

ADVANTAGES AND DISADVANTAGES OF EXEMPTING MUNICIPAL BONDS FROM THE FEDERAL INCOME TAX: THE U.S. EXPERIENCE

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Romania and other Eastern European countries have undergone dramatic reforms as they have sought to democratize political institutions, develop their economies, rely on private markets for the provision of goods and services, and pursue a course of economic integration with Western European nations (Lazar, 2005). Of course, these reforms have included the complete overhaul of tax and revenue systems (Lazar, 2005). As these tax reforms mature and are adapted to the differing realities of each country, it might be useful to reflect on the experiences and mistakes of countries whose tax systems they have used as blueprint for their own reforms. This is the spirit in which this analysis is written. The article presents a synthesis of the American experience with tax-exempt municipal bonds, and the advantages and disadvantages associated with this tax exemption. The exemption represents a subsidy from the federal government to states and local governments, and as such, it has powerful incentives with implications from the economic and redistributive standpoints. This article explains these implications and how they have been addressed in the U.S.

*Transylvanian Review
of Administrative Sciences,
19 E/2007, pp. 51-57*

Background

The market for municipal bonds in America dates back to the 19th century (Johnson and Rubin, 1998). The term “municipal bonds,” or simply “municipals,” refers to bonds issued by both state and local governments. The Supreme Court of Justice developed in the 19th century a doctrine that essentially viewed a federal tax on the powers of states to borrow money as essentially unconstitutional (Mikesell, 2003). Based on this doctrine, the interest paid to holders of municipal bonds has been tax exempt since the federal income tax was adopted in 1913 (Mikesell, 2003; Temel, 2001). However, the exemption has generated a conflict of interest between federal, state, and local authorities which is summarized by Zimmerman (1991) as follows:

The federal government has been concerned that unfettered issuance of tax-exempt bonds erodes its income base, reduces economic output by misallocating the supply of scarce savings, distorts the equity of the income tax system, and involves the federal government unnecessarily in support of some state and local services. State and local governments naturally want to finance capital projects and short-term borrowing at the lowest possible cost. In addition, they have wanted to provide subsidized credit to private corporations, real estate developers, home buyers, college students, and charitable institutions in order to promote local economic development,

general benefits to their constituencies, and advance other worthy objectives (Zimmerman, 1991, p. 15).

As a consequence, the exemption and the municipals market in general have gone through two phases. The first phase is characterized by a relatively unrestricted exemption, which led to a formidable growth period of outstanding municipals, especially revenue bonds to finance private purposes in the 1980s (Johnson and Rubin, 1998). An important aspect of this phase was the possibility of earning arbitrage profits, either by states or banks, which resulted in banks holding from 40 to 50 percent of total outstanding municipals in the 1970s (Poterba, 1986). Another feature of this period was the rise of marginal individual income tax rates, which also provided an incentive to purchase municipals.

The second phase is, to some degree, the reversal of the previous trend. Successive restrictions to the exemption were made, which slowed the market's rate of growth, especially the issuance of so-called "non-traditional borrowing." (Johnson and Rubin, 1998). The Tax Reform Acts of 1982, 1984, and 1986 effectively curtailed banks' incentives to purchase municipals for arbitrage profit purposes, bringing their holdings down to 12.4 percent in 1990 (Feenberg and Poterba, 1991). Similarly, different legislative actions, especially the Tax Reform Act of 1986 reduced marginal tax rates for individuals in high-income brackets, thereby reducing the incentive to purchase tax-exempt bonds, and curtailed the issuing of private activity municipals. In this fashion, the distortions on resource allocation and equity brought about by these incentives were reduced.

Tax Exemption as a Tool to Increase Public Investment and Social Welfare

The traditional legal or political justification for the exemption of municipal bonds has been the avoidance of any federal impingement upon the ability of state and local governments to borrow money. However, the exemption implies a federal subsidy to states and local governments. Indeed, exempting interest earned by bondholders from the federal income tax is a way of allowing state or local jurisdictions to pay lower interest rates at the expense of federal revenues. From the economic standpoint, specifically from the perspective of welfare economics, the exemption can be justified if two conditions hold. The first condition is that the market fails to provide an adequate level of state and local public investment. The second condition is that the goods financed through tax exempt municipals are pure public goods with benefits that spill over across states. In other words, these goods should have the characteristics of national goods. The argument is that national goods must be provided at the national level (or with federal moneys) for there to be an efficient supply. If it were left up to each state to provide for national public goods (or goods with positive spillovers) there would be a free rider problem. Some states, knowing that they would still benefit from the non-excludable, non-rival good provided by the neighboring jurisdiction, would have an incentive to not provide or under-provide the same good. Thus, the specific form of inefficiency which tax-exemption and federal financing aim to correct is undersupply (Stiglitz, 2000; Zimmerman, 1991).

