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The Case for Supply-Side Economics Revisited: The Effect of Time Preference

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Abstract

Despite some legitimate criticisms that are acknowledged, the basic idea behind the Laffer curve analysis of the 1980s is theoretically sound. Some of the fallacies and flaws that subsist in standard accounts of the general effects of taxation can be related to the fact that time preference is not taken into account. The primary significance of time preference has been insufficiently recognized in the mainstream literature. Apart from Buchanan's refinements of the Laffer curve analysis and besides the widespread recognition of the phenomenon of time preference by economists of the so-called "Austrian" school, amazingly little attention has been paid to it. This article constitutes an attempt to help remedy this situation. Moreover the "Austrian" analysis provides valuable insights concerning the problem of the incidence of taxation that haven't received proper recognition either.

Keywords: time preference, supply-side economics, Laffer-effect, substitution effect, incidence of taxation, consumption tax

JEL Classification: H21, H22, H30, K34

Introduction

Since the start of Stage Three of the Economic and Monetary Union on 1 January 1999 and the introduction of the euro some resurgence of interest in supply-side economics has taken place. In *The Wall Street Journal Europe* of June 3, 1999 Mr. Hanke wrote: "Europe is on the horns of dilemma. If it wants a strong euro it must choose Reaganomics, if it wants the Third Way, it will have a cheap currency. What it can't do is mix these two options" (p. 10). In the first 1998 *ECB Annual Report* it is recognized that "The effectively high marginal tax rates and social security contributions that are the norm in many European countries are considered to be further disincentives to take up work, particularly for those in lower income brackets" (p. 31).

The arithmetical relationship between tax rates and total tax revenues came to be widely discussed under the "Laffer curve" rubric in the early 1980s in the United States. The Laffer curve and supply-side economics also became associated with the Reagan economic policies. The assessment of the Reagan economic record is still the subject of scholarly debate (see Niskanen and Moore, 1996). In

1981 Ronald Reagan entered the White House and immediately implemented a dramatic new economic policy agenda for the country that was dubbed "Reaganomics." Reaganomics consisted of a number of key elements one of which was a 25 percent across-the-board tax cut designed to spur savings, investment, work, and economic efficiency.[1]

What matters for the richest taxpayers is the marginal tax rate at the top. This rate was lowered in the 1981 and 1986 tax laws. The response was a dramatic increase in reported income by the very rich. These results have been taken as evidence that the supply-side cuts in the top marginal tax rates were a success. Higher marginal tax rates cause the rich to report enough less income so that the taxes paid by this group decline. The response to the 1981 and 1986 tax laws was a dramatic increase in reported income by the very rich. (Barro, 1996, p. 114) The strong responses of incomes reported by the rich to tax-rate changes have been taken to accord with supply-side predictions (ibid, p. 118).[2]

The economic effects of tax changes

It has been widely recognized that a neutral tax cannot exist (Van den Hauwe, 1998, p. 272; Rothbard, 1997, pp. 56–108).[3] In the usual type of analysis this insight is illustrated by pointing to a number of the existing tax system's features which contribute to raising the relative cost of effort and of saving.

The economics that was described as *supply-side fiscal policy* arose in opposition to the Keynesian notion that an increase in demand, by itself, will increase supply and therefore accelerate economic growth. Whereas the Keynesian approach perceives tax changes in terms of their effects on the amount of income available to the affected persons or businesses and seeks to identify how that disposable income change affects behavior,[4] in the approach considered here the aspect of a tax which results in changes in economic behavior is its effects on the cost to the affected household or business of one good relative to another. Every tax has the attribute of altering relative costs; that is, it increases the price or cost of one good relative to another.

If the income generated by effort is subject to a tax whereas that produced in leisure activities is not, the tax must raise the cost of the former relative to the cost of the latter. The higher the marginal tax rate the greater is the inducement to substitute leisure for work. The high tax rate reduces the rewards of work, and at the same time it cuts the cost of leisure.

The concept of cost that is relevant for this purpose is that of opportunity cost. Cost constitutes the negative side of any decision, the obstacle that must be got over before one alternative is selected. Cost is that which the decision-taker sacrifices or gives up when he makes a choice. It consists in his own evaluation of the enjoyment or utility that he anticipates having to forego as a result of selection among alternative courses of action (Buchanan, 1969, pp. 42–43). Taxes affect cost

in a choice-influencing context; that is, they subject the individual or firm to an imposed change in the alternatives of *private or market* choice (ibid., p. 52).

An individual's allocation of his time and resources between labor and leisure depends on the opportunity costs of these alternatives. The individual optimizes when the marginal returns and marginal costs of each are the same.[5] In the same vein the income tax raises the cost of saving relative to the cost of current consumption. To optimize, an individual will allocate his available current income between consumption and future income in such a way that the marginal cost and marginal utility of each is the same.[6]

In the present tax structure of most countries taxes are levied both on the current income which is saved and on the future income acquired with the saving. The usual type of analysis recognizes that a tax structure of this sort will result in a smaller stock of capital than would otherwise exist.[7] With a tax, the pretax rate of return required to elicit any given amount of saving will be higher than that required in the absence of the taxes. That is to say the required pretax rate of return must rise sufficiently so that after paying the tax the net return will be that required to induce people to hold the same amount of capital.

Since the productivity of labor, hence real wages, depends in significant part on the amount of capital with which labor is employed, this tax-induced shortfall in the stock of capital also results in lower rewards for labor than would be provided in the absence of the tax. This is likely to entail less employment. In turn, the lesser amounts of capital and labor employed mean that total output and real income are less than would be forthcoming in the absence of the tax bias against saving and capital formation. At the lower level of income, aggregate saving will be less than otherwise. So analogous to the case of the labor-leisure choice, the initial effects of taxes on the saving-consumption choice are responses to the tax-caused distortion of the cost of saving relative to the cost of consumption. The responses to this relative price change lead to lower levels of productivity and of total production inputs, hence to lower income than would otherwise be realized. In turn, this reduced level of income, the *second-order* income effect of the taxes, further reduces saving and capital formation.

The general effect was well characterized by Ludwig von Mises when he wrote:

> Thus the accumulation of new capital is slowed down. The realization of technological improvement is impaired; the quota of capital invested per worker employed is reduced; a check is placed upon the rise in the productivity of labor and upon the concomitant rise in real wage rates. It is obvious that the popular belief that this mode of confiscatory taxation harms only the immediate victims, the rich, is false (Mises, 1998, p. 804).

It must be clearly understood that the supply-side label should not mislead. Some of the more popular forms of the supply-side argument have been attacked on the basis that they proclaim "the primacy of supply" to the extent of suffering from a variant of the cost-of-production-determines-price fallacy (Hazlett, 1982).

