Tax Incidence

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Tax incidence is the study of who bears the economic burden of a tax. Broadly put, it is the positive analysis of the impact of taxes on the distribution of welfare within a society. It begins with the very basic insight that the person who has the legal obligation to pay a tax may not be the person whose welfare is reduced by the tax. The statutory incidence of a tax refers to the distribution of tax payments based on the legal obligation to remit taxes to the government. Thus, for example, the statutory burden of the payroll tax in the United States is shared equally between employers and employees. Economists, quite rightly, focus on the economic incidence, which measures the changes in economic welfare in society arising from a tax. The standard view of the economic burden of the payroll tax in the United States is that it is borne entirely by employees.

Economic incidence differs from statutory incidence because of changes in behavior and consequent changes in equilibrium prices. Consumers buy less of a taxed product, so firms produce less and buy fewer inputs – which changes the net price of each input. Thus the job of the incidence analyst is to determine how those other prices change, and how those changes affect different kinds of individuals.

The distributional impact of a tax (or system of taxes) depends in part on how the question is framed. An absolute incidence analysis considers the burden of a change in taxes without regard to the use of proceeds. A differential incidence analysis carries out a revenue-neutral change in tax by raising one tax while lowering another. Typically, a lump-sum tax is changed to effect revenue neutrality. A balanced budget incidence analysis considers the burden of a change in taxes along with an equivalent change in spending. In his classic analysis of the U.S. tax system, Pechman (1985) carried out a differential incidence analysis and concluded that the total system of taxes in the United States was broadly proportional. Taking into account government transfers financed by taxes on the other hand, Browning and Johnson (1979) argued that the U.S. tax system was progressive.

In addition to framing the incidence question precisely, incidence results can depend on the time-frame for analysis. Pechman's analysis ranks households by their annual income. It is well known that annual income can be a poor proxy for measuring the well-being and consumption potential of a household due to measurement error and lifetime income considerations. Lifetime income considerations are particularly important for assessing the distributional implications of a consumption tax as consumption to annual income ratios are very high in the lowest annual income deciles. Fullerton and Rogers (1993) replicate the Pechman analysis using a lifetime income framework and conclude that the overall incidence of the U.S. tax system is similar to that obtained in Pechman's annual income framework though the forces driving incidence results differ somewhat.

In a perfectly competitive partial equilibrium framework, the economic incidence of a tax is unaffected by which side of the market the tax is levied on. Thus the statutory requirement to share the payroll tax in the United States equally between employer and
employee has no bearing on the ultimate incidence of the tax. Second, the economic burden of a tax is borne more heavily by the side of the market that is less elastic (in absolute value). Thus the share of the payroll tax borne by the employee is, to a first order approximation, equal to \( \frac{\varepsilon_D}{\varepsilon_S + \varepsilon_D} \) where \( \varepsilon_S \) (\( \varepsilon_D \)) is the labor supply (demand) elasticity.

This burden share formula suggests that no more than 100 percent of the tax can be shifted to a party. In an imperfectly competitive market, commodity tax overshifting can occur (in the sense that the consumer price rises by more than the tax rate). Moreover, ad valorem and excise taxes, which have equivalent burden impacts in a competitive market when set to collect the same revenue, now can have different burden impacts. Delipalla and Keen (1992) show that in markets with oligopoly supply, ad valorem taxes are less likely to lead to overshifting than excise taxes. Once one allows for imperfect competition, many counter-intuitive results can obtain including a commodity tax reducing the consumer price (e.g. Cremer and Thisse (1994)). Fullerton and Metcalf (2002) develop the analysis of tax incidence under imperfect competition further and provide some intuition for the results.

Harberger (1962) is the progenitor of the modern field of general equilibrium incidence analysis. In addition to providing a framework for analyzing the corporate income tax, Harberger's approach can be used to analyze a wide array of taxes. He models the corporate income tax as a partial factor tax, that is, a tax on the use of one factor in one sector. The tax thus affects relative factor prices and relative output prices. Harberger concludes that capital is likely to bear approximately the full burden of the corporate income tax. Capital mobility means that the burden is on all capital, not just corporate capital.

Harberger's analysis assumed a closed economy. In a small open economy with international capital mobility, the corporate tax drives capital abroad so that domestic savers earn the same net return as before. This drives down the domestic capital stock, and thus the domestic wage rate, and the burden of the tax falls on labor (as an immobile factor). While the immobile local factor bears a burden from the tax, Bradford (1978) shows that world-wide capital in the aggregate suffers a loss exactly offset by gains to immobile factors in the rest of the world resulting from the outflow of capital from the country imposing the tax. Gravelle and Smetters (2001) argue that imperfect substitutability of domestic and foreign products can limit or even eliminate the incidence borne by labor, even in an open economy model. They find that the tax is borne by domestic capital, as in the original Harberger model.

While Harberger's analysis (and subsequent work) showed the importance of general equilibrium effects, it lacked a fully dynamic characterization of savings and investment, channels through which important burden shifting could occur. Feldstein (1974), for example, argues that much (if not all) of the burden of a tax on capital income is shifted to workers in the form of lower wages as a result of decreased investment reducing the capital-labor ratio.
Once investment is considered, the incidence of a tax in a dynamic model can also be affected by the distinction between old and new capital. Old capital is capital in place prior to a tax change. For example, Auerbach and Kotlikoff (1987) show that a consumption tax and a wage tax – two approaches to exempting capital income from taxation – differ only in their tax treatment of old capital. In the absence of transition rules, the former subjects old capital to a lump-sum tax, while the latter does not. In addition to distributional implications, the presence of old capital complicates the attribution of economic incidence. Consider a new property tax that has been in place for many years in a community. Carrying out an incidence analysis today, we might allocate the burden of the tax to current owners based on their property values. But with capitalization effects, the tax burden should properly be allocated to the property tax owners at the time of the enactment of the tax. Without offsetting benefits from the property tax revenues, potential homeowners will be willing to pay less for housing. In equilibrium, housing values would fall by the present discounted value of the stream of future tax payments at the time of enactment and the owners at that time would bear the entire burden of the tax.

Returning to the corporate income tax, an increase in the tax rate generates lump-sum taxes on previously installed capital through capitalization effects. As Auerbach (2005) emphasizes, the tax treatment of corporate capital is sufficiently complicated that assigning its burden is a hazardous exercise but both in the short and long-run it is likely the case that some portion of the tax falls specifically on shareholders due to the tax on old capital, among other factors.

Careful tax incidence analysis is essential to understanding the distributional implications of a country's tax system. The field of incidence analysis has progressed dramatically in the past twenty years, as new research has yielded fresh insights into the burden of taxes in imperfectly competitive models and in intertemporal models. The increase in computing power and the availability of large-scale data sets have also enriched our understanding of tax incidence. Despite all the advances that have occurred, the topic of tax incidence will likely continue to be an area of productive research yielding further insights in the years to come.

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1 This approach would be consistent with the "old" view of property taxation. See Fullerton and Metcalf (2002) for more on the incidence of the property tax.

2 More precisely, it would be allocated to the owners at the time that potential buyers and sellers of property in the community become aware that the tax would be enacted.
References


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