



# Tax competition, public input, and market power

Steve Billon

## ► To cite this version:

Steve Billon. Tax competition, public input, and market power. *Journal of Public Economic Theory*, 2022, 25 (3), pp.615-623. <10.1111/jpet.12632>. <hal-04020458>

**HAL Id: hal-04020458**

**<https://hal.science/hal-04020458v1>**

Submitted on 8 Mar 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



HAL Authorization

# Tax competition, public input, and market power

Steve Billon 

Faculty of Law and Business, University of Strasbourg, Strasbourg Cedex, France

## Correspondence

Steve Billon, University of Strasbourg,  
1 Pl d'Athènes, BP 66, 67045 Strasbourg  
Cedex, France.  
Email: [sbillon@unistra.fr](mailto:sbillon@unistra.fr)

## Abstract

An increase in the number of local jurisdictions providing industrial public goods may lead to a rise in the equilibrium tax rate, in contrast to the case of residential public goods. When local jurisdictions are Leviathans, an increase in competition may expand tax revenues and thus fail to tame the Leviathan, contrary to the conventional wisdom.

## 1 | INTRODUCTION

There is a substantial literature on tax competition showing that local jurisdictions setting taxes on mobile capital lead to a suboptimal level of both taxation and public good provision. Hoyt (1991) shows that when local jurisdictions provide public goods benefiting their residents, a decrease in their market power (or equivalently a larger number of identical competing jurisdictions) lowers both tax rates and residents' welfare. Decentralization magnifies the positive fiscal externality induced by a raising tax rate that a jurisdiction imposes on the rest of the federation. This so-called horizontal externality is ignored by local jurisdictions and reinforces the race to the bottom.<sup>1</sup>

While Hoyt (1991) has clarified the consequences of decentralization for the provision of residential public goods and welfare under mobile capital tax financing, this question has not been examined for the case where local jurisdictions provide local public input, that is, a public good that benefits firms and enhances the productivity of private

<sup>1</sup>This paper follows Hange and Wellisch (1998), Arikian (2004), and Keen and Kotsogiannis (2004) who use interchangeably “decentralization” and “increase in the number of jurisdictions.” Note that in the Leviathan hypothesis literature, decentralization means that a lower layer of jurisdictions provides a larger share of public expenditures. Since our model rules out the existence of a federal government we cannot study the consequences of such kind of decentralization.

factors.<sup>2</sup> This is because most of the papers on this topic study the case of small jurisdictions, in which there is a large (infinite) number of local governments.<sup>3</sup> In such a context, the degree of competition is maximum and local jurisdictions cannot manipulate the net return on mobile capital.

The absence of such an analysis of the relationship between tax setting and the degree of interjurisdictional competition is surprising since the previous literature stresses that the public input imposes a fiscal feed-back effect that may push taxes too high compared with their optimal level (see, e.g., Bayindir-Upmann, 1998; Dhillon et al., 2007; Noiset, 1995).

This paper fills this gap and revisits the effect of decentralization on taxes and welfare by focusing on the provision of an industrial public good under two alternative scenarios regarding the behavior of the local government. The first case examines the decision of a benevolent government that maximizes the welfare of the representative citizen in its jurisdiction. It is useful to compare this model with the benchmark outcome that arises in the residential public good provision case, that is, the one exposed by Hoyt (1991). In particular, I show that an increase in the number of local jurisdictions providing an industrial public good may raise the tax rate on capital, in contrast to the case where local jurisdictions provide a residential public good. The intuition behind this result is as follows. Increasing the number of jurisdictions affects the perception of the fiscal externality an individual jurisdiction imposes on the rest of the federation. If the positive external effect on capital productivity is sufficiently strong, an increase in the number of jurisdictions pushes the marginal cost of public funds (MCPFs) further below its socially optimal level, worsening the overtaxation outcome.