However, there can be little dispute on the centrality of consumer *demand* in any framework for determining economic values and the allocation of resources in society. *The conditions of supply are wholly determined by the demand for scarce resources in competing or alternative uses*. The supply of any one good will be controlled by the consumer demands that would have to be sacrificed to obtain it. It requires a producer/entrepreneur to outbid competing consumers for the resources involved to make it. In other words the supply is determined by opportunity cost which is in turn determined by consumer *demand*.[8,9]

The Laffer-effect

The linchpin of the 1980s supply-side economics was the Laffer curve. The Laffer curve is just the well-known sidewise U. It shows that increases in tax rates discourage market-sector production and may therefore, beyond a certain level, be counterproductive in raising tax revenue. This result is based on a simple but fundamental human response to higher tax rates. Changes in tax rates affect output in a direct fashion. As the tax rate increases, the quantity of work demanded declines. At first, the higher tax rate applied to the fewer units results in greater total revenue. However, before too long, quantity falls in greater proportion than the rise in tax rate. Therefore, the revenues, or the tax receipts, also fall, despite, or because of, the higher tax rate. Higher tax rates reduce the desire for work. This reduces total output, and total tax collections decline, since taxes are based on output. The diagrammatic representation of the curve places the tax rate on the vertical axis and revenues on the horizontal axis.

In this type of analysis it is assumed that substitution or price effects are *not* dominated by income effects and that supply curves are upward-sloping (or, reciprocally, that demand curves are downward-sloping). In other words it is assumed that the Laffer-effect *necessarily* exists: an individual shifts from an activity which is more heavily taxed to other activities. However, the process of adjustment may not be instantaneous, so that one may have the feeling that people react contrary to what the substitution effect would lead one to expect. But this effect, if it ever exists, is necessarily a transitory and secondary phenomenon (Salin, 1996; see also Note 14).

The Laffer model had provoked several criticisms. Some of these were well summarized by Tyler Cowen almost twenty years ago (Cowen, 1980). The curve is nothing but an imaginary representation of the aggregate results of individual decisions regarding work vs. leisure, saving vs. consumption, etc. These decisions are essentially of a subjective nature; they cannot be measured. Even if peoples' preferences and expectations were known by the policy maker, they cannot be assumed to remain constant. Suppose an economic policy maker is given the task of finding the point of the Laffer curve that maximizes government revenue. Such supply-side fine-tuning would involve using the Laffer model as an instrument of prediction. But the notion of cost in a predictive model of economics must be

objective and is at odds with or at least different from the subjective choice-influencing notion of cost discussed above. One of the other criticisms that had been leveled against the Laffer curve is that, like most macroeconomic theories, it lacks any discussion of economic processes. It is simply assumed that the economy shifts from one point on the curve to another. There is no discussion of how the shift occurs, how long the shift takes, or what relative price effects are engendered by the shift. The naive versions of supply-side economics did not provide these insights because they had not incorporated micro-dynamics into the theory.

Moreover the Laffer approach is not exactly an unbiased scientific account of the general effects of income taxation. The viewpoint implicitly adopted is that of the policy maker. The obvious use of the Laffer curve is for the purpose of maximizing government revenue. There is nothing necessarily "free-market" about supply-side economics. It could be just as easily used to justify a tax increase as a tax decrease, depending on our supposed location on the curve. Supply-side economists focus on the rate of taxation as a potentially benevolent instrument of policy, to be varied at the policy maker's discretion. In doing so, they do not only draw attention away from possible political-philosophical questions. As Tyler Cowen pointed out almost twenty years ago, if the supply-siders are seriously concerned about productivity rather than government revenue, let us issue the following challenge: redraw the Laffer curve by replacing "government revenue" on the horizontal axis with "private-sector productivity." Draw a new curve, representing the trade-off between the rate of taxation and productivity. This curve will have a negative slope, showing productivity at its maximum when the tax rate is zero (ibid., p. 7).

A look at the Laffer-effect from the perspective of constitutional economics

One of the questions raised by the Laffer curve is related to the fact that it is not clear why a rationally motivated political decision process should ever generate an inverse relationship between tax rates and tax revenues. What would be the logical reason for increasing tax rates beyond maximum revenue limits? Obviously it is logically possible that tax rates may be so high that tax revenues are actually lower than they would be at lower rates. But in this case, of course, there should be general agreement among all parties on the need for a rate reduction. Why would rates have been allowed to become so high as to reduce total tax revenues, since such rates would not be to the advantage of taxpayers or politicians (Brennan and Buchanan, 1985, p. 85)? Surely pointing to the logical possibility of such a rate-revenue relationship is not the same as suggesting that modern fiscal systems are at a position where a decrease in tax rates would increase rather than decrease tax revenues. The key to answering this question consists of incorporating the role of diverging time horizons and also of expectations into the analysis. We owe a significant attempt to refine the theory in this direction to Buchanan and Lee (1982a,b) and Brennan and Buchanan (1985).

Brennan and Buchanan postulate that the effective time horizon embodied in governmental fiscal decisions is less extensive than that embodied in taxpayer response to tax-rate changes. Individual behavior in collective choice is likely to reflect shorter time horizons than comparable behavior in private or individualized choice. In other words, the "social discount rate" generated in the operation of modern political decision-making institutions will be higher than the rate of time preference exhibited by persons in their private behavior. The reason is that in a public-choice setting the individual is less capable of predicting the collective response to the choice options predicted to be confronted in future periods than of predicting private, personal reactions. The person cannot incorporate the multi-period interdependence of decisions to the same degree that is possible in private choice (ibid., p. 76).

If this hypothesis is valid, it would follow that as modern societies have become increasingly collectivized or politicized, there has been a shift toward a higher discount rate implicit in the allocation of the economy's resources.

So the so-called high-tax trap emerges from the disparity in time horizons between private and public choice. This disparity in time horizons is the central element in an imagined but plausible scenario that might well produce the position on the "wrong" side of the rate-revenue relationship. Taxpayer adjustments to tax-rate changes take time but the long-term relationship is irrelevant to the political decision process. So long as government is short-sighted, it will always seek to exploit to some degree the vulnerability of the taxpayer over the period between the change in tax rate and the attainment of full individual and institutional adjustment (Buchanan and Lee, 1982a, p. 350). There need be no violation of the precepts of rationality by those who participate in political decision making, but given the absence of constraints on the fiscal proclivities of the collectivity, along with the existing rules and procedures for generating fiscal decisions, they cannot readily escape from the dilemma (Brennan and Buchanan, 1985, p. 89)

In terms of the simple geometry of the Laffer curve the result can be clarified as follows (Buchanan and Lee, 1982b). Since an increase in rates will always increase revenue more in the short run than in the long run, the hypothetical short-run Laffer curve politicians would face if they were completely unconstrained in their choice of tax rates lies wholly outside the long-run curve; that is, government would impose a tax rate which would totally eliminate the tax base in the second period. Now suppose that political restraints allow a one-period rate increase only up to the rate that maximizes revenues on the long-run Laffer curve. Then under the assumption that governmental decision makers are interested only in the single period, this rate will not be the political equilibrium tax rate and government will move to increase the rate beyond this rate. In other words the political equilibrium tax rate is located at the point where the revenue maximum on a short-run Laffer curve cuts the down-sloping part of the long-run Laffer curve.

