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# **Tax Shifting and Tax Incidence: A Review of the Literature**

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## A. Background

The literature on property tax incidence (i.e. who bears the burden of a property tax change), is extensive. Ricardo (1817) in his *On the Principles of Political Economy and Taxation* shed light on the distributional impacts of rent accruing to property owners and its implications for other classes of society. In recent times (i.e. since the 1960s), interest has remained strong. The path-breaking contributions of Orr (1968 & 1970) and Heinberg & Oates (1970) laid the foundations for more sophisticated investigations by Carroll & Yinger (1994), Muthitacharoen & Zodrow (2012), and Rolheiser (2019) among others.

Partial equilibrium models (Orr 1968) have given way to hedonic regression models (Carroll & Yinger 1994; and Tsoodle & Turner 2008), general equilibrium (Muthitacharoen & Zodrow 2012), and nonlinear mixed effect multilevel models (Rolheiser 2019). While the toolkit with which to explore this topic has grown considerably, it remains true as England (2016, p.436) surmises that studies of property tax incidence hinge on “considerations” including:

- (i) levels of the market;
- (ii) factor mobility;
- (iii) open versus closed economy; and
- (iv) static versus dynamic models.

At a high level, standard economic theory, suggests that if a tax is imposed on owners of property, they will (subject to elasticities), shift the burden of the tax onto renters. At a granular level, the story is complex and this complexity is documented in the literature.

The remainder of this review proceeds as follows. First, I will review three recent studies by Tsoodle & Turner (2008), Muthitacharoen & Zodrow (2012), and Rolheiser (2019). Second, I will present areas for future research noted in the literature. Third, I will explore the implications from the literature for Washington State.

## B. Recent Work

Tsoodle & Turner (2008) used housing unit data from the American Housing Survey and the National League of Cities to investigate the impact of property taxes on residential rents. Their study evaluated rent in 14 cities over three distinct years (i.e. 1999, 2001, and 2003). They control for housing unit and neighborhood characteristics and, city-level expenditure on public services<sup>1</sup> and found that a one standard deviation increase in the property taxes raises residential rents by \$402 - \$450 annually.

Muthitacharoen & Zodrow (2012) build what England (2016) calls a ‘piece of research [...] notable for the realism of the analysis’ (p. 450). They analyze the excise tax effects of property taxes from the perspective of a small open economy facing a perfectly elastic supply of capital. Their analysis encompasses many of the “considerations” noted earlier. Specifically, it is a four-sector model with three taxed sectors (i.e. manufacturing, housing, and services) and a non-

taxed sector (agriculture). It is novel in that it incorporates time (i.e. the intermediate run<sup>2</sup>), and allows all factors of production to be used in all production sectors. They find that excise taxes on property are borne primarily by land and labor in terms of declining rents (in all sectors but agriculture) and depressed income because of the relative rise in prices and services. In general, the main outcome is that residents within the taxing jurisdiction bear the overwhelming burden of the tax (see Table 8, p. 23, also Appendix A).

Rolheiser (2019) investigates another level of the property market by focusing on commercial property. Using data for 93 municipalities in the Greater Boston area over a 27-year period, Rolheiser finds that there is a full pass-through of a \$1 increase in tax payment to renters of commercial property. Specifically, the findings indicate that there is a large pass-through to renters ranging from \$0.812 to \$1.062 for every \$1 increase in tax payments. Consistent with the theory of the monocentric city, the pass-through is less (more) for suburban (urban) markets.<sup>3</sup>

### **C. Directions for Future Research**

Paths for future research based on the literature are plenty. The following emerged from the recent work discussed above. Tsoodle & Turner (2008) suggested that an important avenue for future research would be to examine the extent to which tax structures for local governments burden urban renters. Muthitacharoen & Zodrow (2012) note the significance of the labor mobility assumption and emphasize that simulations and other empirical work need to be aware of the key role that this parameter has on tax incidence. Rolheiser (2019) cautions against generalizations of her findings to other larger metropolitan areas but suggest that if data is available, comparable analyses could yield evidence that confirms the patterns of incidence in the commercial real estate space.

