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# C and S Corporation Banks: Did Trump's Tax Reform Lead to Differential Effects?

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# C and S Corporation Banks: Did Trump's Tax Reform Lead to Differential Effects?

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## Abstract

The US Tax Cuts and Jobs Act (TCJA) led to a drastic reduction in the corporate tax and improved the treatment of C corporations compared to S corporations. We study the differential effect of the TCJA on these types of corporations using key economic variables of US banks, such as the number of employees, average salaries and benefits, profit/loss before taxes, and net income. Our analysis suggests that the TCJA increased the net-of-tax profits of C corporation banks compared to S corporations and, to a lesser extent, their pre-tax profits. At the same time, the reform triggered no significantly differential effect on the employment and average wages.

JEL: H2, G2

Keywords: Tax Cuts and Jobs Act, corporate taxation, S corporations, C corporations, banks

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# 1 Introduction

On 22 December 2017, US-president Donald Trump signed Public Law 115-97, better known as “Tax Cuts and Jobs Act” (TCJA). Being the biggest tax overhaul in the US since the Tax Reform Act of 1986 (Auerbach, 2018; Gale, 2019), this reform sparked intense discussions among the public, policy makers and academics alike. Aiming at enhancing economic growth, the law introduced significant changes and tax cuts.

While most developed countries had reduced their statutory corporate tax rates since the 1990s, the US had a rather stable tax rate since 1986. Over this period, the US has made the transition from a low-tax-rate country to a high-tax-rate country without undertaking any significant policy changes. The US stands alone among the G-7 countries in not reducing its federal corporate tax rate, which actually rose from 34 percent to 35 percent in 1993 (Auerbach, 2018).<sup>1</sup> The TCJA implemented a 14-percentage point corporate tax rate cut. It also introduced a 20% pass-through deduction on qualified business income (QBI). However, the deduction is subject to a long list of limitations including income thresholds, wages and capital thresholds as well as limitations on eligible industries.

The corporate tax cut and the potential 20% deduction for pass-through entities have drastically changed the tax environment of C and S corporations. When incorporating at the state level, US corporations choose to adopt either a “C” or “S” status for federal tax purposes (Yagan, 2015). C and S corporations have the same legal form. The difference between the two corporate forms lies in how they are taxed: whereas C corporations are subject to the corporate tax, S corporations are treated as pass-through entities for the purpose of taxation (Yagan, 2015).<sup>2</sup> Consequently, for S corporations, the tax is on shareholders and not the corporation.

There are three prominent studies assessing the benefits and costs of Subchapter S election for banks. Mehran and Suher (2009) find that due to the tax-free treatment of S corporation dividends, S corporation banks pay more dividends. However, they also find that S-banks have lower Tier 1 capital ratios than C corporation banks, possibly reflecting their lower ability to access external financing. Mayberry et al. (2015) argue that the restrictions which have to be met in order to be eligible for S corporation formation reduces risk-taking. This may make S

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<sup>1</sup> The comparison of statutory tax rates ignores important differences among international tax systems. The effective US tax rate is reduced by various provisions that narrow the corporate tax base and lower the actual tax payments (Auerbach, 2018).

<sup>2</sup> Although S corporation status is subject to a number of restrictions, such as the number and type of shareholders (Yagan, 2015), S corporations are economically relevant; they contributed 44% of filed business tax returns in 2016 (Donohoe, Lisowsky and Mayberry, 2019).

corporations a less valuable investment for diversified investors. Finally, Hodder, McAnally and Weaver (2003) show that there are countervailing rationales for choosing tax status. Whilst many C corporation banks become S corporations due to tax benefits, other C corporation banks do not convert due to potential built-in capital gains taxes, write-offs of deferred tax assets, asset growth and other tax and nontax-related factors (Donohoe, Lisowsky and Mayberry, 2019).

Beginning January 1, 2018 the TCJA changed the tax treatments of C and S corporations. This reform significantly reduced the corporate tax rate applicable to C corporations. Moreover, the TCJA introduced a potential 20% deduction for qualified business income of S corporations. While initially, the complex rules and restrictions for the 20% deduction for S corporations made it somewhat unclear whether S corporation banks were meant to benefit from the deduction, even with this deduction the effective tax cut was more pronounced for C corporation banks. At the same time, it is an empirical question whether the TCJA indeed has given a different boost to the real activities of C and S corporations.

This paper addresses the impact of the TCJA on C and S corporations by using US Call Report data collected by the Federal Reserve Bank of Chicago which covers active C and S corporation banks in the US between 2010 and 2019. It contains information on the number of employees, wages, pre-tax profit and losses, net income, total assets, and corporation status on a firm-year level. Our main dataset is a sample of 41,492 observations from 4,708 incorporated banks, 72 percent of which are C corporation banks.

Two papers empirically analyse to which extent the 2018 reform has reduced the effective tax rates of corporations. Dyreng et al. (2020) document that domestic firms, on average, benefitted more than international firms. Wagner, Zeckhauser and Ziegler (2020) argue that the stock market found it hard to correctly price the quite heterogeneous tax reductions of firms.<sup>3</sup>

Our study contributes to the literature by analysing the differential effect of the TCJA on C corporation banks compared to S corporation banks. To the best of our knowledge, we are the first to isolate the differential effect of the TCJA on the number of employees, wages, profit/losses before taxes, total assets, and net income of C and S corporations in the US.

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<sup>3</sup> The TCJA has been the subject of several previous studies. Clausing (2020) estimates the effects of the new GILTI tax on the profits in tax haven countries. Henry and Sansing (2020) examine the TCJA's effect on corporate tax preferences and how these vary with firm characteristics. Dowd et al. (2020) analyze intertemporal responses to the TCJA. Finally, Altig et al. (2020) estimate the differential effect of the deductibility of state and local taxes on red- and blue-state voters. Red-state voters seem to gain more.

We conclude from our empirical analysis that the TCJA did not lead to a significant differential development of employment and wages of C and S corporation banks. We find a significant and robust effect on the relative net-of-tax profits and, to a lesser extent, on pre-tax profit. There is some evidence that, relative to S corporations, the total assets of C corporation banks have increased, although this result is debateable given a strong difference in pre-trends of total assets. Our finding that the large tax cuts for C corporations did not trickle down to more employment or salaries and benefits in C corporations compared to S corporations is robust across a wide set of tests and specifications. Our findings seem complimentary to macroeconomic observations suggesting that the TCJA, at best, provided a very limited boost to the economy (Gale and Haldeman, 2021).

The remainder of this paper is structured as follows. Section 2 compares C and S corporations with a focus on banks. Section 3 reviews the different provisions introduced by Trump's Tax Cuts and Jobs Act. Section 4 introduces the data, and Section 5 explains the estimation method. Empirical results are presented in Section 6 and robustness checks in Section 7. Finally, Section 8 concludes.

## 2 C vs. S corporations

To form a corporation, incorporation documents have to be filed at the state level. By default, corporations are treated as C corporations for tax purposes, named after Subchapter C of the U.S. Internal Revenue Code (Erickson and Wang, 2007). C corporations pay corporate income tax on their annual taxable income and their US shareholders pay dividend taxes on dividends and capital gains taxes on qualified share repurchases. This effectively leads to economic double taxation. Subject to restrictions, a corporation may also elect to be taxed as a S corporation.<sup>4</sup> These corporations are treated as pass-through entities for tax purposes. While they have the same legal structure as C corporations, they do not pay entity-level taxes (Yagan, 2015; Donohoe, Lisowsky and Mayberry, 2019). Their taxable business income “passes through” pro rata to individual shareholders' tax returns and is then taxed as ordinary income in the year earned, irrespective of whether the income is actually distributed to shareholders in this year or not. Taxable dividend income or capital gains (e.g., on passively held securities)

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<sup>4</sup> S corporations, introduced in 1958, are named after their subchapter of the Internal Revenue Code (Yagan, 2015; Donohoe, Lisowsky and Mayberry, 2019).

received by an S corporation are taxed as dividend income or capital gains at the shareholder level (Erickson and Wang, 2007).<sup>5</sup>

To be eligible for S corporation status, corporations must fulfil a number of criteria. They have to be US corporations, have only individual and certain trust/estate shareholders (i.e., no partnerships, corporations, or non-resident aliens), have no more than 100 (U.S. citizen or resident) shareholders, have only one class of stock and may not otherwise be ineligible (Donohoe, Lisowsky and Mayberry, 2019).<sup>6</sup> Firms meeting these criteria can elect to become S corporations by filing IRS Form 2553, signed by all shareholders.

These restrictions limit the ability of S corporations to become publicly held. In addition, because S corporation shareholders are also taxed on their rateable share of income, irrespective of whether it is distributed or not, they offer fewer opportunities for tax deferral to shareholders than C corporations. Switching between C and S corporation status is, in general, possible. However, it is subject to a 5-year waiting period, unless there are relevant reasons to terminate the status prior to the end of this period.

On average, S corporations are smaller than C corporations.<sup>7</sup> C corporations tend to be more asset-intensive and less profitable than S corporations after controlling for revenue and industry. Even if the corporation types differ in the level of outcomes, they often share common industry-specific trends (Yagan, 2015).

Historically, banks were ineligible for subchapter S, but the Small Business Job Protection Act of 1996 allowed banks to elect S status from 1997 onwards, provided that S corporation requirements are met. S corporation banks face the same regulatory restrictions as C corporation banks; however, they face unique issues (Donohoe, Lisowsky and Mayberry, 2019). C corporation banks must write off deferred tax assets when they convert to S corporation banks. This write off can reduce their Tier 1 capital and consequently may lead to regulatory intervention (Hodder, McAnally and Weaver, 2003; Donohoe, Lisowsky and Mayberry, 2019). Nevertheless, S corporations are a popular organizational form for 33% of

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<sup>5</sup> Tax treatments of C and S corporations differ in other, smaller ways. For example, C corporations can deduct charitable deductions up to only 10 percent of taxable income, whereas S corporations face limits at the individual shareholder level (Yagan, 2015). These differences, however, do not play a role in our analyses.

<sup>6</sup> Reversely, this implies that publicly traded corporations, corporations financed with venture capital, corporations partially or wholly owned by private equity or other firms, corporations that widely use stock-based compensation or corporations that use stock classes to divide ownership from control cannot elect to become a S corporation (Yagan, 2015).

<sup>7</sup> However, there are some very large corporations, such as Fidelity Investments (Yagan, 2015). Once the requirements for S-corporation election are met (e.g. no more than 100 shareholders), no limit applies to the size of a S corporation (e.g. total assets) (Erickson and Wang, 2007).

US incorporated banks and have received considerable academic interest in the past (Mehran and Suher, 2009; Mayberry, Weaver and Wilde, 2015; Donohoe, Lisowsky and Mayberry, 2019).<sup>8</sup>

### 3 Review of the Tax Cuts and Jobs Act 2017

The TCJA, signed in December 2017 and effective January 1, 2018, lowered the corporate tax rate applicable to C corporations from 35% to 21%. Adding average state tax rates, this reduced the combined statutory corporate income tax rate from 38.9% to 25.7%, placing the US nearer to the OECD average (York, 2018).<sup>9</sup> Pass-through entities, such as S corporations, do not benefit from this rate reduction. As a partial compensation, the TCJA introduced a 20% deduction on qualified business income (QBI) of pass-through entities in Section 199A of the Internal Revenue Code. Here, QBI is defined as the net amount of qualified income, gain, deduction, and loss from a qualified trade or business.

