# Unitary Taxation in Light of North American Experiences

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Inherited from the beginning of the 20th century, the current international taxation system relies on separate accounting and on the arm's length principle (ALP). In this system, entities of a same group are taxed separately and the allocation of the profits within the multinational group is governed by the ALP principle. This principle requires transactions within the group to be priced as if they were occurring outside of the boundaries of the firm. The current international tax accounting system is particularly vulnerable to tax avoidance and to the manipulation of the location of profits through intra-company transactions. Building on this observation, some academics from law or economics as well as international organization and the civil society argue that the allocation of the taxing rights in this system should be reformed (see Avi-Yonah and Clausing, 2007 and Zucman, 2018).

Among the possible reforms of the taxation system of multinational companies, unitary taxation is regularly highlighted as an alternative to the current system. This is particularly the case with the proposal of a group of 24 emerging and developing countries (G24) in the OECD negotiations, even if the details of the implementation of this proposal remain to be clarified (see OECD, 2019).

In addition, the Pillar 1 of the OECD negotiations proposes to introduce the allocation of taxing rights for destination countries for a portion of firms' global profits (so-called Residual Profit Allocation, see Auerbach *et al.* 2017b for details). Even if it concerns only a residual part of the profits under Pillar 1, the partial introduction of a form of unitary taxation raises theoretical and empirical questions about the incentives it generates as well as the ability of such a system to curb tax avoidance. This *Focus* recalls the main principles of a unitary system, identifies the theoretical effects on corporate behavior, and draws on empirical analysis of North American experiences (Canada and the United States) to discuss its practical application.

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# 1. What is unitary taxation?

In the widest sense, unitary taxation consists in the taxation of the worldwide profits of a firm (consolidated according to accounting standards to be defined) in proportion of indicators of the company's activity in the jurisdictions where it is liable for income tax. Such mechanisms exist at intra-national levels to distribute the tax base among the different regions of a country. This is particularly the case in the United States and Canada. However, a distinction must be made between the principle of unitary taxation, which consists in taxing the consolidated results of a group, and the principle of apportionment, which defines the way in which the tax base is allocated. Unitary setting requires apportionment mechanisms, but formulary taxation can be applied even in the absence of unitary framework. For instance, in the United States some states allocate corporate taxes using an apportionment formula without applying unitary taxation.

Unitary taxation corresponds to a new distribution of the taxing rights compared to the current system of territorial taxation. In territorial taxation, the right to tax a company on its profits essentially belongs to the countries where the profits are located.[3] In the unitary system, a country's right to tax is defined according to activity indicators. The underlying theory of the firm in separate accounting is that only single entities matters in creating value while the group in itself does not. On the contrary unitary taxation relies on a vision of a group that differs from only the sum of separated entities. It acknowledges that the profits of each entities within a group depends on the other entities of the group and that the value creation is driven by many diverse factors (that will be used in the apportionment key such as labor, capital, user participation, final demand, etc.).

This tax system can be based on different allocation factors included in the formula with different weights. In the simplest formula, entirely based on sales, a company that makes 25% of its sales in country A and 75% in country B will pay 25% of its world taxes in country A (at country A's rate) and 75% of its taxes in country B (at country B's rate). However, other formulas can be used to reflect several dimensions of economic activity. For example, the so-called Massachusetts formula gives equal importance to sales, employment and capital held by a company. This is also the approach adopted by the European Commission in its proposal for a common consolidated corporate tax base (CCCTB proposal). The tax collected by the tax authorities of jurisdiction *i* in respect of the activity of a company liable to tax on total profits in *i* is then written:

$$\text{Tax due}_i = T_i * \Pi^{consol.} \left( \frac{1}{3}(emp_i) + \frac{1}{3}(sales_i) + \frac{1}{3}(capital_i) \right)$$

With $T_i$ is the statutory tax rate of country *i*. It is important to note that the three allocation factors have yet to be precisely defined in order to limit optimization behaviors (see Wiener, 2005 for a description of the definition of these factors).

