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Abstract:

In their book *The Power to Tax*, Brennan and Buchanan have pointed to a central weakness of the traditional theory of public finance and especially of the theory of optimal taxation: This approach overlooked the problem of governmental power and the tendency of this power to be abused. It was important to demonstrate how grossly misleading the optimal taxation theory appears to be once the problem of power is considered. Nevertheless, Brennan and Buchanan's suggestions for constitutional rules are no less misleading, after all. Technically speaking, the public-policy implications of their approach are only valid under extremely unrealistic assumptions. What is worse: Shifting these assumptions somewhat closer to reality does not just reduce the extent to which the public-policy implications of their approach are true but rather turns them completely upside down. Hence, Barry Weingast's (1993, p. 287) fundamental trade off, according to which a 'government strong enough to protect property rights is also strong enough to confiscate the wealth of its citizens', remains unsolved.

JEL classification: H11; H21; H26; D61

Keywords: public choice, optimal taxation, Leviathan theory, elasticity of tax bases, constitutional economics

Zusammenfassung:

In ihrem Buch *The Power to Tax* haben Brennan und Buchanan auf eine zentrale Schwäche der traditionellen finanzwissenschaftlichen Theorie aufmerksam gemacht: Dieser Ansatz übersieht das Problem der Regierungsmacht sowie der Neigung der Regierung, diese Macht zu missbrauchen. Es war wichtig zu zeigen, wie grob irreführend der Ansatz der optimalen Besteuerung erscheint, wenn man einmal das Problem der Macht berücksichtigt. Nichtsdestotrotz sind Brennans und Buchanans Vorschläge für konstitutionelle Regeln letztlich nicht weniger irreführend. Technisch ausgedrückt sind die wirtschaftspolitischen Implikationen ihres Ansatzes nur unter extrem unrealistischen Annahmen gültig. Schlimmer noch ist: Wenn man diese Annahmen etwas näher an die Realität heranrückt, dann reduziert sich nicht einfach der Grad, zu dem diese Implikationen zutreffend sind, sondern es verkehren sich diese Implikationen in ihr glattes Gegenteil. Daher bleibt der von Barry Weingast (1993, S. 287) formulierte fundamentale Zielkonflikt, wonach „eine Regierung, die stark genug ist, um die Eigentumsrechte zu schützen, auch stark genug ist, um das Vermögen ihrer Bürger zu konfiszieren“, weiterhin ungelöst.

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http://www.wiwi.uni-muenster.de/ioeb/downloads/forschen/paper/IOEB_DP_02_2007.pdf

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I. INTRODUCTION

The Nobel-Prize laureate James Buchanan is probably still the most prominent representative of the public-choice school. At least in the Buchanan tradition, public-choice theory deals, at its heart, with the question of how far legitimate governmental power reaches and how government's power can be restricted to precisely that scope. Since the publication of *The Calculus of Consent* by Buchanan and Tullock (1962), the philosophical basis of public-choice theory for legitimizing government has been a contractarian one. This basis has been challenged by some authors (see, e.g., Hardin 2002) and it has been approved by others. However, we do not intend to discuss the question of legitimacy of government here. Rather, we revisit the next step, the one which aims at containing the scope of government activities to whatever is viewed as legitimate. This step has been taken by Brennan and Buchanan a quarter of a century ago in their much celebrated book *The Power to Tax* (Brennan/Buchanan, 1980). The authors did so without leaving their contractarian ground.

The idea behind this book is indeed striking and, given the broadly observable tendency of governments to expand, it was necessary to express a central weakness of the mainstream of the public-finance literature and, especially, the literature on the theory of optimal taxation. Optimal-taxation theory clearly overlooked the central problem that governments may abuse their power to tax, and that they may shift their activity beyond what can be viewed as legitimate. And optimal taxation theory could not explain why there is such a tendency in the first place, since it simply assumed the problem away by help of the benevolent-dictator model. As a consequence, in order to enable governments to draw tax revenues with the lowest possible excess burden, optimal-taxation theory assigned the maximum possible power to governments by way of inverse elasticity rules and the like (Mirrlees, 1982). In doing so, optimal-taxation theorists inadvertently endowed the government with a maximal potential for exploiting its constituency. Hence, it was of overwhelming importance to set a counterpoint to the mainstream of public finance, and this has been done by Brennan and Buchanan. Thanks to these authors, we are today aware of the fact that there is a trade off between assigning the power necessary for reducing excess burden of taxation on the one hand and limiting the scope of government activity on the other hand. Without this contribution, the theory of public finance and, more broadly, political philosophy would not be what it is today. Notwithstanding these merits, however, the theoretical concept chosen by Brennan and Buchanan for containing government's power misses the point, after all. Technically

speaking, it is only valid under grossly unrealistic assumptions. As a result, their public-policy implications are misleading at best. The central implication of the Brennan-Buchanan approach is that, unlike in optimal taxation theory, high tax rates should be prohibited on tax bases with a low elasticity, or taxation of such bases should be prohibited altogether. The underlying logic is that this limits the scope of taxation since the number of remaining tax bases shrinks with every precluded tax base.