Evaluated at the top marginal income tax rate (37% post reform, 39.6% pre-reform), a 20% deduction reduces the effective federal top marginal rate to 29.6%. This amounts to a considerable 10-percentage point reduction, but falls short of the 14-percentage point reduction of the federal corporate income tax.

The Section 199A deduction is subject to several limitations and it is fair to say that initially there was considerable uncertainty as to which extent income from S corporation banks would qualify. Different implications arose from the initially proposed regulations and the final regulations. The remainder of this section gives a short account of these differences.

If an owner of an S corporation is below the threshold for overall taxable income (\$157,500 for single filers and \$315,000 for married filing jointly), the owner receives the full 20% deduction on the pass-through income (Ernst & Young, 2019). The only restrictions are that the income must be considered bona fide “trade or business income” and that it is not an attempt to mischaracterize wages (US Chamber of Commerce, 2020; Mercado, 2018).

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<sup>8</sup> Mehran and Suher (2009) find that the corporate tax exemption leads S corporation banks to pay more dividends. They also find that S corporation banks have lower Tier 1 capital ratios than C corporation banks, possibly reflecting also their lower ability to access external financing. Mayberry et al. (2015) argue that the restrictions that must be met in order to be eligible for S corporation formation reduces risk-taking. This might make them a less valuable investment for diversified investors.

<sup>9</sup> Previously, the US had the highest combined statutory corporate income tax rate among OECD countries, at 38.9% (York, 2018). The effective average tax rate (EATR) for C corporations was lowered from 36.5% to 22.7%, according to Heinemann et al. (2017).



If the owner is above the taxable income threshold, she must determine whether income is from a qualified trade or business. Generally, a business is a *qualified* trade or business if it is not a *specified* service trade or business (SSTB). The statute defines an SSTB to include “any trade or business involving the performance of services in the fields of health, law, accounting, actuarial science, performing arts, consulting, athletics, financial services, or brokerage services or any trade or business where the principal asset of such trade or business is the reputation or skill of 1 or more of its employees.” In addition, an SSTB includes any trade or business involving “the performance of services that consist of investing and investment management, trading, or dealing in securities (as defined in section 475(c)(2))” (US Chamber of Commerce, 2020; CNBC, 2020).

If the S corporation is not a qualified trade or business, the owner’s deduction is reduced gradually as income exceeds the threshold, and is entirely eliminated once income reaches \$207,500 for single filers and \$415,000 if married filing jointly (see Table 1).

For S corporations which are not SSTBs, the deduction for QBI is also subject to additional limitations based on the W-2 wages paid and capital owned by an S corporation. In particular, the deduction is limited to the minimum of (1) 20% of QBI and (2) the greater of 50% of the W-2 wages<sup>10</sup> paid (“wage limitation”) and the sum of 25% of the W-2 wages and 2.5% of the unadjusted depreciable tangible property (“capital limitation”). As with the specified services limitation, this limitation is also phased in starting at \$157,500 of taxable income for single filers and \$315,000 of taxable income if married filing jointly (Ernst & Young, 2019). The phase-in is shown in more detail in Table 1 and 2.

<u>Condition</u>	<u>Deductible amount</u>
$y \leq \$207,500$ <i>for single filers</i>	20% of applicable percentage of QBI where applicable percentage
$(\$y \leq \$415,000$ <i>for married filing jointly)</i>	$= 100\% - \frac{y - \$157,500 \text{ for single filers } (\$315,000 \text{ for married filing jointly})}{\$50,000 \text{ for single filers } (\$100,000 \text{ for married filing jointly})}$
$y > \$207,500$ <i>for single filers</i> $(y > \$415,000$ <i>for married filing jointly)</i>	no deduction

Table 1: Phase-in of 20% deduction limitations for S corporations which are SSTBs.

Source: Public Law 115-97 (Dec. 22, 2017).

<sup>10</sup> W-2 wages are wages for which the employer deducts payroll taxes at source.

<b>Condition</b>	<b>Deductible amount</b>
$y < \$157,500$ <i>for single filers</i>	20% of QBI
$(y < \$315,000$ <i>for married filing jointly)</i>	
$\$157,500 < y \leq \$207,500$ <i>for single filers</i>	$20\% \text{ of QBI} - \left\{ \begin{array}{l} y - \$157,500 \text{ for single } (\$315,000 \text{ for married}) \\ \$50,000 \text{ for single filers } (\$100,000 \text{ for married}) \\ * (20\% \text{ of QBI} \\ - \max(50\% \text{ of W2 wages from QBI,} \\ 25\% \text{ of W2 wages from QBI} \\ + 2.5\% \text{ of qualified property})) \end{array} \right\}$
$(\$315,000 < y \leq \$415,000$ <i>for married filing jointly)</i>	
<b>and</b>	
20% of QBI > max (50% of W2 wages from QBI, 25% of W2 wages of QBI + 2.5% of qualified property)	
$y > \$207,500$ <i>for single filers</i>	$\min (20\% \text{ of QBI,}$ $\max(50\% \text{ of W2 wages from QBI,}$ $25\% \text{ of W2 wages from QBI}$ $+ 2.5\% \text{ of qualified property}))$
$(y > \$415,000$ <i>for married filing jointly)</i>	

Table 2: Phase-in of 20% deduction limitations for S corporations which are not SSTBs.

Source: Public Law 115-97 (Dec. 22, 2017).

For the implications of the Section 199A deduction for banks, we must distinguish between the originally proposed regulations implemented on January 1, 2018 and the final regulations implemented January 1, 2019 (applicable for tax years ending after August 16, 2018). The two regulations differ in the extent to which S corporation banking activities are deemed to be SSTBs and thus whether there is a phase out of the 20% deduction on QBI.

The originally proposed regulations, issued in December 2017, would have implied a phase out of the deduction for most S corporation banks. The proposed regulations included a de minimis rule providing that, for a business with gross receipts of greater than \$25 million, if 5% or less of the gross receipts are attributable to the performance of SSTB services, that income is ignored and the entire business is not an SSTB. For businesses with gross receipts of \$25 million or less, the applicable de minimis threshold is 10% of gross receipts (Lewis and Powers, 2019). Following the initial introduction of the TCJA, there was great uncertainty for S corporation banks as to whether the final regulations would allow more S corporation banks to be subject to Section 199A deductions.<sup>11</sup> In contrast, the final regulations exempted a much larger fraction

<sup>11</sup> For example, Brandt and Wimmer (2018), an accounting and business consulting firm, noted that “Up to this point, there has been uncertainty regarding how these definitions and limitations will apply in various scenarios”. The uncertainty with regards to the final regulations mainly stems from uncertainty surrounding whether trading

from the phase out, thereby allowing more S corporation banks to benefit from the 20% deduction on QBI.

According to the proposed regulations, SSTB would have included any business that involves a performance consisting of trading or dealing in securities. This category excludes “a taxpayer that originates loans in the ordinary course of a trade or business of making loans but engages in no more than negligible sales of the loans”, where negligible means less than 60 loans sold during the year or less than 5% of the total principal of loans originated. Most banks fail this “negligible sales exception” and hence are considered non-eligible SSTBs for the purpose of taxation under Section 199A (Brandt and Wimmer, 2018). Hence, for most S corporation banks a phase out of the 20% deduction was expected based on the initial regulations (Lewis and Powers, 2019).<sup>12</sup>

Figure 1 provides an overview of the tax treatment of S corporation banks following the initial introduction of the TCJA. This made most S corporation banks subject to a loss of the 20% deduction (Lewis and Powers, 2019). The terms excluding most S corporation banks from taking the 20% deduction is “trading or dealing in securities” and “investment and investment management”.<sup>13</sup> Figure 2 illustrates the tests of the final regulations.

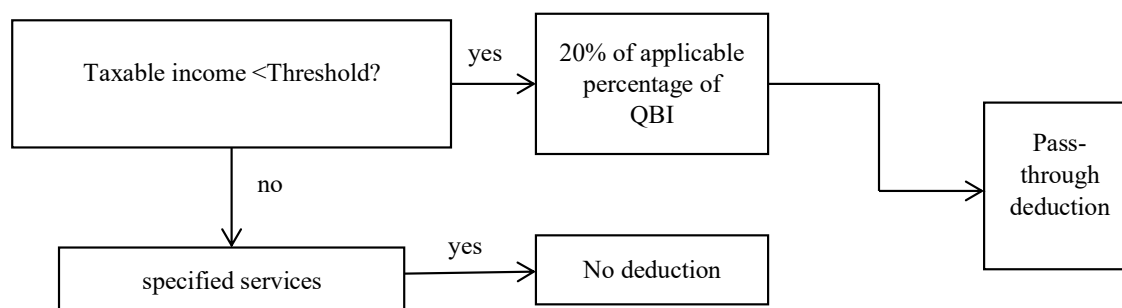


Figure 1: Initial introduction of the TCJA (2018): overview of tax treatment of S corporation banks

Notes: The threshold is \$157,500 for single filers and \$315,000 for married filing jointly. QBI = qualified business income. The phase-in is not shown in the flow chart.

or dealing in securities in the final regulations would be subject to the Section 199A 20% deduction on QBI (Brandt and Wimmer, 2018).

<sup>12</sup> An SSTB is further stated to include any business that involves the performance of services consisting of investing and investment management. This means “a trade or business that earns fees for investment, asset management services, or investment management services including providing advice with respect to buying and selling investment”. Hence, it includes any “trade or business that receives either a commission, a flat fee, or an investment management fee calculated as a percentage of assets under management”. For banks that have significant trust operations, this further increased the likelihood of SSTB status (Brandt and Wimmer, 2018).

<sup>13</sup> In addition, under the original legislation (introduced in December 2017), S corporation banks were also included in the term “financial services”. Hence, under the original legislation, there was a further term excluding S corporation banks from taking the Section 199A deduction (in addition to trading or dealing in securities and investment and investment management).

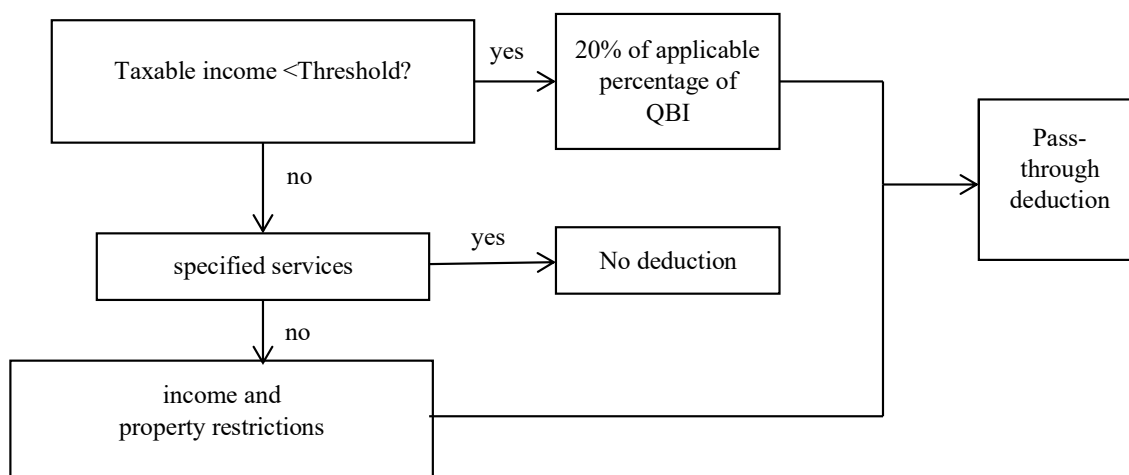


Figure 2: Final provisions of the TCJA (2019): overview of tax treatment of S corporation banks

Notes: The threshold is \$157,500 for single filers and \$315,000 for married filing jointly. QBI = qualified business income. The phase-in is not shown in the flow chart.