Tax Exemption as a Source of Inefficiency and Loss of Social Welfare

If the assumption of market failure and suboptimal level of public capital at the state and local levels does not hold, the subsidy could be a source of inefficiency and resource misallocation. Fortune (1992, 1996) provides a traditional analysis of the social costs caused by tax exemption, under the assumption that no undersupply exists prior to the exemption. This author makes use of the Edgeworth-Bowley Box and assumes an initial Pareto optimal equilibrium where the government and private sectors face the same factor prices and marginal product ratios in a two sector, two factor, and two good economy. Under these circumstances, tax exemption reduces the capital costs of the public sector, creating incentives for the government to use more capital and less labor in its production process. The price of capital is bid up and consequently the price of labor decreases, as the economy arrives at a new equilibrium where public production is increased, private production is decreased,

and the capital/labor ratio of government is greater than the capital/labor ratio of private business. Most importantly, tax exemption creates a permanent wedge between the factor prices faced by both sectors and the economy can no longer be Pareto efficient.

How much more will government increase its production (and the private sector reduce its production), and how inefficient will the new equilibrium be? This depends on two factors: technology and preferences. If both sectors use fixed proportions technology, meaning zero elasticity of substitution, the effects of tax exemption will be minimal, given that, to increase production or change factor ratios, government must use more capital and less labor. However, fixed proportions locks government into either acquiring more of both or releasing both. By contrast, as the elasticity of substitution embedded in the technologies used by both sectors increases, the effect of tax exemption on resource misallocation increases as well. Additionally, preferences have an impact on the magnitude of the inefficiency. The more sensitive consumers are to changes in the price of public goods, the greater the increase in demand and the increase in the production of these goods.

Using the Harberger (1962) framework for the analysis of tax incidence, Fortune (1996) has calculated a decrease in aggregate output due to tax exemption ranging from \$2.38 to \$7.38 billion dollars. Fortune (1996) finalizes his exposition with the following disclaimer: “The reader should be aware that these costs are measured against the alternative of a perfectly competitive economy without subsidies, and that for the imperfect world we face, the introduction of tax exemption could, in fact, improve resource allocation. Indeed, those who believe that there is insufficient public infrastructure in the U.S. economy argue that market outcomes do not efficiently allocate resources and that government should intervene to increase public infrastructure (p. 105).”

Using Tax Exempt Bonds to Finance Private Activities

As explained above, bond proceeds must only be used to finance state and local public investment. However, this has not always been the case in the U.S. Once cheaper capital is made available at the expense of the federal government it appears costless in the eyes of state and local government to act as conduits and allow private parties to benefit as well. In fact, the abusive use of tax-exempt municipal bonds to finance private activities prompted the limitations contained in the Tax Reform Act of 1986.

Financing private activities through municipal bonds has additional negative consequences. A subsidy given to businesses distorts the price system by cutting the costs of production of a particular good relative to other goods. This artificially raises the rate of return of the subsidized market and diverts resources into the less productive subsidized activities and into the consumption of goods which ultimately yields less utility or satisfaction to citizens. Moreover, financing private activities works against the main aim of facilitating state public capital formation. Passing bond proceeds on to private businesses has the effect of lowering the cost of capital of private investment relative to public investment and of actually inhibiting public capital formation (Zimmerman, 1991). Compounding these effects is the fact that the subsidy is not available to all firms alike, as states and local governments vary in their willingness and sophistication to act as conduits. As a result, the ideal level playing field among actors in the private markets is altered in favor of those fortunate to gain access to cheap capital (Zimmerman, 1991).

Maureen O'Hara (1983) provides an example of the unintended distortions introduced by exempt bonds. The Federal Farm Land Bank System established in 1916 had the goal of helping land tenants become owners by awarding them cheap credit to purchase land. To achieve this goal, public and private banks established under the correspondent federal act were allowed to issue tax-exempt bonds. However, the policy was ultimately counterproductive and had the effect of raising demand for, and the price of land. This did not help tenants but the farm owners who became wealthier

and consolidated their holdings. Tenancy actually increased, not decreased. This policy also drove other intermediaries (that couldn't issue tax-exempt bonds) out of the agriculture credit area. Lastly, it diverted capital assets from more productive activities into agriculture and promoted excessive indebtedness in the sector, which proved disastrous in the Great Depression.

Arbitrage Profits

In addition to using municipal bonds to finance private activities, states and businesses took advantage of the exemption to obtain arbitrage profits. Arbitrage takes place when state governments issue tax exempt bonds, use the proceeds to purchase taxable bonds, and pocket the difference between the higher interest rate collected and the lower interest rate paid. Private enterprises, especially banks, can also earn arbitrage profits by contracting loans, using the funds to purchase tax-exempt bonds, deducting the interest payments on the loans yet earning a tax-exempt interest from the municipal bonds. In this way, the bank earns an arbitrage equivalent to the interest payment deduction times its marginal federal income tax rate.

