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How Firms Respond to Changes in Taxation

Alexander Ljungqvist

Taxes are one of the most important microeconomic tools at governments’ disposal, touching on practically every aspect of economic activity. They potentially affect a variety of corporate decisions, ranging from how much to invest in R&D, property, plant, and equipment, to the mix of debt and equity with which firms fund operations, to the amount and structure of compensation paid to managers and employees and the dividends offered to shareholders.

A key empirical challenge when testing whether and how particular taxes affect corporate decisions is that a firm’s tax status often depends on its policies. For example, a firm’s choice of investment projects will affect its future marginal tax rate by creating tax shields in the form of depreciation charges that can be deducted from its taxable profits and by increasing its debt capacity. As a result, inference based on tests that use a firm’s actual or simulated tax rate are likely biased.

The extensive literature on the effects of taxes on corporate policies therefore has looked for more exogenous sources of identification, favoring two approaches: the use of changes in a country’s tax code over time and the use of international variation in taxes. In a sequence of recent papers, I propose a third approach: variation in state-level tax rates and tax rules across U.S. states and time.

State-level variation in corporate tax policy offers two convenient advantages over prior approaches. There are numerous state tax changes, and these changes allow us to get closer to a plausible counterfactual world. To see this, consider first changes in federal taxes. Variation in federal tax rates and tax rules is relatively infrequent (the 1986 Tax Reform Act is a rare example), and when it does occur, it affects virtually all firms in the economy at the same time and in a similar way, making it difficult to find control firms with which to establish a plausible counterfactual for how firms would have behaved absent the tax change.

Cross-country approaches are designed to overcome the first shortcoming. There are many more tax changes across countries than within, and the changes don’t all happen at the same time, leaving some firms treated and others untreated. But these approaches require us to make potentially implausible assumptions about treated and untreated firms being comparable despite their operating in different countries. State tax changes, on the other hand, lend themselves to standard difference-in-difference tests. Like the tax changes used in cross-country studies, state tax changes are numerous and staggered over time, allowing us to disentangle the effects of tax changes from other macroeconomic shocks that affect firms’ policies. Because they occur in a single country, it can more plausibly be argued that treated and untreated firms would have experienced similar economic conditions in time, space, industry, and so on, but for the consequences of a tax change.

To illustrate the logic of the approach, consider North Carolina, which in 1991 raised its top corporate income tax rate from 7% to 8.06%. Let’s say we are interested in the effect of taxes on leverage, and we observe that following this state tax increase, firms operating in North Carolina increased leverage from 18.8 percent to 20.8 percent, on average. Part of this leverage increase could reflect changes in economy-wide factors such as aggregate demand or interest rates that alter the attractiveness of debt relative to equity at that particular point in time. To disentangle secular changes from those induced by North Carolina’s tax increase, we can estimate the contemporaneous change in leverage among firms that experience no tax change but are otherwise exposed to the same economic forces as firms in North Carolina. We might, for example, use firms operating in the states bordering North Carolina as control firms.

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ing North Carolina for this purpose and, if desired, we could hold industry and other factors constant as well. For example, a state may change other rules or regulations at the same time it changes its tax rates, or it may change tax rates to balance its budget at a time of negative demand shock. Finally, a causal interpretation requires that tax changes be unpredictable, or else firms’ observed behavior to a current change may reflect the tax policy itself, but how the actual tax change compares to firms’ prior expectations.

