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It is argued in this note that earmarked taxes may be employed as a precautionary device to exert damage control so that problems in one budgetary item will not be spread to other budgetary items. The compartmentalization design of a submarine is a fitting metaphor. Theoretically, this consideration is complementary to, but more straightforward than, the arguments of Buchanan and Brennan (1978) and Buchanan (1991). Empirically, it is relevant to public policies such as national health insurance and social security, which not only incur substantial expenditures but also have the tendency to have explosive growth in expenditures. Although the compartmentalization property of the earmarking arrangement is logically sound, the actual working of the political process determines its ultimate relevance in reality.

A NOTE ON EARMARKED TAXES

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The idea of earmarked taxes refers to the budgetary arrangement that revenues from certain taxes are allocated for particular fiscal outlays. Traditional public finance literature generally opposes earmarking taxes because effective budget management is likely to be adversely affected.¹ Buchanan (1963) challenged this traditional view and brought new insight to the understanding of the earmarking arrangement.

In a subsequent article by Buchanan and Brennan (1978), the discussion was elevated to the constitutional level. It was argued that when facing the revenue-maximizing Leviathan, the voter-taxpayer can employ the earmarking arrangement to ensure himself at least a certain level of public services from a particular budgetary item. In contrast, I will argue in this note that the earmarking arrangement may

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be adopted not to ensure a certain level of public services in a particular budgetary item but mainly to prevent fiscal problems in one budgetary item from spreading to other budgetary items. It is like the compartmentalization design of a submarine: Leakage in one compartment will not cause problems in other compartments or even endanger the whole submarine. Theoretically, this argument is complementary to, but more straightforward than, the argument of Buchanan and Brennan; empirically, this theoretical consideration has important policy implications. For public policies such as national health insurance and social security that involve substantial fiscal outlays, the compartmentalization argument implies that precautionary measures should be taken in designing the financing structure of these policies.

I will briefly review the theoretical development of earmarked taxes in the next section and present the compartmentalization argument in the third section. Then, the fourth section contains a discussion of related issues. The final section concludes the note.

THEORETICAL BACKGROUND

Compared with traditional discussions of earmarked taxes, Buchanan (1963) was distinct in that he brought the factor of political process into analysis. In addition, he made two important points in the article that are relevant to the discussion here. First, by using a budget consisting of two expenditure items, Buchanan demonstrated his criticism of general fund financing. Specifically, with general fund financing, voters-taxpayers can vote only once on the expenditure level (and thus the corresponding tax rate) of the whole budget, but they have no influence on the respective expenditure levels of the two budgetary items. With earmarked taxes, however, voters-taxpayers can cast votes on the two items separately. In rare coincidence, the two different procedures would yield the same result, but in general, the two procedures will bring about different results. Comparing the two procedures, it is intuitively clear that the procedure of voters' casting votes twice would better satisfy voter preferences. The idea can be illustrated with a more homey example. If milk and orange juice are sold with a certain tie-in ratio, then consumer satisfaction would obviously

be restricted; customers would prefer to make the purchase decisions of milk and orange juice separately and freely.

The second point made by Buchanan (1963) implied a more general interpretation of earmarked taxes. In particular, Buchanan argued that certain institutional arrangements implicitly serve a similar function as the earmarking arrangement. For instance, in numerous localities in the United States, school districts and water districts are independent from the local government and legally enjoy autonomous status. District residents form various organizations to levy and collect taxes and then use the revenues to fund services such as elementary education, water supply, the fire department, and so forth. As such, the financing/organizational arrangement is a form of earmarking—revenues from certain sources are allocated for designated expenditures. Consequently, both points made by Buchanan vividly illustrate that the issue of earmarked taxes should be examined from a more general perspective.