In addition to this simple system of profit taxation, anti-abuse rules may be added to clarify the link between a company and the jurisdictions in which it carries out an economic activity. Indeed, some companies are not taxed by a jurisdiction even though they have an economic activity in this jurisdiction. In the unitary taxation set up within an intra-national framework, this is the case for exports or profits from sales to the federal government: in both cases, the income generated by economic activity is generated outside the apportionment system. This is also the case when the company is not taxable in one jurisdiction (Walczak, 2019). These cases create a *nowhere income* that should be reallocated to jurisdictions exercising a right to tax on that business. There are traditionally two ways of transferring these untaxed profits: either by adding the untaxed income to the income of jurisdictions with *throwback rules* or by taking this income from global profits ("*throwout rule*"). In both cases, this reallocation has the mechanical effect of increasing

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(3) Note that under the *Controled Foreign Companies rules* (*CFC rules*), a company's home country has rights to tax its domestic companies.

the taxing rights of the jurisdictions with which the company is linked. Note also that some states adopted anti-abuse rules with respect to the activity in low-tax jurisdictions. Indeed, state tax havens laws include the income earned by foreign entities in the scope of state taxation. The foreign entities concerned are defined in the state law. For instance, Montana and Oregon have a blacklist of tax haven countries that is regularly updated. Alaska adopted a more flexible approach with specific conditions to add a foreign affiliate in the scope of state taxation. Other states (for instance Connecticut or Rhode Island) have adopted a subjective tax haven criterion.[4]

In the case where the implementation of such a system does not apply worldwide, jurisdictions introducing unitary taxation must also agree on the way transactions outside the system are handled. This would also mean that companies would be facing several different tax systems and should maintain accounting that is adapted to both systems.[5] In addition, the characteristics of a tax system, including whether or not it is robust to tax avoidance practices, are restricted within the scope of the system. This is for example noted by Weiner (2005) regarding the use of transfer pricing in CCCTB.[6]

While three-tier allocation (Massachusetts formula) was the most common among United States until the 1990s, it is now the apportionment formula only based on sales that has become the most common in the United States (see Section 3 and Figure 1 for more details). The coexistence of different formulas creates the risk of double taxation or double non-taxation.[7] In the case of a federal state, the existence of central institutions can overcome these problems. In the international case, the coexistence of different formulas ultimately raises the question of the governance of these rules and the tax disputes settlement. On the other hand, the application of a single rule for all States raises equity problems since the interests of countries regarding the choice of apportionment formulas largely depends on the structure of their economy. Indeed, there is no *a priori* reason to favor one formula over another when designing a common rule. So far, the economic literature has little to say regarding the optimal weights of the different factors. Studies on the American experience are therefore informative for assessing the potential effects of the introduction of unitary taxation at continental or even at the global level. In his book "Globalization, Tax Competition, and the Fiscal Crisis of the Welfare State" (2000) Avi-Yonah explains that a world tax organization would be necessary in order to harmonize withholding taxes and decide of an appropriate degree of tax competition. Such an organization would also help find an consensus on the way to allocate world profits.

One initiative at the international level is the Common Consolidated Corporate Tax Base (CCCTB). It was relaunched in 2011 by the European Commission after a first initiative in the early 2000s. First of all, it aims to harmonize the tax bases within the European Union (common base): as in the case of the United States, the profits of groups present in several European countries would then be calculated separately but with common rules. Then, these profits, consolidated at the parent company level, would be allocated between the countries where the multinational company operates based on the three factors mentioned above – employment, capital and sales –and taxed at each of the national income tax rates.

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(4) For details, see for instance Schiefelbein (2015).

(5) IFRS (*International Financial Reporting Standards*) accounting standards are becoming more and more widely used, but the United States continues to apply GAAP (*Generally Accepted Accounting Principles*), which differ in some respects. For example, consolidation standards differ between these two systems.

(6) It should be noted, however, that States may adopt anti-abuse measures to reinstate sales in low-tax jurisdictions in the apportionment formula (based on a pre-established list or criteria defined by law). This is the case, for example, in the states of Montana and Oregon in the United States.

(7) A simple example of a company operating in two states, one operating with a fully sales-based formula and the other with a Massachusetts formula, can generate double (non-)taxation.

# 2. Theoretical pros and cons of unitary taxation

Unitary taxation formulas are seen as less costly for both tax administration and firms thanks to its conceptual simplicity. Indeed, the simplicity of a rule can be an objective in itself as it allows both tax administrations and companies to reduce compliance costs.[8] This simplicity is particularly important for tax authorities with limited know-how and resources, as it is the case in some developing countries.[9] Moreover, although apportionment formulas base the taxation of the profits on production factors, they do not share the drawbacks of production taxes since they are applied on profits: only profitable companies *ultimately* pay this tax. Moreover, unitary taxation does not consist in directly taxing the company's factors of production and therefore avoids distortions and the cascading effects of production taxes (Trannoy and Martin, 2019).

