



Corporate profit tax, capital mobility, and formula apportionment

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Abstract

The paper develops an analytical framework in which regional governments strategically determine the structure of the corporate profit tax system when an apportionment formula determines the proportion of the firms' income subject to regional taxation. The conclusions can be summarized as follows: (i) Regional governments subsidize capital through the corporate tax system. (ii) Tax rates become higher and the portion of capital costs that can be deducted from taxable income becomes smaller as the formula weighs more production shares. (iii) The regionally provided good may be below or above the efficient level. (iv) The extent of the distortion depends on the particular formula put into practice. (v) Regional governments strictly prefer a formula that exclusively weighs the production proportion to any other alternative.

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1. Introduction

If a corporation has business activities established in multiple jurisdictions, regions, or countries,¹ then the local authority can levy a tax on income generated in that location. However, measuring income earned within each region raises a difficult conceptual problem. For instance, the current system of corporate taxation in the European Union requires firms to maintain different accounts for its activities in each country where it operates (separate accounting). The US

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¹ These three terms will be used indistinctively along the paper.

and Canada, on the other hand, have adopted a system of formula apportionment (FA) to allocate income across states. FA, as used in the US, asserts that the proportion of a multi-regional firm's income earned in a given state is a weighted average of the proportion of the firm's total sales, property, and payroll in that state. Thus, the firm's activities in a specific region is approximated by the share of these factors in the region, so the firm is not required to keep different accounts. Specifically, let I denote the set of states where the firm operates. The tax due by a firm to state $i \in I$ is $T^i = t^i \gamma^i \Omega^i$, where t^i is state i 's tax rate, γ^i is the share of total profits that are subject to taxation in state i according to the formula selected by that state, and Ω^i represents the firm's taxable profits as defined by state i 's tax law.² The share γ^i is defined by

$$\begin{aligned} \gamma^i &= m^{iK} \left(\frac{k^i}{\sum_{i \in I} k^i} \right) + m^{iF} \left(\frac{f^i}{\sum_{i \in I} f^i} \right) + m^{iW} \left(\frac{w^i}{\sum_{i \in I} w^i} \right) \\ &= m^{iK} \alpha^{iK} + m^{iF} \alpha^{iF} + m^{iW} \alpha^{iW} \end{aligned} \quad (1)$$

where k^i , f^i , and w^i are property, sales, and payroll in state i , respectively; m^{iq} is the weight given to factor $q = K, W, F$ in the apportionment formula in state i , such that $0 \leq m^{iq} \leq 1$, and $m^{iK} + m^{iF} + m^{iW} = 1$; and α^{iq} is the share of factor q in state i . Table 1 shows the weights m^{iq} chosen by different states in the US in 2003. It is clear from the table that states do not follow the same principle when choosing the apportionment method.³

Even though this method of apportionment is relatively easy to administer, it creates very complicated incentive effects. On one hand, firms operating in different regions react to different formulas by changing the allocation of property, sales and workers across regions. On the other hand, given that the tax policy chosen by different regional governments affects residents of other states, some kind of strategic interaction can be expected.

An additional problem arises when regions are allowed to choose their own FA systems. If they all adopt the same formula, exactly 100 percent of a corporation's income will be apportioned across states.⁴ Non-uniformity, however, can result in more or less than 100 percent of a corporation's income being subject to state income tax.⁵ In an effort to encourage tax uniformity across jurisdictions in the US, the Multistate Tax Compact (1967) established that the three factors considered in the apportionment formula are to be weighted equally ($m^{iK} = m^{iF} = m^{iW} = 1/3$ for all regions i). In spite of this, most states have recently deviated from the uniform apportionment formula and moved towards a greater weight on the sales portion of the corporate income tax, as shown in Table 1. It has been claimed that by manipulating the formula in this way, officials can offer tax breaks that help the economic development of the region. However, if more states pass such legislation, other states will be compelled to do the

² Regional governments may use different rules to define tax bases according to their tax codes. The present paper will consider one way in which tax bases may differ across regions: the proportion of capital costs that can be deducted from the corporate taxable income.

³ Mintz and Smart [19] provide a good description of the subnational corporate tax system in Canada. In this country, provinces use the same method of allocating income across jurisdictions. Specifically, the general formula is given by the sum of payroll and sales shares in a province divided by two.

⁴ In other words, $\gamma^i = 1$.

⁵ However, if the definition of taxable income differs across states, i.e., Ω^i is not the same for all i , then it may not be true that 100 percent of the firm's income is apportioned when all states use the same apportionment formula. We will come back to this issue later when we introduce the theoretical model.

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