At equilibrium, those who determine rates have no incentive to change them and those who pay taxes have fully adjusted to the rates in being. There is no political incentive for rates to be increased or decreased since a reduction in rates reduces

revenues in the short run while increasing revenues only in the politically irrelevant long run. Those who argue that government would never operate on the down slope of the Laffer curve are implicitly adopting a short-run perspective, while those who argue that rate reductions will stimulate supply-side responses sufficient to generate increases in revenues are implicitly adopting a long-term perspective.

The introduction of expectations modifies the analysis somewhat. If taxpayers model government as a short-run revenue maximizer then rather than respond fully to tax rates other than the political equilibrium tax rate, they will see these other rates as temporary and will respond directly in accordance with the final short-run Laffer curve.

At political equilibrium, both governmental decision makers and taxpayers find themselves in a dilemma. Taxpayers will not respond to a reduction in rates because they will predict a return to the equilibrium rate so long as they postulate short-run maximizing behavior by government. Even if current politicians should take a longer time perspective, they would have difficulty convincing taxpayers to respond along the long-run Laffer curve. Future policymakers exert control over current policy through the expectations created by their probable behavior. Expectations about the behavior of future policymakers create an environment in which rational current policymakers are compelled to behave in the same short-sighted way that their successors are expected to behave. The structure of the politics in which politicians act requires them to act contrary to public interests if they are to survive at all (Van den Hauwe, 1999, p. 103).

The "high tax trap" is only one of several critically important policy dilemmas that arise when there is an obvious discrepancy between the government's rate of discount and that rate that would be "efficient" in some long-run sense. When economists became aware of the central features of these dilemmas they shifted their attention to the analysis of *rules* that will restrict the operations of ordinary politics. There are "mutual gains from trade" to be exploited by government and by citizens but these can be secured only if government can somehow bind itself through some sort of commitment to lower rates below political equilibrium levels and to hold these rates down. In this way the positive analysis can be turned into an argument in favor of constitutional rules constraining the taxing powers of democratic majorities. Somewhat heroically Buchanan et al. assume that the institutions of modern politics can be adjusted through constitutional change to ensure that, whithin these institutions, *persons will have incentives to act in accordance with what they recognize to be the long-term interest of the community, as well as their own* (Brennan and Buchanan, 1985, p. 90).[10]

It is the merit of the approach of Buchanan et al. to have introduced into the analysis a constitutional perspective and more particularly to have drawn attention to the significance of the phenomenon of divergent time horizons in the fiscal process. Nevertheless, it must be noted that this analysis of the high-tax trap involves some idealized assumptions. The analysis requires that the time horizon of the political decision-maker is shorter than that period of time that is necessary for taxpayers to make their full behavioral adjustments to changes in the rates of

taxation. It is equally assumed, however, that the taxpayer and the beneficiary groups are largely coincident in membership. Government is presumed to be responsive to the demands of citizens *both* for expanded state services (and transfers) and for lower tax rates. It is assumed that the participants in fiscal decision-making processes are uninterested in the fact that taxpayer adjustments take time, *even when*, *at another level of consciousness*, *they may realize that they are the same persons who are involved in the quite separate roles* (sic Brennan and Buchanan, 1985, p. 88). On the one hand it is argued that the high-tax trap represents a result that is desired by no person or group of persons in the community (ibid., p. 96). On the other hand it is stipulated that the individual who adopts a genuinely long term perspective in his role as a participant in politics is behaving irrationally (ibid., p. 89). So people rationally engage in behavior the results of which they do not like. Why would that be?

I will argue that the implications of the fundamental fact of time preference are in fact more far-reaching than is highlighted in these reflections of Buchanan et al. The fiscal process *institutionalizes* the high time preference and short-term oriented planning horizon of the participants in fiscal collective decision-making. To the extent that taxation reduces present and future income, it undermines the value of property and undercuts long-term planning and decision making. The taxpayers themselves will become engaged in shorter production processes than they otherwise would.[11]

Risk/uncertainty versus time preference

The standard textbook treatment of these issues pays no attention at all to the effect of time preference. This contrasts with the attention devoted to the effect of increased *risk* or *variability of return*s. It is usually considered that probability distributions of returns are essential in deriving a quantitative financial risk surrogate. Investors, it is believed, tend (consciously or subconsciously) to focus on the probability distribution of rates of return. In particular, investors want to know the average rate of return they can expect from each potential investment and the risk associated with that investment (Francis, 1986, p. 206). Objective distributions, it is believed, are in many cases good estimates of what the future holds (ibid.). Measuring risk by the standard deviation and variance is equivalent to defining risk as variability of returns about the expected return or, simply, as variability of returns (Francis, 1986, p. 209). As regards taxes it is readily recognized for instance that international investors face political risk in the form of expropriation of nonresidents' assets, foreign exchange controls, disadvantageous tax and tariff treatments and so on. It is sometimes assumed that *the passage of new tax laws or the modification of previously existing taxes can be foretold but only probabilistically*, *if at all* (ibid., p. 249). It is thus implicitly assumed that the laws of probability that seem to explain the behavior of random variables in nature apply as well to the behavior of financial variables such as returns (Kritzman, 1991, p. 17).

Such an extension is almost certainly problematic. It is interesting to note that Richard von Mises himself insisted that the frequentist conception of probability was not applicable to the moral sciences, owing to the absence of events meeting the conditions of a *Kollectiv*, something conveniently forgotten by subsequent generations of frequentist economic theorists and econometricians (Mises, 1957, p. 9).[12]

The most fundamental distinction in this respect is that of risk versus uncertainty. A situation is said to involve *risk* if the randomness facing an economic agent can be expressed in terms of specific numerical probabilities. On the other hand, situations where the agent cannot assign actual probabilities are said to involve *uncertainty*. These notions can be subsumed under the more general categories of *class probability* and *case probability* (Mises, 1998, pp. 107–115). Class probability is the only form of probability subject to numerical expression. It means: We know or assume to know, with regard to the problem concerned, everything about the behavior of a whole class of events or phenomena; but about the actual singular events or phenomena we know nothing but that they are elements of this class (ibid., p. 107). Case probability means: We know, with regard to a particular event, some of the factors which determine its outcome; but there are other determining factors about which we know nothing (ibid., 110). It is not open to any kind of measurement (ibid., p. 113). So while it can be agreed with subjective probability theorists that frequency probability does not encompass all we mean by probability, subjective probability is not measurable in any but an ordinal sense (High, 1990, Chapter 3). Estimates of future returns on the part of entrepreneurs are better considered as unique cases of uncertainty, where methods of specific understanding and individual judgment of the situation must apply, rather than objectively measurable risk (Rothbard, 1962, p. 500).