This result has an important implication for the second case envisioned regarding the behavior of local governments, namely, the Leviathan scenario in which the government acts as a tax revenue maximizer instead of a benevolent government. According to the public choice approach, competition between local jurisdictions may serve as an efficient constraint to tame the Leviathan. Brennan and Buchanan (1980) argue that competition could be used instead of a constitutional constraint to promote spending and fiscal discipline of local governments. To the best of my knowledge, there is no paper that formally and theoretically evaluates the effect of a change in the number of jurisdictions on a Leviathan. Keen and Kotsogiannis (2003) explore this topic in an extended setting in which they consider a Leviathan behavior on the part of local and federal governments that share a common capital tax base. Thus, the influence of the number of jurisdictions at the local level does not only influence Leviathan governments through horizontal externalities (tax competition) between local jurisdictions but also through vertical externalities and tax base sharing (a mechanism that was not explicitly considered by Brennan & Buchanan, 1980). They find that an increase in the number of states increases consolidated tax revenues per state. This counterintuitive result may be explained by the existence of a vertical externality that is magnified along with the monopoly power of the Leviathan in this setting, when there is more competition at the lower layer of government. However, Keen and Kotsogiannis (2003) demonstrate that this increase in tax revenues might

<sup>2</sup>The case of tax competition with the provision of such public inputs to firms has been analyzed, among others, by Zodrow and Mieszkowski (1986), Keen and Marchand (1997), Matsumoto (1998, 2004), Dhillon et al. (2007), and Gugl and Zodrow (2019). Note that both perfect and imperfect competition models find that overprovision of public input may be a possible outcome.

<sup>3</sup>Thus, these papers do not explore strategic interactions in the fashion of Wildasin (1988). A notable exception is Bayindir-Upmann (1998) although he does not draw any conclusion from the introduction of strategic interactions between local jurisdictions on the relationship between taxes and the number of local governments.

actually benefit residents welfare if the residential public goods provided by the state and federal Leviathans are perfect substitutes.

In another strand of the literature, Hange and Wellisch (1998) and Arian (2004) consider governments which act, in the fashion of Edwards and Keen (1996), as both benevolent resident utility maximizers and Leviathan. In these papers, the government maximizes its own utility function whose arguments are the utility of the residents and a residual from tax revenues that do not finance residential public expenditures.<sup>4</sup> They provide general conditions under which an increase in the number of jurisdictions drops wasteful expenditures captured by governments.

A general feature of all the previous approaches is that they focus either on Leviathan governments and ignore the destination of public expenditures<sup>5</sup> or on benevolent-Leviathan governments that provide residential public goods. Surprisingly, this theoretical literature on the relationship between interjurisdictional competition and Leviathan ignores the implications of the provision of a public input. Yet this question is important and legitimate especially when considering the potential overtaxation tendency generated by fiscal feed-back effect of such a type of public good, which one might legitimately expect to be exploited by a Leviathan government. Thus, this paper contributes to the Leviathan literature by showing how the provision of public input affects the relationship between competition and the potential rents extracted out of tax revenues.

I show that if local governments providing a public input act as revenue-maximizing Leviathans, fiercer tax competition may lead to less fiscal discipline, in contrast to the conventional wisdom fostered by the public choice approach (Brennan & Buchanan, 1980). This means that in case of overtaxation, an increase in the competition between local jurisdictions will not serve to recover an efficient level of capital tax because it will only reinforce the negative horizontal externality, that is, a capital inflow implied by the increment of public input and the capital productivity growth.

To the best of my knowledge, this paper is the first to consider the influence of the presence of a public input instead of a residential public good on the effect of more interjurisdictional competition on rents captured by self-serving governments.

The paper is organized as follows. Section 2 presents the basic model. Section 3 explores the effect of a change in the number of jurisdictions on the level of taxes set by a benevolent government. Section 4 introduces the assumption of a government acting as tax revenue-maximizing Leviathan and considers a change in the number of jurisdictions on the level of taxes. Section 5 concludes.

## 2 | THE MODEL

I consider a federation with a small number  $N$  of jurisdictions. In each region  $j = 1, \dots, N$ , an output is produced by a representative firm (in a perfectly competitive market) using capital  $K^j$  located in the jurisdiction, an immobile and constant factor (which could be land or labor) and

<sup>4</sup>Rauscher (1998) also considers the effect of competition on such type of government but since his analysis focuses on perfect competition, he only compares an autarkic and a perfect competitive equilibrium, so there is no possibility for strategic interactions between local governments and no change in the net rate of return of capital contrary to Hange and Wellisch (1998) and Arian (2004).