In this paper, we do not follow the usual lines of criticism of the Brennan-Buchanan approach. Rather, we mainly agree with Brennan and Buchanan in all but one points (and in all but the contractarian point even strictly so). Consequently, the one critical point raised in this paper is a different one, and it may even seem to be a minor technical detail. However, it is not. It is Brennan and Buchanan's assumption that, unless their constitutional rules are applied, there are no further limits to governmental activities whatsoever. Or strictly speaking, existing formal or informal limitations on governmental activities are not binding. As a consequence, governments will always exploit all available tax bases to a maximum at any time. By way of this assumption, Brennan and Buchanan rule out any scope for governments to switch from one tax base to another in the case of the introduction of some constitutional tax restrictions, since all technically possible tax bases will already be fully exploited prior to the introduction of such a restriction. It is this assumption which is at the heart of the critique of Brennan and Buchanan's approach, as it will be presented in this paper. The reason is that any relaxation of this assumption does not only reduce the validity of Brennan and Buchanan's findings but rather turns them completely upside down.

The paper is organized as follows: In the next section, traditional optimal taxation theory is compared to the Leviathan theory as outlined by Brennan and Buchanan. On this basis, a general theoretical framework is introduced, which will be used in the following sections. In the third section a restriction is introduced that binds governments to a certain minimum utility level of the median voter. In the fourth section a demand restriction for governmentally supplied public goods is assumed. Finally, in the fifth section the case of productive public goods like public infrastructure is analyzed. A common discussion of the findings is presented in section 5.

II. OPTIMAL TAXATION VERSUS LEVIATHAN THEORY

Intuitively, the difference between optimal taxation theory and Leviathan theory of taxation can best be grasped with the help of a simple diagram. In figure 2.1, a commodity tax on two different tax bases is illustrated. The demand curve D_H for good H is flatter than the demand curve D_L for good L. Generally speaking, D_L represents a more comprehensive tax base. The net (before tax) price for each good is indicated by q_1 . The tax revenue necessary for financing an optimal amount of public goods is assumed to be R_1 , the shaded rectangle in the left part of the diagram. This tax revenue can be generated by either levying a tax rate t_1 on good H or by levying an equally high tax rate on good L. In both cases, the resulting tax revenue would be indicated by the rectangle R_1 . However, in the case of the tax base H, the deadweight loss is as high as the triangle \overline{ACD} and, thus, higher than in the case of tax base L, where the deadweight loss amounts to only \overline{ABD} . As a result, a benevolent dictator would choose to tax the more comprehensive tax base L and, in so doing, he would minimize the deadweight loss from taxation.

But can a government realistically be described as a benevolent dictator? Brennan and Buchanan are in doubt, and rightly so. Their alternative “Leviathan model” is characterized by two crucial features: Firstly, a government of the Leviathan type is modeled as a tax-revenue maximizer; and secondly, there is no political restriction on Leviathan’s efforts to maximize tax revenue. He is only restricted by some economic forces like the degree of elasticity of the respective tax base. But neither democracy nor the threat of political uprisings or legal restrictions of any kind apply with respect to Leviathan’s power to tax.

Look at the right part of figure 2.1. for an illustration of the implications. Given that there are again two bases for a commodity tax described by the two demand curves D_H and D_L , government will tax both up to the point where marginal revenue equals the net price q_1 of both goods. In a Leviathan equilibrium of the Brennan-Buchanan type, total tax revenue amounts to the sum of the rectangles \overline{ACDE} and \overline{ABFG} . Each of the rectangles alone will already be bigger or, at least, as big as the rectangle R_1 . The reason is that an unrestricted Leviathan government will choose a tax rate which maximizes tax revenue from each and every tax base. Hence, the tax-revenue rectangle of a benevolent dictator can never be bigger than each rectangle from the right part of figure 2.1. Moreover, since total tax revenue is the sum of both rectangles from the right part of the figure, this total tax revenue will always be at

least double of the size of the rectangle R_1 on the left part of figure 2.1.