In the analysis of real world cases it might turn out difficult to disentangle the effect of time preference from that of uncertainty. However, conceptually the distinction is clear and straightforward. Under conditions of perfect foresight time preference would still produce effects. The distinction between risk and uncertainty is meaningful but it is not really relevant in this context. My analysis does not depend upon any assumptions concerning risk or uncertainty.[13] Time preference cannot be conceived of as disappearing even in the evenly rotating economy (or the state of final general equilibrium). The evenly rotating economy is an imaginary construction or conceptual tool that makes it possible to conceive of originary interest in its pure form as distinct from the entrepreneurial component of interest.

Does the Laffer-effect really exist?

The Laffer-effect assumes that there is always an inverse relation between the tax rate and productive efforts. However, microeconomics traditionally splits the consequences of price changes into two different effects: the substitution effect and the income effect. The effects can work in diverging directions. The precise

reaction of demand or supply to a relative price change can operate either way. The supply curve is not necessarily upward-sloping and the demand curve is not necessarily downward-sloping.

The income effect plays a crucial role in mainstream microeconomics because it induces economists to think, for instance, that there are backward bending curves for the supply of labor. Within a certain range, a decrease in the real wage would not bring about a decrease in the supply of labor, since people want to maintain their income and, therefore, increase their supply of labor. If this is true in tax theory, the Laffer-effect would not exist, at least in certain conditions in which the supply curve for labor is supposed to be atypical. With the income effect, an increase in the tax rate on labor income—i.e., a decrease in the real after-tax wage —would be compensated for by working more. In a similar way, the income effect would account for a possible increase in the rate of savings when the return on savings is decreasing.

Thus it has been maintained that "theory provides no firm conclusion as to whether the person's total amount of effort will be greater or less than if there were no tax" (Ture, 1982, p. 55), that "The shift of the supply curve in response to a tax rate change (...) depends on the interaction and the net value of the substitution and income effects.(...) The net effect is indeterminate" (Moszer, 1982, p. 212) and that "Economic theory is agnostic on the relation between saving and the interest rate. When the rate of return on saving rises there is a substitution effect and an income effect and the sum of these effects may be either positive or negative" (Kaish, 1982, p. 397).

The negative incentive notion was held, among others, by mercantilist writers. Low wages, according to mercantilist writers, would not only contribute to low (export) production costs and, hence, to a favorable balance of trade but were also viewed as a stimulus to productive work effort. According to this "low wage doctrine," work effort was related to negative (but not positive) incentives. High wages were held to lead to idleness. Workers would increase their effort only out of necessity. Necessity, according to the mercantilists, was the mother of industry and invention (Keleher and Orzechowski, 1982). The Physiocrats, unlike the mercantilists, did stress the importance of positive incentives in fostering the supply of labor. High wages were viewed as enhancing rather than inhibiting innovative activity and productive work effort. Like the Physiocrats, Hume challenged several mercantilist views on taxes. Yet despite the fact that he was one of the first English writers to dissent from mercantilist theories, like the Physiocrats Hume also failed to break completely from these views. Though he acknowledged clear limits to this effect, Hume felt that, under certain conditions, taxpayers might counteract the effect of a tax increase by increasing ingenuity and work effort:

> There is a prevailing maxim, among some reasoners, that every new tax creates a new ability in the subject to bear it, and that each increase of public burdens increases proportionably the industry of the people (cited in Keleher and Orzechowski, 1982).

Unlike the mercantilists and his close friend Hume, Adam Smith argued that high wages would not reduce the incentive to work. He strongly condemned the mercantilist notion that the short-run labor supply curve is backward-sloping and contended that an increase in wages would always induce an increase in the supply of labor services.

According to Adam Smith:

> The liberal reward of labour (...) increases the industry of the common people. (...) Where wages are high (...) we shall always find the workmen more active, diligent, and expeditious than where they are low (...) (Smith, 1776, p. 184).

In mainstream microeconomics, the income effect and the substitution effect are presented as similarly general effects.[14] The argument is plausible as far as it goes. In the free market individuals are always balancing their money income (or real income in exchangeable goods) against their real income in the form of leisure activities. Both are basic components of the standard of living. The greater their exchangeable-goods income, the higher will be their marginal utility of a unit of leisure time (nonexchangeable goods), and the more proportionately will they "take" their income in the form of leisure (Rothbard, 1970, p. 96).

Imposing or raising taxes leads to a reduction of the income derived from the taxed assets; this reduction raises the marginal utility of such assets as compared to the marginal utility that can be derived from other forms of activity (including leisure activities). It is not surprising, then, that a coerced lower income may force individuals to work harder. Thus taxation actually helps increase the tendency to engage in production instead of lowering it. In other words, to the extent that the same amount of labor now earns an individual less money, this reduction in money income will raise the marginal utility of a unit of money and the individual will be induced to work *harder* as a result of the income tax. It is still the case, however, that the income of the individual has fallen and that his standard of living is now lower. For even if he produces the same output as previously, he can do this only if he expends more labor now than before. Whichever the effect, the tax lowers the standard of living of the taxpayers, either depriving them of leisure or of exchangeable goods.

Suppose one works 35 hours a week and ends up with a take-home pay of $10 an hour or $350 per week. Now suppose a tax is imposed which cuts one's take-home pay to $8.50 an hour or $297.50 a week. One might now well decide to work a bit more, say 36 hours a week so as to take home $306 a week. However one would then still have *less leisure as well as less pay* than one had before the tax was imposed. In other words the overall standard of living is now lower than it was before the tax was imposed. But given the universal fact of time preference one might now well decide to adjust one's pattern of consumption over time and, say, shift consumption towards the present and save less of one's income (proportionately and at any given interest rate).

The argument under consideration, namely that the net effect of the interaction of the substitution effect and the income effect may be indeterminate and that taxation can thus possibly leave productive output unaffected is flawed for reasons that now become clear. The thesis that taxation can possibly have a neutral effect on production is fallacious because time preference is not being taken into account. At any time an individual will balance the marginal utility of present goods with the marginal utility of future goods. But every man must consume in the present, and this drastically limits his savings (regardless of the interest rate). As a result, after a certain amount of present goods (money) has been supplied on the market, a man's time preference for the present becomes infinite, and the line representing his supply of present goods becomes vertical upward (Rothbard, 1962, p. 330).

