



## DO THE LAWS OF TAX INCIDENCE HOLD? POINT OF COLLECTION AND THE PASS-THROUGH OF STATE DIESEL TAXES

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### Overview

A standard public finance result is that the incidence of a tax is independent of the side of the market that is responsible for its eventual remittance (payment) to the government. In the case of energy taxes, this would imply that a tax on upstream energy suppliers or downstream energy users should lead to the same distribution of net-of-tax prices and quantities, regardless of which side physically pays the tax.

When parties differ in their ability to evade taxes, the identity of the tax remitter may impact the pattern of post-tax prices and therefore which parties bear the burden of the tax. Thus, in cases where evasion is prevalent, the above prediction does not survive and the identity of the party that pays the tax matters.

Using data on state diesel taxes from 1986 to 2006, this research finds that moving tax collection from retail stations to higher in the supply chain substantially raises the pass-through of diesel taxes to the retail price. Furthermore, tax revenues increase when taxes are collected from the distributor or bulk terminal operators rather than from the retailer, suggesting that tax evasion at the retail level is the likely explanation for the result. This finding has implications for the design of future taxes – such as carbon taxes – where evasion opportunities may be present.

### Background

Diesel is a liquid fuel derived from petroleum oil. After distillation and processing, the fuel is held at bulk terminals, where it is then purchased by regional wholesale distributors for eventual delivery to retail outlets or directly to larger-scale end-users such as trucking companies. The distillate that is used in vehicles is referred to as diesel, though a chemically equivalent fuel used in home heating and industrial processes is referred to as fuel oil.

Most opportunities for tax evasion in diesel markets exist downstream of the wholesale terminal, at either the distributor or retailer level. Evasion may include a wide range of activities, from simple under-reporting of sales, to more complicated “daisy chains” of distributors selling to other dummy distributors. At the same time, wholesalers are typically major oil brands with operations in many states, while distributors and retail stations are smaller and more numerous, and ownership is less concentrated. Monitoring and detection of illegal activities may be easier at the wholesale level, leading to fewer evasion opportunities.

States differ in the stage of the supply chain responsible for payment of diesel taxes, though none require final consumers to pay directly. In the early 1980s, states were almost evenly split between collecting taxes from retail stations and collecting from intermediate wholesale distributors. Over the subsequent twenty years, many states moved away from collecting at retail stations and toward collecting from prime suppliers. While a plurality of states still collect from wholesale distributors, the practice of collecting from retailers has been almost entirely phased out, with only New Jersey and Oregon collecting tax from retailers at the end of the sample in 2006.

This research uses that variation in the point of tax collection across states and over time to test whether pass-through of tax to consumers depends on where the tax is levied. The paper uses statistical techniques to show that both tax burden and total tax collections are affected by policy changes that shift responsibility for tax payments upstream, even after controlling for state-specific characteristics and time-varying trends that affect prices.

## Key Findings and Recommendations

- 1. Retail prices are higher, and diesel taxes are passed through to retail prices to a greater extent, in states where the point of collection is at the distributor or prime-supplier level rather than at the retail level.** Thus, the rate of pass-through of diesel taxes to retail prices is dependent on the location of remittance responsibility. This effect is driven by an increase in wholesale prices in states where the supplier is responsible for the physical tax payment.
- 2. The results provide evidence of tax evasion at the retail level, and suggest that levying diesel taxes upstream reduces this evasion.** All else being equal, states see less tax revenue when taxes are collected at the retail level. This is consistent with the notion that retailers have more ability to evade taxes than higher levels of the supply chain.
- 3. The results suggest the importance of considering evasion potential at various levels of the supply chain when designing energy taxes.** In markets where evasion is prevalent, and different parties have different abilities to evade taxes, choosing which party is responsible for the tax matters. Taxing parties that are better at evasion will reduce the effectiveness of the tax.

## Conclusions

The results apply to the current debate on whether carbon taxes should be levied on upstream energy producers or downstream energy users. The current debate focuses on the administrative, political, and distribution advantages and disadvantages of each, but largely ignores tax burden. Although it is impossible to assess opportunities for outright evasion of a hypothetical carbon tax, a major part of the debate focuses on the ability of firms to avoid a carbon tax by increasing production in unregulated jurisdictions. If those opportunities differ substantially for energy producers and energy users, decisions regarding which parties are responsible for the physical tax payment will also affect which parties bear the tax burden in a very similar way to the diesel context presented in this research.

**Full paper available at:** [www.hks.harvard.edu/m-rcbg/heep/papers/DP50\\_Muehlegger.pdf](http://www.hks.harvard.edu/m-rcbg/heep/papers/DP50_Muehlegger.pdf)

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