In Buchanan and Brennan (1978), the analysis was again conducted with a framework that emphasizes the political process, but the emphasis was shifted to examining the issue at the constitutional level. In particular, when a representative individual is situated at the constitutional stage, he is to design a basic structure of the constitution. He knows that the contract to be signed is constitutional, which means that once ratified it would remain in effect for an indeterminately long period of time. He also knows that after the constitution is signed, a government will be formed to run the day-to-day operations. Because the individuals of the society will be more like loose sand in facing the powerful government that commands coercive power, it is evident that how the government actually behaves would significantly affect the welfare of the individuals. Therefore, the behavioral characteristics of the government would affect the representative individual in designing precautionary arrangements at the constitutional stage. But the behavioral characteristics of the government are not given, and therefore a reasoned judgment with empirical support is needed. Concerning this issue, Buchanan and Brennan believed that it is a realistic assumption that the government would be like a Leviathan. Given this assumption, the representative individual would obviously try to adopt certain precautionary measures at the constitutional stage.²

In particular, to ensure that not all tax revenues are wasted by the Leviathan so that a certain level of public services is provided, the representative individual will employ the earmarking arrangement, at least to a certain extent, in designing the fiscal structure. Moreover, to achieve this goal, a complementarity between the tax base and the governmental activity should be established. The reason is that for the government to maximize its revenues, it must provide certain services so as to induce the corresponding private activities such that revenues can be collected from the affiliated taxes. An example suffices. If revenues from gasoline taxes can only be used in the construction and maintenance of highways, then to collect gasoline taxes the government must build certain highways so that the taxpayers will have incentives to purchase cars and consume gasoline. Consequently, with the earmarking arrangement, the taxpayers can at least enjoy a certain level of public services; otherwise, the tax revenues may all be wasted by the Leviathan.³ Note, however, that the complementarity between the tax base and governmental activity is a special form of the earmarking arrangement, for in general the latter only implies that certain taxes are assigned to fund certain expenditures; a functional link between the taxes and the expenditures is not mandatory.

THE COMPARTMENTALIZATION ARGUMENT

With the complementary relationship between the earmarked taxes and the governmental activity, the representative individual ensures himself at least a certain level of public services at the constitutional stage. But this is only one side of the coin for adopting the earmarking arrangement. The other side of it, however, is to employ the earmarking arrangement to exert damage control. Specifically, considering the potential waste and other problems implicit in the political process, the representative individual may be more concerned with the risk that under general fund financing, problems in one budgetary item are spread to other budgetary items so that services in the other budgetary items are adversely affected. Moreover, the spread of the problems may be so severe that the whole fiscal structure becomes endangered.

The risk may be caused by either or both of the following factors: First, the bureaucrats responsible for a particular budgetary item would find ways to enlarge the revenues allocated for this budgetary item. This means that a continuous expansion on the revenue side is to be expected. Second, the politicians would claim various reasons (e.g., the needs of their constituents) so as to increase the supply of services of this particular budgetary item, especially when the outlays of this budgetary item cover a wide spectrum of the voters-taxpayers. It is then clear that an expansion on the expenditure side is most likely to occur. The forces on the revenue side and on the expenditure side would reinforce each other. This means that resources absorbed by a particular item may grow excessively and that resources originally allocated for other budgetary items may now be crowded out. Alternatively put, the fast expansion of one budgetary item necessitates that resources be brought in from other budgetary items. Because with general fund financing the budgetary items are all linked together, consequently, problems in one budgetary item will be spread to other budgetary items, and this may in turn affect the normal functioning of the whole budget. Therefore, to effectively protect himself from facing such a risk, the representative individual can adopt the earmarking arrangement as a precautionary device at the constitutional stage. That is, the earmarking arrangement would be similar to the compartmentalization of a submarine. By separating the submarine into different, independent compartments, water from the leakage in one compartment will not be spread to other compartments and thus will not endanger the whole submarine. In fact, the earmarking arrangement is even better than the compartmentalization of a submarine. With general fund financing, each budgetary item is supported ultimately by the revenues of the whole budget; however, this creates an incentive for overexpansion and waste. With the earmarking arrangement, in contrast, the deep pocket of the whole budget is not available; therefore, the incentive for overexpansion and waste is effectively curtailed. Consequently, the risk of fiscal bankruptcy is greatly reduced. For measures such as national health insurance and social welfare policies that involve substantial fiscal outlays, the potential risk of having runaway growth is acute. In short, the compart-

mentalization consideration makes the earmarking arrangement not only theoretically straightforward but practically relevant.⁴