If the income tax confiscates a certain portion of a person's income, leaving him free to allocate the remainder between consumption and investment, then, given the universal fact of time preference, the income tax will affect that person's effective rate of time preference (his time-preference schedule being given), determining the ratio of his consumption to his savings-investment. Therefore he will shorten the length of the structure of production and his output of goods available for consumption at future dates will be lower than it otherwise would have been.

Let it here be added only that an income tax also penalizes work for *money* as against work for a return in kind. Obviously, a relative advantage is conferred on work done for a nonmonetary reward. The income tax tends to bring about a reduction in specialization and a breakdown of the market, and hence a retrogression in living standards (Rothbard, 1977, p. 96).

The significance of time preference[15]

Time preference is an essential requisite of human action. Satisfaction of a want in the nearer future is, other things being equal, preferred to that in the farther distant future. Present goods are more valuable than future goods (Mises, 1998, p. 481). Mises "proved" that it is impossible to conceive of action without time preference through some sort of reduction to absurdity argument. He reasoned that if an actor is indifferent as to when he would consume a good, he would never consume, which is clearly impossible (ibid.).

In fact, if actors were not constrained by time preference and only concerned with preferring *more to less*, they would invariably choose those production processes that would yield the largest output per unit of input, regardless of the length of time needed for those methods to bear fruit. The fact that actors do not proceed in this way is evidence of the fact that they make choices according to the category of *sooner or later*. Individuals evaluate alternatives in terms of the time at which they expect the effects to be felt. Subject to time preference, they will

exchange a present good for a future good only if they anticipate thereby increasing their amount of future goods. Praxeological time preference is manifest in the fact that present goods of a given kind have a higher price than the current factors of production that are needed to produce future goods of the same kind. This difference is referred to as *originary interest*.

The income tax will shift the social consumption/investment proportion toward more consumption and less saving and investment. One aspect of this process has already been touched upon: the income tax, by taxing income from investments, reduces saving and investment, since it lowers the rate of return from investing below the return consistent with prevailing time preferences. The lower net interest return leads people to bring their savings-investment into line with this situation. In particular, the marginal savings and investments at the higher return will now be valued below consumption and will no longer be made.

There is another reason why the income tax will tend to lower saving and investment as against consumption and it is equally related to time preference. Since the income tax confiscates a certain portion of a man's income and leaves him free to allocate the rest between consumption and investment, and since time-preference curves remain given, it might be thought that the proportion of consumption to saving will remain unchanged. However, this ignores the fact that the taxpayer's real income and the real value of his monetary assets have been lowered by paying the tax. For any given individual a greater money stock will, *ceteris paribus*, lead to a greater supply of savings, and a lesser money stock to a lesser supply of savings. (It is assumed that the "real" exchange-value of each unit of money remains the same.)

What happens is the following. If, *ceteris paribus*, the level of an individual's real monetary assets is lowered, then the individual will respond by increasing the proportion of his consumption to savings and investment. This can be expressed by saying that the lower the level of an individual's real monetary assets, the higher will his *effective time-preference rate* be (given his time-preference curve), determining the ratio (or proportion) of his consumption to his saving and investment (Rothbard, 1977, pp. 96–97).[16]

So it is correct to point out that taxation will on the one hand generate a substitution effect working in favor of leisure and against work while on the other hand the income effect will raise the marginal utility of the taxed asset. It is false, however, to interpret these signals as contradictory—one in favor of and the other against work—so that one would have to conclude that the effects of taxation on production are entirely a matter of contingent fact. The answer to the question of whether taxation results in a lower or a higher output of valuable assets cannot be conceived of as a purely contingent one. In a Misesian framework the signal of taxation is totally unambiguous. The most conspicuous effect of the income tax, in addition to penalizing work relative to leisure and work for money as against work for a return in kind, is that it will penalize saving and investment as against consumption *despite the fact that it may increase the marginal utility of the taxed asset*.

Acting individuals are invariably constrained by time preference; that is, they cannot do without continuous comsumption and they can engage in lengthier production processes—or more roundabout methods of production—only if a provision in the form of consumption goods has been made for the corresponding waiting period. So the acting individuals are not only facing the alternative between work and leisure but also the choice of having less of something sooner versus more of it later. By reducing the waiting time and shortening the roundabout methods of production, valuable assets will be obtained earlier—in line with their increased marginal utility—and simultaneously more room will be given for leisure. It follows, however, that the effect of taxation on production and output cannot be "neutral." Every increase in taxation entails a move away from more highly capitalized and hence more productive production processes. The standard of living in terms of valuable assets provided for future consumption will be reduced.

It might be objected that the time-preference reason is invalid, since the government officials and those subsidized will receive the tax revenues and find that *their* money stock has increased just as that of the taxpayers has declined. The fall in their time-preference ratios may well offset the rise in the effective time-preference rates of the taxpayers. It could not be concluded, then, that the social rate of time preference will rise, and savings particularly decrease.

The answer to this objection depends upon one's view concerning the nature of government expenditures. There seem to be two opposing views and a variety of more nuanced views in between.[17] For libertarian economists like Rothbard government expenditures constitute diversion of resources from private to government purposes. Such diversion must be considered a *consumption* expenditure by the government. The opposite view maintains that the only thing government does is "to move money around a little." Government does not "consume money" by the act of taxing it since dollars taxed by government are immediately available to be invested again by individuals. Still it would be difficult to maintain that the act of taxing is, in some sense, socially costless. Undeniably income taxation will shift the social proportion of consumption to savings-investment away from *what it would have been in the absence of the tax*. Moreover, what is overlooked in the aforementioned type of reasoning is that the introduction of taxation, besides the fact that it favors tax consumers at the expense of taxpayers, simultaneously changes, for tax consumers and taxpayers alike, the cost attached to different methods of attaining an income, that is, it will influence the underlying preference structures of citizens. For it may then become relatively less costly to attain an additional income through non-productive means, that is, not through actually producing more goods but by participating in the process of non-contractual acquisitions of already produced goods (Hoppe, 1993, p. 35). The incentive to engage in such rent-seeking activities is directly proportional to the ease with which the political process can be used for personal (or interest group) gain at the expense of others (Van den Hauwe, 1999, p. 107).

