Corporate Income Tax Rates and Household Consumption

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1 Introduction

Corporate income taxes (CIT) are an important way that governments raise revenue. However, CIT are often criticized for discouraging corporate investment, reducing economic growth, imposing an unfair double-taxation on shareholders, and either encouraging or discouraging particular types of corporate activities that may not be socially beneficial. Prior studies have examined the effects of corporate tax rates on firms' capital structure [Heider and Ljungqvist, 2015], employment and business reallocation [Giroud and Rauh, 2019] and the distribution of the corporate tax burden among workers, landowners and firms [Serrato et al., 2016]. However, there is little evidence on how CIT affects local government stakeholders, i.e., households. The effects on households are important because household spending in developed economies represents a majority of GDP, and captures the implications of corporate tax incidence for within-state welfare.[1] Therefore, the policy implications of CIT changes plausibly depend on the under-explored effects on household consumption.

In this study, we use staggered changes in U.S. state-level CIT rates to examine the effects of CIT on household consumption. State-level CIT change relatively frequently, compared to federal taxes. Moreover, state taxes are an important part of US firms' overall tax burden. Heider and Ljungqvist [2015] show that, on average, state taxes account for 21% of total corporate income taxes paid. Because states change tax rates in different years, we can use a staggered difference-in-differences methodology (SDD). With extensive controls for other potential factors such as individual income tax rates, the SDD methodology alleviates concerns that confounding variation in economic conditions drives the results and allows us to interpret our estimated effects of CIT on household consumption as plausibly causal.

Using panel data on consumption at the household-year level from Nielsen, we estimate elasticities of household consumption to CIT rates of -0.8% percent for total consumption and -0.9% for per capita consumption. These elasticities rate suggest much of the CIT burden either affects savings or is borne by non-local households. Allowing for heterogeneous impacts of corporate tax rate increases and decreases, we find that the effects of CIT on household consumption are mainly driven by tax increases, while the effects of tax cuts are insignificant.

Data on specific household characteristics and consumption from Nielsen allows us to examine the types of consumption affected. This is particularly useful as CIT can have heterogeneous effects

[1] For example, in the postwar period (1947 to now), household consumption expenditures ranged from 58% to nearly 69% of U.S. GDP (From `https://fred.stlouisfed.org/series/DPCERE1Q156NBEA`,accessed July 15, 2021).

on short-term versus long-term consumption, and on necessities or staples relative to discretionary goods and services. We find that households adjust their consumption of short-term staples , including dry grocery, non-food grocery, and dairy after the corporate tax rate increases. We do not have information on whether households purchase branded/premium goods versus unbranded, so we can only suggest that the effects on consumption of staples results from a shift from premium to unbranded products. However, the shift in food consumption suggests potentially important effects on consumption of staples. If the consumption effect represents a real reduction in ability to spend on staples or an increase in prices caused by CIT rate changes [Baker et al., 2020; Jacob et al., 2020], it then suggests that governments should consider offsetting effects of CIT increases with additional subsidies to low-income households.

We further investigate effect heterogeneity across types of households. Dual income households are more strongly affected by CIT rate changes than households where one or both heads are not employed. This implies that the employment and wage changes (e.g., Giroud and Rauh [2019], Fuest et al. [2018]), or expectations of these, are an important mechanism through which variation in CIT affects household consumption. Non-white families and married couples suffer more from tax rate increases. Moreover, low-income families and families with children benefit from tax rate cuts, while high-income households and households without children are negatively affected by tax rate increases. In addition, we find that it is mainly white-collar workers, rather than blue-collar workers, who are affected by tax rate increases.

Next, we use state-level personal consumption data to provide additional support for our inferences. Consistent with the patterns from the household-level data, we find elasticities of consumption to CIT rates increases of -0.3%, while there are no significant effects of tax cuts on average. The lower sensitivity of consumption to CIT rate changes from the state-level could reflect its broader coverage of coverage of either households or household spending categories. Aggregate state-level consumption data covers not only goods consumption but also services consumption, including housing. We find that state-level consumption of services decreases following CIT rate increases, especially spending on housing/utilities, energy, and health care. Furthermore, we document that the effects of a CIT rate increases are stronger in states with low unemployment insurance (UI) rates, high GDP, and high labor union coverage.