Concerning the theoretical soundness of the earmarking arrangement, a comparison between the compartmentalization argument and the Buchanan-Brennan argument can sharpen the contrast. First, although the Buchanan-Brennan argument is concerned mainly with a particular budgetary item, the compartmentalization argument is concerned with both the particular budgetary item with the earmarking arrangement and the whole budget. As such, considering the order of magnitude, the compartmentalization argument obviously deals with a much larger issue than the Buchanan-Brennan argument. Second, the Buchanan-Brennan argument implies that the goal of the earmarking arrangement is to produce beneficial results in a particular budgetary item, but the compartmentalization argument, in contrast, implies that even though unsatisfactory or disastrous results may occur in this particular budgetary item, it is not the major concern. The major concern as implied by the compartmentalization argument is, abstractly speaking, to prevent a local problem from becoming a general one. In other words, the Buchanan-Brennan argument is silent on the functioning of other budgetary items, but the compartmentalization argument emphasizes the need to maintain the normal functioning of other budgetary items as well as the sustainability of the whole fiscal structure. Considering the potential threat of the Leviathan and the need to make precautionary arrangements, the compartmentalization argument seems to be more straightforward than the Buchanan-Brennan argument. Third, for the earmarking arrangement to work, the Buchanan-Brennan argument relies on the complementarity between the tax base and governmental activity to create a self-enforcing mechanism; in contrast, for the compartmentalization arrangement to function, the complementary relationship is not needed. Finally, the argument for a balanced budget amendment in Buchanan (1997) arguably echoes the idea of a compartmentalization design—with a balanced budget, the government cannot use debt financing to absorb resources in such a manner so that private economic activities are adversely affected.⁵

DISCUSSION

An examination of certain related issues will further illuminate the nature of the earmarking arrangement. In addition, the discussion in this section mainly concerns the merits of the earmarking arrangement in the context of the political process, whether the adoption of which is based on the Buchanan-Brennan argument or on the compartmentalization argument. To begin with, the various budgetary arrangements can be thought of conceptually as occupying a spectrum. On one extreme of the spectrum is general fund financing, where all the budgetary items are financed by a single budget. On the other extreme, all items are financed by earmarked taxes. In between, different ratios of the general fund and earmarked taxes can be envisioned. It is obvious that it is not suggested here that the best arrangement is going to the extreme of using earmarked taxes to finance all budgetary items. Instead, it is only suggested that employing the earmarking arrangement to finance some budgetary outlays is beneficial.

Moreover, although logically both the compartmentalization argument and the Buchanan-Brennan argument for earmarking taxes have merit, their empirical relevance obviously depends on the actual working of the political process. Two issues are of critical importance. First, the change on either the demand side or the supply side of the earmarking arrangement may affect its performance. Specifically, if the demand for the public outlay as financed by the earmarked taxes suddenly increases or decreases, the revenues from the designated taxes may not properly match the fiscal needs. Conversely, even when the demand for public outlays remains stable, an unexpected change in the revenues from the earmarked taxes would also make the earmarking arrangement out of step with the fiscal needs. Consequently, it should be clear that the earmarking arrangement is not suitable for fiscal outlays that tend to have fluctuations on either the demand side or the supply side of the outlays. Furthermore, earmarking taxes has strengths and weaknesses: A choice between general fund financing and earmarked taxes is like choosing between committing a Type I error (rejecting the hypothesis that should not be rejected) or a Type II error (accepting the hypothesis that should be rejected).