The impossibility of taxing only consumption

A major deficiency of the fiscal systems of many countries, most economists would agree, is their excessive taxation of income from capital. The government taxes saving and, hence, future consumption at too high a rate relative to present consumption. It is believed that it is no big problem for economists to design tax systems that lessen the distortions against investment. The main idea is to move toward a framework that taxes consumption instead of income. (Barro, 1996, p. 106)

In fact two distinct issues are involved. There can be no doubt that tax incentives as existed during the Reagan years such as the Investment Tax Credit (ITC) and the Accelerated Cost Recovery System (ACRS) may considerably reduce the tax induced bias against capital formation.[18] But whether it is possible to tax consumption *instead of* income is an altogether different issue. The argument thus far has tended to establish that any tax imposed on actors that are constrained by time preference must necessarily negatively affect production above and beyond any negative consequences that it implies for consumption (Hoppe, 1993, p. 37).

Some supply-side economists have argued that if the income tax were replaced by a consumption tax savings would no longer be taxed. The standard treatment of this issue is fraught with confusion, however.

It can be argued that even if one would *want* to tax only consumption and not income, one would not be able to do so. It is generally considered that any tax on production or sales increases the cost of production and therefore is passed on as an increase in price to the consumer. *However*, *no tax can be shifted forward*. This applies specifically to excise and sales taxes, which are commonly thought to be shifted forward. Prices are never determined by costs of production. The price of a good is determined by its total stock in existence and the demand schedule for it on the market.[19] But demand is not affected at all by the tax. The selling price is set by any firm at the maximum net revenue point, and any higher price, given demand, will simply decrease net revenue.

In the standard textbook treatment it is usually argued that the way in which the burden of the tax is divided between consumers and producers depends on the slopes of the supply and demand curves (see, e.g., Friedman, 1990, p. 166). It is contended that when, say, the demand curve is perfectly inelastic, the entire burden of the tax is borne by the consumers. It is thus implicitly suggested that whether or not the income tax negatively affects productive output is entirely a question of contingent fact. In other words it is considered conceptually possible that a tax affects *only* consumption while leaving production untouched. *However*, *demand must be assumed to be given at any point in time*.

At all times the entrepreneur is constrained in his price-setting by the actual given demand. Any price set by the entrepreneur is set with the expectation that any price higher than the one actually chosen would yield lower total revenue. Otherwise, that is, if he expected a higher price to produce a larger total revenue

he would raise the price. As long as an entrepreneur expects the demand to be inelastic within a certain price range, he will take advantage of this situation by choosing the higher price (Hoppe, 1993, p. 38). Obviously an entrepreneur would not wait for a coercive tax to be imposed if he could indeed shift any amount of the tax-burden away from himself and onto consumers. But in fact he stops raising prices and settles for a specific price because he expects the demand curve above this price to be elastic; that is, he anticipates that higher prices will produce revenue losses. If as a result of the shift of the supply curve the price rises, this upward movement must be into an elastic portion of the demand curve, and the entrepreneur must assumedly pay the full price of it in the form of reduced revenue.[20] Only if the entrepreneur expects a change in demand occurring simultaneously with the tax could he change his price without thereby incurring losses (ibid., p. 39).

A tax, therefore, *cannot* be passed on to the consumer. If the tax causes the supply of the good to decrease, and therefore the price to rise on the market—that is, some producers may have to go out of business in order for the tax to be "shifted"—this could hardly be called *shifting*, for shifting implies that the tax is passed on with little or no trouble to the producer (Rothbard, 1977, p. 89). Undoubtedly consumers will invariably be hurt by the tax. The leftward shift of the supply curve will cause prices to rise and consumers will naturally be harmed by having to pay these higher prices and being able to afford only a smaller amount of goods at the higher price. It is not correct, however, to interpret this phenomenon as a shifting of the tax burden from producers to consumers.

Consider the effect of a general sales tax for instance. The initial impact of the tax will be on the net incomes of retail firms. Their severe losses will lead to a rapid downward shift in demand curves, *backward* to land and labor, i.e., to wage rates and ground rents. Hence, instead of the retail sales tax being quickly and painlessly shifted forward, it will, in a longer-run, be shifted backward to the incomes of labor and landowners (Rothbard, 1994, p. 87).[21]

Conclusion

It is today acknowledged that some of the common fables about supply-side economics and the Reagan years are at odds with the facts (Niskanen and Moore, 1996, p. 13). It is recognized that the US 1981 and 1986 cuts in the top marginal tax rates were a success and that the increases in these rates in 1990 and 1993 were a mistake (Barro, 1996, pp. 114–115). The information provided by this historical experience is not without relevance for Euroland decision makers. Despite some fully legitimate criticisms that are acknowledged, the basic idea behind the Laffer curve analysis of the 1980s is theoretically sound. Some of the fallacies and flaws that subsist in standard accounts of the general effects of taxation can be related to the fact that time preference is not taken into account. The primary significance of time preference has been insufficiently recognized in the mainstream literature.

Apart from Buchanan's refinements of the Laffer curve analysis in the early 1980s and besides the widespread recognition of the phenomenon of time preference by economists of the so-called "Austrian" school, amazingly little attention has been paid to it. This article constitutes an attempt to help remedy this situation. Moreover the "Austrian" analysis provides valuable insights concerning the problem of the *incidence* of taxation that haven't received proper recognition either.

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Notes

1. In fact Reaganomics consisted of four key elements to reverse the high-inflation, slow-growth economic record of the 1970s: (1) a restrictive monetary policy designed to stabilize the value of the dollar and end runaway inflation; (2) a 25 percent across-the-board tax cut enacted (The Economic Recovery Tax Act of 1981) designed to spur savings, investment, work, and economic efficiency; (3) a promise to balance the budget through domestic spending restraint; and (4) an agenda to roll back government regulation. Some of those goals were accomplished; others were not. Niskanen and Moore (1996) have examined 10 key economic variables and arrive at the conclusion that on 8 of the 10 variables examined, the American economy performed better during the Reagan years than during the pre- and post-Reagan years (Niskanen and Moore, 1996, p. 1).
2. Barro also reports that supply-side effects have been observed empirically in Sweden in the 1970s and Peru in the 1980s (Barro, 1996, p. 111).
3. The idea is expressed by Reginald Hansen as follows: "Eine neutrale Besteuerung in dem Sinne, dass die relative Einkommens- und Vermögensverteilung der Wirtschaftssubjekte von ihr unverändert bleibt, gibt es nicht" (Hansen, 1996, p. 458). According to Ludwig von Mises the conceptual possibility of a neutral tax is limited to the imaginary construction of the evenly rotating economy, that is, under the assumption that "in such an evenly rotating economy there prevails perfect income equality in such a way that every household's income is proportional to the number of its members" (. . .) (Mises, 1998, pp. 730–731). Rothbard rejected the concept of neutral taxation as an oxymoron (Rothbard, 1997, p. 108).
4. In the aggregate demand approach consumption is deemed to be determined primarily by disposable income and so, too, is saving. The relative costs of saving and consumption are either completely ignored or given little weight as determinants of the allocation of income between these alternative uses. In other words, the effects of taxes on these relative costs are generally dismissed as inconsequential in the determination of individuals' saving-consumption choice. Instead, taxes are treated as having *first-order* income effects on consumption and saving, by virtue of their effects on disposable incomes (Ture, 1982).
5. That is, the individual is perceived to optimize in this allocation when the return for the marginal amount of labor service he provides equals the marginal cost of that amount in terms of the value of the marginal amount of foregone leisure. By the same token, when he optimizes, the marginal

return on leisure just equals its marginal cost—the compensation for the marginal amount of foregone labor service.

