

How Pigouvian Taxes Work on Sellers, and Why We Should Care

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Kyle Rozema, *Supply Side Incidence of Consumption Taxes* (Oct. 5, 2016), available at [SSRN](#).

Empirical testing of the tax laws, and in particular testing the incidence of the tax laws, may sound boring. But virtually any modern public policy goal that could be implemented through tax policy ultimately turns precisely on this question. For example: Should the United States adopt a tax on sugary drinks? Is a high cigarette tax effective in preventing smoking deaths? Would a carbon tax help to reduce global warming? Ultimately, the answers to these questions turns on who, in fact, ends up bearing the burden of these taxes.

Such proposals often represent forms of so-called Pigouvian taxes. Proponents of Pigouvian taxes support them by contending that they can be used to reduce inefficient behavior by forcing consumers to internalize the full costs of such activities. Opponents of Pigouvian taxes often point to the regressive effect of such taxes on consumers, because they increase the cost of goods by a fixed amount of taxes, which disproportionately harms those consumers least able to afford such taxes. A fair amount of literature has arisen to resolve this question, primarily focusing on the empirical question of whether increasing the price of certain goods through higher taxes in fact reduces the amount of consumption and who bears the costs of such taxes. Virtually none of the literature in this area asks a related, but equally important, question: how do Pigouvian taxes impact different types of sellers of such goods?

[Kyle Rozema](#) provides one of the first attempts to address precisely this question in his article *Supply Side Incidence of Consumption Taxes*. More specifically, Rozema asks: How does a cigarette tax affect *sellers* of goods, as opposed to *buyers* of goods? The question matters because if the purpose of the cigarette tax was to serve as a Pigouvian tax, it would work only if it actually increased the price of cigarettes to consumers. Ultimately, however, the behavior of both buyers and sellers determines the equilibrium price of the goods. As an initial matter, this seems like an obvious question. After all, a Pigouvian tax works by charging more for a good which, in turn, should reduce demand (depending on the shape of the demand curve). But what if sellers don't, in fact, raise prices in response to the tax? Even worse, what if some do and some don't? As becomes readily apparent, taxes that are not fully passed on through retail prices would be less effective at reducing consumption, thereby undermining the purpose of a Pigouvian tax in the first place.

For example, if the government were to charge a tax on sales of sugary drinks of \$.05 but the retailer does not increase the price of the drink, was the Piguovian tax effective? The tax did make it more expensive for the retailer to sell the drink, but it did not make it more expensive for the consumer to buy the drink. Is this the intended result? In determining whether to adopt a Pigouvian tax in the first place, should it matter whether the tax would ultimately be borne by the buyer or seller? There is little hard evidence to answer these questions. In particular, empirically testing the effects of Piguovian-type taxes on the supply side of the analysis has proven particularly difficult due in part to a lack of sufficiently fine-grained data. The result is often the adoption of Piguovian taxes based on little more than intuition about the incidence or resorting to one's normative priors.

Rozema's primary contribution is to challenge the assumption that all sellers bear an equal burden of

such taxes by compiling a unique dataset of actual sales by different retailers of cigarettes based on data compiled by actual scans of UPC codes at the register. In this manner, Rozema can obtain a glimpse not only of the macro-level effects of total consumption of cigarettes but also on the more micro-level effect of whether and to what extent the tax decreased sales at the register for different types of retailers and the amount of profits on such sales. By utilizing more precise data, Rozema unveils a more complex and nuanced picture of Pigouvian taxes. His analysis finds that a rise in the cigarette tax can result in different consequences for different types of retailers. In particular, he finds the effect of broad-based cigarette taxes on actual registered sales was to increase the price at most large drug and grocery stores but not to do so at convenience stores and other small retailers.

Why would this result be so important? Return to the sugary drink hypothetical above. Assume the goal of a tax on sugary drinks is to reduce the consumption of sugar in society. Now assume that Rozema's findings apply equally to sugary drink taxes as to cigarette taxes. This could mean that people would buy fewer sugary drinks at gas stations and convenience stores, but this reduction would be offset by greater sales of sugary drinks at grocery stores or warehouse stores (for example, where bulk discounts are available). Alternatively, Rozema's results could mean that gas stations and convenience stores would not increase retail prices but instead such sellers would absorb the cost of the tax, resulting in little to no reduction in consumption of sugary drinks at such retailers. Either way, what results is a distributional distortion among retailers rather than the desired Pigouvian effect of reducing consumption. Even worse, Rozema proposes that not only is there a distributional effect, when one was not anticipated, but that the effect could in fact prove regressive to the extent it tends to hurt smaller retailers over the larger retailers.

Rozema's results are striking. Not only do they provide new insights in an area where many may have thought empirical analysis would be impractical, but they also potentially challenge many of the theoretical foundations underlying the use of Pigouvian taxes. Rozema's paper represents some of the best of what empirical tax research can and should do. It looks to an important area of tax and public policy, finds a significant gap in the micro-foundations for such policy, and uses a creative and novel data to begin to address that gap. Rozema attempts to shed light on the issue and clarify the trade-offs inherent in adopting Pigouvian taxes not only from a consumption side but also from a supply side.

While this review might still not have convinced many readers that empirical analysis of the incidence of taxes is not boring, keep these results in mind the next time you find yourself at a cocktail party debating whether the government should adopt an additional tax on liquor or wine. Maybe then empirical tax studies won't seem so boring after all.

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