In 2019, the final provisions of the TCJA's 20% deduction provision were issued. They clarify that the performance of services to originate a loan is not treated as the purchase of a security from the borrower (ABA Banking Journal, 2019). Thus, most income from originated loan sales qualifies for the deduction. In addition, core banking activities like taking deposits and making loans qualify for the Section 199A deduction. This exempts most S corporation banks from the dealer in securities status. Thus, unless an S corporation bank purchases loans for resale on the secondary market (as opposed to originating loans for resale), its normal lending activities will not result in SSTB treatment (Lewis and Powers, 2019).

The final regulations further allow pass-through entities to carve out the income from an SSTB activity, assuming the activity qualifies as a separate trade or business (based on applicable facts and circumstances). The remaining qualified activities are still eligible for the 20% deduction of Section 199A. Notwithstanding the de minimis rule, however, a financial services organization that has an SSTB (or multiple SSTBs) that is determined to be separate from core banking activities (rather than ancillary to them) should segregate that activity. Failure to do so can potentially result in all of the S corporation's income losing the 20% deduction in a later year (and going forward) if the gross receipts from the SSTB activity in that later year exceed the de minimis threshold (Lewis and Powers, 2019).

However, the IRS declined to issue a qualification for all activities of regulated S corporation banks and also declined to increase the de minimis level for non-qualifying activities. At the

same time, it clarified that non-qualifying activities exceeding a de minimis level only disqualify *net* income from that activity, not all income of the bank. This requires S corporation banks with non-qualified activities, including some wealth management functions, to maintain records and determine the gross and net income from those activities (ABA Banking Journal, 2019).

To sum up, while C corporation banks were subject to a significant corporate tax reduction following the introduction of the TCJA, S corporation banks initially faced considerable uncertainty during fiscal year 2018 as to which extent a 20% deduction was available to their shareholders. This uncertainty resolved with the publication of the final regulations which went into effect in 2019. At the same time, even with the 20% deduction an advantage for C corporations prevailed. Evaluated at the top marginal income tax rate (37% post reform, 39.6% pre-reform), a 20% deduction reduces the effective federal top marginal rate to 29.6%. This amounts to a considerable 10-percentage point reduction, but falls short of the 14-percentage point reduction of the federal corporate income tax.

This triggers the empirical question as to what extent the more generous treatment of C corporations and the possible uncertainty for S corporations led to a differential development of C and S corporation banks.

## 4 Data

We use Call Report data provided by the Federal Deposit Insurance Corporation (FDIC) and collected by the Federal Reserve Bank of Chicago. The call reports collect basic financial data of commercial banks in the form of a balance sheet, an income statement, and supporting schedules. Most importantly for our purposes, it contains information on whether a bank has elected subchapter S during the relevant years.

We focus on active private US commercial banks between 2010 and 2019, enabling us to observe the development of C and S corporation banks before the reform and providing us with two post-reform years to construct a comparative analysis. We do not include the year 2020 in our analysis to exclude any confounding effects coming from the Covid-19 Pandemic. Focussing on commercial banks is consistent with prior research (Hannan and Prager, 2004; Bos, Kolari and van Lamoen, 2013; Granja, 2013; Jin, Kanagaretnam and Lobo, 2013; Liu and Ngo, 2014; Donohoe, Lisowsky and Mayberry, 2019). They are the appropriate unit of analysis for two reasons. First, operations in the banking industry are conducted at the commercial bank level. Hence, studying commercial banks is appropriate because we are interested in the

differential effect between C and S corporation banks. Second, all bank holding companies (BHCs) own commercial banks, but not all commercial banks are owned by BHCs. Therefore, focusing on BHCs would limit our inferences (Donohoe, Lisowsky and Mayberry, 2019). Following Donohoe, Lisowsky and Mayberry (2019), we exclude credit unions because they are non-profit cooperatives, relatively small, and regulated differently than commercial banks. We exclude BHCs from our analysis because they do not normally conduct banking activities. We do, however, include commercial banks that are subsidiaries of BHCs since they are eligible for S corporation status. As our main interest is the possibly differential effect of the TCJA on S and C corporation banks, we exclude banks that have switched corporation status during our time frame (approximately 6% of our sample).<sup>14</sup> Note that including these banks makes no difference to our empirical conclusions. A main issue that may have negatively affected the development of S corporation banks was the initial uncertainty about the availability of the 20% Section 199A deduction. This uncertainty was most pronounced among banks with high shareholder income. With our focus on the possibly asymmetric and adverse effect of the TCJA on S corporation banks, we exclude all S corporation banks with average shareholder income of below \$415,000. We winsorize our sample at 1% and 99% to limit the effect of possibly spurious outliers. Our main sample comprises 41,492 observations from 4,708 incorporated banks, 72 percent of which are C corporation banks.

To empirically analyse the effects of the TCJA on US commercial banks, we focus on the following measures. The number of employees is the total number of employees in a given bank in a given year. Profit/losses before taxes, net income, total assets, and average salaries and benefits are reported in \$1,000.

Figure 3 shows the trend of key economic variables of C and S corporation banks. For some variables, it becomes apparent that, while C corporation banks, on average, are larger than S corporation banks, their time trends were quite similar before TCJA.<sup>15</sup> This holds for the growth of salaries and employee benefits as well as for the number of employees. Visible divergences arise in profit and asset related variables, a fact that will require special attention in the empirical analysis that follows.

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<sup>14</sup> Appendix A.1 shows that over the time period of our study (2010-2019), the yearly percentage of banks switching from C- to S-corporation status remains low. At the same time, switches from S to C-corporation status significantly increased for banks in our sample during 2018 and 2019.

<sup>15</sup> Descriptive statistics of our sample of C and S corporation banks are presented in Table 4 of Appendix A.2.

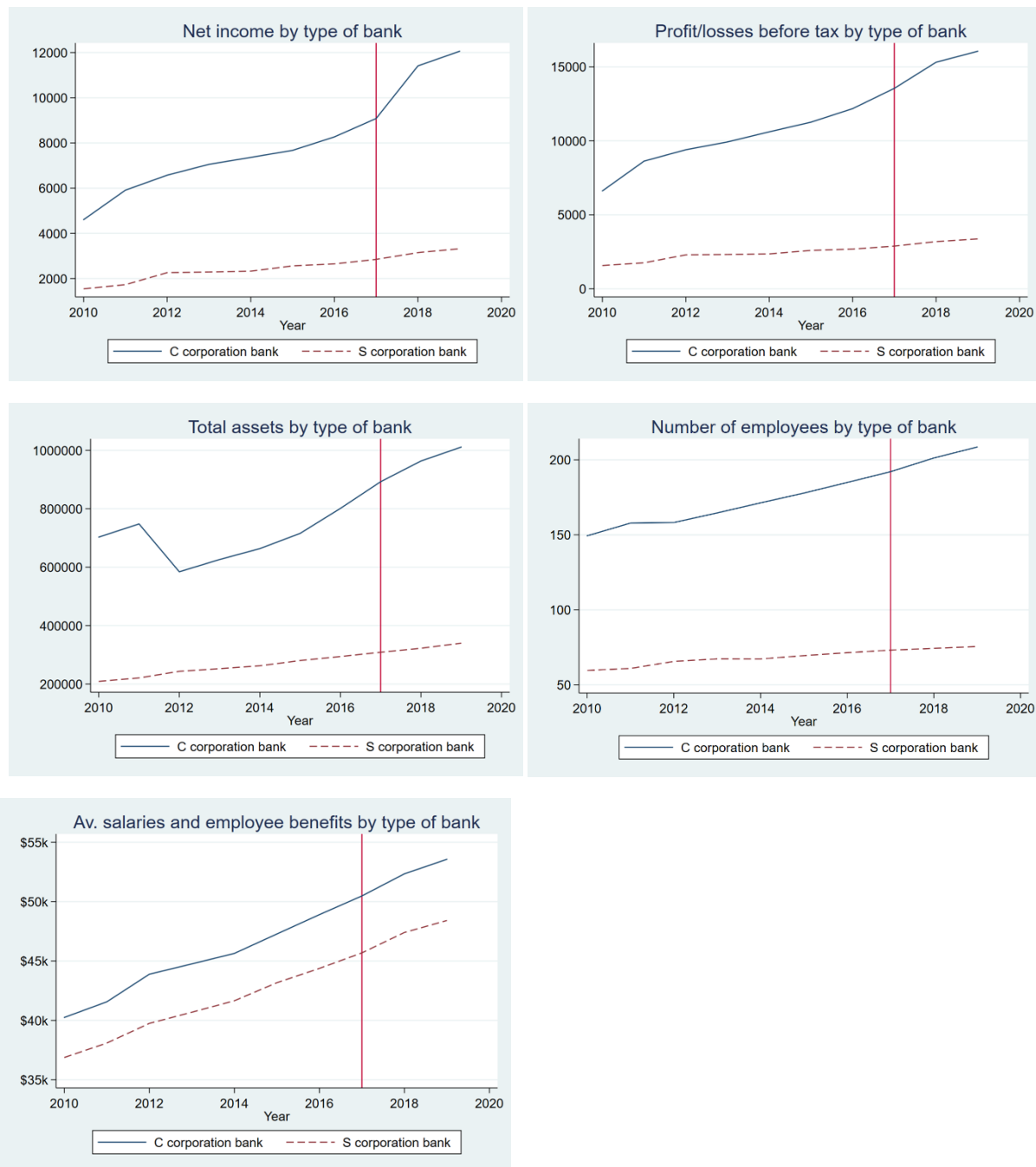


Figure 3: Key economic variables trending for C and S corporation banks, 2010-2019.

## 5 Estimation method

Our estimation of the differential effects of TCJA on C and S corporation banks makes use of difference in difference estimations. We use a comparative analysis in order to estimate the differential effect of the TCJA on C corporation banks and S corporation banks. To isolate the differential effects, we exclude all banks which switch corporation status within our sample period. For our analysis, we run regressions of the following form:

$$y_{it} = \alpha + \delta Post_t * Ccorp_i + \beta Ctrend_i + \gamma_t + \theta_i + u_{it} \quad (1)$$

$y_{it}$  represents alternative outcome variables: number of employees, average salaries and benefits, total assets, profit/losses before taxes, and net income. In both the event study and the comparative analysis, we compare the changes in the variables of interest of C corporation banks with that of S corporation banks after the implementation of the TCJA (post-period).  $Post_t$  is a dummy that is 0 in periods before the introduction of the TCJA and 1 in periods after TCJA (2018, 2019).  $Ccorp_i$  is a dummy that is 0 for S corporation banks and 1 for C corporation banks. A C corporation specific time trend  $Ctrend_i$  allows C and S corporations to follow different time trends. Such a difference in time trends is suggested by the descriptive statistics for investment and profit related variables. The year-fixed effects allow to control for common time trends affecting the dependent variables such as digitalization or globalization of financial markets and economic shocks.