<sup>5</sup>In the basic setting, the government is seen a tax revenue maximizer and captures an exogenously determined share of these revenues that finance self-serving expenditures.

a public input  $P^j$  provided by the local government. The production function  $F^j(K^j, P^j)$  is characterized by  $F_l^j > 0 > F_{ll}^j$ ,  $l = K^j, P^j$ . I assume, in line with the literature on tax competition and public input, that factors are complements:  $F_{KP}^j > 0$ . The firm's profit reads  $\Pi^j(K^j, P^j; r^j) = F^j(K^j, P^j) - r^j K^j$ , where  $r^j$  stands for the gross-of-tax rate of return of capital. The conditions for profit maximization  $F_K^j(K^j, P^j) = r^j \quad \forall j$  define the capital demand function  $K^j(r^j, P^j)$  in every jurisdiction with  $K_1^j = 1/F_{KK}^j < 0$  and  $K_2^j = -F_{KP}^j/F_{KK}^j > 0$ .

In each jurisdiction a representative resident receives, due to the ownership of a fixed factor like land or labor in the production function, the profit  $\Pi^j$  as well as the capital income from her endowment  $\bar{K}$  of capital. The total stock of capital in the economy is assumed to be fixed. Normalizing the price of the private good to one, the private budget of the resident is

$$X^j = \Pi^j + \rho \bar{K}, \quad (1)$$

where  $X^j$  stands for the consumption of the private good and  $\rho$  denotes the net return of capital.

The provision of the public input is financed by a source-based tax  $\tau^j$  on capital located in the jurisdiction. Assuming that government uses one unit of output to produce one unit of public input, the local public constraint is

$$P^j = \tau^j K^j. \quad (2)$$

The capital is freely mobile across the federation and relocates until it earns the same post-tax rate of return in every jurisdiction:  $\rho = F_K^j(K^j, P^j) - \tau^j$ ,  $\forall j$ . These arbitrage conditions and the market clearing condition  $\sum_{j=1}^n K^j = N\bar{K}$  allow one to determine the equilibrium value of  $\mathbf{K} \equiv (K^1, \dots, K^n)$  and  $\rho$  as functions of the tax rates  $\boldsymbol{\tau} \equiv (\tau^1, \dots, \tau^n)$  and the level of public inputs  $\mathbf{P} \equiv (P^1, \dots, P^n)$ . Introducing these expressions in (2) yields  $\mathbf{P}(\boldsymbol{\tau})$ , which in turn allows one to write the net return as a function of tax rates only:  $\rho(\boldsymbol{\tau})$ . Substituting the latter and  $\mathbf{P}(\boldsymbol{\tau})$  together with  $r^j = \rho + \tau^j$  into the capital demand function gives  $K^j(\rho(\boldsymbol{\tau}) + \tau^j, P^j(\boldsymbol{\tau}))$ .

The effect of a change in the capital tax rate on the provision of public input in a jurisdiction is found by differentiating the capital demand function with respect to  $\tau^j$ . Substituting  $\partial P^j / \partial \tau^j = K^j + \tau^j (\partial K^j / \partial \tau^j)$  and rearranging yields

$$\frac{\partial P^j}{\partial \tau^j} = \frac{K^j + \tau^j K_1^j \left(1 + \frac{\partial \rho}{\partial \tau^j}\right)}{1 - \tau^j K_2^j}. \quad (3)$$

For later use, we also compute the effect of a change in the capital tax rate on the net return. Differentiating the market clearing condition for capital, evaluating at the symmetric equilibrium and substituting  $\partial P^i / \partial \tau^j = \tau^i K^i (\partial \rho / \partial \tau^j) / (1 - \tau^i K_2^i)$  and (3) gives

$$\frac{\partial \rho}{\partial \tau^j} = -m \left( 1 + K^j \frac{K_2^j}{K_1^j} \right), \quad (4)$$

where  $m = 1/N$  denotes the market power of a jurisdiction in the federation.