6. The impetus for saving is to acquire sources of future income streams in order to have a greater command over resources at a future time than one would otherwise have. Since saving and consumption exhaust one's available income, the cost of saving a part of one's income is the amount of current consumption that one must forego. Similarly, the cost of using part of one's income for current consumption is the amount of saving given up.
7. That is, the cost of such taxes can be characterized in terms of the foregone capital (and the income it would produce). This can be explained as follows. The amount of saving out of any given current income can be described as positively elastic with respect to the rate of return on an individual's saving, expressed as the amount of future income per dollar of foregone current consumption, that is, at each given level of real income. Saving can also be described as positively elastic with respect to income. At higher levels of real income, a greater amount of saving will be undertaken at any given rate of return. The imposition of taxes both on the current income which is saved and on the future income acquired with the saving will increase the relative cost of saving. The amount of capital consumers are willing to lend is brought into equilibrium with the amount of capital firms want to borrow by the price for the use of capital or the market interest rate. The higher the market interest rate, the more willing consumers are to give up consumption now in exchange for consumption in the future, since a higher interest rate means more future goods in exchange for a given quantity of present goods; so we expect the net supply of capital by consumers to increase with the interest rate—the supply curve slopes up. The higher the market interest rate, the lower the present value of a future stream of income, and thus the harder it is for an investment project to justify, in present value terms, its initial cost. So a higher interest rate means fewer investment projects that are worth making, and thus less money borrowed by firms. Thus I assume the demand curve for capital slopes down. At some interest rate the two curves cross—the quantity consumers want to lend equals the quantity firms want to borrow. That is the market interest rate.
8. In fact scholastic economics had already arrived at the conclusion that the value, and therefore the prices, of goods were determined on the market by utility and scarcity, that is, by consumer valuations of a given supply of a product. Scholastic and post-scholastic economics had basically solved the age-old "value paradox" of diamonds and bread, or diamonds and water: how is it that bread, so useful to man, is worth very little on the market, whereas diamonds, a mere frippery, are so expensive? The solution was that if quantities of supply are taken into account, the seeming contradiction between "use value" and "exchange value" disappears. For the supply of bread is so abundant that any given loaf will have a negligible value—in use or in exchange—whereas diamonds are so scarce that they will command a high value on the market. The scholastics saw that the utility of any good diminishes as its stock increases. The only thing left to complete the explanation was the "marginal" insight imparted by the Austrians and other neoclassicals in the 1870s. Diminishing utility is diminishing *marginal* utility. Real-world purchases and evaluations focus on the next unit (the "marginal" unit) of the good (Rothbard, 1995, p. 374).
9. So what is the upshot as regards the "primacy of supply"? A reasonable position for Austrians to take in judging supply-side-ism is Roger Garrison's when he writes: "Critics of interventionist policies may be tempted to embrace supply-side theory as the antithesis of Keynesian theory, which focuses almost exclusively on demand. However, a critical assessment of both theories suggests a more balanced view: On analytical issues (How do markets work?), we should be both-siders: supply and demand. On policy issues (What kind of bias should be built into our tax system?), we should be neither-siders" (Garrison, 1996, Footnote 6).
10. Why would that be? In reality there will always be two groups of individuals in society: the *taxpayers* or net payers of tax funds and the *tax consumers* or net recipients. The primary beneficiaries are the full-time rulers, the politicians and the bureaucracy who live full-time off the proceeds of taxation. It cannot be reasonably assumed that every real person effectively *has* a long-run orientation. In the short run, you are *always* better off as a tax consumer than as a taxpayer.

11. That is, the relatively short time horizons that characterize political-collective decision making will tend to shorten the time horizons in the private sector equally. The taxpayers will become more short-term oriented.
12. Richard von Mises, Ludwig von Mises's brother, wrote: "The unlimited extension of the validity of the exact sciences was a characteristic feature of the exaggerated rationalism of the eighteenth century. We do not intend to commit the same mistake" (Mises, 1957, p. 9).
13. Again Mises was very clear on this point. In a section entitled "Confiscatory Taxation and Risk-Taking" he wrote: "If the methods of taxation resorted to by the government bring about capital consumption or restrict the accumulation of new capital, the capital required for marginal employments is lacking and an expansion of investment which would have been effected in the absence of these taxes is prevented. The wants of the consumers are satisfied to a lesser extent only. But this outcome is not caused by a reluctance of capitalists to take risks; it is caused by a drop in capital supply" (1998, pp. 805–806).
14. Salin has forcefully argued that the substitution effect is the only one that actually exists and that, in fact, the income effect is a myth (Salin, 1996). On closer inspection, however, it seems that the point is a different one. The point seems to be, rather, that the income effect and the substitution effect do not quite have the same logical status. It may appear that something close to the so-called income effect appears under specific assumptions when one adjusts from one equilibrium point to another one. However, this effect, which describes a specific adjustment path, is only transitory and it does not necessarily exist. The belief in the existence of the income effect implicitly requires *specific assumptions* which are not absolutely and logically necessary. That is to say, the income effect does not exist as a general phenomenon. It is, Salin maintains, a mathematical illusion in a badly specified world (ibid., p. 97). The economist must get rid of the graphical or mathematical appearances which are inconsistent with rational logic (ibid., p. 103).