The inclusion of a simple linear C corporation specific time trend in equation (1) may not be sufficient to cover the differential trends to which the C and S corporation banks are subject. For this reason, we complement our analysis with an event-study design that allows us to identify the differential developments of C and S corporation banks across all years:

$$y_{it} = \sum_{k=-6}^2 \alpha_k D_{it}^k * Ccorp_i + \beta Ctrend_i + \gamma_t + \theta_i + \epsilon_{it} \quad (2)$$

The variables of interest are the dummies  $D_{it}^k$  which indicate points in time  $k$  periods from the reform and are interacted with the  $Ccorp_i$  dummy. As is standard in the event studies literature, we omit the indicator for period  $t-1$ , which hence serves as the benchmark year.

## 6 Empirical results

The TCJA has led to some advantages for C corporation banks compared to S corporation banks. As discussed above, for the latter banks the effective tax cut was less pronounced. At the same time, the Section 199A deduction was first uncertain and this uncertainty may have dampened investment and employment by S corporation banks.

We start analysing this empirically by reporting the regression results that follow equation (1). We measure total assets, average salaries and benefits and the number of employees in logarithmic form. The two profit variables, before and after taxes, also have negative observations and are therefore included in levels (instead of in logs).

The descriptive statistics reported in Figure 3 suggest that C corporations may have a different time trend than S corporation banks, so the variable  $Ctrend$  is included by default. Table 1 reports the main results. Column (1) refers to net profits, column (2) to pre-tax profits, column



(3) to the log of total assets, column (4) to the log of employment and column (5) to the log of average salaries and benefits.

In the various columns, the coefficient of interest is the interaction term (*interaction*) of the post-TCJA dummy and the C corporation dummy. It is an indicator for whether the TCJA induced C corporations to react differently from S corporations. We start with observing a strongly significant effect for net of tax profits in column (1). Since on the corporate level, the tax cut was limited to C corporation this result is expected and may reflect a mere mechanical effect of the reform. As net income is measured in thousands of USD, the coefficient of 1,484 indicates that the increase in net profits for C corporation that is associated with the post-reform years was some USD 1.48m higher than for S corporations. The suspicion that some of this may result from a mechanical effect is reinforced by the fact that the coefficient of the variable *interaction* in column (2) is only less than half the size of that in column (1) and indicates a differential growth of pre-tax profits of 0.66m. Some of this increase may come from intertemporal shifts that occur if, in particular, C corporations tried to reduce profits in the pre-reform year to realize these profits after the reform at a lower tax rate. The estimated coefficient of *interaction* in Column (3) indicates that the balance sheet total of C corporations increased in connection to the tax reform compared to S corporations by some 2.9%.<sup>16</sup> While this sizeable increase in balance sheet total seems to suggest that the higher net-of-tax profits by C corporations were used to increase lending and not only to reduce liabilities, we will discuss the problem of robustness for this result below.

An important policy question is to which extent the lower corporate tax trickles down to benefit employees and job seekers. Despite the strongly significant effects on profits and total assets we fail to find a significant effect of our treatment variable *interaction* on employment (Column 4) and average salaries and benefits (Column 5). At the same time, there is a significantly positive coefficient for pre-tax profits/losses (column 2), net of tax profits (*NetInc*, Column 3) and for the log of total asset (Column 4).

The variable *Ctrend* is significant in all columns.

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<sup>16</sup> Evaluated at the 2017 mean C corporation bank level of total assets, this would amount to some USD 26m.

	(1)	(2)	(3)	(4)	(5)
VARIABLES	NetInc	P/L	ln(TotAsset)	ln(empl)	ln(avSalBen)
interaction	1,484*** (197.5)	661.8*** (242.9)	0.0289*** (0.00470)	0.00712 (0.00527)	-0.00288 (0.00342)
Ctrend	273.6*** (43.07)	517.9*** (62.40)	0.00349** (0.00160)	0.00785*** (0.00157)	-0.00169** (0.000739)
Observations	41,638	41,638	41,127	41,638	41,497
R-squared	0.042	0.035	0.371	0.097	0.392
Number of banks	4,724	4,724	4,705	4,724	4,710

Table 3: Change in key economic variables after the introduction of the TCJA, 2010-2019.

Notes: This table reports difference-in-difference estimates of the effect of the TCJA on the log of the number of employees (column 1), the profit/loss before taxes (column 2), net income (column 3), the log of total assets (column 4), and the log of average salaries and benefits (column 5). Observations are number of bank years. Interaction is the interaction term of *dummy\_post* and *Ccorp*. Robust standard errors clustered at the bank-level are in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . We include bank-fixed effects and year-fixed effects (not reported) as well as a C corporation specific time trend (*Ctrend*).

Next, we report results from estimating Equation (2), which allows us to compare the differential development of banks depending on their tax status on a year-by-year basis. We stick to the measures of the left-hand side as used in Table 3 and use levels for the two profit variables and logs for the rest. In all estimations, *Ctrend* has been included. The year 2017 is left out and not interacted with the *Ccorp* dummy, leaving us with eight yearly estimates of interaction terms. These coefficient estimates are depicted using event study tests in Figure 4, along with their 95% confidence interval.

The year-by-year coefficients confirm that the TCJA has coincided with an upward jump of net profits of C corporation banks compared to S corporation banks due to a mechanical effect from the corporate tax rate reduction. When it comes to the relative increase of total assets, the coefficient plot makes clear that the rise in total assets of C corporations (in comparison to S corporations) has started several years before the TCJA and suggests that the linear C corporation specific time trend here is too inflexible to capture the different pre-trends. This suggests great care in interpreting the results in Table 3, Column (3). The coefficient plot for the log of salaries and benefits shows a significant reduction of the coefficient for the interaction in 2019 as compared to previous years. Again, this does not suggest a positive relative impact on C corporation banks, but may reflect that, by 2019, the uncertainty about the effective tax reduction for S corporation banks had resolved. The coefficient plots show no significant effects of TCJA for 2018 and 2019 when it comes to employment. The positive effect on pre-tax profits is compatible with the results in Table 3.

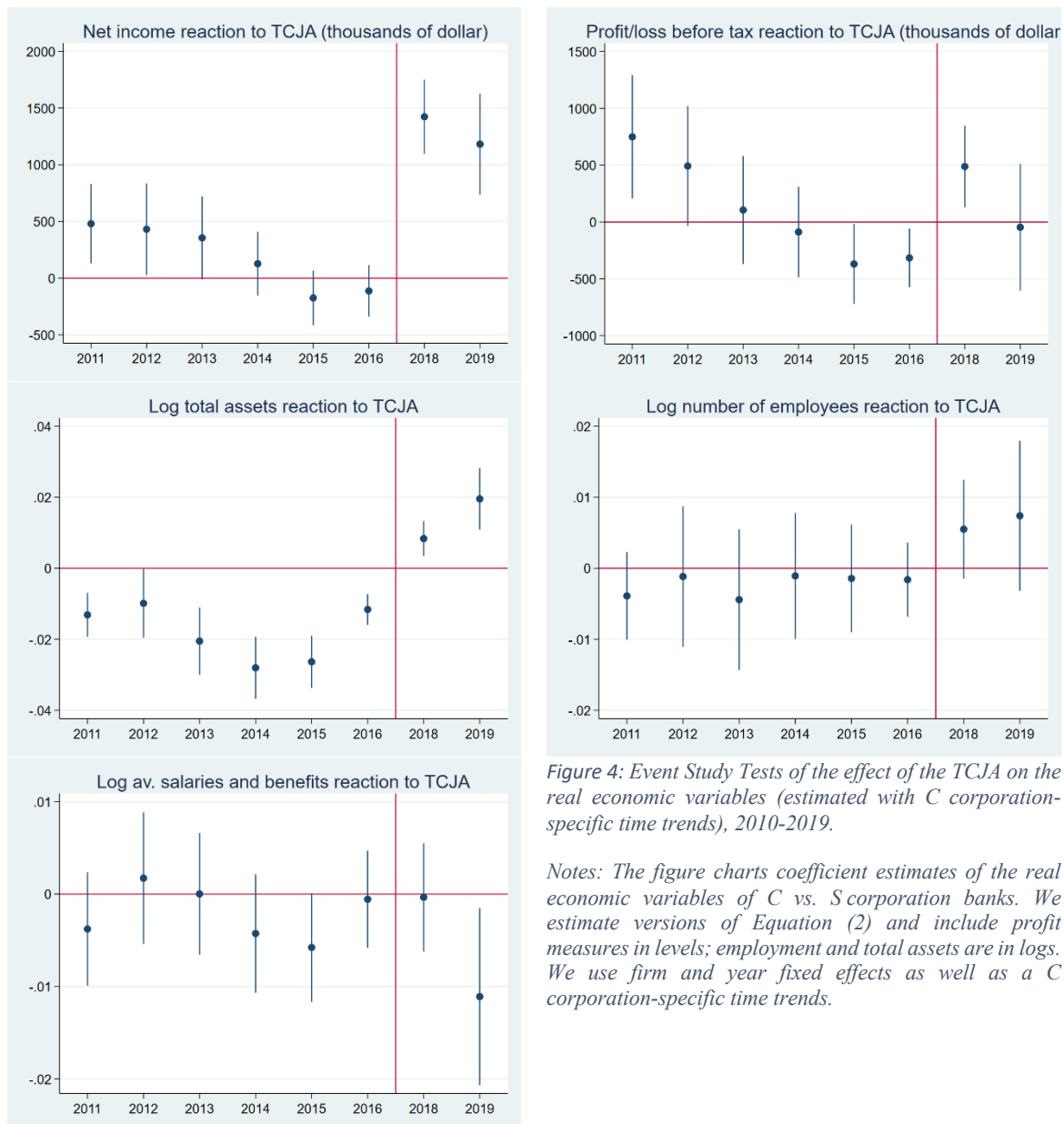


Figure 4: Event Study Tests of the effect of the TCJA on the real economic variables (estimated with C corporation-specific time trends), 2010-2019.

Notes: The figure charts coefficient estimates of the real economic variables of C vs. S corporation banks. We estimate versions of Equation (2) and include profit measures in levels; employment and total assets are in logs. We use firm and year fixed effects as well as a C corporation-specific time trends.

## 7 Robustness tests

To check for the robustness of our empirical results, we run several alternative event study tests.

First, because S corporations cannot be traded on stock markets, our main specification excluded traded C corporations to foster similarity. Figure 6 in the Appendix A.3 repeats the exercise including publicly held banks, which does not materially change the results.

Second, Figure 7 in Appendix A.4 replicates the main analysis results, while restricting the time frame to the period between 2013 to 2019. This allows us to exclude the second term election of President Barack Obama in 2012. One of Obama's campaign promises was raising the minimum wage. On January 1<sup>st</sup> 2012, prior to Barack Obama's re-election, minimum wages

were raised in several states, including: Arizona, Oregon, Washington, Montana, Colorado, Ohio, Vermont and Florida. Therefore, we exclude all pre-election years (years 2010-2012) from the sample to check whether the 2012 presidential campaign confounds our findings.

