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Author(s): Geoffrey Brennan and James Buchanan

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## Revenue Implications of Money Creation under Leviathan

By GEOFFREY BRENNAN AND JAMES BUCHANAN\*

Most governments possess a monopoly franchise in the creation of money. Economists provide an analytical justification for this institutional arrangement either in terms of the use of monetary aggregates for macro-economic stabilization or in terms of the alleged inability of competitive markets to generate tolerably efficient monetary results. Any complete case for the government's monetary monopoly must, however, depend on a comparison of market and political arrangements, a comparison that requires predictions about how governments are likely to behave once a monopoly franchise is assigned. Similarly, such predictions are crucial in evaluating restrictions that might be imposed on the government's exercise of its money creation power—in designing a “monetary constitution.”

In the analysis of political arrangements, the revenue implications of the money creation power are probably more significant than considerations of either macro-economic stability or optimality in the money supply. Although those revenue implications are incidental to demonstrating the nature of market failure in monetary arrangements, they are fundamental in understanding how the government might exploit a monopoly in money creation, once granted.

Our interest in the revenue effects of money creation stems from a broader study of constitutional restrictions on the revenue-raising authority of government (see our book). The power to create money is naturally encompassed in this. Restrictions on the revenue-raising power must embody re-

strictions on the power to create money; consequently, the *fiscal* constitution has important implications for the monetary constitution. In this paper, we examine both the revenue implications of money creation, and desirable constitutional restrictions on the money creation power within the context of a specific model of political processes.

### I. Money Creation as a Revenue Device

Money creation may involve an addition to real government revenue in three distinct ways. First, there is the possibility that any newly created money can be used directly to purchase real goods and services from private citizens. Second, any attendant inflation will reduce the real value of any outstanding government liabilities that are specified in nominal terms, including specifically outstanding government bonds. Thirdly, inflation may interact with a progressive tax rate structure to increase real tax revenues. In this paper, our analysis is focused on the direct revenue from money creation as such. The discussion could be extended to include the effects of money creation on government interest-bearing debt, but we do not attempt such extension here. The analysis does not bear at all on the matter of income tax revenues.

We begin by considering some conceptual “initial” period in which a society converts its pure barter system into a fully monetized one under government aegis. The government creates a stock of money,  $M$ , in the form of pieces of paper that can be used as a medium of exchange. Because money provides a service as a facilitator of transactions, individuals will pay for monetary instruments by giving up real goods and services in exchange for it. The total amount

\*Center for the Study of Public Choice, Virginia Polytechnic Institute and State University. Support for this research was made available by the National Science Foundation.

of goods and services so relinquished will have, by definition, a real value of  $M$  dollars of real goods, at initial period prices.

Suppose now that in the period subsequent to the initial period, government authorities increase the money stock by  $\Delta M$ . This increase will, whatever its influence on the price level, clearly have some positive real value. Individuals will give up real goods and services to obtain the transaction services of an additional dollar, even if the goods given up per dollar are somewhat less than in the initial period (i.e., even if the price level is somewhat higher). Accordingly, the government has the capacity in any period in which cash commands any value at all to obtain real revenue in that period by appeal to the printing press.

## II. Natural Limits Expectations and Retroactivity

With any conventional revenue instrument (such as an excise tax on beer), there are natural limits on the real tax revenue that can be derived. Increasing the rate of tax will, beyond some point, reduce the tax base sufficiently to *reduce* total revenues. The point at which this occurs is exactly analogous to the point of maximum profit for a monopolist, and the maximum tax revenue obtainable is precisely identical to the profit a pure monopolist would derive if granted a monopoly franchise in the sale of the taxed item.

Are there such natural limits in the money creation case?

To answer this question we focus on an important difference between money creation and (most) conventional revenue instruments. With a tax on beer, for example, an increase in the tax rate, *ceteris paribus*, automatically reduces the quantity of beer purchased, because the price of beer necessarily rises. In the money creation case, however, while it is true that future increases in the stock of money will, *ceteris paribus*, increase the cost of holding money, the precise magnitude of those future increases cannot, in general, be known at the time when the decision to hold cash balances is made. There is, therefore, an extra dimension to the money creation case—it is

only to the extent that current additions to the money stock influence *expectations* about the future additions to the money stock that there is a connection between the size of the “tax rate” and the “tax base.”

Let us return to our “initial” period. The real value of goods and services relinquished in return for the services of money in that period depends both on the demand for the transactions services money provides, and on the expected cost of holding money. For the purposes of this discussion, we assume that money earns no interest as such; hence, the actual cost of holding cash balances in any period is the actual real interest on interest-bearing assets forgone plus any reduction in the value of money that occurs over that period.