Unitary taxation is perceived to be more robust to tax avoidance strategies and to better reflect the real activity of multinational groups. As we will see, this intuition largely depends on the apportionment factors used. It should be noted that the apportionment formulas discussed here are generally applied to the manufacturing and retail sectors. For other sectors, sector-specific formulas that correspond better to their activity are defined (this is the case for transport companies or financial companies for example).[10]

From a theoretical point of view, however, the comparison between unitary taxation and separate accounting is not so favorable to the former. Gordon and Wilson (1986) note that consolidation induced by the apportionment system may lead companies to merge with their competitors for tax purposes[11] or to internalize outsourcing in their legal entities located in low-tax countries to increase the share of total production and thus minimize the overall tax burden. By distinguishing between *high-tech* and *low-tech* capital, Altshuler and Grubert (2010) show that separate accounting and unitary taxation generate different distortions on the economic activity of companies. In separate accounting, companies are encouraged to distort their intra-group prices primarily for the most profitable and differentiated (typically *high-tech*) products in low-tax countries. On the contrary the apportionment system encourages them to increase their economic presence (employment, property or sales) in low-tax countries and thus also to locate products that are intensive in terms of production factors, even low-profit (*low-tech*). Their theoretical comparison shows that once companies adapt their behavior, the States' tax revenues are not significantly higher with an apportionment tax system.

The new round of negotiations launched within the framework of the OECD and the G20 is largely motivated by the inadequacy of the current tax rules with the digitalization of the economy. Digital platforms operate on unique business models. These platforms are described as "two-sided", since the user and the final consumer can be distinct. For example, social media make their profits by selling advertising space to firms although the final consumers are not necessarily located in the country of the users of these social media. Considering this specificity of two-sided platforms, Bloch and Demange (2018) find that the incentives in separate accounting and unitary taxation with apportionment in proportion to the number of users are reversed. In the first case, companies increase their production in high-tax countries while using transfer prices to related parties located in a low-tax country. In the second case, companies are instead seeking to increase the proportion of their overall sales taxed in the low-tax country. At the margin, unitary taxation encourages companies to sell or develop (number of users) more in low-tax countries. In their exercise, however, the authors assume that consumers (and therefore sales) are immobile, which is

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(8) de Mooij and Liu (2018) show, for example, that the introduction of transfer pricing regulation in one country reduces the investment of subsidiaries of multinational companies in that country by 11%, to the detriment of other countries.

(9) Empirical evidence shows that developing countries are more vulnerable to tax avoidance by multinationals than developed countries; see Johannesen, Tørsløv and Wier (2019).

(10) In this context, it is also becoming important to define very precisely the apportionment rules for multisectoral companies.

(11) To illustrate this example, Gordon and Wilson use the following example: a company A reaches break-even in a country without corporate taxes and a company B reaches break-even after-tax in a country with corporate taxes. If A and B merge, although all economic profits are made in the country with a corporate tax, only half of these profits are attributed to that country. The merger has therefore made it possible to reduce the taxation of economic profits.

contradicted by the artificial recording strategies for sales or advertising contracts observed for some multinationals.

Unitary taxation is not entirely immune to tax avoidance. It is often stated that the incentive for multinational companies to shift profits to low-tax jurisdictions should disappear with unitary taxation. Indeed, it is no longer the location of profits that determines the rights to tax profits but the location of apportionment factors. However, tax manipulation would be possible through factor manipulation: for instance, Fleming *et al.* (2014) note that the place where sales are recorded may be manipulated in the presence of a unitary taxation system.[12] In the US case, a report by the *Institute of Taxation and Economic Policy* (ITEP) points to the importance of tax avoidance at the state level (Davis, Gardner, McIntyre and Phillips, 2017). Sales can be manipulated by being artificially recorded in *ad hoc* platforms, typically located in tax havens. These techniques may therefore limit the ability of unitary taxation to restore the correlation between taxation and the real activity of multinational groups.[13] As noted by Auerbach *et al.* (2017a), the definition of the destination of sales is not trivial, particularly for intangible services and e-commerce, and needs to be well managed since the taxable base depends on final sales.