England (2016) in his thorough survey of the literature over the past 50 years on tax incidence and rental housing highlights the following considerations and areas for future research. They are:

- (i) Nonprofits as rental housing providers;<sup>4</sup>
- (ii) Recognition of time lags and disequilibria in housing markets;<sup>5</sup>
- (iii) Housing unit vacancies and tax incidence;<sup>6</sup>
- (iv) Housing tenure choices and tax incidence;<sup>7</sup> and
- (v) Renters' illusion and tax incidence.<sup>8</sup>

### **D. Implications for Washington State**

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

- (i) A within and across jurisdictional study of property tax incidence while inevitably complex is likely to yield results in the broad vein of what Muthitacharoen & Zodrow (2012) found;
- (ii) A distinction between the level of market (i.e. commercial, residential, and tax-exempt entities) needs to be made in any tax incidence study. Perhaps, studies that evaluate incidence in the counties and communities that constitute the Seattle-Tacoma metro area would be useful. Evidence particularly from the literature suggests tax shifting is likely to be found. Anecdotal evidence of increasing rents and homelessness in the Greater Seattle area appear to corroborate this; and
- (iii) Explore administrative costs that tax changes could impose would be worthwhile.

## Appendix

**Table 8.** Property Tax Burden as a Percentage of Total Tax Revenue with a 5 Percent Property Tax Increase under Different Elasticity Assumptions

Tax burden	Base case (%)	All production elasticities = 0.5 (%)	All production elasticities = 1 (%)	Demand elasticity = 0.5 (%)
Tax burden borne by residents				
Labor	46.0	52.4	51.3	45.5
Housing land	15.3	19.4	16.2	12.5
Housing consumption	26.3	21.5	25.7	29.1
Services consumption	8.7	3.9	4.7	8.6
Total	96.2	97.3	97.9	95.8
Tax burden borne by nonresidents				
Agriculture land	-4.1	-4.6	-4.6	-4.0
Manufacturing land	6.2	5.3	5.3	6.2
Services land	3.3	3.7	4.0	3.6
Total	5.4	4.3	4.8	5.7

Note. Negative values indicate gains from the property tax increase. In the aggregate, total tax burden borne by both residents and nonresidents exceeds the total tax revenue as it reflects the efficiency costs of use of the property tax.

## References

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<sup>1</sup> Carroll & Yinger (1994) build a hedonic model to explore whether or not property taxes on rental housing are in fact benefit taxes. They note that if tenants are not mobile, then increases in property taxes are likely to be borne by tenants as a benefit tax. If tenants are mobile, the property owners are likely to bear a majority of the burden of the tax however, because tenants' value community services, they are willing to pay higher rents to receive the services paid for by higher property taxes. While they accept that when tenants are fully mobile, they would be indifferent towards property tax changes, they assert that even with fully mobile tenants, the property tax is not a (true) benefit tax unless the rent increases caused by property tax increases (through a quality of services received) is exactly equal to the increase in the landlord's tax payment.

<sup>2</sup> Intermediate run refers to the production technology where labor is perfectly mobile across production sectors but fixed within the jurisdiction while land is fixed in each sector.

<sup>3</sup> Wheaton (2018), references Rolheiser's dissertation (completed in 2017) from which her paper was produced to assert that commercial real estate markets have a highly inelastic demand and that policy makers should be aware that in the Boston area, 80-90% of the tax burden is passed on to consumers of commercial real estate.

<sup>4</sup> The reference and focus here is on large universities and other tax-exempt entities who participate in the rental housing market and compete with non-tax-exempt private property owners.

<sup>5</sup> Specifically the fact that the time lags could affect the adjustment of rents to changes in cost necessitated by tax increases.

<sup>6</sup> Specifically that vacancy can affect the adjustment mechanism of prices in rental markets.

<sup>7</sup> Specifically that renters are a subset of the housing market and that the "analyst needs to discover how an increase in property taxation might simultaneously affect house prices for owners, gross rents for tenants, and the distribution of consumers between those two tenure categories." (England 2016, p. 455)

<sup>8</sup> Researchers should be aware of the debate surrounding whether or not renters believe that that property taxes affect them since they do not own the property.