Tax Policy and Investment in a Global Economy

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Abstract

This paper combines administrative tax data and a model of global investment behavior to evaluate the investment and firm valuation effects of the Tax Cuts and Jobs Act (TCJA) of 2017, the largest corporate tax reduction in the history of the United States. We extend Hall and Jorgenson (1967) to a multinational setting in which a firm produces in domestic and international locations. We use the model to characterize and measure four determinants of domestic investment: domestic and foreign marginal tax rates and effective cost-of-capital subsidies. We estimate domestic investment elasticities with respect to each and use them to identify the structural parameters of our model, which we use to quantify which parts of the reform mattered most to investment and to conduct policy counterfactuals. We have five main findings. First, the TCJA caused domestic investment of highly-exposed firms to increase by roughly 20% relative to less-exposed firms. Second, the TCJA created large incentives for U.S. multinationals to increase foreign investment, which increased by roughly one-quarter for highly-exposed firms. Third, domestic investment also increases in response to foreign incentives, indicating that domestic and foreign capital are complements in production. Fourth, the long-run effects of the TCJA on the domestic and total capital of U.S. firms are around 6% and 9%, respectively. Finally, the total domestic investment response was too small to overcome mechanically lower tax revenue, which declines by roughly 40% in the long-run in our model.

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1 Introduction

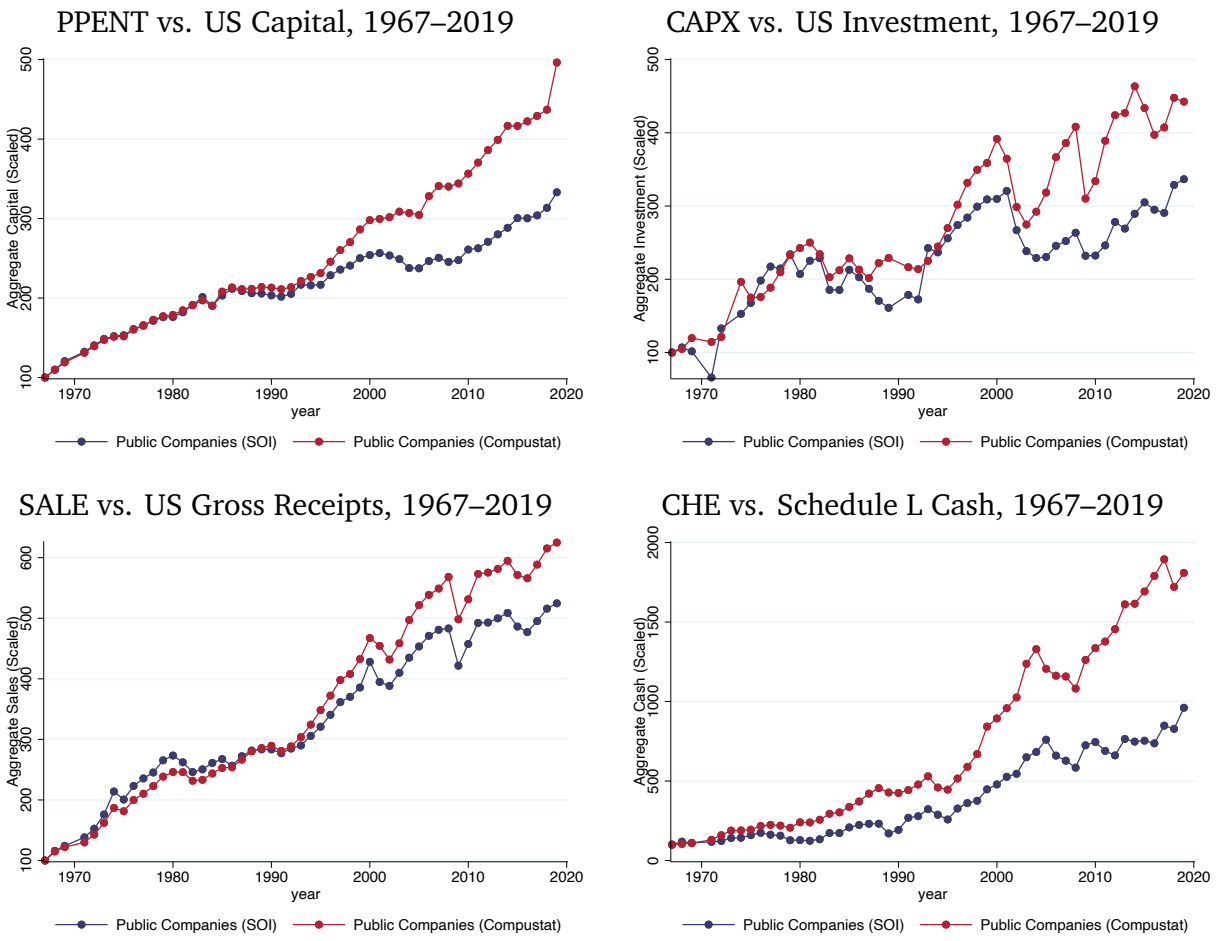
The Tax Cuts and Jobs Act (TCJA) of 2017 was the largest corporate tax reduction in the history of the United States.[1] It lowered statutory corporate tax rates from 35% to 21%, changed a host of investment incentives, and fundamentally altered the treatment of international income. Collectively, these corporate tax changes were scored to reduce corporate tax revenue by $100 to $150 billion dollars per year (JCT, 2017; CBO, 2018). Yet, both at the time of passage and in its aftermath, economists have not reached consensus on even ballpark estimates of its effects on firm investment (Barro and Furman, 2018; Auerbach, 2018; CEA, 2019; Gale and Haldeman, 2021)) or whether it would pay for itself (Goodspeed and Hassett, 2022).

This paper uses confidential, firm-level tax returns together with a model of global investment behavior to evaluate the effects of the TCJA on domestic and foreign investment and capital, firm value, and tax receipts. We have five main findings. First, the main domestic provisions, the reduction in the corporate rate and full expensing of investment, stimulated investment roughly in line with estimates from earlier episodes. The TCJA caused domestic investment of highly-exposed firms to increase by roughly 20% relative to less-exposed firms. Second, novel international tax provisions, which were designed to on-shore reporting of income from intangible capital, had the effect of increasing foreign investment, which increased by approximately one-quarter among highly-exposed firms. Third, we estimate within-firm complementarity between foreign and domestic capital, such that the international tax provisions also stimulated domestic investment. Fourth, the long-run effects of the TCJA on the domestic and total capital of U.S. firms are around 6% and 9%, respectively. Finally, the total domestic investment response was too small to overcome mechanically lower tax revenue, which declines by roughly 40% in the long-run in our model.

The importance of measuring these effects goes beyond the evaluation of this particular tax reform. The reform came against the backdrop of sluggish domestic investment (Gutiérrez and Philippon, 2017; Alexander and Eberly, 2018), yet there is limited evidence whether and to what extent it may have reversed recent trends in increasingly global investment of U.S. multinationals (see, e.g., Figure 1). Disentangling the role of the various provisions can help us understand the nature of firm investment—a key driver of economic growth De Long and Summers (1991). The varied domestic and international provisions in particular can inform how changes in the domestic and foreign costs of capital affect economic activity at home

[1]The official name of the act is given in Public Law 115-97, "An Act to Provide for Reconciliation Pursuant to Titles II and V of the Concurrent Resolution on the Budget for Fiscal Year 2018." It was originally called the "Tax Cuts and Jobs Act," but this title was changed for procedural reasons.

Figure 1: Increasingly Global Investment



Notes: These figures use merged Compustat–SOI datasets. (1) PPENT is Net Property, Plants, and Equipment; (2) Pre-1993 SOI investment only includes ITC-eligible basis, understating the divergence in the figure.

and abroad (Desai, Foley and Hines Jr, 2009; Becker and Riedel, 2012). And evaluating the TCJA also can improve our understanding of past reforms and the likely effects of future policy proposals.

We begin by developing a model of firm investment behavior to structure the empirical analysis. Each firm operates domestic and possibly foreign production lines using domestic and foreign capital, which may be either complements or substitutes in production, along with labor and materials. Firms make standard investment decisions, taking account of the tax code. Specifically, a firm pays a rate τ on domestic source income and $\bar{\tau}$ on foreign source income and receives an investment subsidy Γ on domestic investment and $\bar{\Gamma}$ on foreign investment. The domestic terms τ and Γ incorporate TCJA changes to the corporate tax rate and expens-

ing of investment and collapse to the workhorse Hall and Jorgenson (1967) framework for domestic-only firms. The foreign tax terms allow the model to also accommodate the novel, more opaque changes to the international tax regime. We linearize the model across steady-states to derive an estimating equation that characterizes the investment elasticity to the TCJA changes to $\tau, \Gamma, \bar{\tau}, \bar{\Gamma}$ as a function of the ratio of pre-TCJA foreign-to-domestic capital and three key structural parameters α, σ, and a that together govern the returns-to-scale in capital, the elasticity of substitution between domestic and foreign capital, and the relative importance of each source of capital in domestic profits.