In addition, the effectiveness of this tax regime depends largely on how the consolidation of profits is established in accounting and legal terms. The use by a company of an independent reseller located in a tax haven and whose prices would be defined in advance would allow that company to channel its sales through a tax haven. It is then the "independent" reseller that distribute the products to the rest of the world. In such a situation, retailer's sales should be consolidated with the company's overall sales ("look-through rules"). However, the possibility of imposing such rules remains debatable. In their proposal for reform of the international tax system, Avi-Yonah and Clausing (2007) argue that such mechanisms could be effectively implemented, unlike Fleming *et al*. (2014), who perceive sales by an independent distributor as difficult to manage. On top of apportionment, The importance of the unitary system is highlighted by Dyreng, Lindsey and Thornock (2013), who show that it is more difficult for companies to avoid taxes in States applying unitary taxation than in States not applying it. Klassen and Shackelford (1998) also point out that companies use the absence of throwback rules in some American states to locate their sales in jurisdictions with lower taxation. These examples also clearly show that the lack of harmonization between states facilitates tax avoidance.

# 3. Attractiveness and tax revenue: lessons from the North American experience

State apportionment formulas are applied at the state level for American firms established or having a significant economic activity in more than one state of the United States. The taxation methods (level of corporation tax, apportionment formulas, specific rules such as *nexus* or *throwback rules*) are not uniform between the different states of the United States. The highest state-level corporate tax rate is found at 12% in Iowa[14] while it is 0% in South Dakota, Nevada, Wyoming, Texas and Washington (Pomerleau, 2018). In 2018, only 24 states have *throwback rules* and 3 have *throwout rules*.

We extend the data used by Giroud and Rauh (2019) to 2018 to present the evolution of apportionment formulas in the United States. Figure 1 shows the evolution of the number of States operating with a formula equally weighted on sales, employment and capital (red curve), only on sales (blue curve) and the others. The green curve indicates the number of States that have adopted a formula in which sales is the biggest factor.

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(12) Note that in this case, tax avoidance does not happen within the boundaries of the firm as it is the case in the current system but using an external retailer.

(13) For example, *contract manufacturing* techniques allow a subsidiary typically located in tax havens to hold the contract between factories and resellers, so that the transaction is artificially registered in the tax haven.

(14) With the exception of Ohio, where the corporate tax is a *Commercial Activity Tax (CAT)* at a rate of 26 per cent.

## Figure 1. Evolution of apportionment formulas in the United States
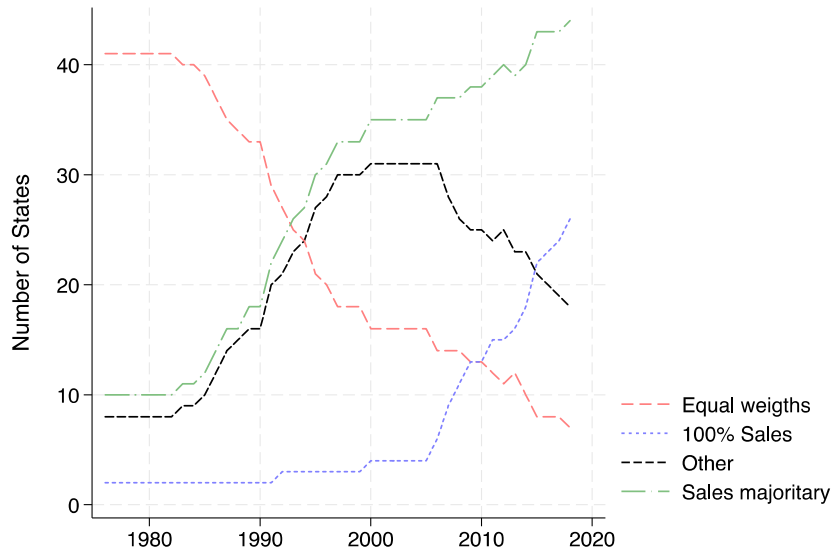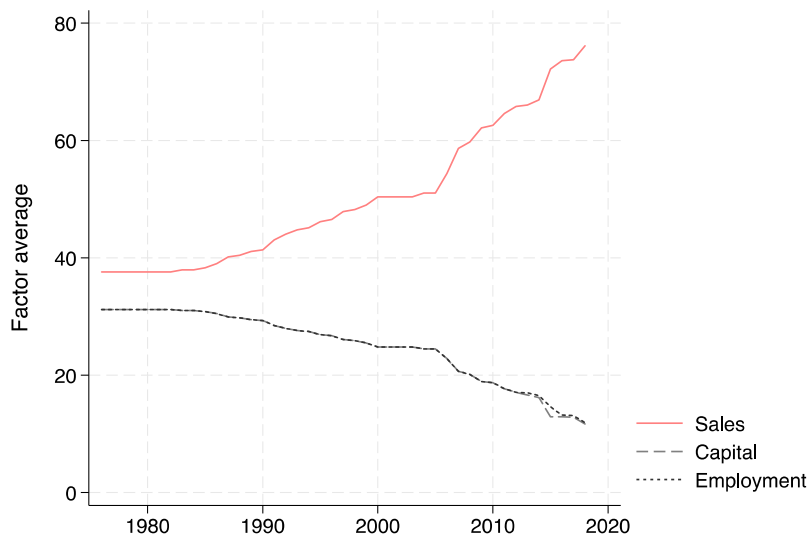