The implications of arbitrage are very serious. It signifies that the federal subsidy is not being used for a productive purpose, but is remaining idle and is being used to simply increase state coffers or corporate profits. If states engage in arbitrage, they are simply siphoning federal revenues into state coffers. This completely defeats the purpose of promoting state public capital formation. If banks perform arbitrage, *ceteris paribus* they also receive a net inflow of federal revenues, but in this case it is a subsidy with the same effects on resource allocation and efficiency described above.

The arbitrage performed by banks was a factor behind their substantial holdings of tax-exempt bonds, which hovered around 40 to 50 percent of total outstanding municipal tax-exempt debt in the 70s and early 80s (Poterba, 1986). Fortunately, the Tax Reform Acts of 1982, 1984 and 1986 limited this important deduction to the point that bank holdings of tax-exempt bonds were reduced to 12.4 percent by 1990 (Feenberg and Poterba, 1991). However, Metcalf (1990) asserts that the Tax Reform Act of 1986 only affects incentives to issue private activity bonds in order to achieve arbitrage gains, but not the incentives to issue “governmental purpose” debt. He concludes that enforcing the prohibition of financial arbitrage requires a clear link between bonds and specific assets, which is very hard to prove.

Transfer Inefficiency

Municipals are only one way of awarding a federal subsidy. Other forms such as grants are possible as well. Transfer efficiency refers to the question of whether there is a dollar for dollar relationship between the revenues that the federal government gives up and the magnitude of the subsidy received by state and local governments. Indeed, transfer inefficiency is one of the disadvantages that tax exemption of municipal bonds may have relative to other alternative policy tools for the promotion of state and local capital investment. The transfer inefficiency of tax exemption can be explained with the aid of the following equation describing the relationship between the yield of taxable and tax exempt bonds:

$$r_e = (1-t) r_{ne} \tag{Equation 1}$$

where r_e represents the rate of return or yield on exempt bonds, t the implicit tax rate, and r_{ne} the rate of return on taxable (non-exempt) bonds. This equation states that the yield of the tax-exempt bond equals the after tax yield of the taxable bond, assuming that the only difference between the bonds is the exemption. This equation however is still imprecise. In a world of progressive individual tax rates, there can be multiple after-tax yields for taxable bonds. One must then define the tax rate of the consumer that clears the market, which can be defined as t_m . The debt market operates with an upward sloping demand curve where yields must be raised by the issuer as the volume of the issue increases in order to clear the market (Miller, 1977). An upward-sloping demand curve makes sense

in a world of progressive tax rates because tax exemption is worth more to individuals in higher tax brackets than it is to persons in lower tax brackets. As the size or volume of the issue increases, a higher rate of return must be offered in order to entice individuals in lower brackets to purchase tax-exempt bonds. The tax rate of the person whose purchase is necessary to sell the entire issue – the marginal consumer – ultimately defines the relationship between taxable and tax exempt yields. Substituting t_m for t in Equation 1 yields the expression $r_e = (1-t_m) r_{ne}$. Multiplying the two factors on the right hand side and rearranging yields the following expression:

$$t_m r_{ne} = r_{ne} - r_e \quad \text{Equation 2}$$

The left hand side of Equation 2 represents the revenue loss for the federal government that derives from each dollar of tax exempt municipal debt. The right hand side of Equation 2 represents the interest cost savings for state and local governments for each dollar of tax exempt municipal debt. Equation 2 states that the revenue loss will be equal to interest cost savings only for the tax rate of the marginal consumer. It follows that for any tax rate greater than t_m the revenue loss will be greater than the interest cost savings. Since the marginal consumer cleared the market, every other purchaser theoretically has a tax rate greater than t_m and therefore revenue losses exceed interest cost savings for virtually all purchasers. Feenberg and Poterba (1991) summarize these ideas by stating that, while interest cost savings depend on the tax rate of the marginal investor, the federal government's revenue loss depends on the average marginal rate of all municipal bond investors. It should be clarified that although the term marginal consumer refers theoretically to the person that clears the market, the term is used more specifically to refer to the individual that determines the spread between tax exempt and taxable yields. In practice, there are bondholders with tax rates below that of the individual that determines the yield spread.

The marginal consumer

Given the importance of this marginal consumer, who effectively sets the yield spread between taxable and tax-exempt bonds as thus the interest cost savings for state and local governments, much scholarly effort has been expended to determine who this marginal consumer is. Several theories have attempted to explain this. All agree that the corporate tax rate determines the yield spread at short maturity. This is so because firms are the natural acquirers of short-term bonds for cash management purposes. Although there is some degree of progressivity in corporate tax rates, for practical purposes it is essentially flat. Most corporations are in the top bracket, especially those that purchase the greatest volumes of municipal bonds. A flat corporate tax rate means that, in the short run, there is essentially one implicit tax rate and that revenue losses approximately equal interest rate savings.