In additional tests, we find that CIT rate cuts are associated with concurrent decreases in government assistance and subsidies, particularly in states with high UI rates, low GDP, and low labor union coverage. CIT rate changes are also associated with cross-state migration patterns,

with rate increases discouraging migration to low UI and low GDP states, and rate decreases encouraging migration to high UI, low GDP, and low labor union coverage states.

In our last set of tests, we explore alternative explanations and causality threats. Note that in all test on which we base our inferences, we control for a wide range of potential confounds, including sales and personal income tax rates, state-level economic conditions, household characteristics where possible, and state and time fixed effects. To alleviate the concerns about reverse causality, i.e., that some unobserved or imperfectly-measured state-level economic conditions affects our household consumption outcomes of interest and subsequently leads to state-level CIT changes, we test whether household consumption changes before CIT changes.We find that household consumption happens in the same period as CIT rate adjustments rather than before. This is is consistent with household consumption changes being driven by realized changes in CIT rather than CIT changes being driven by consumption changes or consumption changes reacting to adjustments in expected CIT rates. Furthermore, the effects are concentrated in the year of the rate change rather than subsequent years, consistent with effects driven at least in part by fast-moving changes in expectations rather than potentially slow-moving corporate investments.

Our paper contributes to several streams of literature. First, our paper provides evidence of the impact of CIT changes on household consumption. Prior literature has examined the effects of corporate tax rates on firms' capital structure [Heider and Ljungqvist, 2015], innovation [Mukherjee et al., 2017], investment (Romer and Romer [2010], Djankov et al. [2010]), bank transparency [Andries et al., 2017], employment and business reallocation [Giroud and Rauh, 2019] and the distribution of the corporate tax burden among workers, landowners and firms [Serrato et al., 2016]. Much of this literature focuses on the incidence of corporate taxes, i.e., whether corporate taxes are borne by shareholders, employees, consumers, or asset owners in general [Auerbach, 2006, 2018; Clausing, 2011; Dyreng et al., 2020]. More related, Mertens and Ravn [2012] use federal tax changes and find national level evidence that implemented tax cuts have effects on private sector consumption. By exploiting staggered changes in state-level corporate tax rates, our paper provides evidence of the household consumption changes following corporate tax rate movements and the heterogeneous effects across different types of households, different goods, occupations and state-level characteristics. Since household consumption is crucial for U.S. economic growth, this paper deepens our understanding of the economic consequences of corporate tax changes.

Second, the evidence shown in this paper is helpful for understanding household consumption behaviors. Household consumption has attracted increased attention from researchers in recent

years. Ganong and Noel [2019] document sharp spending drops after the exhaustion of unemployment insurance (UI) benefits. Baker [2018] examines consumption elasticities across households with different levels and types of debt. Testing investors' and consumers' inattention, Garmaise et al. [2020] show that household consumption displays excess sensitivity to salient macro-economic news such as the local unemployment rate. Our paper provides evidence of the adjustments of household consumption around CIT rate changes, which sheds additional light on the determinants of household consumption. Furthermore, our cross-sectional results are informative about the incidence of household consumption effects of CIT rates, which depend on household and state-level characteristics.

Last, this paper has policy implications, as it furthers our understanding of the implications of the effects of corporate income taxes. The CIT rate fluctuates widely both temporally and geographically. The Tax Cuts and Jobs Act, passed at the end of 2017, decreased the top U.S. federal corporate tax rate from 39% to 21%. In 2021, several countries recently reached an agreement for a minimum CIT rate of 15% [Alderman et al., 2021]. Although our study focuses on state-level corporate taxes, we view our estimates of the economic consequences of CIT rate changes as useful for policy makers in assessing the impact of recent and potential CIT rate adjustments.[2]

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[2]Our study focuses on top-line CIT rates. We do not explore many other levers available to policy makers, including deductions, credits, exemptions, special opportunity zones, intellectual property (IP) boxes, etc.

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