*Sources*: Authors' calculations based on Giroud and Rauh (2019) and Tax Foundation data.

First, this graph highlights the strong heterogeneity of the apportionment formulas. As mentioned above, the lack of coordination between States can lead to double taxation or double non-taxation. Only a situation where all states adopt the same formula would ensure a single tax. At the international level, where countries have very different economies, it would be particularly difficult to find a consensus on the economic factors and weights to be included in a single formula, at the risk of creating winners and losers.

The second salient fact is the relative increase in the importance of sales in the formulas. Apart from the three-tiers and the 100% sales formula, apportionment formulas generally give more weight on the sales factor. Figure 2 illustrates the evolution of the average weighting of sales (red curve), employment (black curve) and capital (grey curve). A simple theoretical argument to explain this trend is that sales weighting decorrelates the attractiveness of a state to locate subsidiaries and its tax rate. Indeed, under an allocation formula based solely on sales, the tax rate should not influence the location of the firms because taxes would be paid according to the place of sales and not the place of production.

## Figure 2. Evolution of the average weighting of sales, employment and capital



*Sources*: Authors' calculations based on Giroud and Rauh (2019) and Tax Foundation data.

Figure 3 shows that the average tax rate is relatively stable over the period, with a slight increase over time. It suggests that tax competition is less intense in the United States than internationally where the average statutory tax rate of the OECD members went from 32.2% in 2000 to 23.7% in 2018. This could also be explained by the increase in the share of sales in the apportionment factors that reduced incentives to tax competition through lower rates. This figure also shows the average tax rate weighted by the states' GDP: states with a higher GDP have on average higher tax rates. This result can be interpreted in the light of the literature on (international) tax competition, which shows that in the presence of heterogeneous jurisdictions, the largest states set higher tax rates (see Keen and Konrad, 2013).

## Figure 3. Evolution of the average corporate tax rate in the United States
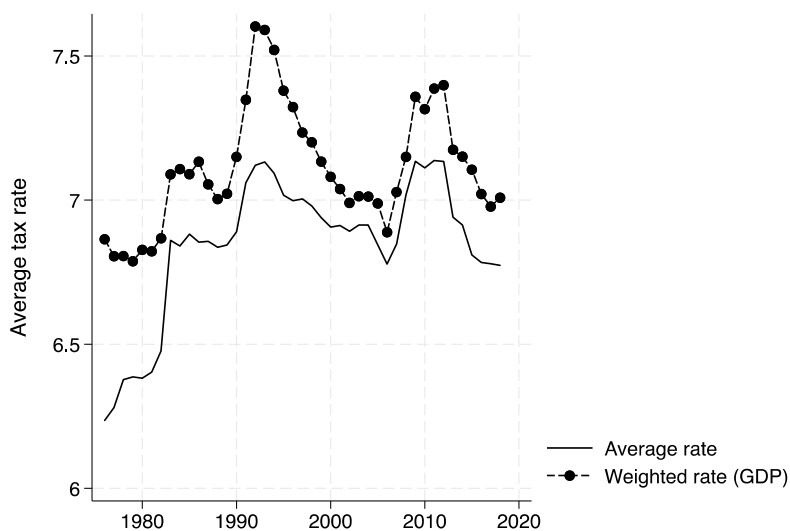


*Sources*: Authors' calculations based on Giroud and Rauh (2019) and Tax Foundation data.