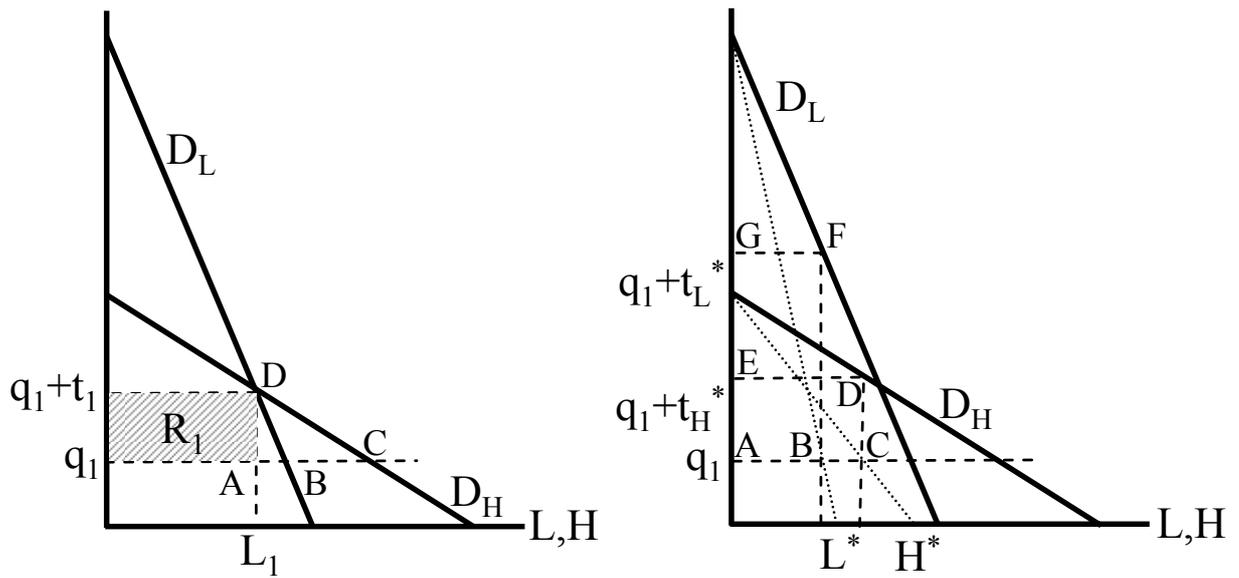


Figure 2.1.: Optimal taxation versus Leviathan taxation

The suggestion derived by Brennan and Buchanan is thus to restrict the government's power to tax to one of the two tax bases on a constitutional basis. According to this restriction, the Leviathan government's access to taxable bases will be limited to the least comprehensive tax base. By contrast, the suggestion of optimal-taxation theory is not only to assign the most comprehensive tax base to the government but rather to assign *all* available tax bases to the government. Only then can a welfare maximizing benevolent dictator make use of the broadest possible set of tax instruments in order to draw the necessary tax revenue with the smallest possible excess burden. The crucial point, however, is that a government that intends to draw not a given tax revenue from its citizens but the highest possible tax revenue will not use the comprehensiveness of a certain tax base in order to minimize excess burden, but it will rather misuse the comprehensiveness in order to maximize tax revenue.

The implications of optimal-taxation theory on the one hand and Leviathan theory of taxation on the other hand could thus hardly be more different. Note, however, that this does not follow from *any* Leviathan model of government but only from the *particular* model, as specified by Brennan and Buchanan. The latter, though, is by far not the only possible one. Rather, one can think of a number of alternative specifications of Leviathan governments which are all at least as plausible as the one specified by Brennan and Buchanan. Moreover,

alternative specifications may fit reality no less than the one by Brennan and Buchanan. The problem is that Brennan and Buchanan's constitutional rules only follow from their particular specification of a Leviathan government. In brief: Some alternative specifications of a Leviathan government which are no less realistic and in which Leviathan is no less selfish turn all the constitutional suggestions upside down.

The crucial point of the following considerations is that the assumption of a government which is completely untouched by any political restrictions seems to be too far away from reality. True, Brennan and Buchanan only introduced this assumption in order to define some kind of a worst-case scenario. It seems to follow that Brennan and Buchanan's constitutional implications remain true to a somewhat less dramatic extent when this assumption is relaxed. Hence, as Brennan and Buchanan argue, by grounding the constitutional considerations on the worst-case scenario one can make sure to be on the secure side (see: Brennan/Buchanan, 1980, pp. 19-20). If there turn out to be some political limitations on Leviathan's power to tax and, additionally, some constitutional limits to that power have been installed, then all the better so. Unfortunately, this line of reasoning is wrong, no matter how convincing it seems to be at first glance. Rather, constitutional limits on Leviathan's tax base, combined with some pretty realistic political restrictions, can leave the citizens worse off, as compared to a situation in which there is no constitutional restriction at all. In the next sections, we analyze a Leviathan government which is subject to certain political restrictions.

We analyze the different cases on the basis of a unique simple theoretical framework. Throughout the paper, we base our considerations on two tax bases. The tax basis H (for high comprehensiveness) is more comprehensive than the tax basis L (for low comprehensiveness). In all but one case we consider a commodity tax on commodities of the quantity L and H. Finally, as in Brennan and Buchanan (1980), we assume simple linear demand functions for both goods.

The revenue function of the government will then be as follows:

$$R = t_L \cdot L + t_H \cdot H. \tag{2.1}$$

The utility function of the median voter is the following:

$$U = U(L, H). \tag{2.2}$$

The income restriction of the median voter is:

$$Y = (P_L + t_L) \cdot L + (P_H + t_H) \cdot H.$$

Hence, the following indirect utility function applies for the utility-maximizing quantities L^* and H^* :

$$U(L^*, H^*) = V(t_L, t_H, Y). \quad (2.3.)$$

Maximizing indirect utility subject to any given revenue level, represented by equation 2.1., leads to the following first-order condition:

$$\frac{\frac{\partial V}{\partial t_L}}{\frac{\partial V}{\partial t_H}} = \frac{L^*}{H^*}. \quad (2.4.)$$

The left-hand side of condition 2.4. is represented by the indifference curves V in figure 2.2. These indifference curves indicate the disutility of taxation from the point of view of the respective consumer. The higher the tax rates the lower will be the remaining net income. Hence, (indirect) utility will be the higher the closer the respective indifference curve is to the origin of the graph. The slope of the respective tangency lines shows the utility-maximizing consumption structure H^*/L^* for any given pair of tax rates t_H and t_L .

The revenue maximizing tax-rate structure, in turn, can be determined by deriving 2.1. with respect to L and H :

$$R'(t_L) = L + t_L \cdot \frac{\partial L}{\partial t_L} = 0; \quad \text{and} \quad (2.5.)$$