The local government is assumed to be benevolent and maximizes the resident's welfare. Since there is no residential public good in the model, this amounts to maximize its private

consumption (1) subject to the public budget constraint (2). The Nash equilibrium tax rate is found by differentiating (1) evaluated at the symmetric equilibrium where  $K^i = K^j = K$  and substituting (3) and (4):

$$F_P = \frac{K(1 - \tau K_2)}{K(1 - \tau K_2) + (1 - m)\tau(K_1 + KK_2)}. \quad (5)$$

Equation (5) describes the taxation rule of a local government, which equalizes the marginal productivity of the public input  $F_P$  to the MCPFs. The latter represents the amount of private good the resident is willing to give up to finance an additional unit of public input. As stressed by Noiset (1995) and Bayindir-Upmann (1998), the MCPFs may be lower or greater than one, leading to under or overprovision of public input. The final outcome essentially depends on the effect of public input provision on the capital stock located in the jurisdiction. Two effects alter the outcome compared with the case of a residential public good. First, a higher tax rate can increase the net return because of the positive effect of the public input on the capital productivity. Second, the term  $1 - \tau K_2$  reflects what Bayindir-Upmann (1998) calls a “fiscal feed-back effect,” the fact that additional provision of public input widens the tax base and tax revenues, holding the price of capital constant. If capital demand is more responsive to its price than to a change in public input, that is,  $K_1 + KK_2 < 0$ , and the effect of the public input provision on tax revenues (holding its price  $r$  constant) is not too high, that is,  $1 - \tau K_2 > 0$ , an increase in the tax rate drives capital out of the jurisdiction and leads to the standard case of underprovision. But a higher positive effect of public input on the productivity of capital such that  $KF_{KP} > 1$  and  $K_1 + KK_2 > 0$  could make the capital more responsive to  $P$  than to  $r$ , and trigger an inflow of capital into the jurisdiction and lead to an overprovision of the public input, keeping  $1 - \tau K_2 > 0$ .<sup>6</sup> This “fiscal feed-back effect” plays an important role in the relationship between market power, tax rate, and welfare.

### 3 | MARKET POWER, TAX RATE, AND WELFARE

At the symmetric Nash equilibrium, there is no capital movement, since every jurisdiction sets the same level of tax rate. The private consumption of residents is  $X = F(K, P) - \tau K$  and the provision of public input is  $P = \tau K$ , where  $K$  is the common stock of capital across the federation. Since the total stock of capital in the economy is fixed, an increase in the number of jurisdictions (or a lower market power) implies a larger number of smaller identical jurisdictions. A uniform change in the market power will not trigger any capital flight, that is,  $\partial K / \partial \tau = 0$  and  $\partial K / \partial P = 0$ , as net return of capital will adjust to compensate any modification of  $\tau$  and  $P$ .<sup>7</sup>

Totally differentiating (5) shows that:

<sup>6</sup>Bayindir-Upmann (1998) presents two other cases where under or overprovision of public input might occur when the marginal cost, holding constant the price of capital, becomes negative, that is,  $1 - \tau K_2 < 0$ .

<sup>7</sup>The effect of a uniform change of  $\tau$  and  $P$  on the net return is found by differentiating the arbitrage condition  $F_K(K, P) = \rho(\tau, P) + \tau$ , with  $K$  treated as fixed, with respect to  $P$ :

$$\frac{\partial \rho}{\partial P} = F_{KP}$$

and to  $\tau$ ,  $F_{KP}K = \partial \rho / \partial \tau + (\partial \rho / \partial P)K + 1$ , which yields, using the previous equation:  $\partial \rho / \partial \tau = -1$ .

**Proposition 1.** *When the local government is benevolent and provides a public input to firms, the tax rate decreases (increases) as market power decreases if and only if  $1 - \tau K_2 > 0$  ( $1 - \tau K_2 < 0$ ). The change in the tax rate is given by*

$$\frac{d\tau}{dm} = \frac{\tau(1 - \tau K_2)(K_1 + KK_2)}{F_{PP}\Omega^2 + (1 - m)\tau(K_1 + KK_2)}, \quad (6)$$

where  $\Omega = K(1 - \tau K_2) + (1 - m)\tau(K_1 + KK_2)$ .