Furthermore, in Figure 8 of the Appendix A.5 we restrict the time frame to 2010-2018, which focuses on the post reform year 2018 in which there still was considerable uncertainty about the applicability of the Section 199A deductions to banks. Results remain unchanged.

Additionally, in Figure 9 of Appendix A.6 we replicate the analysis on the unwinsorized sample. This changes the result for profit/losses before taxes, which becomes insignificant. A similar verdict derives from using the balanced sample (see Figure 10 of Appendix A.7), i.e. when we systematically exclude newer banks. Figure 11 in Appendix A.8 presents results if the year of the announcement (2017) is taken as the first year of the treatment period.

In Figure 12 in Appendix A.9, we investigate the reaction of C and S corporation banks in the year 2016 as a placebo test. As expected, the placebo test shows no statistically significant change in 2016. The test suggests no or little biased form differential trends not yet captured in our set up.

In Figure 13 of Appendix A.10, we exclude loss-making banks, which yields similar results. Including the year 2020 and therefore the effects of the Covid19-pandemic yield negative effects for profit/loss before taxes (see Figure 14 of Appendix A.11). This negative effect seems to derive from a strong negative effect of the Covid19-pandemic in 2020, offsetting the effects from the TCJA.

As a bottom line, the results remain remarkably robust throughout the event study tests. As in the main specification, the differential effect of the introduction of the TCJA on net income tends to be statistically significantly positive. A positive differential effect on total asset seems to be due to a non-linear pre-trend.

## 8 Conclusion

The TCJA introduced a corporate tax rate cut, effective as of 2018, applicable to C corporation banks as well as a 20% deduction applicable to S corporation banks. Hence, with the introduction of the TCJA, the tax environments of C and S corporation banks fundamentally changed. The somewhat more generous tax cut for C corporations and the initial uncertainties surrounding the Section 199A deduction for banks with S corporation status suggested a preferential treatment of C corporation banks.

Against this background, this study analyses the possibly differential impact of the changed tax environment for C and S corporations on the number of employees, average salaries and benefits, profit/loss before taxes, net income, and total assets. We construct a panel dataset of US commercial banks from 2010 to 2019, drawing on data from US Call Reports. We show that the TCJA was associated with statistically significant different effects on the net-of-tax profits of C and corporation banks compared to the net-profits S corporation banks. The same holds true, with a smaller quantitative effect, for pre-tax profits. Presumably, the large tax reduction may have given incentives for intertemporal profit shifting. With a 14-percentage point reduction, any dollar of profit shifted from 2017 to 2018 increased net-of-tax profits of a C corporation bank by 14 cents.

To the best of our knowledge, we are the first to empirically evaluate the impact of the relative change in the tax environment of C and S corporations associated with the introduction of the TCJA. The corporate tax cut of historic dimensions, plus the 20% deduction possibility for S corporations seems to have generated no clear differential effect on the number of employees, and average wages. A differential effect when it comes to the total assets of C and S corporation banks cannot be considered as robust.

The lack of a robust effect on total assets may be considered good news in the sense that the reform appears not to have favoured one type of banks over the other. At the same time, our results are also compatible with the hypothesis of a low overall effect of the reform on corporate wages and employment. This may raise doubt as to what extent lower profit taxes trickle down to wage recipients.

## Appendix

### Appendix A.1 Descriptive statistics for the yearly percentage of banks switching C-/S-corporation status, 2011-2019.

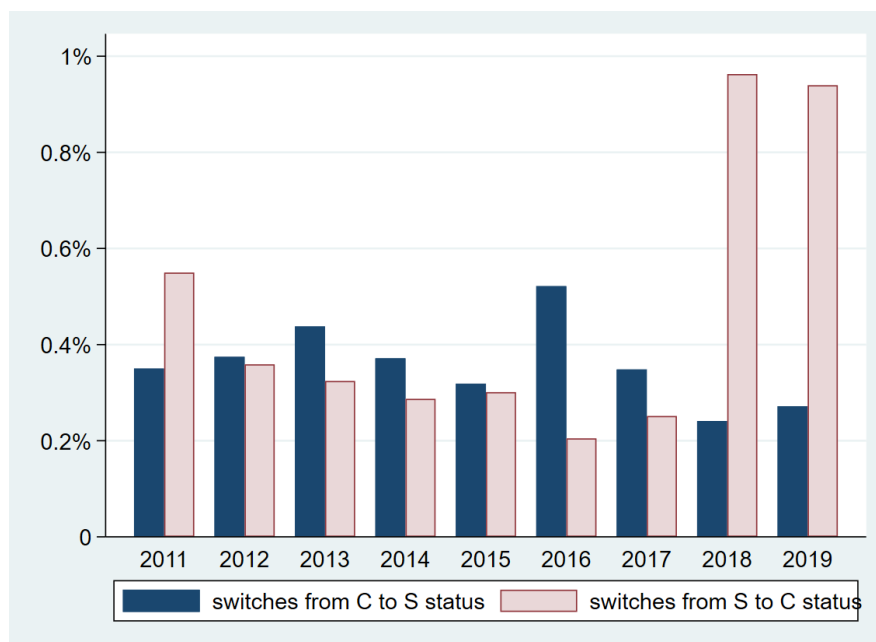


Figure 5: Percentage of banks switching from C to S or from S to C corporation status, 2011-2019.

## Appendix A.2 Descriptive statistics for C and S corporation banks, 2010-2019.

### Ccorp: 0

	mean	sd	min	max	N
numberemployees	68.7	170.282	4	3532.75	11742
PLbeforetax	2528.226	6147.172	-2151.25	186827.25	11742
Netincome	2494.016	6089.807	-2014	186827.25	11742
Totalassets	275517.17	503516.39	13517.5	13877438	11742
avSalBen	42.788	11.672	23.574	116.575	11732

### Ccorp: 1

numberemployees	178.497	496.955	4	3532.75	29896
PLbeforetax	11637.528	44871.028	-2151.25	321538.5	29896
Netincome	8217.33	31290.741	-2014	223250	29896
Totalassets	780313.73	2046161.1	13517.5	13877438	29385
avSalBen	47.3	16.722	23.574	116.575	29765

Table 4: Descriptive statistics for C and S corporation banks, 2010-2019.

## Appendix A.3 Robustness to including publicly held banks – Event study tests, 2010-2019

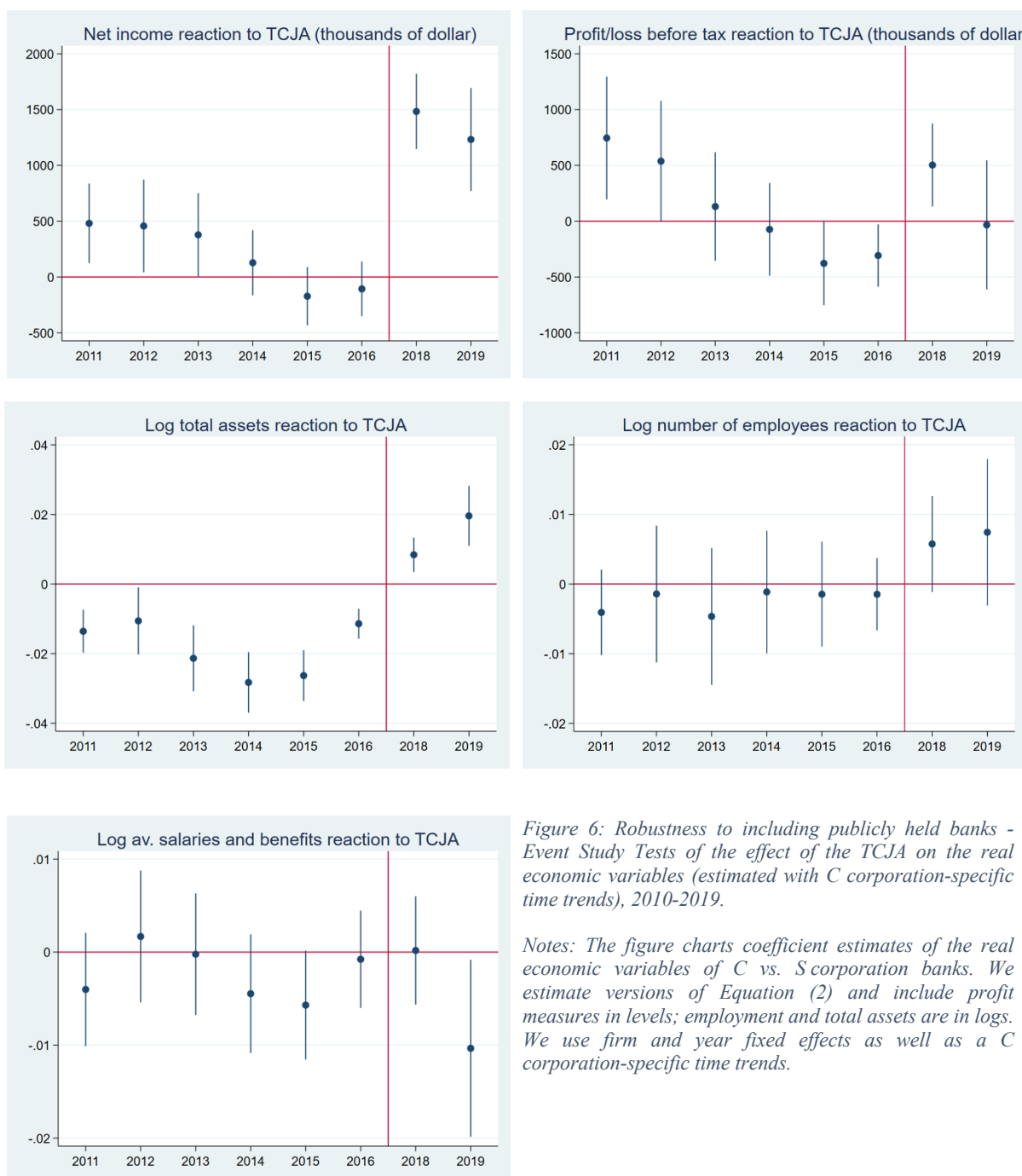


Figure 6: Robustness to including publicly held banks - Event Study Tests of the effect of the TCJA on the real economic variables (estimated with C corporation-specific time trends), 2010-2019.

Notes: The figure charts coefficient estimates of the real economic variables of C vs. S corporation banks. We estimate versions of Equation (2) and include profit measures in levels; employment and total assets are in logs. We use firm and year fixed effects as well as a C corporation-specific time trends.