$$R'(t_H) = H + t_H \cdot \frac{\partial H}{\partial t_H} = 0 \quad (2.6.)$$

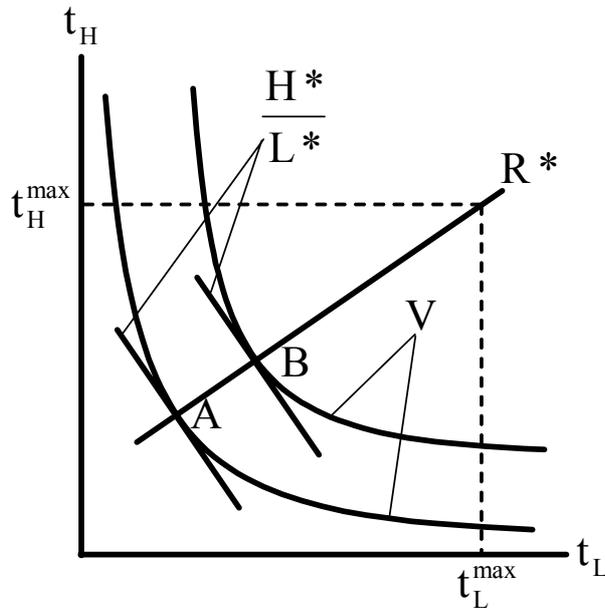


Figure 2.2. Disutility from taxation

Combining 2.5. and 2.6. and rearranging yields:

$$\frac{H}{L} = \frac{1 + \eta_{t_L, L}}{1 + \eta_{t_H, H}}; \quad \text{with} \quad \eta_{t_i, i} \equiv \frac{\partial i}{\partial t_i} \cdot \frac{t_i}{i} \quad \text{for } i=H, L. \quad (2.7.)$$

Condition 2.7. shows the ratio H^*/L^* for which tax revenue is at its maximum for any given indirect utility level. The revenue-maximizing tax rates t_H^* and t_L^* are then determined by H^* and L^* through the respective demand curves, so that the tax structure for a revenue maximum is also given by 2.7.. The condition is determined by the two price elasticities of demand. Since the (H^*/L^*) -ratio is given by the tangency lines to the indifference curves in figure 2.2, any corresponding tangency point (e. g. A or B) indicates a revenue maximum for a given utility level. By connecting all tangency points, a straight line R^* results which is orthogonal to the tangency lines and indicates a revenue-maximizing tax structure $t_L^*; t_H^*$ for each given indirect utility level V . Since we assume linear demand curves for both goods, there is an absolute maximum of tax revenues that can be generated for each good at t_H^{\max} and t_L^{\max} , respectively. These two tax rates represent the peaks of the respective Laffer curves. Any increase above these two tax rate will lower tax revenues.

Based on this simple framework, we can now approach the analysis of tax-base restrictions of the Brennan-Buchanan type under Leviathan conditions as well as under some further restrictions that may apply in the real world.

III. UTILITY-RESTRICTIONS ON REVENUE MAXIMIZATION

As long as a Leviathan government is by no means restricted in its power over its citizens, it will always exhaust all tax bases up to its respective maximum. In figure 3.1. the corresponding tax rates are again t_H^{\max} and t_L^{\max} . In this section, however, we analyze a Leviathan government which is not fully unrestricted but rather faces a political restriction of the following type: Any government which fails to leave a minimum utility level V^{50} to the median voter will be removed from office (Edwards/Keen, 1996; Wrede, 1998). In such a case, Leviathan must reduce the tax rates to a point on the indifference curve V^{50} . The one combination of tax rates which maximizes tax revenue for a given utility level V^{50} lies in point A with t_L^* ; t_H^* .

Point A hence shows the peculiar duality of a benevolent dictator's strategy on the one hand and that of a revenue-maximizing Leviathan government on the other. In point A, there is a utility maximum for the respective consumer-citizen at each given level of tax revenue. Hence, a benevolent dictator would choose such a point, depending on the tax revenue he needs for financing an optimal amount of public goods according to the well known Samuelson rule (Samuelson, 1954). At the same time, however, such a point represents a revenue maximum for each given level of utility. That means that a Leviathan government would also choose such a point as long as it is bound to a certain minimum utility level which has to be left for the voters.

What, then, will happen if a tax rule of the Brennan-Buchanan type (henceforth: BB tax rule) is implemented into the respective country's constitution? Assume that this rule stipulates a certain upper limit t_H^1 for the tax rate of the more comprehensive tax base. If Leviathan did simply reduce the tax rate on H to t_H^1 there were indeed not only a reduction in tax revenues but also a rise in median voter's utility level, since the ensuing tax structure would be the one represented by point B. However, given the constitutional rule, point B is not an optimum for Leviathan. Rather, it would be optimal for the government to move to point C. By raising the tax rate on the less comprehensive tax base from t_L^* to t_L^{**} , the government can compensate for at least a part of its revenue loss. The resulting tax revenue will nevertheless fall short of the maximum for a given V^{50} since point A represents a revenue maximum for a given V^{50} .