Our data set consists of a representative panel of C-corporation tax returns from the U.S. Treasury. We measure firm-level empirical counterparts to each of $\tau, \Gamma, \bar{\tau}, \bar{\Gamma}$. The domestic rate τ falls mainly because of the reduction in the statutory corporate rate from 35% to 21%. However, this change has heterogeneous impact across firms depending on their likelihood of having positive taxable income, which in turn depends on income volatility and the use of credits. Building on Graham (1996), we use pre-TCJA returns to simulate income trajectories for each firm. We extend his framework by incorporating firm-specific use of deductions, credits, and the cap on total General Business Credits (GBCs). We construct new firm-level marginal effective tax rates with and without TCJA as the additional present value of taxes paid when taxable income in a year rises by a marginal amount, taking account of the change in the statutory rate, new rules on loan loss carryback and carryforward, and the repeal of the Domestic Production Activities Deduction (DPAD) and Alternative Minimum Tax (AMT). The domestic investment subsidy Γ increases mainly because of the change to full expensing of equipment. The impact of this change also varies across firms, depending on the normal tax depreciation schedule of its investment mix as well as on whether the firm's pre-TCJA investment fell below the section 179 limit. In addition to modeling these provisions, we also incorporate the TCJA's Foreign Deemed Intangible Income (FDII) deduction, which reduces a firm's domestic tax on the export share of income exceeding 10% of its domestic tangible assets. We show that FDII effectively reduces τ and Γ for firms subject to it.

We incorporate two main foreign provisions in TCJA. First, TCJA moved the U.S. from a global system in which a U.S. corporation would eventually have to pay taxes on all foreign source income to a territorial system that applies the U.S. corporate rate only to domestic source income. Second, in an effort to discourage location of intangible capital abroad, the TCJA introduced a domestic tax on deemed Global Intangible Low-Taxed Income (GILTI), which requires firms to pay U.S. taxes on foreign income exceeding 10% of foreign tangible capital when such income would otherwise be taxed at a low enough rate. We show that GILTI effectively in-

creases $\bar{\tau}$ and $\bar{\Gamma}$ for firms subject to it. Furthermore, since GILTI depends on post-TCJA capital choices, we construct an instrument based on pre-TCJA foreign return on assets.

We estimate the tax elasticities using the model structure and our measurement of tax shocks in the cross-section of firms. We regress the log change in firm-level domestic investment on the four tax policy changes $\tau, \Gamma, \bar{\tau}, \bar{\Gamma}$. Among firms that operate only domestically, we find elasticities to the domestic tax terms in line with earlier literature (Zwick and Mahon, 2017). Among firms with international operations, we find modestly smaller responses to the domestic tax terms and a precisely-estimated positive response of domestic investment to the effective foreign subsidy $\bar{\Gamma}$. Our theory interprets these responses as evidence of complementarity between domestic and foreign capital; the GILTI tax incentivizes firms to increase foreign capital, which in turn causes domestic capital to increase when domestic and foreign capital are complements in production. We report several robustness exercises that address particular concerns with the estimation.

The estimated elasticities provide moments to identify the structural parameters of our model. For the domestic-only firms, the theory dictates that the coefficients on τ and Γ have opposite signs of equal magnitude, each of which equals the inverse of $1-\alpha$. We therefore obtain the scale parameter for these firms using these two coefficients as moments. For multinational firms, the regression coefficients for all four tax terms together with the pre-TCJA ratio of foreign-to-domestic capital and profits jointly identify the structural parameters. Intuitively, the sums of the coefficients on Γ and $\bar{\Gamma}$ and on τ and $\bar{\tau}$ equate, with each sum equaling the inverse of $1-\alpha$. Furthermore, given α, the requirement that domestic capital respond positively to a subsidy to foreign capital bounds the admissible elasticity of substitution between foreign and domestic capital σ, while the coefficient on τ provides additional information to determine a.

We jointly validate the measurement and parameter estimates using asset pricing implications. For each publicly-traded firm in the sample, we construct the model-implied tax-induced change in firm value. We use this metric to sort firms by their exposure to the reform and compare model-implied to actual asset price changes during the pre-reform period and around identified event dates.

Since our primary empirical approach compares highly-exposed to less-exposed firms within the United States, we validate our investment findings using an alternative approach with a non-US-based comparison group. We synthetically match publicly-traded U.S. firms to similar foreign firms using Compustat data and compare the evolution of investment before and after the TCJA. For each U.S. firm in Compustat, we obtain a firm-specific synthetic counterfactual

as a weighted average of foreign firms and then aggregate across all firms and by industry. Investment at publicly-traded U.S. firms increased by around 6% relative to the control group. We validate the synthetic control results in several ways: backdating, using Canadian firms and the same method in a placebo analysis, leaving out groups of foreign countries from the set of comparison countries, and controlling directly for contemporaneous tariff shocks in the manufacturing sector.

Finally, we use the estimated parameters to quantify which parts of the reform mattered most to investment and explore policy counterfactuals.

Related literature The first main contribution of this paper is to provide new estimates of the effects of the largest corporate tax cut in U.S. history. Due to its size and prominence, an early literature reported expected effects using calibrated models (Barro and Furman, 2018; Slemrod, 2018; Gale, Gelfond, Krupkin, Mazur and Toder, 2019; Clausing, 2020). Garcia-Bernardo, Janský and Zucman (2022) use aggregate data and public filings to study the effect on profit-shifting. Our measurement of the TCJA firm-level shocks using Treasury tax returns, including specific forms that identify which firms deduct FDII or pay GILTI, allows us to link these provisions to firm real outcomes. Earlier analysis of investment outcomes comes from Kennedy, Dobridge, Landefeld and Mortenson (2022), who exploit the variation in the domestic corporate rate cut across C-corporations and S-corporations of similar size. They find an investment elasticity of 0.5 with respect to the net-of-tax rate. Our sample, which includes all C-corporations including the largest multinational corporations, our joint analysis of the rate cuts, cost-of-capital provisions, and international features of TCJA, and our tying the regression coefficients to parameters of a structural model distinguish our work and allow us to draw conclusions about the total effect of the TCJA's corporate provisions on investment and tax revenue.

The second main contribution is to recover the parameters of our structural model. The overall profits elasticity of capital appears in the canonical Hall and Jorgenson (1967) framework and links our results to evaluations of past corporate tax policy changes.[2] The parameters governing the relationship between domestic and foreign capital within a firm have less antecedent. The literature on multinational location choice typically either assumes complemen-

[2]The long literature on tax policy and investment behavior includes Hall and Jorgenson (1967); Summers (1981); Feldstein (1982); Poterba and Summers (1983); Auerbach and Hassett (1992); Cummins, Hassett and Hubbard (1994, 1996); Hines (1996); Chirinko, Fazzari and Meyer (1999); Devereux and Griffith (2003); Desai and Goolsbee (2004); House and Shapiro (2008); Edgerton (2010); Dharmapala, Foley and Forbes (2011); Yagan (2015); Zwick and Mahon (2017); Ohrn (2018); Giroud and Rauh (2019); Suárez Serrato (2018); Bilicka (2019); Curtis, Garrett, Ohrn, Roberts and Suárez Serrato (2021); Akcigit, Grigsby, Nicholas and Stantcheva (2021); Moon (2022).

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Tax Cut and Jobs Act of 2017 (TCJA)

- Largest corporate tax reduction in U.S. history ($1.5T per JCT)
- Policy evaluation questions:
  1. Impact on total investment?
  2. Impact on the location of investment?
  3. Do TCJA corporate provisions pay for themselves?
  4. Which provisions drive the responses?
- Economic questions:
  1. Nature of multinational production and investment.
  2. Policy counterfactuals.

Main Findings

1. TCJA investment effects characterized by elasticities to four tax terms:
   - Domestic marginal effective tax rate (METR) τ and cost-of-capital subsidy Γ.
   - International METR $\bar{\tau}$ and cost-of-capital subsidy $\bar{\Gamma}$.
2. Positive domestic investment response to METR ($\tau \downarrow$) and expensing ($\Gamma \uparrow$).
   - In (lower part of) range of previous studies.
3. Large incentive for U.S. multinational firms to increase foreign investment ($\bar{\Gamma} \uparrow$).
4. Domestic investment $\uparrow$ in response to foreign incentive.
   - Domestic and foreign capital complements in firm's production function.
5. Total investment response too small to overcome mechanically lower tax revenue.

Outline

1. **Background:** TCJA details.
2. **Model:** domestic versus international investment choice.
3. **Data:** IRS corporate tax returns + Compustat.
4. **Measurement:** domestic + foreign marginal tax rate and cost-of-capital changes.
5. **Reduced form evidence:** investment elasticities to tax changes.
6. **Structural estimation:** recover parameters governing scale and substitution.
7. ~~**Validation:** synthetic controls, market responses to TCJA news.~~
8. **Model quantification:** use parameters to assess investment and revenue effects.