    Salin discusses the following example. Consider an individual's supply curve for labor in a world in which there are only two goods, leisure and wheat. Time is the only scarce production factor. There is a certain relative price between leisure and labor (the production of wheat). In one hour, one can produce one hour of leisure or one pound of wheat. Suppose that a tax has been introduced on the production of wheat, so that one can keep only half a pound of wheat for one hour of work. The opportunity cost of producing and consuming wheat increases in terms of leisure. The logic of choice would imply that one does not produce as much wheat as before. It is traditional to say that the individual facing an increase in the cost of wheat may not decrease his production of wheat but may decide to work more. The supply curve would be backward-sloping and the income effect would dominate the substitution effect. However, very likely it is implicitly assumed that wheat—contrary to leisure—is necessary for one's survival, so that, if the substitution effect was the only existing effect, there would be a risk for an individual of passing under the subsistence level, which he cannot accept. But that is really saying that there are three goods (or three sources of utility) and not two, namely the pleasure drawn from leisure, the pleasure drawn from consuming wheat, and survival services obtained from wheat consumption. One also assumes implicitly that there is only one possible technology to get survival services, namely wheat production, and so on (ibid., p. 98).
15. Mainstream economists usually do not talk about time preference but sometimes they talk about "impatience." It is then assumed that most individuals have an *internal discount rate* not only for dollars but also for utility streams. We will discount income as well as utility streams. If, in making a choice today, I am indifferent between 100 dollars now or 105 dollars next year, I may be said to have an internal discount rate for dollars of 5 percent. In equilibrium the internal discount rate for dollars will be equal to the dollar (pure) interest rate. At every moment an individual will balance the marginal utility of present money and the marginal utility of future money. The individual will achieve his optimal plan only when the amount he consumes in each year is such that the ratio of the marginal utility of dollars now, say in Year 1, to the marginal utility of future dollars, say dollars in Year 2, is equal to the price of dollars in Year 1 measured in dollars in Year 2. But the price of dollars today in terms of dollars a year from now—the rate at which dollars today exchange for dollars a year from now—is the dollar (pure) interest rate. If the dollar interest rate is 10 percent,

the price of a dollar this year is 1.1 dollars next year. Thus we will have the following equilibrium condition for the intertemporal allocation of real money assets:

MU (dollars in Year 1)/MU (dollars in Year 2) = Price(dollars in Year 1)/Price (dollars in Year 2)

This is an application of the *equimarginal principle*. Although this representation contains nothing from which a time preference theorist should in principle dissent, it does not tell us very much about the *causal* significance of time preference. It is a statement about equilibrium—where we are when we stop trading—and it refers to the equality between relative prices and relative values: MV = P. (I here neglect the distinction between marginal value and marginal utility. Taking into account this distinction would not alter any conclusions.)

In fact both the left-hand side and the right-hand side of the equation *result* from time preference.

16. The argument thus far is sufficient to establish the thesis that income taxation will, *ceteris paribus*, shorten the structure of production through its effects upon effective time-preference rates, savings and the social proportion of consumption to investment. Hans-Hermann Hoppe has put forward the more sweeping thesis that income taxation along with other forms of institutionalized expropriation will inaugurate a tendency toward de-civilization (Hoppe, 1999).

According to Hoppe:

> ... if government property-rights violations take their course and grow extensive enough, the natural tendency of humanity to build an expanding stock of capital and durable consumer goods and to become increasingly more farsighted and provide for ever-more distant goals may not only come to a standstill, but may be reversed by a tendency toward de-civilization: formerly provident providers will be turned into drunks or daydreamers, adults into children, civilized men into barbarians, and producers into criminals (Hoppe, 1999, p. 468).

According to Hoppe this tendency is the composite result of two changes. Governmental property rights violations raise not only time-preference rates (with given schedules) but also time-preference schedules. I do not follow Hoppe's thesis that taxation changes time-preference schedules (as opposed to time-preference rates).

There are several problems with this thesis. First, the Hoppe scenario would have some plausibility only under the assumption that people were living under a global and unified government encompassing the whole world. There would be no exit possibilities from this world. So there would be no opportunities for capital mobility, that is, possibilities to shift capital—including human capital—from one country to another, either. Second, the proposition that a change in the social proportion of consumption to investment is explained by an upward shift of the time-preference curves as opposed to an increase in effective time-preference rates is empirically vacuous. It must be noted that the proposition that governmental property rights violations entail such an upward shift does not constitute a praxeological theorem. Praxeology cannot establish that curves will shift upward. It is a historical thesis and it is doubtful whether as such it is falsifiable, that is to say whether it is possible to discriminate empirically between the case of an increase in time-preference rates and the case of an upward shift of time-preference curves.

Empirically however Hoppe might still be correct. Violation of property rights leads to less real wealth over time. The general thrust of Hoppe's message is clear enough. *Once government persistently violates property rights this means that human beings' well being must deteriorate. Their horizon of planning for the future is likely to shrink and they will tend to live mostly for the present*.Time preference curves are no more than analytical tools used to help us think clearly about human action. It is a serious error to think of them as things we actually expect to go out and measure. The only way in which time preference can be said to affect consumption and savings-investment patterns in an empirically meaningful sense is through *observable effects on efffective time-preference rates*. It might be objected that the proposition that the income tax entails higher time-preference rates isn't falsifiable either. However, this objection overlooks the fact that this proposition can be *derived* as a theoretical proposition. It is not intended as a historical-empirical conjecture. As a

praxeological proposition it need not be falsifiable (in the standard sense) to be empirically meaningful.

17. For a pragmatic view of the matter, see (Brenner 1994). Brenner writes: "It all depends on what the government does with the money and on the timing of its expenditures" (1994, p. 19; and passim).
18. I thank Roy Cordato for having drawn my attention to this.
19. It must be noted that the view expressed here deviates from the standard "Marshallian" textbook view that both utility and money costs determine price, like blades of a scissors, and that one blade is more important in the short run, and another in the long run. Marshall tried to rehabilitate the cost-of-production theory of the classicists by conceding that in the "short run" consumers' demand rules price and in the "long run" cost of production is determining. This view is consistently rejected by the subjectivist Austrian school (Rothbard, 1962, pp. 304–305).
20. For a technical definition of the concept of price elasticity of demand see, e.g., Eckert and Leftwich (1988, pp. 55–67). Demand is said to be elastic when the absolute value of the price elasticity coefficient is greater than one. When demand is inelastic, increases in price increase total receipts, while decreases in price decrease total receipts. When demand is elastic, the opposite results occur when price is increased or decreased.
21. The general stress on forward shifting and neglect of backward-shifting, in economics, are due to the disregard of the Austrian theory of value, and its insight that market price is determined *only* by the interaction of an already produced stock, with the subjective utilities and demand schedules of consumers for that stock. The market supply curve, therefore, should be vertical in the usual supply-demand diagram. The standard Marshallian forward-sloping supply curve illegitimately incorporates a time dimension within it, and it therefore cannot interact with an instantaneous, or freeze-frame, market demand curve. The Marshallian curve sustains the illusion that higher cost can directly raise prices, and not only indirectly by reducing supply.

    Rothbard admits however that we may arrive at the same conclusion as Marshallian supply-curve analysis for a particular excise tax, where partial equilibrium can be used. But this standard method breaks down for general sales taxation (Rothbard, 1994, p. 87).

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