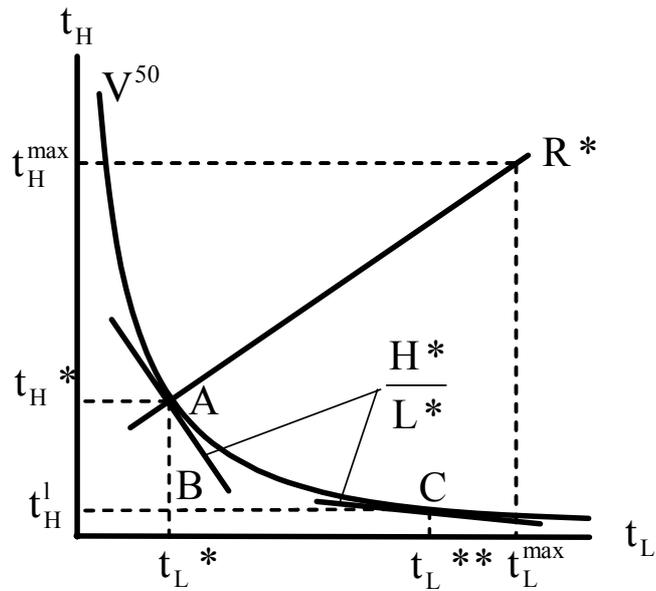


Figure 3.1.: Reelection restriction and a Brennan-Buchanan tax rule

Hence in terms of tax revenues, Leviathan's power to tax will indeed be limited by the Brennan-Buchanan tax rule. In terms of utility, however, the median voter will not be better off at all. The reason is that, if the V^{50} -utility restriction of the government is binding, and if Leviathan will always maximize tax revenue (as assumed by Brennan and Buchanan), then the government will always exhaust any scope for additional tax revenues at the expense of the median voter's utility level until V^{50} is reached. Hence, whereas the BB tax rule will reduce the government's tax revenue this reduction will not make the citizens any better off. The deeper reason is that the BB tax rule forces the government into deadweight losses. Because of the upper limit of the tax rate t_H the government has no choice but to apply an inefficient tax structure, hence the dead weight losses. Indeed, total tax burden, defined as the citizens' tax bill plus dead weight losses, will strictly remain untouched by the BB tax rule. Only the structure of the total tax burden changes. The rise in dead weight losses will be precisely as high as the reduction in the tax bill, leaving the citizens' utility level untouched.

As a result of the constitutional rule, Leviathan is forced to produce waste. It must be confessed, however, that the burden of this waste is not born by the citizens but by Leviathan himself. One may be inclined to downplay such a waste and point to the reduction in tax revenue instead. However, for the society as a whole, there is clearly a loss, since the reduced tax revenue could, at least in principle, be used for some utility increases somewhere, while the raised excess burden comes as a pure waste. One may be willing to ignore this waste since

the burden of this waste is compensated for by lower taxes, so that, in the end, it is the government alone how bears this burden. Nevertheless, it remains true that the lost revenue could have been used for raising the citizens' utility, at least in principle. It seems thus reasonable to draw attention to some alternative constitutional rules apart from those suggested by Brennan and Buchanan. In doing so, we cannot afford to ignore the spending side of the government any longer. Specifically, we must not ignore questions like the following: If, for whatever reason, there was an increase in government's tax revenue, how much of that additional revenue would a (real world) government be forced to spend in terms of public goods? Or, alternatively, if government faces a loss in revenue stemming from a constitutional rule of the Brennan-Buchanan type: How much of this loss can government translate into a reduction in the supply of public goods? We take these questions into consideration in the next section.

IV. PUBLIC-GOODS SUPPLY, REELECTION PROBABILITY, AND REVENUE MAXIMIZATION

In this section we assume that governments increase the supply of public goods as long as this raises government's tax revenue (Apolte, 2001). At the same time we consider a demand restriction for public goods which is articulated by the median voter through the political process. Again, we stay as close to the assumptions used by Brennan and Buchanan as possible (see Brennan/Buchanan, 1980, pp. 76 – 79). This demand restriction determines the maximum demand for public goods and, at the same time, the maximum obtainable tax revenue R^{\max} for Leviathan. We assume further that Leviathan will always try to keep the total tax burden (including excess burden) as low as possible for any given revenue in order to raise his reelection probability.

The maximum tax revenue R^{\max} can be derived as follows. Assume first that government will always keep a share $(1-\alpha)$ of tax revenue for own (perhaps wasteful) consumption and spend the rest for public goods of the amount X . Assume further that public goods are bought by the government on a perfectly competitive market to the price P_X . Then spending for public goods will be:

$$\alpha \cdot R = P_X \cdot X . \tag{4.1.}$$

Consider now a simple linear demand function for public goods, as in Brennan/Buchanan (1980, p. 77):

$$P_X = e - g \cdot X. \quad (4.2.)$$

Combining 4.1. and 4.2. yields the following revenue function:

$$R = \frac{e \cdot X - g \cdot X^2}{\alpha}. \quad (4.3.)$$

The first-order condition for a revenue-maximizing supply of the public good will then be:

$$X^{\max} = \frac{e}{2 \cdot g}. \quad (4.4.)$$

The maximum revenue level R^{\max} can be found by inserting 4.4. into 4.3.:

$$R^{\max} = \frac{P_X \cdot e}{2 \cdot g \cdot \alpha}. \quad (4.5.)$$

Leviathan will now maximize the probability π of reelection, subject to the restriction that total tax revenue be $R=R^{\max}$. The probability of reelection is a function of the utility level of the median voter which, in turn, is a function of tax burden as described by the disutility lines of taxation above. Hence the maximization problem for Leviathan is identical to that described by equations 2.1. to 2.4. above, implying the first-order condition:

$$\frac{\frac{\partial V}{\partial t_L}}{\frac{\partial V}{\partial t_H}} = \frac{L^*}{H^*}. \quad (2.4.)$$

See figure 4.1. for the implications. A utility maximum of the median voter, subject to a tax revenue level R^{\max} , is represented by point A. This point is a tangency point of the indifference curve V_0 with a line the slope of which represents L^*/H^* , thus representing a utility maximum of the median voter for the given revenue level R^{\max} . Hence, given the obtainable tax revenue level R^{\max} for the government, V_0 represents the highest utility level for the median voter and, by implication, the highest reelection probability. A government which is not limited in its scope for action by any further restriction will hence choose point A.