By exploiting geographical and temporal variations in tax levels, apportionment formulas and the specific rules attached to these formulas, several studies have documented the determinants of companies' location and investment choices. Clausing (2016) suggests that the US corporate tax system would be a good example to follow at the world level in order to limit international tax competition. Using changes in corporate tax rules in the United States between 1982 and 2002, she finds that economic activity (employment, investment and sales) is not sensitive to state tax parameters choices. On the other hand, this study highlights the significant effects of taxation methods (choice of apportionment formula, tax level and anti-abuse rules) on states' tax revenues. In particular, tax revenues from corporate taxation are higher in states with low sales weights and in states with throwback rules, a result also highlighted by Gupta *et al.* (2009).

Distinguishing between C-corporations (subject to income tax) and S-corporations (subject to personal income tax) between 1977 and 2011, Giroud and Rauh (2019) find that companies subject to corporate tax react to changes in tax rates by adjusting the number of establishments and the number of employees in their different states of activity. A one percentage point increase in the tax level is associated with a 0.5% reduction in the number of establishments. This loss of activity is to the benefit of the other states, which then see the number of establishments increase by nearly 0.25%. The American unitary tax system does not therefore put an end to tax competition.

However, the authors show that these elasticities are less important when the sales' weight is high, confirming the theoretical intuition outlined earlier. In states for which overall profits are only allocated only based on sales, one percentage point increase in the tax rate is associated with a 0.21% decrease in the number of establishments compared to 0.67% when the weighting on sales is changed to one-third. This observation is shared by Chow *et al.* (2017) regarding the effects of apportionment formulas on the

location of head offices and is intuitively explained: any increase in the weight of sales limits the tax burden linked to a company's capital or employment in a given location and therefore limits the incentives to react to the changes in taxation. On the other hand, Giroud and Rauh (2019) show that these differences in the elasticity of economic activity at tax rates between the different apportionment formulas disappear with the introduction of throwback rules.

It should be noted that the level of taxation and the level of subsidy may be substitutable. Chow *et al.* (2017, *op. cit.)* show that parent companies also react to state subsidies. If they find that the a one-point drop in the corporate tax credits is associated with a 21% reduction in the probability of a parent company relocation, they find that the probability of relocation decreases significantly when a company receives tax credits or other forms of subsidies. Ossa (2018) and Slattery (2019) highlight the significant effects of local business subsidies on business location in the United States. Slattery (2019) finds that in the absence of subsidies, 68% of companies would have located in another state. These two papers highlight the fact that states entered into a form of competition for subsidies.

This phenomenon of massive discretionary subsidies to companies is sometimes referred to as "*mega-deals*". They are identified by Mattera *et al.* (2013). Figure 4 shows the evolution of the total sum of *mega-deals* since the mid-1970s. First, we observe that the amount varies a lot from year to year. This is due to the large size of these grants, the granularity in their allocation and the fact that they are allocated for several years. We also observe a significant increase in subsidies as a share of GDP since the 2000s: it is due both to an increase in the level of subsidies granted and to an increase in the number of States granting subsidies.

## Figure 4. Evolution of mega-deals in the United States
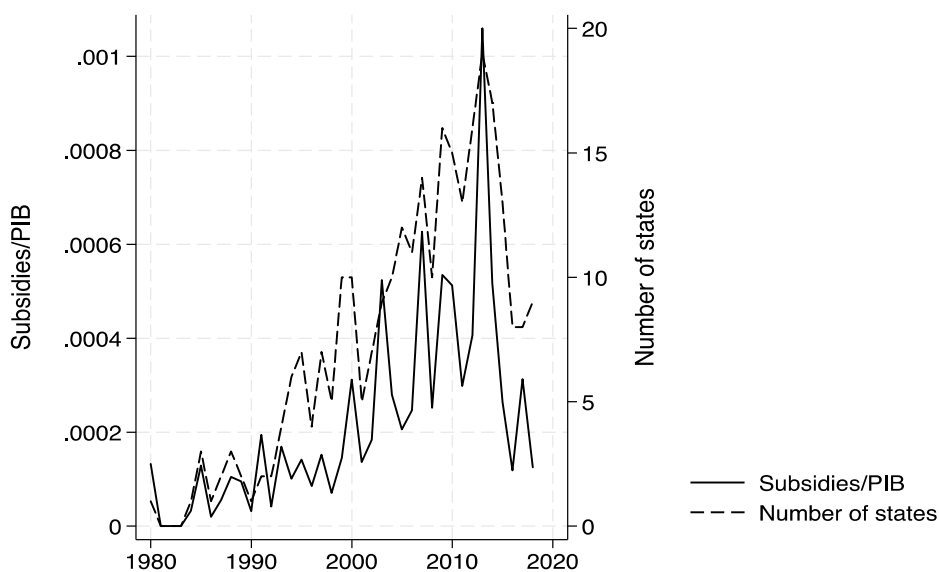


*Source*: Authors' calculations based on data from Mattera *et al. (*2013*)*.

