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Corporate Tax Shifting and Tax Incidence: A Review of the Literature

Prepared in response to ESSB 5092 Section 137(2)

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A. Background

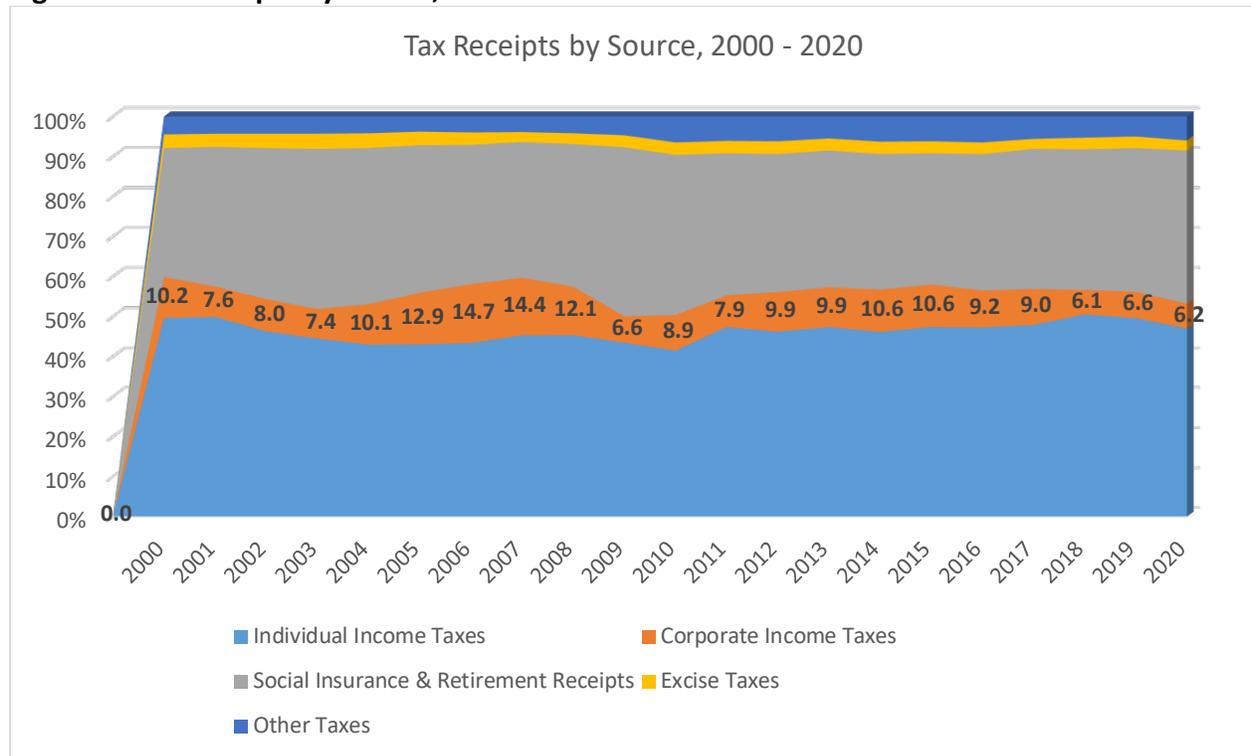
The literature on corporate tax incidence, that is, who bears the burden of a corporate tax change is rich, complex, and to some extent ungratifying. Auerbach (2006), Harberger (2006), Clausing (2011 & 2013), and several others have wrestled with this question and documented what we know, do not know, and what is simply 'unknowable' as Harberger (2006) puts it.

In standard principles of microeconomics textbooks, the question is answered using demand and supply elasticities. For example, depending on the elastic (or inelastic) nature of a good or service, the firm/business enterprise (or consumers) will bear a disproportionate burden of a tax change. As Gravelle (2010) shows, earlier analysis of corporate tax incidence relied on empirical methods however, the seminal work in this field can be found in Harberger's (1962) contribution in "The Incidence of the Corporate Income Tax." While standard textbook explanations enjoy the benefit of simplicity, advanced studies highlight two main methodological approaches:¹ (i) general equilibrium; and (ii) empirical. These approaches in and of themselves introduce a layer of complexity that adds to the general acceptance by scholars that:

"Corporate tax incidence is difficult to model, and many models leave out important considerations. Economies are very complex, and myriad economic forces determine labor market outcomes. Perhaps we should be more surprised if the data do give a clear answer to this complex question." (Clausing 2011, p. 40)

Adding to this complexity is the fact that the world is increasingly global (therefore open) and in the United States, revenues (i.e. taxes) from corporations account for a small portion of federal receipts.² In recent years (i.e. 2000-2020) as shown in Figure 1, revenues from corporations have averaged 9.5%. In spite of this relatively small portion of federal receipts, interest in the implications of changes to corporate taxation has remained rife.