The discussion then refers to who determines the yield spread at long-term maturities. While the traditional view has held that the marginal tax rate of the marginal individual investor in tax-exempt bonds determines the spread (Fortune, 1988), some scholars have posited that it is instead the marginal tax rate of corporations or banks (Fama, 1977; Miller, 1977). However, Poterba (1986) and Fortune (1988) have tentatively resolved the dispute as they have found empirical support for the hypothesis that changes in individual tax rates determine changes in the yield spread. Rowe (1926) determined that the marginal (or indifferent between taxable and tax-exempt) buyer was in the 60,000-64,000 bracket. Fortune (1988) found that only changes to the upper income tax brackets (\$80,000 and above) influence the yield spread. Feenberg and Poterba (1991) analyzed tax returns and found that 3/4 of tax exempt debt held by households belongs to those with marginal tax rates of 28 percent and higher.

Transfer efficiency at the state level

Many states also have an individual income tax and similarly provide an exemption or preferential tax treatment for municipal bonds. In fact, after the 1986 reforms that reduced the marginal individual

income tax rates at the federal level, the relative importance of state income taxes has increased (Brucato, Forbes, and Leonard, 1991). Thus, states that exempt municipals also have a transfer efficiency problem. To minimize or eliminate this problem, some states have established a differential tax treatment by exempting in-state issues while taxing out-of-state issues. According to Brucato, Forbes, and Leonard (1991), 36 states tax out-of-state municipals only while exempting in-state municipals. The differential tax treatment leads in turn to a differential yields. Kidwell, Koch and Stock (1984) have found that “the average small issue in a state with a positive tax differential on out-of-state municipals carried a net interest cost almost 4 basis points below that of comparable issues in states with no differential (p. 558).” According to Brucato, Forbes, and Leonard (1991), the in-state/out-of-state yield differential should theoretically be between 50 to 70 basis points; however, their empirical analysis only shows an average yield differential of only 18 basis points. Lovely and Wasylenko (1992) find that for every one percent reduction in the income tax rate, there is a 3.9 basis point reduction in the yield of in-state bonds. However, they conclude that interest cost savings would only offset revenue losses if non-residents purchase half the volume of outstanding tax exempt municipals.

Equity

In addition to the economic effects, tax-exempt municipal bonds may also have undesirable effects on equity and redistribution. Inequities could take three forms. First, the tax exemption could imply a geographical redistribution of resources if the benefits from the goods financed through municipals does not spill over across states. “If such spillovers do not exist, then federal financial support for state and local provision simply has the effect of redistributing income geographically, which may not be the intent of the subsidy (Zimmerman, 1991, p. 87).” Second, given that the exemption implies a transfer of resources from the federal to state and local governments, the exemption could benefit individuals with stronger preferences for state and locally provided goods over those individuals that prefer federally provided goods. Third and most importantly, the exemption reduces the progressivity of the individual income tax structure. Specifically, the tax exemption benefits those in high tax brackets and is detrimental to individuals in lower tax brackets. Any individual with a tax rate above t_m benefits from the purchase – the greater the difference the greater the benefit or consumer surplus— while anyone with a tax rate below t_m is worse off by purchasing municipals. Rowe (1926) has asserted that – with the exemption of municipals – the wealthy investor benefits at the expense of the government and the government benefits at the expense of the poor investor. Bailey (1974) concluded that the overall burden of the personal income tax is only mildly progressive for incomes in the higher marginal rate brackets because tax-exempt investments allow them to reduce their effective rates. However, Zimmerman (1991) asserts that the equity issues of tax-exempt bond financing are not as relevant today because of the aforementioned tax reform acts.

Conclusions

This article has presented a summary of the American experience with tax-exempt municipal bonds, and the advantages and disadvantages associated with establishing this tax exemption. In the case of the U.S., adopting this exemption has not been an option. Rather, because of historical reasons associated with the federal form of government, this exemption has long been considered an important protection of state autonomy. However, beyond this legal or historical justification, the exemption represents a subsidy from the federal government to states and local governments, and as such, it has important implications from the economic and redistributive perspectives which must be addressed.

The analysis presented in this article suggests that this exemption could be a useful tool for the promotion of state and local capital formation in cases in which there is an undersupply of public

investment and in which the benefits from public investment spills over across states. Even so, there are powerful incentives to use these bonds for purposes of obtaining arbitrage profits, financing private activities, and reducing the progressivity of the national income tax. These perverse incentives are magnified in an environment of high marginal income tax rates. A country establishing this exemption must take care to minimize these negative consequences.

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