How does this result change once a BB tax rule is introduced? Suppose the same rule as in section 3, limiting the tax rate on the more comprehensible tax base H to t_H^1 . In such a case, the government would again be forced to raise the tax rate t_L on the less comprehensive tax

base in order to compensate for the revenue loss from tax base H. Note that any point along the indifference curve V_0 is associated with lower tax revenues as compared to point A. Hence, any point that fully or at least partly compensates for the revenue loss due to the BB tax rule must be located on an indifference curve which is north-east of V_0 , e.g. point B on indifference curve V_1 . Whether the tax revenue level R^{\max} can be recovered by the rise in t_L depends on whether a tax structure $(t_H^1; t_L^{\max})$ yields more or less in revenue than R^{\max} . If tax revenue is R^{\max} in B then the government will go no further than to t_L^{**} with the tax rate on L.

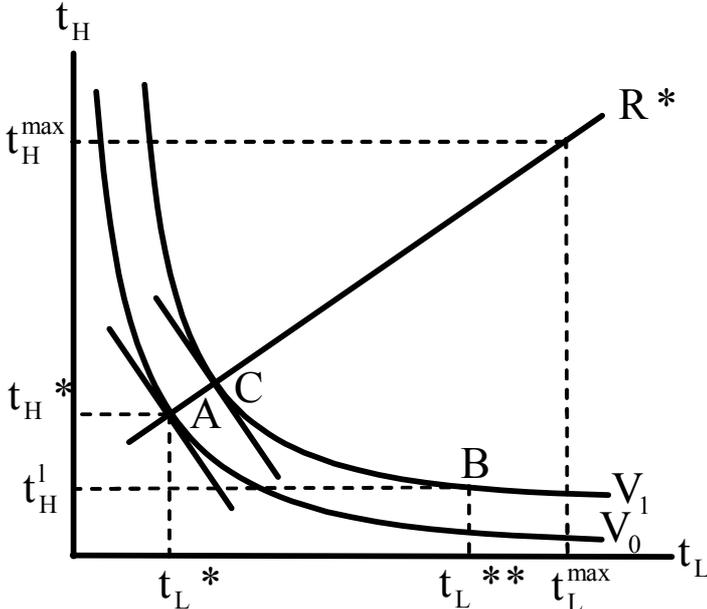


Figure 4.1.: Demand restriction and a Brennan-Buchanan tax rule

In any case, however, the utility level of the median voter will drop, since he will end up on an indifference curve which represents a lower level of utility. Again, the reason behind this result is that the constitutional rule, in combination with some additional political restrictions, forces the government to produce waste. Note that revenue is at R^{\max} in point A as well as in point B whenever the government voluntarily chooses B. In point A however, the citizens are better off as compared to point B. They have the same tax bill in B, but they incur higher dead weight losses. Now compare point B with C. Whereas the utility level is identical in both points tax revenue is lower in B than in C. Hence, starting from B, tax revenue could be raised without reducing the utility level of the citizens.

Summing up, the BB tax rule once again forces the government to choose an inefficient tax structure. In this case, however, the economic burden of the ensuing waste is not born by the

government like in the previous section. Rather, the burden is shifted to the citizens, which are definitely harmed by the constitutional rule. By contrast, there will not even be the slightest limitation of Leviathan's power to tax associated with a constitutional rule of the Brennan-Buchanan type in this case.

Our next example deals with a Leviathan government which supplies productive public goods, i.e. public goods such as public infrastructure that enter the macroeconomic production function and raise productivity of the (other) production factors.

V. LEVIATHAN AND PRODUCTIVE PUBLIC GOODS

The point in this section is that productive public goods raise national income of a country. This, in turn, raises potential tax revenues. Any revenue-maximizing government will hence raise the supply of productive public goods up to the point where the marginal increase in tax revenues due to an increased provision of productive public goods becomes zero. However, it seems reasonable not to assume a merely revenue-maximizing government in this specific case. The reason is that, under these circumstances, Leviathan may rather be interested in maximizing tax revenue net of expenditures for the public goods, for it is only this excess revenue that the government can freely dispose of. Brennan and Buchanan have taken such a case into consideration and claimed that it would not make a crucial difference to pure revenue maximization with respect to their argument. Hence we can apply such a variant of Leviathan behavior without doing any harm to the point raised by Brennan and Buchanan.

To be specific, we define government rents Q as total tax revenue R minus expenditures for public goods. The amount of public goods supplied by the government is indicated by X . The public goods are bought on a perfectly competitive market to the price P_X . A rent-maximizing government will then raise the supply in the public good until marginal productivity of the public good equals its price, or until $F_X = P_X$, with F_X indicating marginal productivity of the public good. In addition to the public good we consider two private inputs N (labor) and K (capital). Labor is assumed to be relatively inelastic in supply as compared to capital. Hence, labor is the factor which is comparatively vulnerable to tax exploitation by Leviathan, as compared to capital. We apply a simple production function of the following type:

$$Y = K^\beta \cdot N^{1-\beta} \cdot X^\gamma \quad \text{with: } 0 < \beta < 1 \quad \text{and: } 0 < \gamma < 1 \quad (5.1).$$

As long as Leviathan is not restricted by any constitutional rule, he is free to tax both labor as well as capital. For reasons of simplicity, we consider a simple tax on the stock of labor input and capital input. Tax revenue is thus:

$$R = t_K \cdot K + t_N \cdot N. \quad (5.2.)$$

We assume perfectly competitive factor markets. Hence, factor prices of labor and capital are equal to their respective marginal productivity F_N and F_K . The net capital price is thus $r = F_K - t_K$ and the net wage is $w = F_L - t_L$. Rewritten, this is $t_K = F_K - r$ and $t_N = F_N - w$. In combination with 5.2. we get the following definition of governments rents:

$$Q = (F_K(N, K, X) - r) \cdot K + (F_N(N, K, X) - w) \cdot N - P_X \cdot X. \quad (5.3.)$$