In determining the size of the cash balances individuals wish to hold in the “initial” period when money is created, they must form expectations of both future real rates of return and future rates of inflation. Expectations about future rates of inflation depend in turn on expectations about how the government will act in creating new money in the future periods.

There is, of course, one setting in which the distinction we have drawn here between *actual* increments to the money stock and *expected* increments is irrelevant. This is the case in which there is a fully binding, predetermined “monetary constitution,” in which the entire future history of the money stock is charted in the initial period. In this situation, all actual increases in the money supply will be anticipated—and if the monetary constitution is binding, all such expectations will be fulfilled. This is essentially the setting analyzed by Martin Bailey. The revenue implications of money creation are identical with those of a tax on some good—with the peculiarity that money is virtually costless to produce. There is a maximum revenue obtainable from money creation which, given costless production, occurs at that level of inflation (or deflation) at which the elasticity of demand for transactions services is unitary.

The absence of a predetermined and binding monetary constitution, however, drives a wedge between *actual* increments to the money stock and expectations of those

increments. It is as if the implied tax rate is set by government *after* rather than *before* decisions are taken by individuals as to how much of the taxable base to possess. This retroactivity is a basic feature of money creation. The individual who decides to hold balances in any period does so in the light of *expectations* about the future course of the money supply—expectations which are necessarily formed *before* the government decides how much new money to create in those future periods. In holding cash balances at all, the individual becomes hostage to the good graces of government. He becomes liable to exploitation in a way that is not feasible in the case where “tax rates” are announced *ex ante*.

This is a characteristic that money creation shares with all taxation of wealth, whether privately or publicly created. A current tax on income from capital is, of course, nominally equivalent to some tax on the capital stock; but a tax of more than 100 percent on current income can be avoided by leaving one’s capital stock idle in the current period, whereas an equivalent tax on the capital stock cannot be so avoided. There is virtually no scope for escaping the tax. Because a *current* capital tax is a tax on the outcome of decisions made in *previous* periods to save and invest, it is retroactive in the same sense as is the inflation tax (except where the future course of such tax rates is specified *ex ante* in a binding way). Where money balances are different from conventional capital, however, is that the money stock does not diminish physically. Unlike stocks of wine, the asset cannot be drunk: unlike physical machinery, the stock of money cannot be worked at a rate that leads to premature decay. In this sense, the retroactivity embodied in new money creation is more striking and the scope for exploitation of the money creation power more spectacular than for wealth taxes generally.

Public finance specialists, focusing on more traditional revenue instruments, have regarded retroactivity an undesirable characteristic of taxes and/or tax changes. The reasons for such antipathy are not entirely clear: the matter is rarely discussed explicitly, and the retroactivity property of wealth taxes has not, to our knowledge,

generally been noted. In what follows, we shall argue that such retroactivity is a “bad thing.” Our objective is to establish a case for a monetary constitution, based not on any macro-economic stability features of a fixed money rule but on the predicted rational calculus of an individual at some quasi-constitutional level when he considers alternative outcomes that might emerge from the government’s possession of open-ended money creation power. A crucial ingredient in the argument is the model of political process we adopt, and from which predictions about the behavior of government can be made.

### III. The Model of Government

The central thrust of public choice theory suggests skepticism about the capacity of majoritarian electoral processes to constrain governments. Notwithstanding periodic elections, considerable discretionary power remains in the hands of public officials—the “agenda setters” of the political process. In our model of politics we abstract from electoral considerations entirely. In one sense, this may seem akin to the “benevolent despot” model of political process that dominates orthodox discussion. However, we reject the presumption that the discretionary power vested in public officials will invariably be exercised in the “public interest.” Without denying the possibility of “moral behavior” on the part of those who hold discretionary power, the asymmetry of such an *assumption* with the behavioral assumptions made elsewhere in economics seems methodologically outrageous, as well as highly questionable empirically. For the purposes of comparing political and market institutions, the central question is whether the institutional structure is such as to translate private interest into public interest: the crucial issue is whether the operation of the particular institution serves to generate socially desired outcomes from the interaction of privately motivated agents. This issue is *avoided*, not answered, by the expedient of assuming political agents to be privately motivated solely by a concern for the “public interest.” Moreover, no case for *any* form of institutional constraint—electoral or

otherwise—on any aspect of government behavior can be made if it is simply assumed that all coercive power is to be exercised benevolently: such constraints could only prevent the saints from doing good! In this sense, the benevolence assumption is irreconcilably at odds with the basic philosophical underpinnings of constitutional government.