Literature

Investment and Tax Policy

- Hall Jorgenson (1967); Summers (1981); Feldstein (1982); Poterba Summers (1983); Auerbach Hassett (1992); Cummins, Hassett Hubbard (1994, 1996); Hines (1996); Chirinko Fazzari Meyer (1999); Devereux Griffith (2003); Desai Goolsbee (2004); House Shapiro (2008); Edgerton (2010); Dharmapala Foley Forbes (2011); Yagan (2015); Zwick Mahon (2017); Ohrn (2018); Giroud Rauh (2019); Suarez Serrato (2019); Bilicka (2019); Curtis Garrett Ohrn Roberts Suarez Serrato (2021); Akcigit Grigsby Nicholas Stantcheva (2021); Moon (2022)

Tax Cuts and Jobs Act

- Barro Furman (2018); Slemrod (2018); Hanlon, Hoopes, Slemrod (2019)
- Foertsch (2018); Gale Gelfond Krupkin Mazur Toder (2019); Gale Halderman (2021); Garcia-Bernardo Jansky Zucman (2022)
- Dobridge Kennedy Landefeld Mortenson (2022); Burd Droste Zidar Zwick (2023)

TCJA Background

TCJA Main Corporate Investment Provisions

Provision	Pre-TCJA	Post-TCJA	JCT
Domestic Provisions			
1. Top corporate rate	35%	21%	-1.35T
2. Domestic Production Activities Deduction (DPAD)	9% of qualified production activity income	None	$+98$B
3. Alternative Minimum Tax	Applicable if mean revenues $>$\$7.5M	None	-40B
4. Net operating losses (NOL)	2 year carryback + carryforward	No carryback and limited to 80% of income	$+201$B
5. Accelerated depreciation	50% bonus	100% bonus for 5 years	-86B
6. Foreign-Derived Intangible Income (FDII)	None	37.5% deduction on export share of income$> 0.1K$	-64B
Foreign Provisions			
1. Foreign subsidiary income	Taxable if repatriated	Not taxed	-224B
2. Global Intangible Low Tax Income (GILTI)	None	10.5% minimum tax on foreign income$> 0.1\bar{K}$	$+112$B

Other: interest deduction limit, R&E credit limit, transition tax on foreign retained earnings, BEAT.

Model

Model Overview

Hall and Jorgenson (1967) in **multinational setting**:

- Firm operates domestic and international plants.
- Each plant's output depends on domestic capital K and international capital $\bar{K}$.
- Dynamic capital choice under perfect foresight.

Derive investment response to **four tax terms** (regression specification):

- Domestic METR τ and cost-of-capital subsidy Γ.
- International METR $\bar{\tau}$ and cost-of-capital subsidy $\bar{\Gamma}$.

Three key parameters:

- Returns-to-scale α.
- Elasticity of substitution between domestic and foreign capital σ.
- Importance of foreign capital in domestic profits $1 - a$.

Production

- Domestic earnings:

$$F\left(K_t, \bar{K}_t; Z_t\right) = Z_t \mathcal{K}_t^{\alpha}, \text{ where } \mathcal{K} = \left(aK^{\frac{\sigma-1}{\sigma}} + (1-a)\,\bar{K}^{\frac{\sigma-1}{\sigma}}\right)^{\frac{\sigma}{\sigma-1}}.$$

  - Flexible inputs concentrated out (subsumed in Z, α).

- K and $\bar{K}$ may be complements or substitutes:

  - Determined by $F_{K\bar{K}}$ with $\text{sign}\left(F_{K\bar{K}}\right) = \text{sign}\left(\alpha + 1/\sigma - 1\right)$.

Production

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  - Determined by $F_{K\bar{K}}$ with $\text{sign}\left(F_{K\bar{K}}\right) = \text{sign}\left(\alpha + 1/\sigma - 1\right)$.

- Capital accumulation: $\dot{K}_t = I_t - \delta K_t$.
- Adj. costs in tax-deductible units: $\Phi\left(I_t, K_t\right) = (\phi/2)\left(I_t/K_t - \delta\right)^2 K_t$.
- Mirror-symmetric foreign earnings function.

Dynamic System

- Cash flow returned to equity or debt holders:

$$D_t = \overbrace{(1-\tau_t)\left(F\left(K_t, \bar{K}_t; Z_t\right) - \Phi\left(I_t, K_t\right)\right)}^{\text{Domestic after-tax profit}} + \overbrace{(1-\bar{\tau}_t)\left(\bar{F}\left(\bar{K}_t, K_t, \bar{Z}_t\right) - \Phi\left(\bar{I}_t, \bar{K}_t\right)\right)}^{\text{Foreign after-tax profit}} - \underbrace{\left(1-\Gamma_t\right) P_t^K I_t - \left(1-\bar{\Gamma}_t\right) P_t^{\bar{K}} \bar{I}_t}_{\text{Global investment expenditure}}.$$

- Taxes: marginal rates $\tau, \bar{\tau}$ + cost-of-capital (e.g. PV of depr. allowances) $\Gamma, \bar{\Gamma}$.

Dynamic System

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$$- \underbrace{\left(1-\Gamma_t\right) P_t^K I_t - \left(1-\bar{\Gamma}_t\right) P_t^{\bar{K}} \bar{I}_t}_{\text{Global investment expenditure}}.$$

- Taxes: marginal rates $\tau, \bar{\tau}$ + cost-of-capital (e.g. PV of depr. allowances) $\Gamma, \bar{\Gamma}$.
- Domestic FOCs with discount rate ρ and costate λ:

$$\text{FOC } (I_t): \qquad \dot{K}_t / K_t = \left[\frac{1}{\phi}\left(\frac{\lambda_t - P_t^K\left(1-\Gamma_t\right)}{\left(1-\tau_t\right)}\right)\right],$$

$$\text{FOC } (K_t): \qquad \dot{\lambda}_t = \left(\rho+\delta\right)\lambda_t - \left(1-\tau_t\right)\left(F_1 - \Phi_2\right) - \left(1-\bar{\tau}_t\right)\bar{F}_2,$$

- Foreign FOCs mirror-symmetric.

Steady-state Domestic Investment

- Steady-state user cost: $R^* = (\rho + \delta)(1 - \Gamma^*) P^K$.
- Dynamic system:

$$\text{Domestic } K \text{ choice: } (1 - \tau^*) F_1^* + (1 - \bar{\tau}^*) \bar{F}_2^* = R^*,$$
$$\text{Foreign } \bar{K} \text{ choice: } (1 - \bar{\tau}^*) \bar{F}_1^* + (1 - \tau^*) F_2^* = \bar{R}^*.$$

- Define $k = d \ln K, z = d \ln Z, \hat{\tau} = -d \ln(1 - \tau), \hat{\Gamma} = -d \ln(1 - \Gamma)$:

$$k = \frac{\omega_{k,r} \hat{\Gamma} + (1 - \omega_{k,r}) \hat{\bar{\Gamma}} - \omega_{k,\tau} \hat{\tau} - (1 - \omega_{k,\tau}) \hat{\bar{\tau}} + \epsilon}{1 - \alpha}.$$

- Mirror-symmetric formula for $\bar{k}$.
- Elasticities $\omega_{k,r}, \omega_{k,\tau}, \omega_{\bar{k},\bar{r}}, \omega_{\bar{k},\bar{\tau}}$ functions of $a, \sigma, \alpha, \chi_K \equiv \bar{K}^*/K^*$. ▸ Details

Special Cases and Implications

$$k = \frac{\omega_{k,r}\hat{\Gamma} + (1-\omega_{k,r})\,\hat{\tilde{\Gamma}} - \omega_{k,\tau}\hat{\tau} - (1-\omega_{k,\tau})\,\hat{\tilde{\tau}} + \epsilon}{1-\alpha}.$$

- Domestic only ($a = 1$): $\omega_{k,r} = \omega_{k,\tau} = 1$.
  - Traditional "tax term" $(1-\Gamma)/(1-\tau)$ elasticity of $1/(1-\alpha)$.

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  - No spillovers: domestic investment independent of foreign cost of capital.

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- Domestic only ($a = 1$): $\omega_{k,r} = \omega_{k,\tau} = 1$.
  - Traditional "tax term" $(1-\Gamma)/(1-\tau)$ elasticity of $1/(1-\alpha)$.
- $F_{K\bar{K}} = 0$ ($\alpha + 1/\sigma = 1$): $\omega_{k,r} = 1$.
  - No spillovers: domestic investment independent of foreign cost of capital.
- $\omega_{k,r} > 1$ iff $F_{K\bar{K}} < 0 \Leftrightarrow \alpha + 1/\sigma < 1$.
  - $\bar{\Gamma} \uparrow \Rightarrow \bar{K} \uparrow$. What happens to K depends on $F_{K\bar{K}}$.