Unfortunately, we find evidence of asymmetry: While...
contiguous counties straddling state borders. The idea is to exploit a spatial policy discontinuity when forming control groups. Because a state’s tax jurisdiction stops at its border, a county’s immediate neighbors on the other side of the border share plausibly similar economic conditions while being subject to discretely different tax policies. Our empirical results show that corporate tax changes affect firm employment and wages [See Figure 2], and that they do so asymmetrically: While tax increases hurt employment and income in treated counties, tax cuts have little effect. All else equal, a one-percentage-point increase in corporate income taxes reduces employment by 0.3 percent and 0.5 percent and wages by between 0.3 percent and 0.6 percent, net of contemporaneous changes in neighboring counties on the other side of the state border. Tax cuts, on the other hand, have no significant effect on either employment or wages unless they are implemented during a recession, when they lead to sizeable increases in both employment and wages. One potential challenge to our contiguous-border-country strategy is that tax changes on one side of the border could trigger changes in the behavior of firms or households across the border. For example, the fall in wages following a tax increase could spill over to contiguous counties if affected households spend less money not just at home but also in neighboring counties. This would attenuate the estimated tax sensitivity. The estimated tax increase would hurt both the treated and the control county. To deal with such potential spillovers, we compare border counties to hinterland counties located further inside the untreated states. To the extent that spillovers dissipate with distance from the state border, we would expect employment and wages to decline in border control counties compared to hinterland counties. Instead, we find no difference in employment or wage growth within untreated states, regardless of proximity to the border, suggesting that spillovers do not play a major role in our setting. Conclusions The examples presented above suggest that state-level variations in taxes are useful for exploring a number of tax-related research questions. While these changes are generally small, measuring perhaps a percentage point, they apparently are economically meaningful in light of the responses they elicit from firms, in terms of their use of debt, their risk-taking, and their employment decisions. Whether these responses are too large, too small, or just right is an open question.

An interesting theme that emerges from these three examples is that taxes often have an asymmetric effect. In the case of the capital structure, asymmetry is a prediction of one prominent class of models but not of others, which can help us to discriminate empirically between different capital structure theories. In the case of risk-taking, asymmetry is to be expected—if not predicted —given the insights of the literature on risk shifting and asset substitution at highly leveraged firms. In the case of firms’ employment decisions, asymmetry is more of a surprise. There remains much interesting work to be done on the various ways in which corporate taxes affect economic activity. State taxes, modest though they may often seem, are a useful addition to our empirical toolbox.

since 1947 there has been a multilateral forum—first the general agreement on tariffs and trade (GATT), now the world trade organization (WTO)—where governments meet to agree on the rules of international trade. To interpret and evaluate the role of these organizations requires a two-step research program. The first step is to identify the central problems that a trade agreement might address. The second is then to bring economic arguments to bear on the design of an agreement that would best resolve these issues. Here we review some of our joint efforts to contribute to ongoing research in this area. the purpose of trade agreements economists have identified two broad and possibly complementary rationales for trade agreements: to help governments internalize the international externalities associated with their policies, and to help governments solve a commitment problem with respect to the private sector.1 our recent work has focused on the former reason, specifically on this question: what form do the international externalities associated with trade policy take? we have established previously that the terms-of-trade externality plays a central role.2 if governments use trade agreements to achieve mutually beneficial policy outcomes when viewed through the lens of their own objectives, then in the absence of an agreement there must be a policy inefficiency in terms of those objectives that the agreement can correct. whether government objectives reflect the maximization of national income or the pursuit of national distributional or political goals, we found that it is the terms-of-trade externality — and the associated incentive for international cost-shifting it creates for governments with sufficiently monopsony power — that lies at the heart of a trade agreement’s reason to exist. governments do not need trade agreements to make adjustments to their own local-market prices; they have their own trade-policy instruments to accomplish this. If the government of a country wishes to adjust the local-market price of an import good to alter the level of protection it provides to its import-competing producers, it can accomplish this much with a unilateral change in its tariff. But trade agreements can help member governments make such adjustments without altering their terms of trade, and for governments with monopsony power in international markets trade agreements therefore expand the set of possibilities beyond what these governments could achieve on their own. at least some of these new possibilities are mutual gains. if member governments, though this is so only for the possibilities that entail negotiated tariff reductions. according to this view, the purpose of trade agreements is to eliminate policy inefficiencies that exist when governments are free to exert monopsony power on international markets, depress foreign-exporter prices with their unilateral decisions to protect domestic markets, and thereby shift some of the costs of this protection onto foreign exporters. by eliminating these inefficiencies, trade agreements will lead to freer, therefore necessarily free, trade. our early work on these issues focused on perfectly competitive market settings. in recent work, we show that the central role played by the terms-of-trade externality in identifying the purpose of a trade agreement...