Second, in reality, earmarked taxes are not immune to the forces of the political process. That is, the same process that created the earmarking arrangement may later decide to evade or discard the institutional arrangement. For instance, highway trust funds may be diverted to mass transit subsidies or other uses even more remote from highways.⁶ This is indeed a serious and difficult problem. But as is true with all rules adopted by human beings, rules cannot function by themselves; the creators of the rules are the ultimate determining factor of how the rules function. Compared with general fund financing, it is obvious that the earmarking arrangement implies a more rigid budgetary rule. But whether the more rigid rule can be supported by greater self-restraint of the relevant individuals remains an empirical issue. It is hoped, as the beneficial implications of the earmarking arrangement, as argued in this note, become better understood, more attention as well as support will be brought for it.⁷

Finally, it is interesting to note that the rationale for adopting the earmarking arrangement with the compartmentalization considerations is not really new intellectually, at least with respect to Buchanan's own writings. More specifically, in their treatise, Buchanan and Tullock (1962) suggested that a major concern for the representative individual at the constitutional stage is that in the political process the actions of others may bring adverse effect upon him, resulting in possibly severe external costs for him. As such, to avoid having to bear such costs, the representative individual may purposefully choose to keep certain activities within the private domain. For each and every individual, the private domain is just like a compartment that is insulated from the actions, and thus the influences, of others.

CONCLUSION

In this note, I first reviewed the theoretical development concerning earmarked taxes. It was pointed out that the article by Buchanan in 1963 brought the factor of political process into analysis and thus shifted attention to earmarked taxes in a new direction. The subsequent article by Buchanan and Brennan (1978) elevated the discussion of earmarked taxes to the constitutional level. Based on the motivation

of self-interest, the representative individual may employ earmarked taxes to ensure himself a certain level of public services. In contrast, I proposed in this note a complementary reason for adopting the earmarking arrangement. Specifically, the earmarking arrangement can prevent the problems caused by a particular budgetary item from spreading to other budgetary items.

Some interesting issues that are not dealt with in this note remain to be explored. For instance, at the constitutional stage, how does the representative individual determine which budgetary items are to be designed according to the Buchanan-Brennan argument and which budgetary items are to be designed according to the compartmentalization consideration? Also, how does one determine empirically whether the Buchanan-Brennan argument or the compartmentalization argument is more relevant for a particular earmarking arrangement, for example, in the case of social security funds or highway trust funds? These issues are both intellectually interesting and practically important, but exploration of these issues will have to wait for other occasions.

NOTES

1. See Buchanan (1963) and the references cited therein. For more recent discussions on the subject, see Wiseman and Posnett (1991), Teja and Bracewell-Milnes (1991), and the papers in Wagner (1991).

2. It is to be noted that the Rawlsian "veil of ignorance" is often employed to analyze the problem faced by the representative individual at the constitutional stage. But the concept may not be needed for examining all constitutional problems. In the case of earmarked taxes, for instance, the critical assumption is that the government would behave like a Leviathan once the constitution is ratified. That is, as long as the representative individual is expected to face a Leviathan, he would increase his utility by employing certain institutional arrangements, irrespective of his own particular position in the postconstitutional stage. As such, the argument by Buchanan and Brennan (1978) in invoking the Rawlsian veil of ignorance to support the earmarking arrangement is somewhat unwarranted.

3. The argument is extended and elaborated in Buchanan (1991).

4. One interesting application of the compartmentalization argument concerns how one manages one's emotions. If one is frustrated by obstacles in one's work, then, with a compartmentalization of emotions, the frustrations will not be brought home or affect the normal functioning of the person in other respects.

5. One of the underlying reasons for the U.S. government to have a federal structure with various branches and layers is likely to be the compartmentalization consideration, but this as-

pect seems to have been neglected in the literature. The second point made in Buchanan (1963) about autonomous organizations as a form of earmarking is indirectly relevant to the compartmentalization argument, however.

6. See Newbery and Santos (1999) for a discussion of the practical problems in implementing the earmarking arrangement.

7. For a relevant discussion of the costs and benefits as implied by rigid rules, see Buchanan (1989, chap. 4).

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