Extensions and General Equilibrium

- Multiple types of capital:
  - $\Gamma, \bar{\Gamma}$ replaced by appropriate weighted averages (assuming CES across types).
- Dynamic accumulation of intangible capital: ▸ details
  - Induces complementarity between K and $\bar{K}$.
- Intangibles location choice and profit shifting: ▸ details
  - Domestic user cost lower and foreign user cost higher, gap smaller post-TCJA.
- Interest deduction: ▸ details
  - Domestic user cost lower, change in τ has smaller effect because reduces tax shield.
- Labor market clearing:
  - GE labor supply curve $L_t^S / L_t^* = (P_t^L / P_t^{L*})^{\nu_L}$.

Data and Measurement

Data Sources

I. Corporate tax returns:

1. SOI corporate sample files + additional variables and years from population.
   - Form 1120: income, expenses, balance sheet, industry, etc.
   - Form 4562: investment by tax duration.
   - Form 5471: foreign income and capital (**Multinationals** $\equiv$ Positive foreign capital).
   - Form 1118: GILTI.

2. 50,000–150,000 obs per year, stratified by size to include all large firms.
   - Most public firms and many private firms.
   - Strong panel dimension.

3. Sample restrictions.
   - Drop S corporations ($\sim$ 50%), <\$1M capital (25%), insufficient panel dimension.
   - Similar sample to C-corps in Zwick Mahon; KDLM, BDZZ look at smaller firms.

II. Compustat data: Compustat North America and Global 2011-2020.

TCJA Main Corporate Investment Provisions

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Measurement of Domestic Tax Terms

Rate $\tau_{i,t}$: simulated tax rates using pre-TCJA income (Graham 1996).

Cost of capital $\Gamma_{i,t}$: full expensing of depreciation allowances.

FDII: separate into impact on τ and Γ. ▸ Details

Assume agents expected 2018 policy to become permanent (no phase-outs).

Measurement of Domestic Tax Terms

Rate $\tau_{i,t}$: simulated tax rates using pre-TCJA income (Graham 1996).

- Simulate firm-level income path and credits/deductions using pre-TCJA data.
- METR: present value of taxes if \$1 additional income in year t.
- Calculate METR for pre and post-TCJA rules.
- TCJA: statutory rate 35% to 21%; NOL changes; DPAD repeal; AMT repeal.
- Heterogeneity: larger change if higher pre-TCJA rate, plus DPAD/AMT.

Cost of capital $\Gamma_{i,t}$: full expensing of depreciation allowances.

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Measurement of Domestic Tax Terms

Rate $\tau_{i,t}$: simulated tax rates using pre-TCJA income (Graham 1996).

Cost of capital $\Gamma_{i,t}$: full expensing of depreciation allowances.

- Type j (structures/equipment, by asset life) no-bonus depreciation PDV: $\zeta_{j,0} = \int_0^\infty e^{-\rho h} \delta^{\tau}_{h|t} dh$.
- With bonus θ_t: $\zeta^j_t = \mathbb{I}\{\text{eligible}\}\left(\theta_t + (1-\theta_t)\,\zeta_{j,0}\right) + \left(1 - \mathbb{I}\{\text{eligible}\}\right)\zeta_{j,0}$.
- Average over j using pre-2011 investment and apply expensing/S179 $\Rightarrow \tau_{i,t}\zeta_{i,t}$.
- Heterogeneity: eligible share + bonus has larger effect if long-lived investment.

FDII: separate into impact on τ and Γ. ▸ Details

Assume agents expected 2018 policy to become permanent (no phase-outs).

Measurement of Domestic Tax Terms

Rate $\tau_{i,t}$: simulated tax rates using pre-TCJA income (Graham 1996).

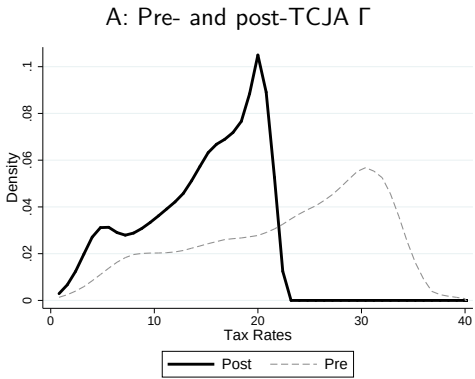
Cost of capital $\Gamma_{i,t}$: full expensing of depreciation allowances.

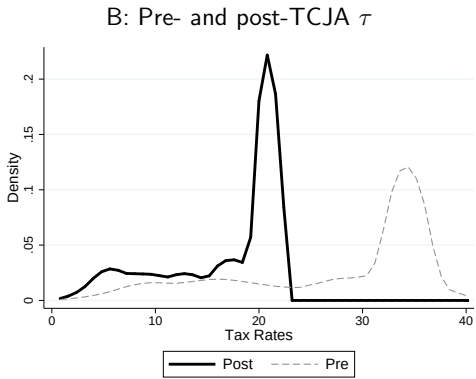
FDII: separate into impact on τ and Γ. ▸ Details

- 37.5% deduction for "deemed intangible income" from exports.
- Observe FDII credit on 1120 and infer "export share" ξ by inverting credit. ▸ Details
- τ: multiply tax rate by $(1 - 0.375 \times \xi)$.
- Γ : $\tau\zeta - \tau^{\text{ex FDII}} \times 0.375 \times 0.1 \times \xi/(\rho + \delta)$.

Assume agents expected 2018 policy to become permanent (no phase-outs).

Kernel Density of Domestic Tax Rates





Measurement of Foreign Tax Terms

Rate $\bar{\tau}_{i,t}$: assume pre-TCJA firms expected repatriation holiday.

- Pre-reform tax rate on foreign earnings (Form 5471), i.e. "myopic".

Cost of capital $\bar{\Gamma}_{i,t}$: assume no change in foreign expensing.

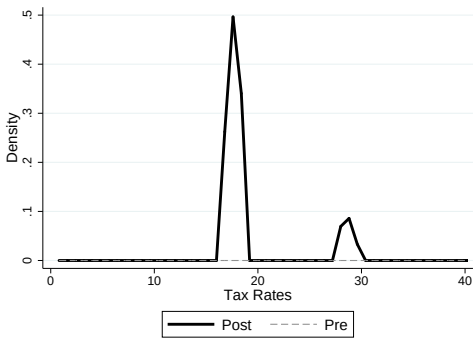
- OECD average tax rate and PV of tax depreciation from Foertsch (2021).

GILTI: separate into impact on $\bar{\tau}$ and $\bar{\Gamma}$. ▸ Details

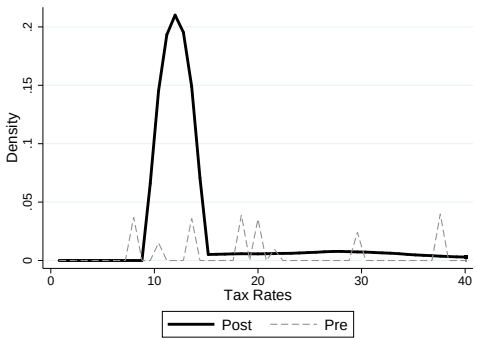
- 10.5% minimum tax on "deemed global intangible income."
- $\bar{\tau}$: max{Pre-TCJA rate on foreign income, 0.105}.
- $\bar{\Gamma}$: $+0.105 \times 0.1/(\rho + \delta)$.

Kernel Density of Foreign Tax Rates

C: Pre- and post-TCJA $\bar{\Gamma}$



D: Pre- and post-TCJA $\bar{\tau}$



Outcomes and Controls in SOI Analysis

Domestic investment: Equipment + structures in SOI Sample, Form 4562.

Domestic and foreign capital: Depreciable capital from SOI Sample, Schedule L. Foreign capital from CFC balance sheets on Form 5471.

Other controls:

- Broad industry trends: NAICS 2 or 3 digit fixed effects.
- Lagged investment growth.
- China tariff war: three exposure measures from Flaaen and Pierce (2021).