The optimal amount of X must satisfy the usual first-order condition, derived from 5.3.:

$$F_{KX} \cdot K + F_{NX} \cdot N = P_X. \quad (5.4.)$$

Applied to our production function we will have:

$$F_{KX} \cdot K = \beta \cdot \gamma \cdot K^\beta \cdot N^{1-\beta} \cdot X^{\gamma-1} \quad \text{and} \quad F_{NX} \cdot N = (1-\beta) \cdot \gamma \cdot K^\beta \cdot N^{1-\beta} \cdot X^{\gamma-1}. \quad (5.5.)$$

Also, we can find:

$$F_X = \gamma \cdot K^\beta \cdot N^{1-\beta} \cdot X^{\gamma-1}. \quad (5.6.)$$

Inserting 5.6. into 5.5. yields:

$$F_{KX} \cdot K = \beta \cdot F_X \quad \text{and} \quad F_{NX} \cdot N = (1-\beta) \cdot F_X. \quad (5.7.)$$

Finally, inserting 5.7. into the first-order condition 5.4. leads to:

$$F_X = P_X. \quad (5.8.)$$

As is clear from 5.8., the supply of the public good will be efficient in equilibrium. This finding is illustrated in figure 5.1. Leviathan will raise public-goods supply up to the level X^{eff} , where the marginal-productivity line F_X intersects the price line P_X .

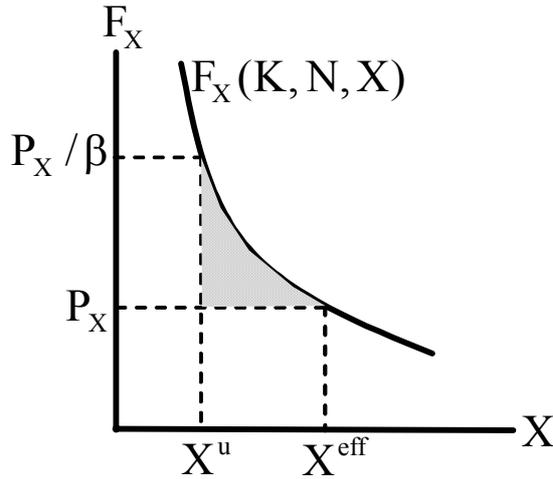


Figure 5.1.: Leviathan's supply of public inputs

This will change, however, when a constitutional rule of the Brennan-Buchanan type prohibits the taxation of the more elastic tax base N . For then, the rent equation 5.3. will simplify to:

$$Q = (F_K(L, K, X) - r) \cdot K - P_X \cdot X. \quad (5.9.)$$

As a consequence, the first-order condition for a maximum of rents for Leviathan will change to:

$$F_{KX} \cdot K = P_X. \quad (5.10.)$$

Inserting 5.7. into 5.10. leads to:

$$\beta \cdot F_X = P_X. \quad (5.11.)$$

Since $0 < \beta < 1$, F_X will, in any case, be above P_X . Hence, as illustrated in figure 5.1., the supply in the public input will fall to X^u , short of its efficient level X^{eff} . The reason of this underprovision of the public good is the following (Apolte, 2001): Whereas the public input raises productivity of both private factors of production, government can only reap the benefits from the increase in productivity of capital. It ignores the productivity-enhancing effect of the public-goods' supply on labor. Technically speaking, government produces a positive externality for the labor income. This has a discouraging effect on the provision of productive public goods. The resulting underprovision of public goods reduces the productivity of both capital and labor. Total production in the economy drops to an extent indicated by the shaded area in figure 5.1.

As a result of the prohibition to tax the broad tax base we face two sources of inefficiencies in a setting where governments supply public inputs: The first is the underprovision of the public good as analyzed in this section. The second source is the tax distortion that will be virulent here as much as it was the case in the examples discussed in the previous sections. Whether the average citizen or, for that matter, the median voter incurs a loss in net income or still enjoys a gain, remains an open question. It depends on the magnitude of the two inefficiencies on the one hand and on the magnitude of the reduction in total tax revenue on the other. The latter, in turn, depends on the elasticity of labor supply and on the extent to which some political restrictions on labor taxes apply. Whatever the net effect to the citizens is, however, from the point of view of the economy as a whole, the Brennan-Buchanan type rule will, in any case, reduce overall production. Hence, any alternative rule suitable to limiting tax revenues without causing the inefficiencies analyzed here would be superior to the rules suggested by Brennan and Buchanan.

VI. DISCUSSION

To be true, we are aware of the fact that we have presented merely some examples in which the economic effects of Brennan-Buchanan type constitutional rules turn themselves into the opposite of what these authors claimed in their famous book. We admit that this does not always need to be the case. Indeed, in some cases such rules may even work the way Brennan and Buchanan hope. However, it was not intended in this paper to demonstrate that the economic effect of these rules will, in any possible case, turn themselves upside down. Rather, the intention was to show that reality is more complex than has been claimed by Brennan and Buchanan and that this complexity needs to be considered in order to avoid deadly wrong conclusions.