Note that starting from the symmetric equilibrium  $\partial\rho/\partial\tau = -1$  and thus  $K_1 + KK_2 < 0$ . Since  $F_{PP} < 0$ , the denominator in (6) is negative and  $d\tau/dm$  takes the sign of  $1 - \tau K_2$ . If  $1 - \tau K_2 > 0$ , the outcome is similar to the standard case of a residential public good presented by Hoyt (1991) as  $d\tau/dm > 0$ . The fiscal feed-back effect is not sufficiently high to compensate the decrease in the net return of capital. A larger number of jurisdictions strengthens the threat of capital mobility and forces the local government to decrease the tax rate in response. If in contrast  $1 - \tau K_2 < 0$ , a decrease in the market power of jurisdictions increases the tax rate as  $d\tau/dm < 0$ , a result that does not arise with residential public goods. In this case, the fiscal feed-back effect of public input overcomes the decrease in the net return of capital. Increasing the number of jurisdictions reinforces the positive external effect of public input provision on capital productivity and on tax revenues, which pushes local government to set even higher level of tax rates.

The effect of market power on residents' welfare can be found by differentiating the private budget constraint with respect to  $m$ , revealing that:

**Proposition 2.** *Whether under or overprovision of public input dominates, a decrease in market power always reduces welfare. The change in the resident's private consumption is given by*

$$\frac{dX}{dm} = K(F_P - 1)\frac{d\tau}{dm} > 0. \quad (7)$$

Equation (7) is found by introducing  $dP/dm = K(d\tau/dm)$  in  $dX/dm$ . The sign follows from (5) and Proposition 1. In case of underprovision (overprovision) of  $P$ ,  $d\tau/dm > 0$  ( $< 0$ ) and  $F_P - 1 > 0$  ( $< 0$ ), which implies that  $dX/dm$  is always positive. While an increase in the number of jurisdictions always reduces private consumption and welfare, note that the mechanism producing this result is different if there is under or overprovision of public input. In the case of underprovision of  $P$ , the threat of capital outflow decreases the tax rate and thus the tax liabilities paid by the resident by the amount  $-K(d\tau/dm)$ , which leaves more resources for consumption. At the same time, a decrease in tax revenues reduces the provision of  $P$  (since the fiscal feed-back effect is relatively low) and the local rent from production by  $KF_P(d\tau/dm)$ , which contributes to lower consumption. Overall, the fact that at equilibrium  $F_P - 1 > 0$  implies that a decrease in tax payment is more than compensated by rent reduction, leading to lower consumption and welfare. In the case of overprovision, a sufficiently high fiscal feed-back effect increases tax liabilities that are not compensated by rent growth allowed by the additional provision of  $P$  (since  $F_P - 1 < 0$ ).



While it is clear that in case of underprovision of public input an increase in the number of jurisdictions cannot be welfare improving because the threat of capital flight is higher, one might wonder whether the same mechanism could improve residents' utility in case of overprovision of public input. Proposition 2 shows that decentralization does not solve the overprovision issue by enhanced competition because, as explained in Proposition 1, the fiscal feed-back effect is strengthened by competition and magnifies the underlying fiscal externality. This result mirrors the findings of Keen and Kotsogiannis (2004), who show, in the context of a two-tier federation, that whether the horizontal externality from capital mobility or the vertical externality from tax base sharing dominates, decentralization is always welfare decreasing.

#### 4 | PUBLIC INPUTS AND LEVIATHAN GOVERNMENTS

The model developed in Section 3 goes beyond a simple technical extension of the standard case with residential public goods and may have important practical implications if local governments supplying public inputs are Leviathans. According to the public choice approach, competition between local jurisdictions may serve as an efficient constraint to tame the Leviathan. Brennan and Buchanan (1980) argue that competition could be used instead of a constitutional constraint to promote spending and fiscal discipline of local governments. Suppose, as in Keen and Kotsogiannis (2003), that local jurisdictions act as Leviathans maximizing rents extracted from tax revenues  $R = (1 - \alpha)\tau K$ , where  $\alpha$  is the share of tax revenues allocated to public input provision.<sup>8</sup> This objective amounts to maximizing tax revenues. The first-order condition (FOC) reads  $K + \tau \partial K / \partial \tau = 0$ . Differentiating  $K(\rho(\tau) + \tau, P(\tau))$  with respect to  $\tau$ , substituting  $\partial P / \partial \tau = \alpha(K + \tau(\partial K / \partial \tau))$  and a modified version of (4) gives<sup>9</sup>

$$\frac{\partial K}{\partial \tau} = (1 - m) \frac{K_1 + \alpha K K_2}{1 - \alpha \tau K_2}, \quad (8)$$

which can be introduced into the FOC to yield

$$K + \tau(1 - m) \frac{K_1 + \alpha K K_2}{1 - \alpha \tau K_2} = 0. \quad (9)$$