▸ Summary statistics

Reduced Form Evidence

Specification

- Key equation from model:

$$k = \frac{\omega_{k,r}\hat{\Gamma} + (1-\omega_{k,r})\,\hat{\bar{\Gamma}} - \omega_{k,\tau}\hat{\tau} - (1-\omega_{k,\tau})\,\hat{\bar{\tau}} + \epsilon}{1-\alpha}.$$

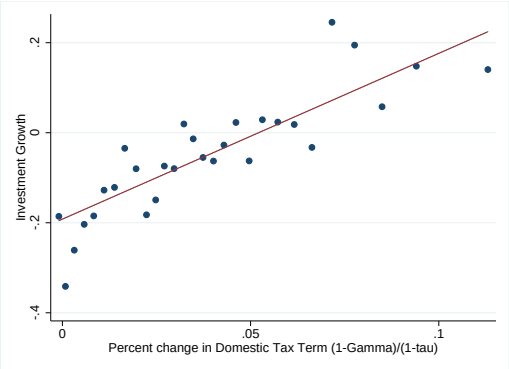
- Main outcome is investment, using $k = d \ln I$.
- Associated cross-firm regression:

$$d \ln I_i = b_0 + b_1 \hat{\Gamma}_i + b_2 \hat{\bar{\Gamma}}_i + b_3 \hat{\tau}_i + b_4 \hat{\bar{\tau}}_i + e_i.$$

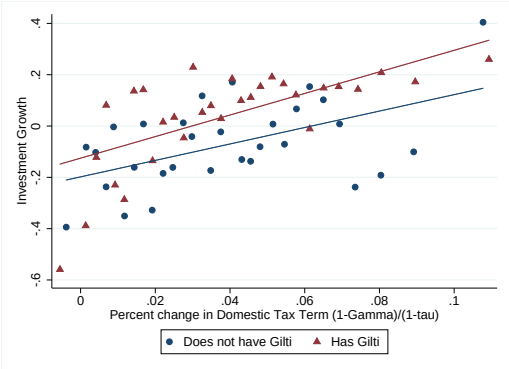
- e_i: firm-level productivity shocks, depreciation, capital goods purchase price, etc.
- Samples: domestic, multinat. high ($\bar{K}/K > 0.15$), multinat. low ($\bar{K}/K < 0.15$).
- Caveat: model equation is cross steady state while regression is short horizon.

Non-Parametric Evidence

Panel A: Domestic Firms



Panel B: U.S. Multinationals



Baseline Regression Results

Dep. var.:	Log change in investment				
Sample:	Pooled	Domestic	Multinational firms		
			All	High	Low
	(1)	(2)	(3)	(4)	(5)
$\hat{\Gamma}$	2.65***	2.63***	2.62*	3.74*	1.53
	(0.48)	(0.53)	(1.09)	(1.58)	(1.50)
$\hat{\tilde{\Gamma}}$	0.65**		0.63*	1.01*	0.25
	(0.22)		(0.27)	(0.40)	(0.36)
$\hat{\tau}$	−3.41***	−3.58***	−3.11***	−3.50**	−2.81*
	(0.39)	(0.45)	(0.83)	(1.20)	(1.14)
$\hat{\tilde{\tau}}$	−0.11		−0.27	0.46	−0.62
	(0.23)		(0.41)	(0.70)	(0.51)
Constant	−0.25***	−0.29***	−0.21***	−0.19***	−0.25***
	(0.03)	(0.04)	(0.04)	(0.06)	(0.07)
Observations	9,304	6,843	2,462	1,113	1,349

Robustness

Sample:	Domestic		Multinational Firms			
Regressor	$\hat{\Gamma}$	$\hat{\tau}$	$\hat{\Gamma}$	$\hat{\bar{\Gamma}}$	$\hat{\tau}$	$\hat{\bar{\tau}}$
Specification:						
1.Baseline	2.63^{***}	-3.58^{***}	2.62^{*}	0.63^{*}	-3.11^{***}	-0.27
	(0.53)	(0.45)	(1.09)	(0.27)	(0.83)	(0.41)
2.Weighted	1.66^{**}	-2.94^{***}	1.98	0.62^{*}	-2.50^{**}	-0.17
	(0.61)	(0.50)	(1.08)	(0.26)	(0.83)	(0.43)
3.Industry FE	2.41^{***}	-3.37^{***}	2.29^{*}	0.63^{*}	-2.85^{***}	-0.25
	(0.52)	(0.44)	(1.02)	(0.27)	(0.79)	(0.37)
4.Size Controls	2.63^{***}	-3.58^{***}	2.61^{*}	0.62^{*}	-3.11^{***}	-0.27
	(0.53)	(0.45)	(1.09)	(0.27)	(0.83)	(0.41)
5.Lagged Investment	2.65^{***}	-3.59^{***}	2.62^{*}	0.62^{*}	-3.12^{***}	-0.26
	(0.53)	(0.45)	(1.09)	(0.27)	(0.83)	(0.41)

Structural Parameters

Identification via Method of Moments

- Convert short-run elasticities to long-run using ratio χ_{SR}.

Identification via Method of Moments

- Convert short-run elasticities to long-run using ratio χ_{SR}.
- 6 moments all functions of $\alpha, \sigma, a, \chi_K$, plus $\chi_{SR} = 1.5$ (Winberry, 2021):

Reg. coef. Γ: $$b_1 = \chi_{SR} \times \omega_{k,r} / (1-\alpha),$$

Reg. coef. $\bar{\Gamma}$: $$b_2 = \chi_{SR} \times (1-\omega_{k,r}) / (1-\alpha),$$

Reg. coef. τ: $$b_3 = \chi_{SR} \times \omega_{k,\tau} / (1-\alpha),$$

Reg. coef. $\bar{\tau}$: $$b_4 = \chi_{SR} \times (1-\omega_{k,\tau}) / (1-\alpha),$$

Relative capital: $$\bar{K}_0 / K_0 = \chi_K,$$

Relative profits: $$\frac{(1-\bar{\tau}_0)\bar{F}_0}{(1-\tau_0)F_0} = \chi_\tau \chi_F = \left(\frac{(1-a)\chi_K^{-\frac{1}{\sigma}} - a\chi_R}{(1-\bar{a})\chi_R - \bar{a}\chi_K^{-\frac{1}{\sigma}}} \right) \left(\frac{\bar{a}\chi_K^{\frac{\sigma-1}{\sigma}} + (1-\bar{a})}{a + (1-a)\chi_K^{\frac{\sigma-1}{\sigma}}} \right).$$

Note: $\omega_{k,r}, \omega_{k,\tau}$ functions of $\alpha, \sigma, a, \chi_K$. ▸ Details

Identification via Method of Moments

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Note: $\omega_{k,r}, \omega_{k,\tau}$ functions of $\alpha, \sigma, a, \chi_K$. ▸ Details

- Drop b_4 moment (redundant and poorly measured).
- Apply separately to domestic and multinational samples.

Moments and Parameters

Panel A: Moments

	b_1		b_2		b_3		χ_K		$\chi_\tau \chi_F$	
	Data	Model	Data	Model	Data	Model	Data	Model	Data	Model
Group:										
Domestic	1.76	2.07			−2.39	−2.07				
Multinat. high	2.49	2.39	0.68	0.67	−2.33	−2.43	0.58	0.59	0.41	0.41
Multinat. low	1.02	1.58	0.17	0.01	−1.87	−1.58	0.04	0.04	0.04	0.03

Panel B: Parameters chosen to match moments

	χ_K	α	σ	a
Group:				
Domestic		0.52		
Multinat. high	0.48	0.67	0.95	0.817
Multinat. low	0.03	0.37	0.62	0.999

Other Parameters

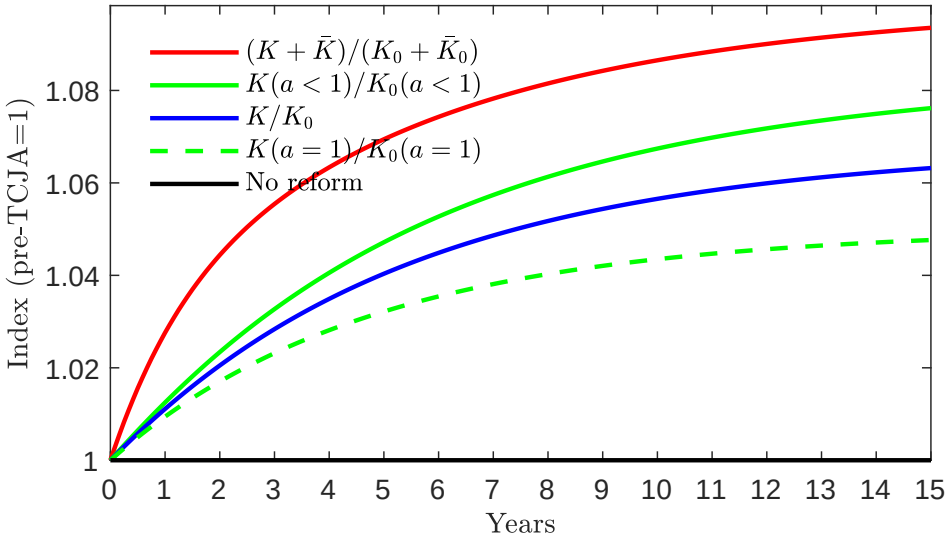
Symbol	Name	Value
ρ	Discount rate	0.06
δ	Depreciation rate	0.1
α_L	Labor share of revenue	0.65
ϕ	Adjustment cost	1.5

