tested, in that curves were econometrically fit to timeseries of aggregate tax rates and tax revenues for the U.K. and the U.S., respectively, in Michael Beenstock, "Taxation and Incentives in the U.K.," *Lloyds Bank Review* (October 1979), and Seth Moldoff, "An Empirical Study of the Laffer Curve," *Michigan Journal of Economics* 3 (April 1981). Neither study found that the country studied was in the "prohibitive range." Given the quality of outlet that each paper appeared in, one can infer that neither study was taken very seriously. One might speculate that that was because most economists would realize that fitting a curve that lacks an underlying structure to some data points cannot constitute a test.
22. Arthur Laffer, "Government Exactions," p. 2.
23. J. R. Hicks, *Value and Capital*, 2d ed. (Oxford: Oxford University Press, 1946), pp. 64–5.
24. *Ibid.*, pp. 334–35.
25. See G. Harcourt, *Some Cambridge Controversies in the Theory of Capital* (Cambridge: Cambridge University Press, 1972), and Edwin Burmeister, *Capital Theory and Dynamics* (Cambridge: Cambridge University Press, 1980), chap. 4.
26. Jude Wanniski, *The Way*, p. 166, and Paul Craig Roberts, "Breakdown," p. 31.
27. Arthur Laffer, "Government Exactions," pp. 10–11; George Gilder, *Wealth and Poverty* (New York: Basic Books, 1981), pp. 32 and 39.
28. Jude Wanniski, *The Way*, p. 163.
29. *Ibid.*, p. 160.
30. Robert Clower, "The Keynesian Counterrevolution: A Theoretical Appraisal," in R. Clower, ed., *Monetary Theory* (Baltimore: Penguin, 1970), p. 278.
31. E. Roy Weintraub, *Microfoundations* (Cambridge: Cambridge University Press, 1979), p. 75.