Totally differentiating (9) with respect to  $\tau$  and to  $m$  allows one to state the following proposition:

<sup>8</sup>This paper follows Keen and Kotsogiannis (2003) by assuming that the Leviathan captures a fixed share of public expenditures. Note that we could endogenize  $\alpha$  and describe the bureaucratic process by which the Leviathan extracts rents from tax revenues but this would go beyond the scope of the paper without adding much to the core of the demonstration of the main result.

<sup>9</sup>The effect of the tax rate on the net return of capital that takes into account the rent extracted by the Leviathan is found using the same procedure as in the case of a benevolent government with the exception that public expenditures on public input are  $P = \alpha \tau K$ . The change in the net return is given by

$$\frac{\partial \rho}{\partial \tau} = -m \left( 1 + \alpha K \frac{K_2}{K_1} \right).$$



**Proposition 3.** *When the local government acts as a Leviathan and provides a public input to firms, the tax rate and rents captured from tax revenues decrease (increase) as the market power decreases if and only if  $1 - \alpha\tau K_2 > 0$  ( $1 - \alpha\tau K_2 < 0$ ). The change in the tax rate is given by*

$$\frac{d\tau}{dm} = \frac{\tau(1 - \alpha\tau K_2)}{1 - m}. \quad (10)$$

The first condition of Proposition 3 is equivalent to the standard case of tax competition with residential public goods. As in Proposition 1, the fiscal feed-back effect (weighted by the share of tax revenues financing the public input) of the public input is not sufficient to attract new capital in the jurisdiction and an increase in competition reduces the tax rate. Recall that the derivation of (10) assumes a common and symmetric change in tax rates by all jurisdictions and thus does not entail any modification in the allocation of capital across the federation. It follows that a decrease in the tax rate drops tax revenues and thus the rent captured by the Leviathan in each jurisdiction, as expected by the public choice school. The second condition, in which  $1 - \alpha\tau K_2 < 0$ , introduces a different mechanism. In this case, as stated in Proposition 1, an overprovision of public input prevails because of the relatively high magnitude of the fiscal feed-back effect. An increase in the number of jurisdictions only reinforces the negative horizontal externality and thus the tax rate set by the Leviathans. Since the stock of capital is fixed, a tax increase improves the tax revenues and the rent of Leviathans. One ends up in a paradoxical situation in which more competition improves the situation of the Leviathan, contrary to the proposition of the public choice school, in which competition may serve as an efficient substitute of the tax constitution to tame the Leviathan. This is explained by the nature of the public good provided, here a public input, that imposes a positive external effect on private firms, increases the productivity of capital and thus attracts new capital in the jurisdiction. The positive effect of public input provision on firms' capital protects the Leviathans from the effect of tax competition that usually acts to eliminate rents.

## 5 | CONCLUDING REMARKS

Two important conclusions can be derived from the previous results. First, the consequence of a decentralization reform may crucially depend on the type of public good provided by benevolent local governments. If they provide a residential public good, a more competitive environment lowers tax rates as shown by Hoyt (1991). The opposite result may emerge with public inputs, when their external effect on capital productivity is sufficiently strong. However, in both cases, decentralization is welfare worsening, even though it works through a different mechanism with public inputs. Second, the mechanism identified may have important consequences if local governments are not benevolent but instead try to capture part of tax revenues for their own interest. With residential public goods, Hange and Wellisch (1998) and Arikan (2004) stress that when local governments include corrupt earnings in their objectives, an increase in the number of jurisdictions strengthens tax competition and tends to reduce rents captured on tax revenues. Our result shows that with the provision of a public input, an increase in the competition between local jurisdictions may on the contrary expand self-serving expenditures.

## ACKNOWLEDGMENTS

I thank Natalia Andries and two anonymous referees for helpful comments and suggestions. The usual disclaimer applies.