## Appendix A.4 Robustness to the time frame 2013-2019 – Event study tests

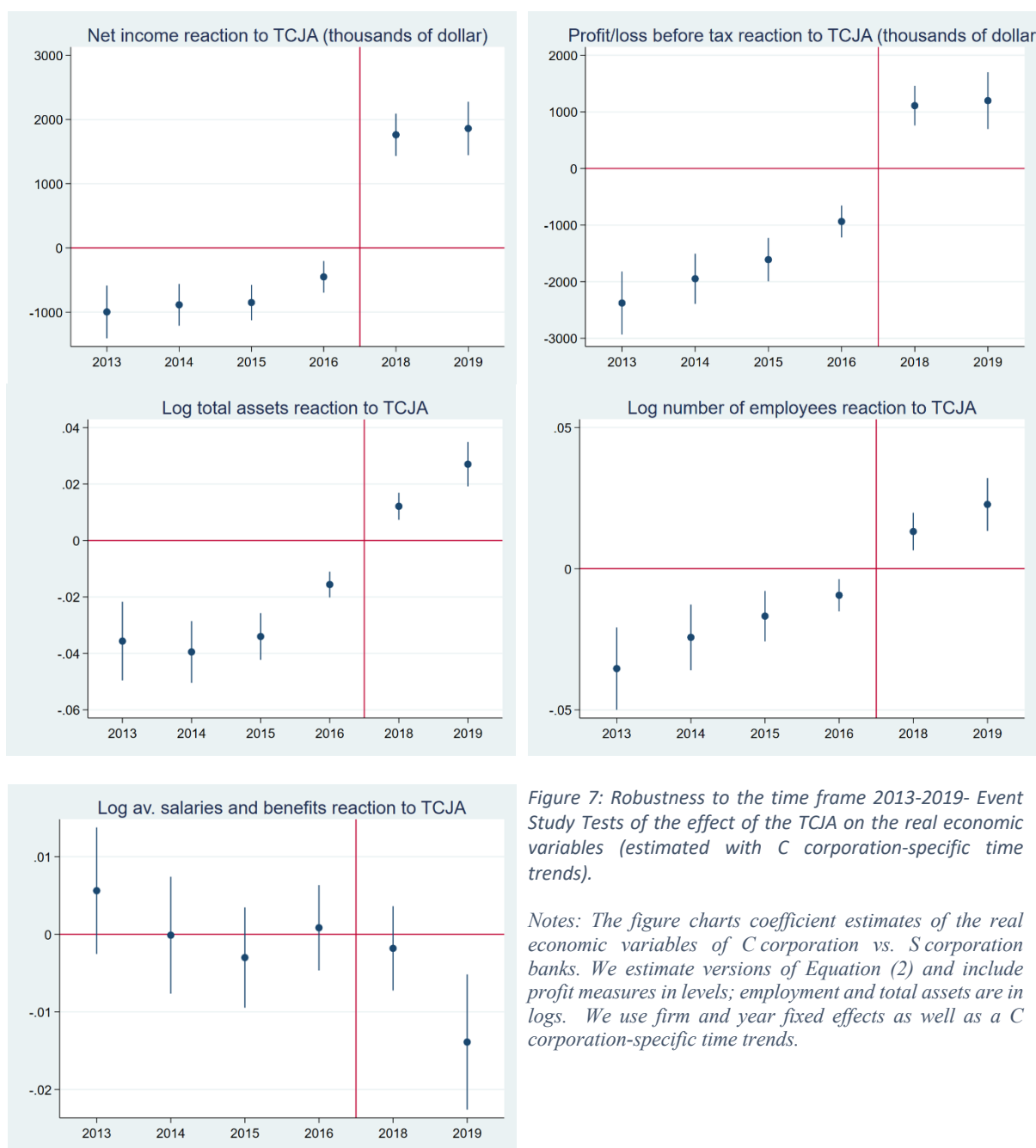


Figure 7: Robustness to the time frame 2013-2019- Event Study Tests of the effect of the TCJA on the real economic variables (estimated with C corporation-specific time trends).

Notes: The figure charts coefficient estimates of the real economic variables of C corporation vs. S corporation banks. We estimate versions of Equation (2) and include profit measures in levels; employment and total assets are in logs. We use firm and year fixed effects as well as a C corporation-specific time trends.

## Appendix A.5 Robustness to the time frame 2010-2018 – Event study tests

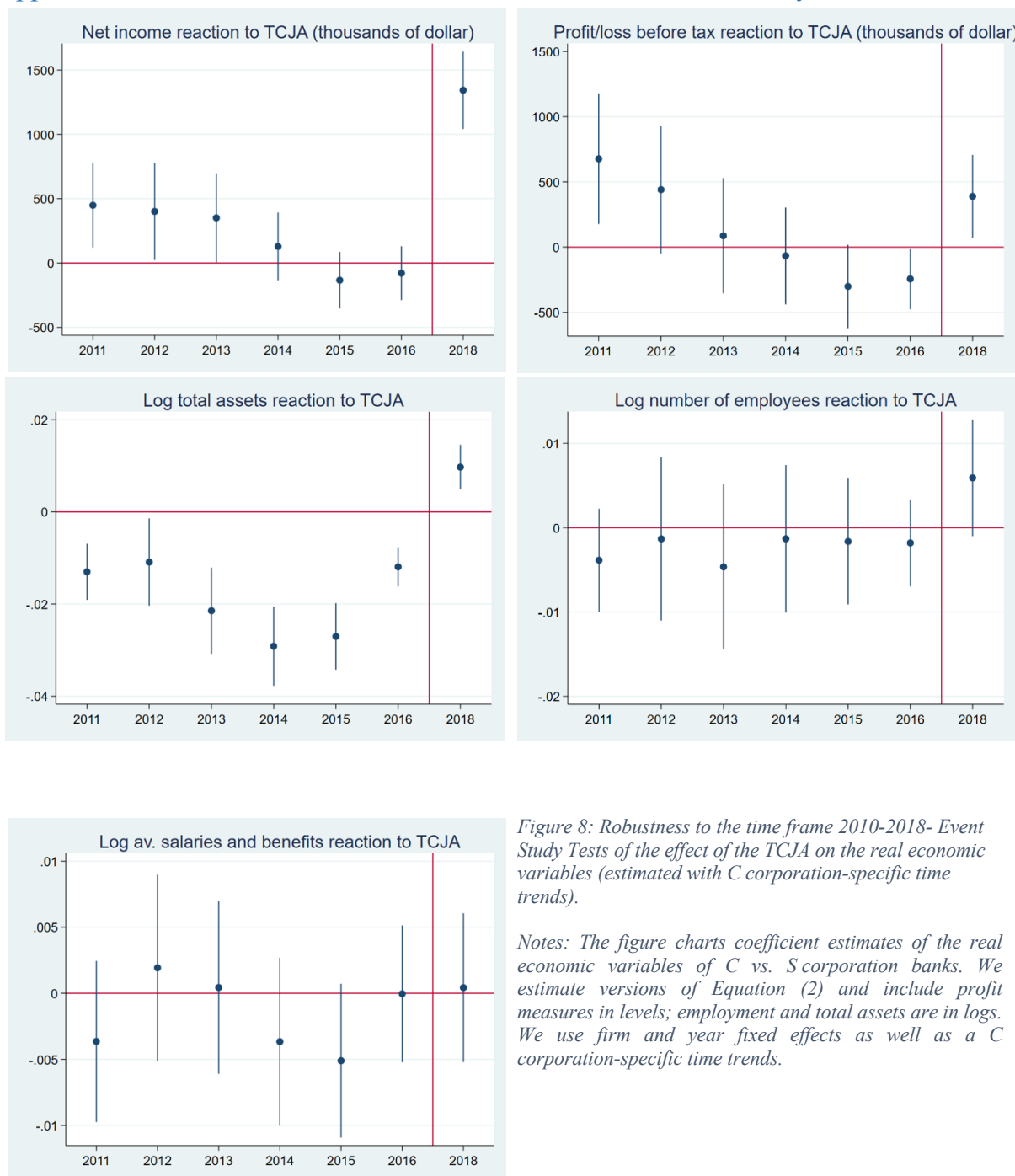


Figure 8: Robustness to the time frame 2010-2018- Event Study Tests of the effect of the TCJA on the real economic variables (estimated with C corporation-specific time trends).

Notes: The figure charts coefficient estimates of the real economic variables of C vs. S corporation banks. We estimate versions of Equation (2) and include profit measures in levels; employment and total assets are in logs. We use firm and year fixed effects as well as a C corporation-specific time trends.

## Appendix A.6 Robustness to unwinsorized sample – Event study tests, 2010-2019

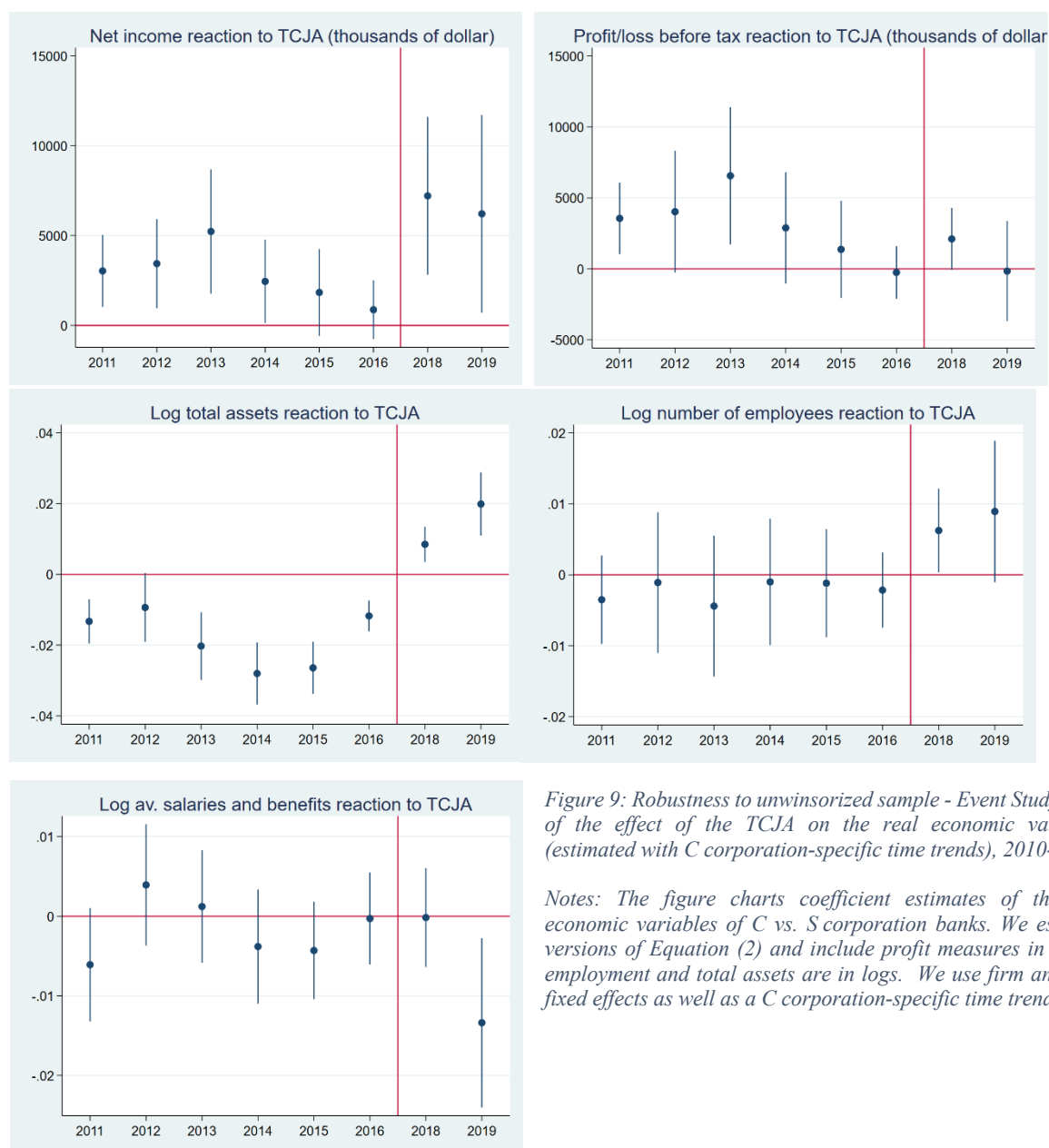


Figure 9: Robustness to unwinsorized sample - Event Study Tests of the effect of the TCJA on the real economic variables (estimated with C corporation-specific time trends), 2010-2019.