Model Quantification

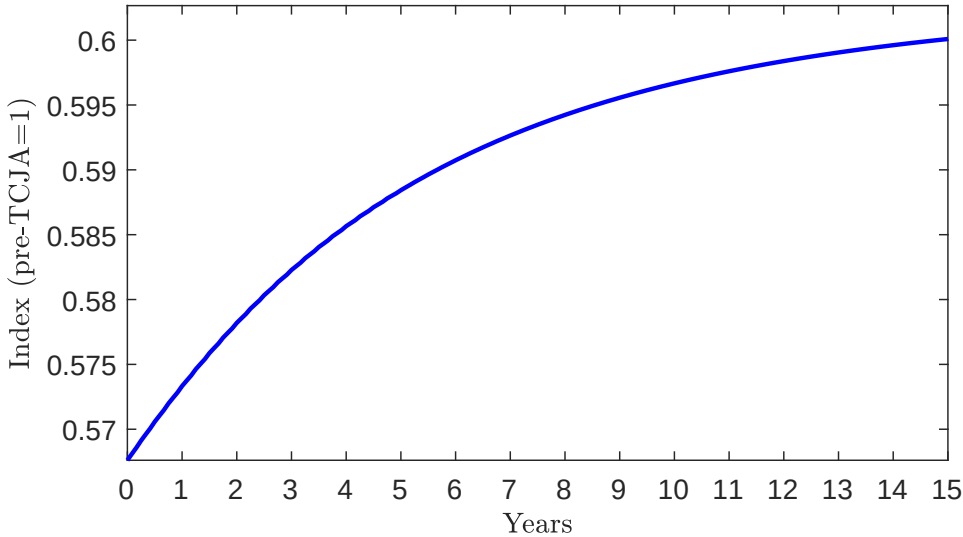
Procedure

- Solve numerically for paths of variables with/without TCJA.
- Separately by "portfolios" of $\hat{\Gamma}, \hat{\tau}, \hat{\hat{\Gamma}}, \hat{\hat{\tau}}$ by domestic/multinat. high/low. ▸ portfolios
- Aggregate using pre-TCJA capital shares in each portfolio.
- Domestic wage clears labor market with balanced growth labor supply.
- Investment goods price, real interest rate, foreign wage fixed (SOE).

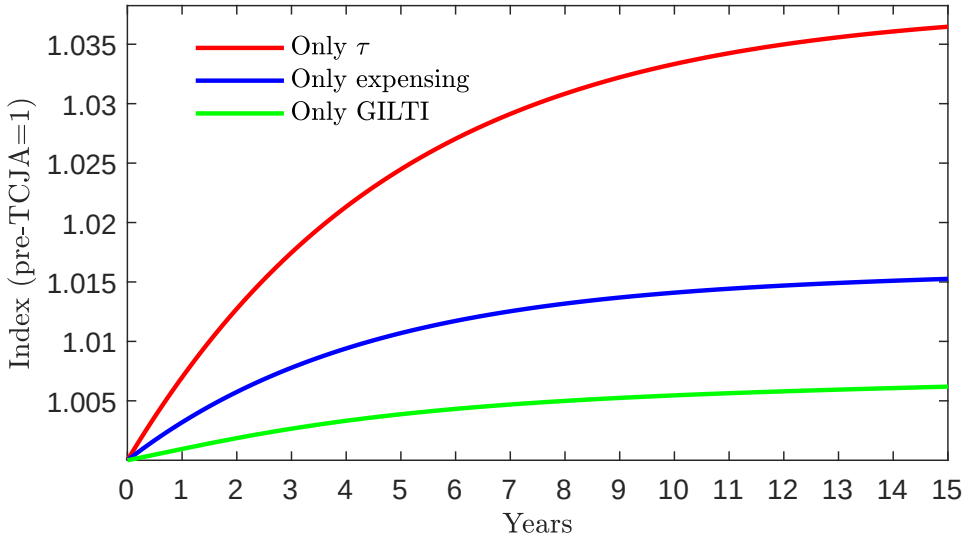
TCJA and Model-Implied Capital



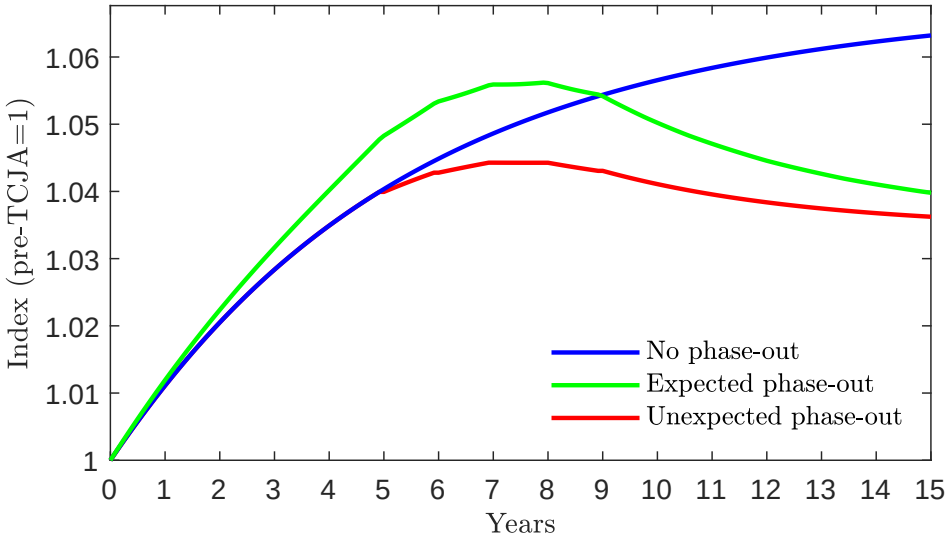
TCJA and Model-Implied Corporate Taxes



Domestic Capital by Provision



Capital With Phase-out of Bonus ▸ more



Appendix slides

Linearization details

▸ Back

Γ elast.:
$$\omega_{k,r} \equiv \frac{1-\left(\left(1-s_1\right)-s_{\bar{F}_1}\left(1-s_1-\bar{s}_1\right)\right)\tilde{\alpha}}{1-\left(1-s_{F_1}-s_{\bar{F}_1}\right)\left(1-s_1-\bar{s}_1\right)\tilde{\alpha}},$$

τ elast.:
$$\omega_{k,\tau} \equiv \frac{s_{F_1}+\left(1-s_{F_1}-s_{\bar{F}_1}\right)\bar{s}_1\tilde{\alpha}}{1-\left(1-s_{F_1}-s_{\bar{F}_1}\right)\left(1-s_1-\bar{s}_1\right)\tilde{\alpha}},$$

where:
$$\tilde{\alpha} = \sigma\left(\alpha+1/\sigma-1\right) \subseteq (-\infty, 1],$$

Prod. fxn share:
$$s_1 \equiv \frac{a\left(K^*\right)^{\frac{\sigma-1}{\sigma}}}{a\left(K^*\right)^{\frac{\sigma-1}{\sigma}}+(1-a)\left(\bar{K}^*\right)^{\frac{\sigma-1}{\sigma}}} = \frac{a}{a+(1-a)\,\chi_K^{\frac{\sigma-1}{\sigma}}} \subseteq [0,1],$$

Prod. fxn share:
$$\bar{s}_1 \equiv \frac{a\left(\bar{K}^*\right)^{\frac{\sigma-1}{\sigma}}}{a\left(\bar{K}^*\right)^{\frac{\sigma-1}{\sigma}}+(1-a)\left(K^*\right)^{\frac{\sigma-1}{\sigma}}} = \frac{a\chi_K^{\frac{\sigma-1}{\sigma}}}{a\chi_K^{\frac{\sigma-1}{\sigma}}+(1-a)} \subseteq [0,1],$$

FOC share:
$$s_{F_1} \equiv \frac{\left(1-\tau^*\right)F_1^*}{R^*} = \frac{a\left((1-a)\,\chi_R - a\chi_K^{-\frac{1}{\sigma}}\right)}{(1-2a)\,\chi_K^{-\frac{1}{\sigma}}}, \subseteq [0,1],$$

FOC share:
$$s_{\bar{F}_1} \equiv \frac{\left(1-\bar{\tau}^*\right)\bar{F}_1^*}{\bar{R}^*} = 1-\frac{(1-a)\left((1-a)\,\chi_R - a\chi_K^{-\frac{1}{\sigma}}\right)}{(1-2a)\,\chi_R} \subseteq [0,1].$$

Dynamic Accumulation of Intangible Capital

back

- Augment domestic and foreign revenue functions by same factor $\mathcal{H}$:

$$Q_t = \left(A_t \mathcal{H}_t^{\alpha_\mathcal{H}} K_t^{\alpha_K} L_t^{\alpha_L} M_t^{\alpha_M}\right)^{\mathcal{M}}, \quad \bar{Q}_t = \left(\bar{A}_t \mathcal{H}_t^{\alpha_\mathcal{H}} \bar{K}_t^{\alpha_K} \bar{L}_t^{\alpha_L} \bar{M}_t^{\alpha_M}\right)^{\mathcal{M}}.$$

- R&D occurs domestically and obeys $\dot{\mathcal{H}}_t = I_{\mathcal{H},t} - \delta^{\mathcal{H}} \mathcal{H}_t$.
- New steady-state user cost condition:

$$R_\mathcal{H}^* = \frac{\alpha_\mathcal{H} \alpha}{\alpha_K} \left[(1-\tau) F\left(K^*, \bar{K}^*, \mathcal{H}^*; Z^*\right) + (1-\bar{\tau}) \bar{F}\left(\bar{K}^*, K^*, \mathcal{H}^*; \bar{Z}^*\right)\right] \left(\mathcal{H}^*\right)^{-1}.$$