## ORCID

Steve Billon  <http://orcid.org/0000-0001-7288-5387>

## REFERENCES

- Arikan, G. G. (2004). Fiscal decentralization: A remedy for corruption? *International Tax and Public Finance*, 11(2), 175–195. <https://doi.org/10.1023/B:ITAX.0000011399.00053.a1>
- Bayindir-Upmann, T. (1998). Two games of interjurisdictional competition when local governments provide industrial public goods. *International Tax and Public Finance*, 5(4), 471–487. <https://doi.org/10.1023/A:1008694605822>
- Brennan, G., & Buchanan, J. M. (1980). *The power to tax: Analytical foundations of a fiscal constitution*. Cambridge University Press.
- Dhillon, A., Wooders, M., & Zissimos, B. (2007). Tax competition reconsidered. *Journal of Public Economic Theory*, 9(3), 391–423. <https://doi.org/10.1111/jpet.2007.9.issue-3>
- Edwards, J., & Keen, M. J. (1996). Tax competition and Leviathan. *European Economic Review*, 40(1), 113–134. [https://doi.org/10.1016/0014-2921\(95\)00057-7](https://doi.org/10.1016/0014-2921(95)00057-7)
- Gugl, E., & Zodrow, G. R. (2019). Tax competition and the efficiency of “benefit-related” business taxes. *International Tax and Public Finance*, 26(3), 486–505. <https://doi.org/10.1007/s10797-018-9514-3>
- Hange, U., & Wellisch, D. (1998). The benefit of fiscal decentralization. *Finanzarchiv/Public Finance Analysis*, 55(3), 315–327. <https://www.jstor.org/stable/40912841>
- Hoyt, W. H. (1991). Property taxation, Nash equilibrium, and market power. *Journal of Urban Economics*, 30(1), 123–131. [https://doi.org/10.1016/0094-1190\(91\)90049-D](https://doi.org/10.1016/0094-1190(91)90049-D)
- Keen, M. J., & Kotsogiannis, C. (2003). Leviathan and capital tax competition in federations. *Journal of Public Economic Theory*, 5(2), 177–199. <https://doi.org/10.1111/1467-9779.00129>
- Keen, M. J., & Kotsogiannis, C. (2004). Tax competition in federations and the welfare consequences of decentralization. *Journal of Urban Economics*, 56(3), 397–407. <https://doi.org/10.1016/j.jue.2004.04.005>
- Keen, M., & Marchand, M. (1997). Fiscal competition and the pattern of public spending. *Journal of Public Economics*, 66(1), 33–53. [https://doi.org/10.1016/S0047-2727\(97\)00035-2](https://doi.org/10.1016/S0047-2727(97)00035-2)
- Matsumoto, M. (1998). A note on tax competition and public input provision. *Regional Science and Urban Economics*, 28(4), 465–473. [https://doi.org/10.1016/S0166-0462\(98\)00003-9](https://doi.org/10.1016/S0166-0462(98)00003-9)
- Matsumoto, M. (2004). The mix of public inputs under tax competition. *Journal of Urban Economics*, 56(2), 389–396. <https://doi.org/10.1016/j.jue.2004.05.005>
- Noiset, L. (1995). Pigou, Tiebout, property taxation, and the underprovision of local public goods: Comment. *Journal of Urban Economics*, 38(3), 312–316. <https://doi.org/10.1006/juec.1995.1035>
- Rauscher, M. (1998). Leviathan and competition among jurisdictions: The case of benefit taxation. *Journal of Urban Economics*, 44(1), 59–67. <https://doi.org/10.1006/juec.1997.2060>
- Wildasin, D. E. (1988). Nash equilibria in models of fiscal competition. *Journal of Public Economics*, 35(2), 229–240. [https://doi.org/10.1016/0047-2727\(88\)90055-2](https://doi.org/10.1016/0047-2727(88)90055-2)
- Zodrow, G. R., & Mieszkowski, P. (1986). Pigou, Tiebout, property taxation, and the underprovision of local public goods. *Journal of Urban Economics*, 19(3), 356–370. [https://doi.org/10.1016/0094-1190\(86\)90048-3](https://doi.org/10.1016/0094-1190(86)90048-3)

**How to cite this article:** Billon, S. (2022). Tax competition, public input, and market power. *Journal of Public Economic Theory*, 1–9. <https://doi.org/10.1111/jpet.12632>