Notes: The figure charts coefficient estimates of the real economic variables of C vs. S corporation banks. We estimate versions of Equation (2) and include profit measures in levels; employment and total assets are in logs. We use firm and year fixed effects as well as a C corporation-specific time trends.

## Appendix A.7 Robustness to balanced sample – Event study tests, 2010-2019

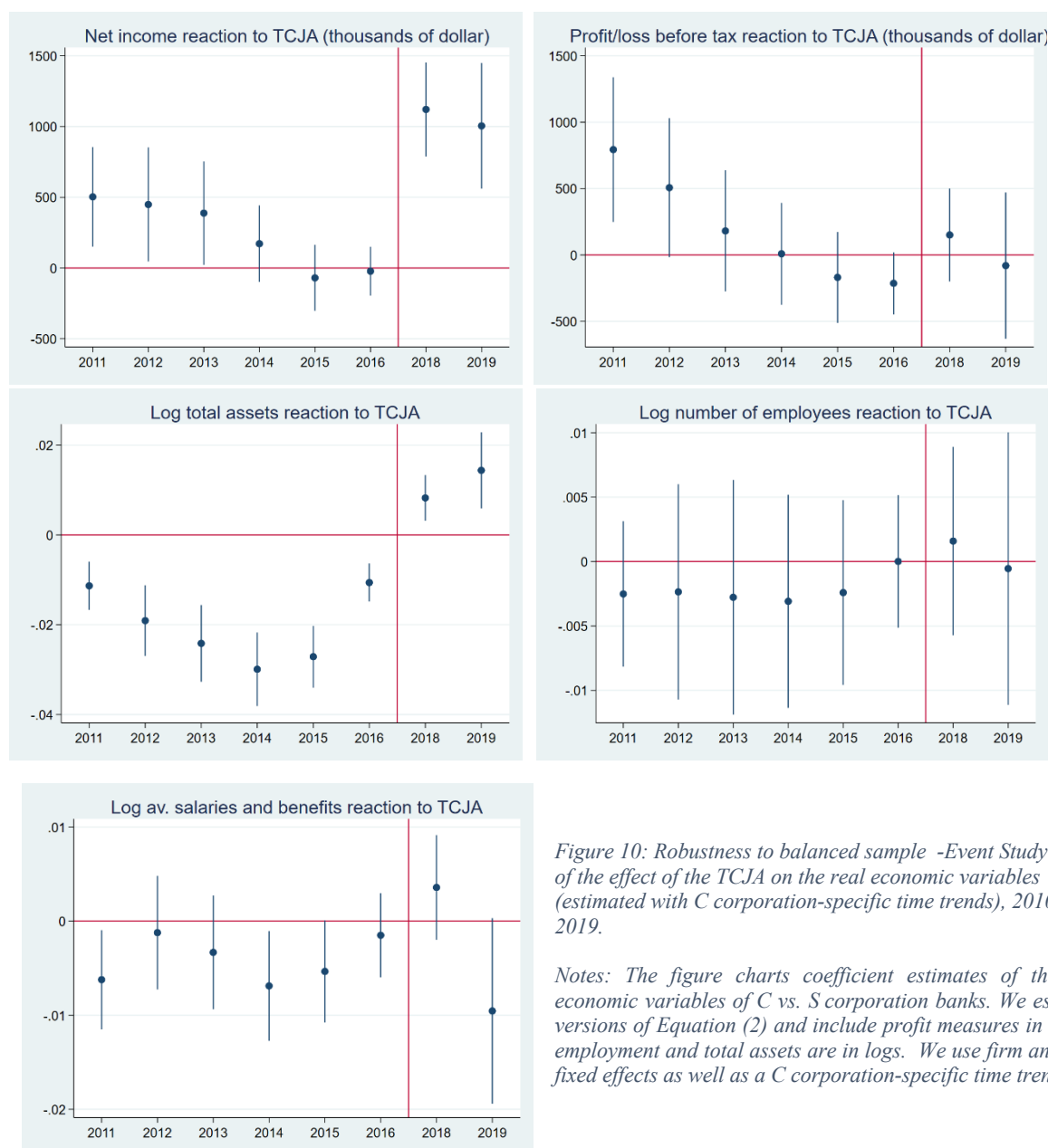


Figure 10: Robustness to balanced sample -Event Study Tests of the effect of the TCJA on the real economic variables (estimated with C corporation-specific time trends), 2010-2019.

Notes: The figure charts coefficient estimates of the real economic variables of C vs. S corporation banks. We estimate versions of Equation (2) and include profit measures in levels; employment and total assets are in logs. We use firm and year fixed effects as well as a C corporation-specific time trends.

## Appendix A.8 Robustness to the date of announcement – Event study tests, 2010-2019.

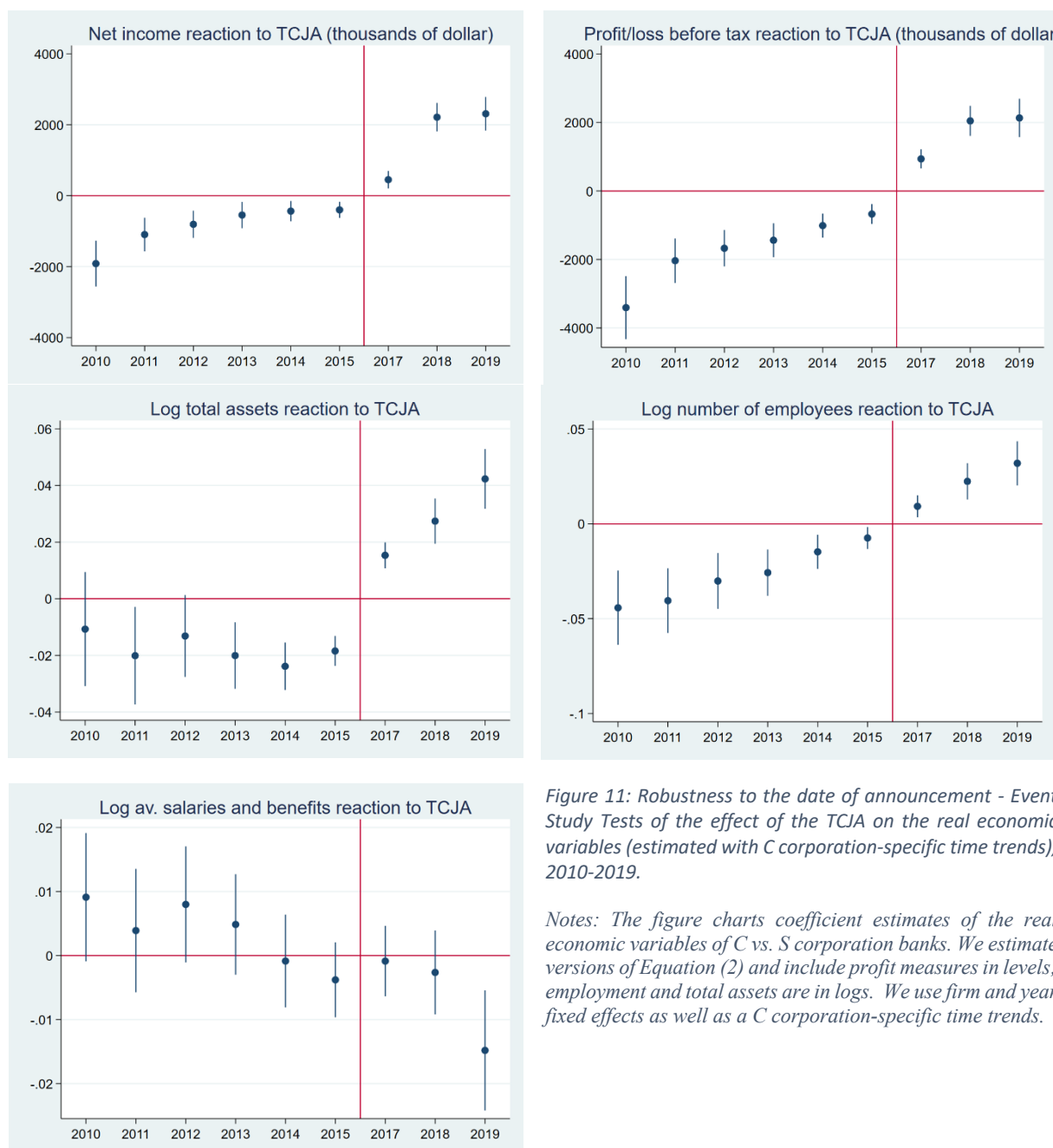


Figure 11: Robustness to the date of announcement - Event Study Tests of the effect of the TCJA on the real economic variables (estimated with C corporation-specific time trends), 2010-2019.

Notes: The figure charts coefficient estimates of the real economic variables of C vs. S corporation banks. We estimate versions of Equation (2) and include profit measures in levels; employment and total assets are in logs. We use firm and year fixed effects as well as a C corporation-specific time trends.