Accordingly, we assume a model of government in which political agents *do* exercise discretionary power, and are motivated solely by private interest in doing so. This private interest takes the form of “surplus maximization,” where the surplus in question is the excess of total revenue collections over expenditures on public goods production that government is legally/constitutionally obliged to make. It seems plausible to argue that such surplus will increase with revenue. If so, surplus maximization requires the maximization of total revenues collected from any constitutionally assigned fiscal instruments. It is this simple caricature that represents our “Leviathan” model of political process. As an entity, government is taken to maximize revenues from whatever revenue sources are granted to it by constitutional authorization. Although the model is a caricature, it is a useful one, particularly in a constitutional setting, because in large measure constitutional rules should be designed explicitly to deal with “worst possible cases.” Furthermore, although we do not advance the Leviathan model primarily as a positive description of governmental behavior, we do believe it to have at least as much descriptive value as the benevolent despot alternative. The hyper-inflationary experience of twentieth-century history indicates that this sort of revenue-maximizing behavior by government is a contingency worth protecting against.

#### IV. Revenue Maximization under Permanent and Probabilistic Leviathan

Suppose then that the government seeks to maximize revenue. What strategy will it follow in seeking this end, given that it expects to hold political power permanently?

Clearly, to the extent that there is a determinate positive connection between current inflation and current expectations about future inflation, something like the conventional “revenue-maximizing inflation rate” as derived by Bailey might emerge. There will remain, in each period, a short-term potential for monetary exploitation: current money holders run the risk of their cash balances being reduced in real value spectacularly without any possibility of current adjustment. But such a strategy will no doubt affect inflationary expectations drastically, reduce desired money balances in future periods, and reduce the future revenue potential of the money creation power. Despite the continuing short-term scope for maximum inflation, therefore, the permanent Leviathan may forgo such gains and adopt a policy of restraint. In so doing, there may emerge from this strategic interaction between government and money holders an equilibrium not unlike the Bailey revenue maximum. But any stable adjustment between holders of balances and government must remain precarious. If Leviathan acts in accordance with a finite time horizon, the temptation to default on the pre-announced rule, or to depart from its pattern of behavior established in prior periods, increases. As the final or terminal period is approached, Leviathan will find it advantageous to confiscate the capital values of previously held money balances, regardless of its behavior in earlier periods.

The finite time horizon case becomes, of course, the more relevant one in a regime of competing parties in a democracy, where governments in power rotate regularly but with considerable uncertainty as to specific electoral results. In this setting, if we limit ourselves to the revenue objective, there is little or nothing to be gained from a policy of monetary restraint. Faced with uncertain and time-bound electoral constraints, a government, even if it is characterized by very modest revenue-seeking proclivities, will have extremely strong incentives to capture the revenue potential inherent in any existing value of real cash balances held by the public. Equally, even if the individual reckons that government will generally be “benign,” he may also reckon that the

government may take on Leviathan proclivities occasionally. In such a "probabilistic" Leviathan setting, the possibility of being totally exploited by hyperinflation is one with which the individual holder of cash balances will have to reckon. Indeed, we should note that the citizen may gain virtually nothing from an occasional success of "good" government. Monetary exploitation may be actually greater in a regime of rotating "good" and "bad" governments than it would be under a regime of continuing and permanent Leviathan.

#### V. The Monetary Constitution

In the situations described above, it will be advantageous for both the prospective holders-users of real money balances and the government (even if the latter is described accurately as a permanent Leviathan) to agree on a genuine constitutional rule that will constrain the issue of money along some predictable path. Such a rule would, of course, restrict the revenue-seeking flexibility of Leviathan. But, as the analysis suggests, such a constraint might succeed in generating generalized expectations that money issue will be kept within bounds. In the process, Leviathan may well actually secure *greater* value from its money creation authority than it would if it remained unconstrained. Government may, therefore, agree to an enforceable constitutional rule, even if this rule is accompanied by the establishment and maintenance of an enforcement agent, the judiciary, that will be empowered to ignore direct governmental

controls (see William Landes and Richard Posner).

We can, therefore, offer an explanation for the emergence of constitutional monetary rules, even under Leviathan government. But the more general constitutional question concerns the initial delegation of money-creation authority to government. As the analysis implies, it seems almost inconceivable that *open-ended* delegation of money-issue authority to government would emerge from a rationally based constitutional calculus.

Whether or not a specifically limited power of continuous money issue would be granted to government is more debatable. One certainly cannot preclude the possibility that some (fixed) positive inflation rate may be fiscally desirable under certain institutional arrangements. What one can rule out is the possibility that no constraints at all will be placed on the government's exercise of the money creation power. The case for some monetary constitution, under any remotely plausible model of government behavior, seems almost unassailable.

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