Figure 1: Tax Receipts by Source, 2000-2020



Source: Office of Management and Budget, Historical Tables 2.2 (See <https://www.whitehouse.gov/omb/historical-tables/>)

A significant part of the interest in this relatively small portion of federal tax receipts hinges on the following central questions. First, can corporations, shift the tax burden to other factors of production? (“Q1”) Second, what is the implication of an increasingly interwoven global economy for tax changes? (“Q2”) Third, what can we infer from the literature about state level corporate tax incidence? (“Q3”)

The remainder of this review is organized as follows. First, is a discussion of methods used to answer Q1. Second, is a discussion of what general understanding in the literature on Q2. Third, is reflection on the implications of the literature on Q3.

B. Methodologies

As noted earlier, research on corporate tax incidence have relied on either general equilibrium or empirical models. General equilibrium models attempt to simulate the economic ramifications of changes in economic variables on the economy as a whole. Typically, it requires the development of systems of equations with attendant parameters that model the interconnected nature of the various sectors in the economy. The main goal is to identify the implications of a change in one variable on the entire economic system. As Harberger (1962) put it, “it is clear that a tax as important as the corporation income tax, and one with ramifications into so many sectors of the economy, should be analyzed in general-equilibrium terms rather than partial-equilibrium terms” (p. 215).

Empirical models are typically regression-based. As Gravelle (2011) shows, they follow three approaches that rely on: (i) cross-country data; (ii) cross-States data; and (iii) corporate-level data. Simply, empirical models rely on empirical data documenting variations in corporate tax rates at the country-, or state-level, and intrafirm data on wages and capital to investigate the tax incidence.

General Equilibrium Models

Harberger's (1962) general-equilibrium framework is the seminal work on tax incidence. He developed a closed-economy two-sector (i.e. corporate v non-corporate) model that used a Cobb-Douglas production function to show that corporate tax incidence is borne by the factors of production. Under certain assumptions in his model, labor could bear the burden of tax changes; however, the overwhelming burden of tax changes will be borne by capital (and its owners). In that sense, corporate taxes could be progressive if capital (typically owned by high-income individuals) is taxed (Auerbach 2006; and Harris 2009).³

As Gravelle (2010) discusses, several general-equilibrium models followed Harberger (1962) including Harberger (2008) with refinements to the number of sectors (Shoven 1976), the inclusion of uncertainty (Batra 1975; Ratti & Shome 1977; Baron & Forsythe 1981), and the assumption of open-economy (Grubert & Mutti 1985; Gravelle & Smetters 2006; and Randolph 2006). Focusing on the open-economy refinement, key implications for tax-incidence that emerge as documented in Table 1.

Table 1: Drivers and their effects on tax burdens falling on capital and labor

Driver	Share Falling on Capital	Share Falling on Labor
High international capital mobility	↓	↑
High international product substitution	↓	↑
Large country	↑	↓
Higher factor substitution	↑	↓
Taxed sector more capital-intensive	↓	↑

Source: Adapted from Gravelle (2010, p.4)

The outcomes in Table 1 show that under the open-economy assumption, there are instances where labor and capital both bear the burden of the tax. This is an improvement on Harberger (1962) but as Gravelle (2011) and Clausing (2011) show, general-equilibrium are not without their weaknesses. Specifically, they tend to be rigid in their assumptions and small changes in the parameters (or drivers) could have large impacts. In general, however, the

consensus from these models is that even in the open-economy context, capital could bear almost the entire tax burden and the notion that an open-economy necessitates a higher burden on labor is inconclusive. As Auerbach (2006) puts it, ‘while the ultimate incidence of the tax remains somewhat unresolved, there have been many advances over the years in our thinking about how to assign the corporate tax burden’. The general-equilibrium models following Harberger’s seminal work have contributed to the advancement of that knowledge.