This is not to say that it is not legitimate to derive theoretical conclusions on a high level of abstraction. Rather, the point is that Brennan and Buchanan omitted some decisive building blocks of the politico-institutional framework, building blocks that do indeed matter under certain circumstances. To say that, however, does not mean that Brennan and Buchanan's criticism of optimal taxation theory is not eligible. Quite the opposite is true, and this criticism seems so important and striking that it alone suffices to make the book one of the most important contributions to modern theory of taxation. Indeed, since the book has been published, optimal taxation theory is not what it used to be anymore. Public-policy recommendations cannot be based on optimal-taxation considerations in the traditional naïve

way alone without the risk of losing professional reputation. However, Brennan and Buchanan's strict dichotomization of their own approach on the one hand and optimal taxation theory on the other hand appears to be exaggerating in the light of the shortcomings of the Brennan-Buchan approach as they have been presented here.

The crucial shortcoming of optimal taxation theory or, more generally, of welfare economics is that the description of governments as benevolent dictators completely misses the point. We always need to be well aware of this fact and we have any reason to do so whenever we make up our minds on questions of government activity both on the constitutional as well as on the post-constitutional level. However, as Sandmo (1990, p. 59) puts it: "I for my part do not feel that welfare economics has been destroyed by this kind of criticism. On the contrary I feel that welfare analysis of efficiency, market failure, and the design of public policies to improve efficiency has strengthened its foothold after the public choice criticism."

This intermediating evaluation is supported by the fact that the alternative to the concept of governments as benevolent dictators, the concept of governments as Leviathans in the version of Brennan and Buchan, also misses an important point. The problem is *not* the description of governments as Leviathans as such, i.e. as boards consisting of individuals who maximize their own utility rather than that of their constituency. Rather, the problem is that they describe the institutional framework, that is the set of restrictions under which Leviathan unfolds his activity, in a way which is at best questionable. Many reasonable alternative specifications of this set of restrictions turn the Brennan-Buchanan results on their head. That is the point.

As one of the central shortcomings of optimal-taxation theory, Brennan and Buchanan criticize the optimal taxation theorists' "obstinate neglect of the expenditure side of the budget" (Brennan/Buchanan, 1980, p. 14). Interestingly, though, in all but one small section of their book, they ignore the expenditure site, too. They justify their neglect with an assumption according to which governments raise taxes solely for the sake of financing government consumption, not for the supply of public goods. We have indeed any reason to suspect that government consumption is the true motivation behind all government activity in much the same way as it is the motivation of Adam Smith's butcher to raise his own consumption rather than consumption of his customers. However, the point raised by Adam

Smith was that it is competition that forces the butcher to act *as if* he wanted to maximize utility of his customers. And this is the difference between Adam Smith's butcher and Brennan and Buchanan's Leviathan.

Brennan and Buchanan are right in claiming that Adam Smith's butcher is constrained in his income hunger by market competition, whereas there is no such (strict) restriction for governments. But they are obviously wrong in claiming that, at least in modern democracies and under the rule of law, there is no restriction to Leviathan's revenue hunger *at all* (see Hardin, 2002, pp. 524 – 527). True, Brennan and Buchanan concede that some restrictions may indeed be at work in modern democracies. But they nevertheless base their reasoning on the worst-case scenario in which none of these restrictions apply. As a legitimization for this shift from reality they once again refer to Adam Smith's picture of the butcher. Under the force of market competition he will always do his best for his customers, no matter what his real motivation is. As far as he is a selfish person, market competition will keep him in check. However, even if he were altruistic to a certain extent, market competition would not do any harm. Hence, finding the rules that will work even with the worst motivations of the market participants will always keep us on the secure side (Brennan/Buchanan, 1980, pp. 19 – 20).

It is exactly this point which Brennan and Buchanan apply to the Leviathan problem. And it is exactly this point in which they are wrong. Adam Smith's point was: If we apply market competition, then the provision of the people with private goods and services will (apart from any market failures) always be better than without market competition, no matter what the real motivation of the supplier is. Brennan and Buchan's point seems to be perfectly analogous, but note that it is indeed very different. Their point is: If we apply constitutional restrictions, then the provision with public goods and services will always be better than without such restrictions, independently of the real motivation of government officials and (!) independently of the possible existence of some further restrictions to government activity. The fallacy of this analogy is twofold: First of all, constitutional restrictions of the Brennan and Buchanan type are not the same as market competition (of the Adam Smith type, if you want). Indeed, they could hardly be different. And secondly, it makes a considerable and even decisive difference whether some constitutional rules of the Brennan-Buchanan type are combined with some further political constraints, like democracy, or not. The welfare-enhancing effect of a constitutional rule in a world without any further political restriction may turn itself into a harmful welfare reducing effect once it is combined with some other and

pretty realistic political restrictions.

VII. CONCLUSIONS

In this paper, the approach by Brennan and Buchanan, as it has been published in their famous book *The Power to Tax*, is critically reexamined. In this book they claim that constitutional restrictions on governmental activities, mainly in the field of tax rates, can limit the power of selfish governments of the Leviathan type. One of the central assumptions by Brennan and Buchanan is that governments do not face any political restrictions in their power over the citizens. It is shown in this paper that once this assumption is relaxed the results by Brennan and Buchanan may not hold anymore. This result is exemplified by the analysis of constitutional rules of the Brennan-Buchanan type, combined with three different types of political restrictions: a utility restriction where a certain minimum utility level has to be left to the median voter, a demand restriction for public goods and some restrictions that arise in the case of the supply of productive public goods by a government. In all these cases, the theoretical results as well as their normative implications even turn themselves upside down.

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