- Equation for k augmented by $\zeta_\mathcal{H} r_\mathcal{H} + \omega_{k,r} \downarrow$.
- Example with no direct complementarity ($a = \bar{a} = 1$):

$$\omega_{k,r}\left(a = \bar{a} = 1\right) = \frac{1 - \zeta_\mathcal{H} \sigma s_{\bar{R}\bar{K}} - \tilde{\alpha}}{1 - \tilde{\alpha}} = \frac{1 - \alpha - \zeta_\mathcal{H} s_{\bar{R}\bar{K}}}{1 - \alpha} < 1.$$

Intangible Location Choice

back

- Assume fixed stock of non-rival intangible capital $H_t + \bar{H}_t$ and transfer price p_t^H.
- Firm chooses $\Delta_{H,t} = \bar{H}_t - H_t$ and each branch receives net royalties.
- Cost of transfer pricing $\Psi^H\left(\Delta_{H,t}, K_t, \bar{K}_t\right)$.
- Total cash flows augmented by $\left(\tau_t - \bar{\tau}_t\right) p_t^H \Delta_{H,t} - \Psi^H\left(\Delta_{H,t}, K_t, \bar{K}_t\right)$.
- New necessary conditions:

$$K_t: \quad \dot{\lambda}_t = \left(\rho + \delta\right)\lambda_t - \left(1 - \tau_t\right)\left(F_1 - \Phi_2\right) - \left(1 - \bar{\tau}_t\right)\bar{F}_2 + \Psi_2^H\left(\Delta_{H,t}, K_t, \bar{K}_t\right),$$

$$\bar{K}_t: \quad \dot{\bar{\lambda}}_t = \left(\rho + \delta\right)\bar{\lambda}_t - \left(1 - \bar{\tau}_t\right)\left(\bar{F}_1 - \bar{\Phi}_2\right) - \left(1 - \tau_t\right)F_2 + \Psi_3^H\left(\Delta_{H,t}, K_t, \bar{K}_t\right),$$

$$\Delta_{H,t}: \quad \Psi_1^H = \left(\tau_t - \bar{\tau}_t\right) p_t^H.$$

- Steady state user cost $R^* = \left(\rho + \delta\right)\left(1 - \Gamma^*\right) P^K + \Psi_2^H\left(\Delta_{H,t}, K_t, \bar{K}_t\right)$.
- Parameterize: $\Psi^H\left(\Delta_{H,t}, K_t, \bar{K}_t\right) = \left(\psi_1^H/2\right)\left(\Delta_{H,t} - \psi_2^H\left(\bar{K}_t - K_t\right)\right)^2$. Impact on capital:

$$k = \left(1 - \alpha\right)^{-1}\Big(\omega_{k,r}\left(1 - s_H\right)\hat{\Gamma} + \left(1 - \omega_{k,r}\right)\left(1 + \bar{s}_H\right)\hat{\bar{\Gamma}} - \omega_{k,\tau}\hat{\tau} - \left(1 - \omega_{k,\tau}\right)\hat{\bar{\tau}}$$

$$+ \left(\left(1 - \omega_{k,r}\right)\bar{s}_H - \omega_{k,r}s_H\right)\frac{d\left(\tau - \bar{\tau}\right)}{\tau - \bar{\tau}} + \epsilon\Big).$$

Interest Deduction

back

- Firm with debt B_t deducts $i_t B_t$ from earnings and pays leverage cost $\Psi^B(B_t, K_t)$.
- New steady-state user cost condition: $R^* = (\rho + \delta)(1 - \Gamma^*) P^K - \Psi_2^B(B_t, K_t)$.
- Equation for k in terms of $\omega_{k,r}$ and r unchanged.
- Assume functional form $\Psi^B(B_t, K_t) = \psi^B\left(B_t / \left(P_t^K K_t\right)\right)^{1+\theta} P_t^K K_t / (1+\theta) \Rightarrow$ $R^* = (\rho + \delta)(1 - \Gamma^*) P^K - \frac{\theta\left(\psi^B\right)^{-1/\theta} P^K}{1+\theta} \left(\tau^* i^*\right)^{1+1/\theta}$.
- Impact on k:

$$k = \frac{\omega_{k,r}(1 - s_B)\hat{\Gamma} + (1 - \omega_{k,r})\hat{\bar{\Gamma}} - \left(\omega_{k,\tau} - s_B\left(\frac{1+\theta}{\theta}\right)\left(\frac{\tau}{1-\tau}\right)\right)\hat{\tau} - (1 - \omega_{k,\tau})\hat{\bar{\tau}} + \epsilon}{1 - \alpha}.$$

FDII and GILTI

▸ Back

- After-tax domestic profits with FDII: $F\left(K_t, \bar{K}_t, Z_t\right) - \Phi\left(I_t, K_t\right)$

$$- \tau_t^s \left(F\left(K_t, \bar{K}_t, Z_t\right) - \Phi\left(I_t, K_t\right) - \underbrace{\theta_t^{\text{FDII-D}} \xi \left(F\left(K_t, \bar{K}_t, Z_t\right) - \Phi\left(I_t, K_t\right) - \theta_t^{\text{FDII-T}} K_t \right)}_{\text{FDII deduction}} \right)$$

$$= \left(1 - \tau_t\right) \left(F\left(K_t, \bar{K}_t, Z_t\right) - \Phi\left(I_t, K_t\right) \right) - \tau_t^s \, \xi \theta_t^{\text{FDII-D}} \theta_t^{\text{FDII-T}} K_t, \text{ where: } \tau_t = \tau_t^s \left(1 - \theta_t^{\text{FDII-D}} \xi\right).$$

- After-tax foreign profits with GILTI: $\overbrace{\left(1 - \bar{\tau}_t^s\right) \left(\bar{F}\left(\bar{K}_t, K_t, \bar{Z}_t\right) - \Phi\left(\bar{I}_t, \bar{K}_t\right) \right)}^{\text{Profits net of foreign taxes}}$

$$\underbrace{- \tau_t^s \left(1 - \theta_t^{\text{GILTI-D}}\right) \left(\bar{F}\left(\bar{K}_t, K_t, \bar{Z}_t\right) - \Phi\left(\bar{I}_t, \bar{K}_t\right) - \theta_t^{\text{GILTI-T}} \bar{K}_t \right)}_{\text{GILTI tax}} + \underbrace{\theta_t^{\text{GILTI-C}} \, \bar{\tau}_t^s \left(\bar{F}\left(\bar{K}_t, K_t, \bar{Z}_t\right) - \Phi\left(\bar{I}_t, \bar{K}_t\right) \right)}_{\text{Foreign tax credit}}$$

$$= \left(1 - \bar{\tau}_t\right) \left(\bar{F}\left(\bar{K}_t, K_t, \bar{Z}_t\right) - \Phi\left(\bar{I}_t, \bar{K}_t\right) \right) + \tau_t^s \left(1 - \theta_t^{\text{GILTI-D}}\right) \theta_t^{\text{GILTI-T}} \bar{K}_t,$$

where: $\bar{\tau}_t \equiv \bar{\tau}_t^s \left(1 - \theta_t^{\text{GILTI-C}}\right) + \tau_t^s \left(1 - \theta_t^{\text{GILTI-D}}\right).$

- FOC hold with $\Gamma_t \equiv \Gamma_t^s - \frac{\tau_t^s \, \xi \theta_t^{\text{FDII-D}} \theta_t^{\text{FDII-T}}}{(\rho+\delta) P_t^K}$, $\bar{\Gamma}_t \equiv \bar{\Gamma}_t^s + \frac{\tau_t^s \left(1 - \theta_t^{\text{GILTI-D}}\right) \theta^{\text{GILTI-T}}}{(\rho+\delta) P_t^K}$.