In Figure 5, we analyze the subsidies as a proportion of GDP paid by each State according to apportionment formula. We find that states with no local taxation and states with a 100%-sales formula have on average higher subsidies than other states. These states for which the tax rate is no longer an instrument of tax competition therefore seem to use another instrument with the granting of massive subsidies. From 1970 to 1999, the states that distribute the most subsidies in the form of *mega-deals* are those that have adopted a formula only based on sales. Since the 2000s, they have continued to distribute subsidies, but states without local business taxation also seem to use these mega-deals to attract business.

Thus, if tax competition on tax rates is limited in an apportionment system, another risk seems to emerge: tax competition can turn into a subsidy competition.

**Figure 5. Mega-deal as a percentage of GDP**
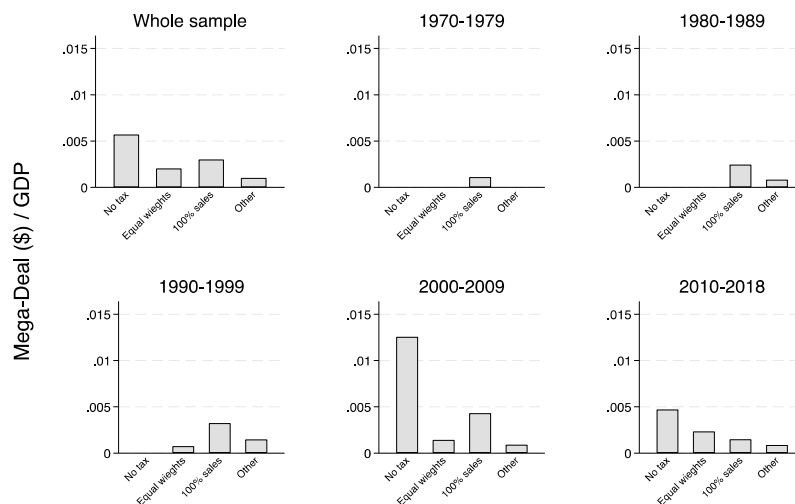


*Source*: Authors' calculations based on data from Mattera *et al. (*2013)*.

Unlike the United States, Canada provides differential tax treatment for non-integrated corporate groups and groups that incorporate their subsidiaries. Only the latter are subject to unitary taxation, which is based on sales and employment. Mintz and Smart (2004) use this particularity to test the sensitivity of the tax base to rate changes between 1986 and 1999. They find that companies react half as strongly to tax changes when they are subject to unitary taxation.

It can be concluded from these various studies that tax competition persists but is mitigated by formulary apportionment. In addition, the empirical literature on the United States seems to highlight two opposing effects regarding sales weighting: on the one hand, high sales weights are associated with a lower elasticity of economic activity at tax rates and, on the other hand, they are associated with lower tax revenues, all other things being equal.

## Conclusion

Based on the North American experience of unitary taxation of profits, we think that the following questions would arise if such a system were to be generalized to international taxation:

- The literature review tends to show that apportionment taxation is not immune to tax avoidance and that anti-abuse and consolidation rules should be applied to avoid the problem of sales manipulation. For these to be effective, a high degree of harmonization between the states that introduce unitary taxation is essential. Otherwise, it is very likely that leakage effects will appear towards the least regulated states as it is already the case in the United States;

- Tax competition would be mitigated by the introduction of unitary taxation, but this does not mean that it would be abolished, especially since the predominance of sales-based taxation in the United States did not prevent competition for subsidies from developing from the 2000s onwards;

- It should be recalled that Canada and the United States are federations with federal coordinating institutions, whose powers and prerogatives are constitutionally established. International institutions such as the OECD do not have the same means to monitor international tax rules and tax coordination between sovereign states is *de facto* bilateral. Enhanced coordination at the global level can be achieved through the signing of multilateral conventions or through the harmonization of bilateral conventions as promoted by the OECD. It, however, remains a fragile path and there still remains a long way to go towards a real world tax organization.

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