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# The Influence of Corporate Income Taxes on Investment Location

## Evidence from Corporate Headquarters Relocations

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Corporate managers and governments engage in complex interactions, as managers strive to maximize after-tax income and governments attempt to encourage economic development while also raising tax revenues. As part of this process, firms often organize their operations to reduce their exposure to higher-tax jurisdictions. Anticipating this response, governments either lower tax rates or implement measures to curb income shifting. Anecdotal evidence suggests that managing corporate tax liabilities is one of the drivers of corporate headquarters relocation. For example, the factors cited for General Electric relocating its headquarters from Fairfield, Connecticut, to Boston, Massachusetts, in 2016 included a change from a 9 percent state tax rate to a lower rate and a negotiated $145 million incentive, in addition to being in a vibrant new area in a major city that offers better access to high-tech workers relevant to the firm's new strategic theme. In our work, we focus on the relation between U.S. states' corporate income tax rates and companies' decisions to move their headquarters. This investigation is important because a common strategy in many jurisdictions is to employ various tax policies, including tax rates, to retain and/or attract firms.

While headquarters relocation is one of many corporate investment decisions, it has at least two unique features that warrant detailed examination. First, it is a decision that generally holds the level of investment constant. In other words,

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relocation does not greatly affect the level of investment, because a firm had headquarters before relocation and will have headquarters after relocation. Other corporate investments (e.g., cross-border acquisitions and foreign direct investment) often conflate changes in both investment levels and location. Studying the movement of headquarters allows us to largely separate the effect of choice of investment location from the level of investment. Second, documenting the effect of a tax policy on the decision to move a firm's headquarters (or to keep it in its current location) is challenging because the decision involves many factors, with the corporate income tax being just one. The example of General Electric relocating its headquarters highlights an empirical challenge: a firm's decision to move its corporate headquarters occurs alongside other corporate policies and is influenced by other state factors, making causal effects difficult to identify.

To develop our hypothesis on the effect that changes in the state corporate tax rates have on the relocation of headquarters, we assume that prior to any change in the state corporate tax rate, the location of a firm's headquarters is determined by the cost-benefit tradeoffs of being in one location versus another. For example, some firms locate their headquarters in a high-tax state in exchange for access to a highly skilled labor force. Firms consider relocating their headquarters only when the marginal benefits exceed the marginal costs. Our approach studies the relationship between changes in the locations of headquarters and changes in state corporate income tax rates.

First, using a sample of relocating and nonrelocating firms between 1998 and 2018, we establish a strong and robust positive relationship between state corporate tax rate changes and the likelihood of headquarters relocation after including extensive controls for other income-tax-related, economic, and political factors at the firm and state levels. Economically, the effect is significant: an increase of 1 percentage point in the corporate income tax rate of the headquarters state, on average, increases the likelihood of firms relocating their headquarters by 16.8 percent, and an equivalent decrease in the tax rate of the headquarters state decreases the likelihood of firm relocations by 9.1 percent.

We also exploit features of the state apportionment system to conduct a more nuanced analysis of state tax policy and to provide further support for our interpretation of the data. The apportionment system allocates corporate income for taxation based on inputs (property and payroll) and output (sales). A firm's headquarters include a significant amount of property and payroll, causing its location to alter the allocation of income across states. Over time, states change the weights of taxation factors to encourage more within-state firm activities. Relying on the changes in these factor weights, we find evidence that states with low or no weights on property and payroll have a weaker relation between corporate tax rate changes and the relocation of headquarters, consistent with tax rates driving the main results.

Second, states have increasingly added measures to prevent corporations from avoiding state taxes. In typical investment models, capital and labor yield output is taxed; however, the headquarters do not follow the typical model. The headquarters can be placed in a location separate from assets that directly contribute to productivity. Conventional multi-jurisdictional tax planning would thus recommend that headquarters be placed in jurisdictions with a higher tax rate, not ones with a lower tax rate. Under apportionment systems, tax planning is more nuanced. Separately incorporated subsidiaries may not be subject to apportionment, depending on the state's rules. If the state requires consolidation, the firm cannot separately incorporate the headquarters and avoid the adverse impacts of high corporate tax rates. For states that require consolidation, we find that increasing the tax rate is a stronger predictor of relocation.

We also consider how the size of the firm's existing operations in nonheadquarters states affects the likelihood of relocation. Greater distribution of operations across different states can facilitate the relocation of headquarters because existing establishments in other states can serve as a known new home for the headquarters, lowering the cost of relocation. Yet a wide geographic footprint makes a firm's tax liability less dependent on the tax rate changes of any particular state, reducing the benefits of relocating. We find some evidence that having more activities outside the headquarters state augments the response to a change in tax rate.

Having established the role of corporate income taxes in the decision to leave a state, we also consider the role of state policies in the location to which the firm moves. Obviously, economic factors such as real gross state product growth and industry clusters are important factors. Similar to our analyses of expatriations, increases in the state income tax rate decrease the likelihood that the firm will choose that state for its new establishment, while decreases in the state income tax rate increase the likelihood that the firm will choose that state. Lower corporate income taxes overall and lower weight on the property and payroll in the apportionment formula are also associated with choosing a particular state.

Understanding whether and how corporate taxes affect corporate decisions has important implications for tax policies. At the international level, the European Union is debating a system by which firms would consolidate their European activities into a single tax calculation, with the earnings apportioned among the member states. This proposed Common Consolidated Corporate Tax Base system shares many features with the present state-level system within the United States. Even with an apportionment system, U.S. state governments still adopt various tax rates and structures to retain or attract businesses. Our analysis suggests that an apportionment system in Europe would encourage the relocation of headquarters, but firms would continue to respond to specific features of the tax system and to anti-avoidance measures.

Within the United States, many states are considering raising their corporate tax rates to deal with budget shortfalls due to the COVID-19 pandemic and the associated economic fallout. Our study suggests that states that choose to do so may risk losing business headquarters. Where a firm locates its headquarters can have significant economic effects on the local community, including job creation and knowledge spillover benefits.

By explicitly evaluating the outcomes of the interactions between components within the state tax apportionment formula, our work provides timely and comprehensive evidence of state tax planning via the relocations of headquarters.

## NOTE

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