Summary Statistics

Back

Panel A

	All Firms					Domestic Firms				
	Mean	Std. Dev.	Median	P10	P90	Mean	Std. Dev.	Median	P10	P90
Pre-TCJA Γ	0.22	0.08	0.24	0.10	0.32	0.23	0.08	0.24	0.10	0.33
Pre-TCJA $\bar{\Gamma}$	0.18	0.00	0.18	0.18	0.18					
Pre-TCJA τ	0.27	0.09	0.32	0.12	0.35	0.28	0.09	0.32	0.13	0.35
Pre-TCJA $\bar{\tau}$	0.06	0.13	0.00	0.00	0.29					
d log(Investment)	-0.04	0.99	0.04	-1.43	1.28	-0.05	1.03	0.02	-1.53	1.36
Relative Profit	0.08	0.27	0.00	0.00	0.18					
log(Lagged Capital)	365.1	2922.2	14.8	2.0	332.5	208.2	1939.0	10.1	1.8	139.0
Pre-TCJA χ_K	0.09	0.29	0.00	0.00	0.25					
Eq. 15: $\hat{\Gamma}$	-0.10	0.05	-0.11	-0.17	-0.03	-0.10	0.05	-0.11	-0.17	-0.03
Eq. 15: $\hat{\bar{\Gamma}}$	0.02	0.05	0.00	0.00	0.14					
Eq. 15: $\hat{\tau}$	-0.14	0.07	-0.16	-0.21	-0.04	-0.14	0.06	-0.17	-0.20	-0.05
Eq. 15: $\hat{\bar{\tau}}$	0.10	0.05	0.13	0.00	0.13					
Export Share	0.06	0.19	0.00	0.00	0.24					

Summary Statistics

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Panel B

	Multinational-High					Multinational-Low				
	Mean	Std. Dev.	Median	P10	P90	Mean	Std. Dev.	Median	P10	P90
Pre-TCJA Γ	0.21	0.09	0.23	0.08	0.31	0.22	0.09	0.24	0.09	0.32
Pre-TCJA $\bar{\Gamma}$	0.18	0.00	0.18	0.18	0.18	0.18	0.00	0.18	0.18	0.18
Pre-TCJA τ	0.25	0.10	0.28	0.10	0.35	0.26	0.10	0.30	0.10	0.35
Pre-TCJA $\bar{\tau}$	0.23	0.15	0.23	0.02	0.42	0.21	0.17	0.22	0.00	0.43
d log(Investment)	0.02	0.84	0.08	-1.04	1.08	-0.01	0.89	0.10	-1.20	1.11
Relative Profit	0.46	0.52	0.21	0.00	1.36	0.12	0.26	0.02	0.00	0.32
log(Lagged Capital)	633.7	2958.8	70.6	4.2	1132.1	965.8	5735.0	48.0	4.6	1213.7
Pre-TCJA χ_K	0.52	0.57	0.32	0.00	1.66	0.08	0.17	0.03	0.00	0.20
Eq. 15: $\hat{\Gamma}$	-0.10	0.06	-0.10	-0.17	-0.02	-0.10	0.05	-0.11	-0.17	-0.03
Eq. 15: $\hat{\bar{\Gamma}}$	0.08	0.07	0.14	0.00	0.14	0.06	0.07	0.00	0.00	0.14
Eq. 15: $\hat{\tau}$	-0.14	0.08	-0.15	-0.24	-0.03	-0.14	0.07	-0.15	-0.22	-0.04
Eq. 15: $\hat{\bar{\tau}}$	0.02	0.04	0.00	0.00	0.12	0.04	0.05	0.00	0.00	0.13
Export Share	0.23	0.33	0.00	0.00	0.91	0.12	0.23	0.00	0.00	0.50

Export Share Details

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- FDII deduction $= 0.375 \times \left(F\left(K_t, \bar{K}_t; Z_t\right) - 0.1 \times K_t\right)$.
- Observe FDII deduction on 1120 Schedule C.
- Divide by $0.375\times$ taxable income (1120 line 30) less $0.1\times$ capital (1120 schedule L line 10a less 10b).

Portfolios of Firms by Tax Shock

back

	Share	K_0/ firm	$100 \times \Gamma$		$100 \times \bar{\Gamma}$		$100 \times \tau$		$100 \times \bar{\tau}$		N
			Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Group:											
Domestic 1	17.5	126	14.2	9.4			17.2	10.2			3018
Domestic 2	2.0	69	22.2	15.0			34.2	21.8			620
Domestic 3	1.8	65	23.3	13.9			26.3	14.7			619
Domestic 4	11.0	79	29.4	19.3			34.4	21.4			3019
Multinat. high 1	3.1	314	9.1	8.8	17.7	17.8	12.1	11.3	27.2	28.4	217
Multinat. high 2	5.1	347	14.0	10.5	17.7	26.2	16.6	11.2	24.6	25.4	319
Multinat. high 3	8.4	443	27.8	16.3	17.7	29.2	33.4	18.2	18.5	19.4	414
Multinat. high 4	1.0	173	28.3	18.6	17.7	19.0	34.0	21.5	25.0	25.8	122
Multinat. low 1	4.4	315	16.9	12.3	17.7	17.9	20.3	14.0	24.0	26.2	301
Multinat. low 2	4.7	305	16.9	11.9	17.7	27.5	19.6	12.4	22.1	23.5	337
Multinat. low 3	8.0	403	29.6	19.1	17.7	28.2	34.0	20.7	21.6	23.1	430
Multinat. low 4	4.0	421	29.7	19.3	17.7	17.9	34.1	21.4	23.7	25.3	207
Non C-corp.	29.0	103	23.0	23.0			28.0	28.0			

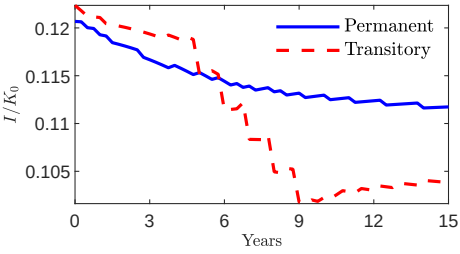
Phase-out of Expensing

- If agents expected phase-out, our results over-state investment elasticity.
    - Inter-temporal substitution dominates and increases investment today.
- If bonus provisions phase-out, long-run capital response commensurately lower.

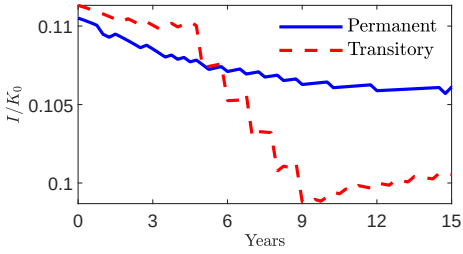
Investment Paths Under Alternative Phase-out Expectations

Back

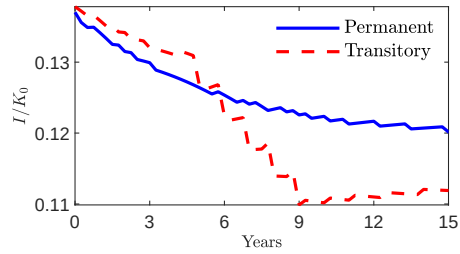
A: Group 1



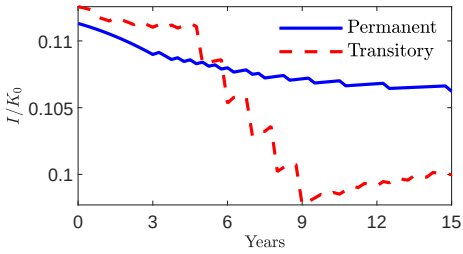
B: Group 2



C: Group 3



D: Group 4



Stylized facts

Motivating Facts and Long-Run Trends

Goal: Trace evolution of real activity for U.S. MNCs here vs. abroad

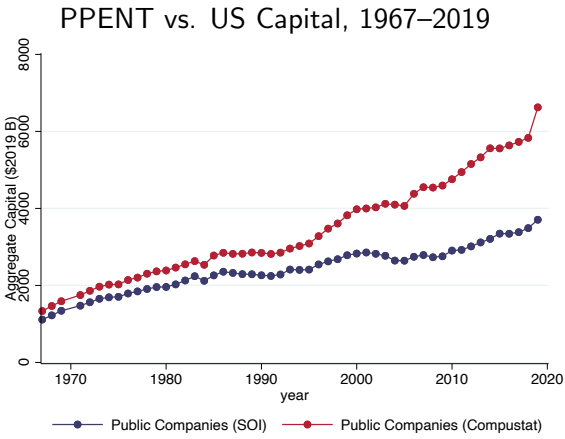
Approach: Merge Compustat–SOI sample and compare analogous concepts

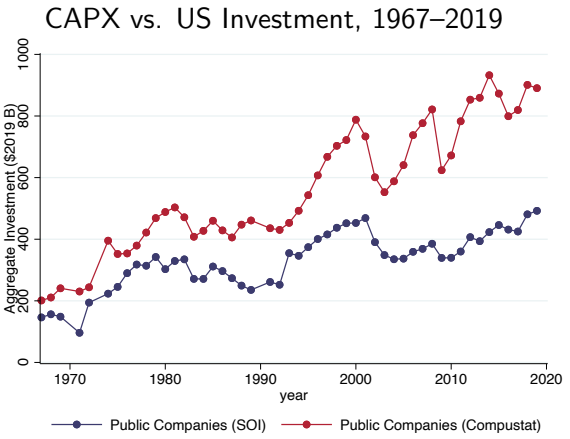
- Note: Balance sheet book-tax accounting more aligned than for income

In Progress:

1. Tracing M&A and reorganizations
2. Harmonizing variables across datasets and time
3. Adding variables

Fact 1: Investment is Increasingly Global





Notes: (1) PPENT is Net Property, Plants, and Equipment; (2) Pre-1993 SOI investment only includes ITC-eligible basis, understating the divergence in the figure

Fact 1: Investment is Increasingly Global