Empirical Models

As noted earlier, the empirical models have followed three approaches. First are the cross-country regression models that rely on variations in tax data at the country-level to investigate tax incidence. Second are the cross-state models, which use as units of observation - States. Third are the wage bargaining models that tend to be intrafirm and assume that workers (often via union membership) have bargaining power and are included in decision-making especially in those instances when tax increases are imposed on corporations.

These models benefit from using empirical data at the various levels and therefore have the potential to shed light on real world outcomes. The econometric toolkit allows for flexibility (but also introduces problems) in the modelling (an advantage of the relatively rigid general-equilibrium models). As Gravelle (2010) and Clausing (2011 & 2013) discussed, these models suffer from issues that plague most empirical work including but not limited to aggregation bias because of the levels in which data are collected, omitted variable bias, and spurious correlations mistaken for causal explanations (Hassett & Mathur 2006; and Felix 2007 & 2009).

These issues raise robustness questions about the findings from most of these studies, which seem to show in varying degrees that labor will bear the burden of tax. Gravelle (2010) and Clausing (2011) thoroughly investigate these assertions and show that the results in most of these studies are either unreasonable or suffer from data issues.

Summary

Taking together, the search for corporate tax incidence is perhaps one of the most elusive questions in public economics. While the theoretical underpinnings generally seem to be agreed on, that is, corporate tax changes will affect factors of production (i.e. capital, labor, and land), clarity from theoretical abstractions and empirical analyses have yet to settle the issue conclusively. The author of the seminal work in this field sums it up best when he notes that:

“Asked to comment on a topic as celestial as ‘the unknowable’, I am inclined to deal with the most basic things first [...] The problem, of course, lies in the fact that we cannot handle the incidence of a tax in a general-equilibrium setting without knowing (or making assumptions about) how the receipts of that tax are going to be spent, and what other distortions are deemed to be present in the economy. [...] Since there are millions of different ways in which the receipts of our tax might be spent, the millions of combinations of other distortions that might be present when the taxes imposed, increased, decreased or

removed, it looks as if one can get ‘millions squared’ different answers to the simple question ‘what is the incidence of a single specific tax (or tax provision)’. Economists have had to face this problem from the outset, but have not articulated it often enough or well enough for it to be clearly and widely recognized” (Harberger 2006, p. 2)

This lengthy quote sums up the challenge economists face in their study and analyses of corporate tax incidence.

Implications and Questions

The literature has highlighted the methodological approaches and challenges faced by economists when attempting to answer the question of corporate tax incidence. Simply put, estimating corporate tax incidence in a coherent and robust way is complex and challenging and may not necessarily yield robust results.

Based on the literature and the current tax structure in Washington State, the following questions come to mind:

- (i) Does the business & occupation tax in its current form allow for an appropriate analysis of incidence?;
- (ii) If there are a “million” possible outcomes and a broad-based study may fail to yield a conclusive answer to the study questions, would such a study be worthwhile?;
- (iii) Is a change to the current tax structure more significant than changes to specific tax items within the B&O tax structure?; and
- (iv) What about the nexus of federal-state-local taxes for WA businesses?

Serrato & Zidar (2016) explore the incidence question from a state perspective and show that under the assumption of imperfectly mobile labor, all factors of production (including land), bear some burden of a corporate tax cut. Specifically, they show capital, labor, and land bear 40%, 30-35%, and 25-30% respectively. Does this constitute a reasonable starting point to study and perhaps apportion tax incidence at the state level?

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¹ Hassett & Mathur (2015) use a spatial econometric approach and Clausing (2011) develop a vector autoregression model in an attempt to address issues of endogeneity and lag structure present in most empirical analyses.

² The vast majority of business activity in the US is by pass-through firms. Therefore, these entities pay their taxes through the individual income tax.

³ Harris (2009) also notes that since corporate taxes account for a small portion of overall tax receipts as shown in Fig.1, its progressivity on the overall tax structure is likely overstated. In addition, Fullerton & Metcalf (2002) note that it may be more meaningful to look at specific tax changes rather than the entirety of corporate taxes.