## Appendix A.9 Robustness to the placebo time period 2016 – Event study tests.

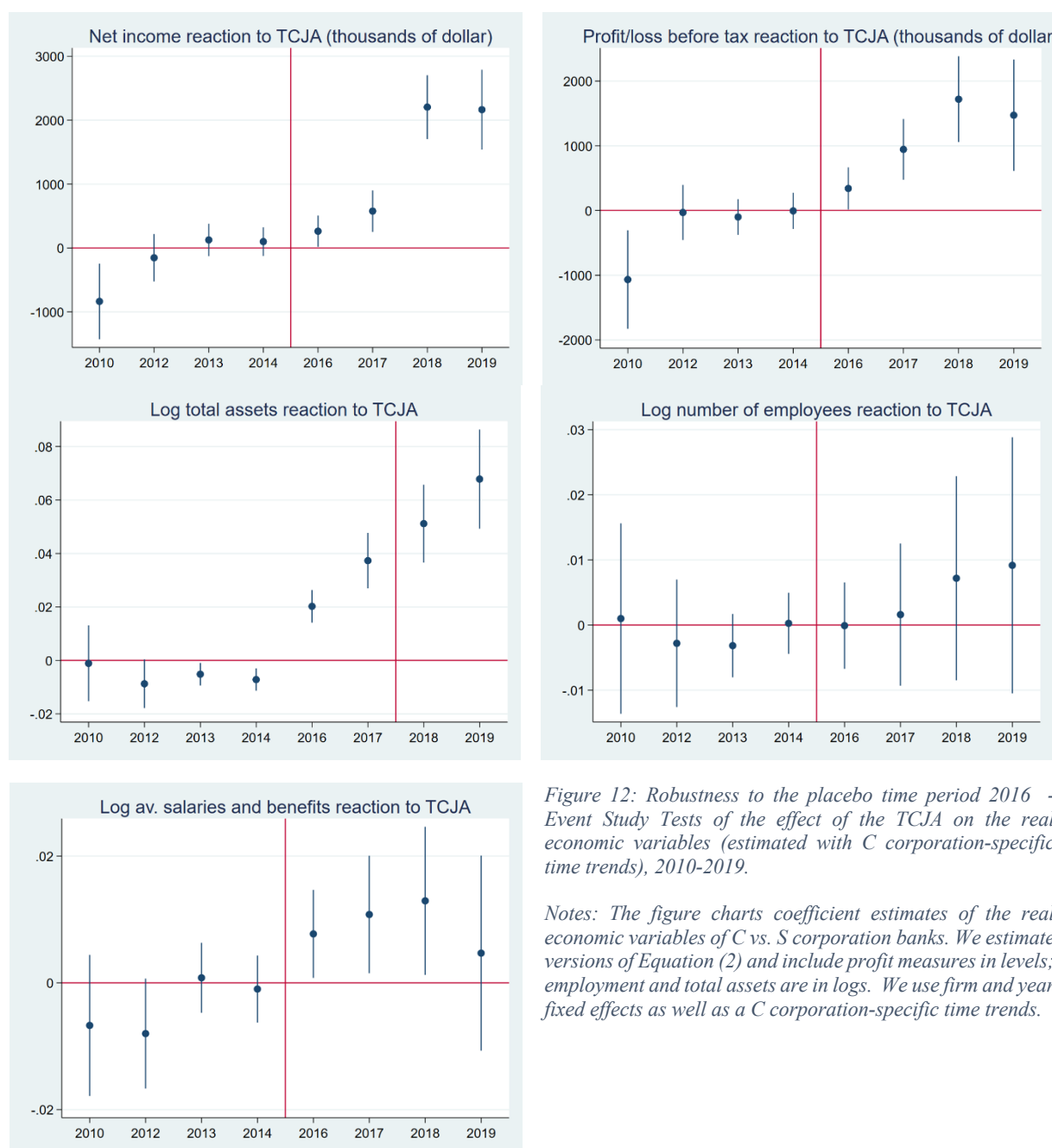


Figure 12: Robustness to the placebo time period 2016 - Event Study Tests of the effect of the TCJA on the real economic variables (estimated with C corporation-specific time trends), 2010-2019.

Notes: The figure charts coefficient estimates of the real economic variables of C vs. S corporation banks. We estimate versions of Equation (2) and include profit measures in levels; employment and total assets are in logs. We use firm and year fixed effects as well as a C corporation-specific time trends.

## Appendix A.10 Robustness to excluding loss-making banks – Event study tests.

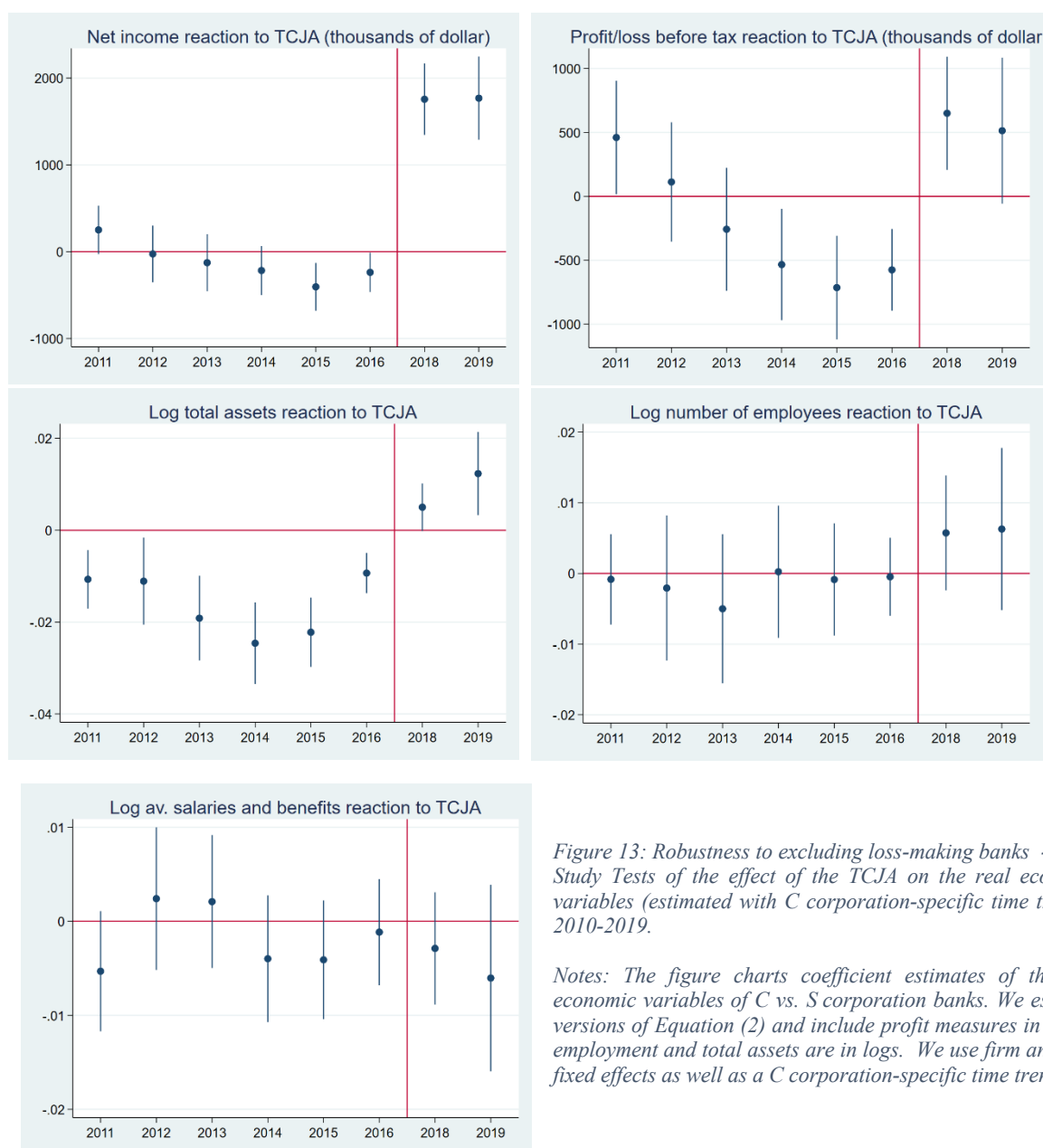


Figure 13: Robustness to excluding loss-making banks - Event Study Tests of the effect of the TCJA on the real economic variables (estimated with C corporation-specific time trends), 2010-2019.

Notes: The figure charts coefficient estimates of the real economic variables of C vs. S corporation banks. We estimate versions of Equation (2) and include profit measures in levels; employment and total assets are in logs. We use firm and year fixed effects as well as a C corporation-specific time trends.

## Appendix A.11 Robustness to including year 2020 – Event study tests.

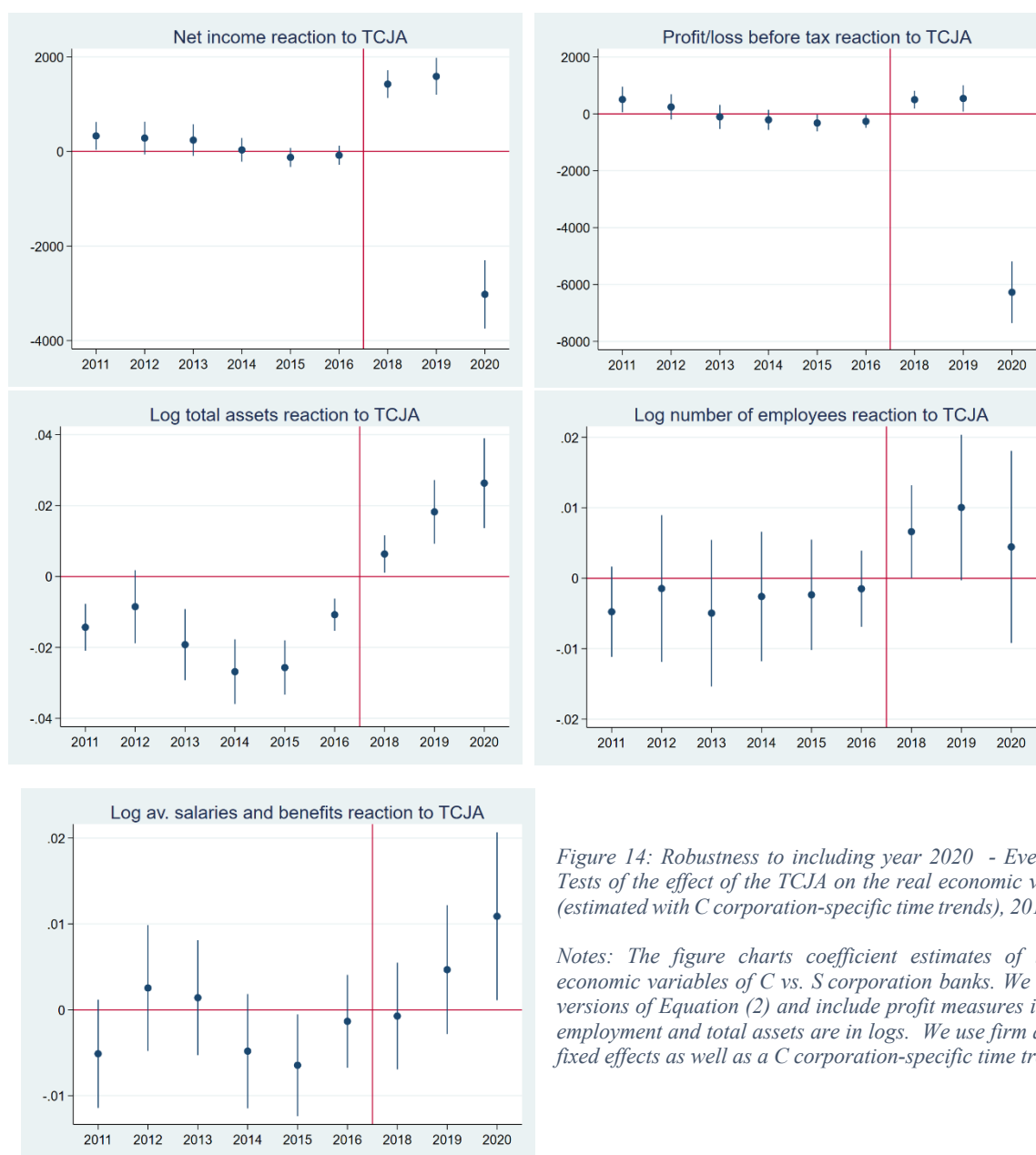


Figure 14: Robustness to including year 2020 - Event Study Tests of the effect of the TCJA on the real economic variables (estimated with C corporation-specific time trends), 2010-2019.

Notes: The figure charts coefficient estimates of the real economic variables of C vs. S corporation banks. We estimate versions of Equation (2) and include profit measures in levels; employment and total assets are in logs. We use firm and year fixed effects as well as a C corporation-specific time trends.



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