

THE EFFECTS OF THE TAX CUTS AND JOBS ACT ON PRIVATE COLLEGE AND
UNIVERSITY EXECUTIVE COMPENSATION

A THESIS

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Abstract

In an effort to control growing executive compensation in non-profit organizations, Congress added Section 4960 to the Internal Revenue Code as part of the Tax Cuts and Jobs Act of 2017. This paper aims to measure the effectiveness of this new tax law in constraining the compensation growth of the top 5 executives in top private colleges and universities specifically. Using a difference-in-differences approach with multiple treatment groups and a variety of organizational controls, the analysis fails to find evidence of a relationship between the passage of the law and a change in executive compensation. The usefulness of the analysis is limited by the violation of the parallel trends assumption and insufficient data.

KEYWORDS: executive compensation, higher education, Tax Cuts and Jobs Act, Section 4960

JEL CODES: H2, I23, J3

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Liam Mullen

Signature

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1 Introduction

Executive compensation at private colleges and universities has reached levels that have drawn increasing public scrutiny. In 2014, presidents at private colleges earned an average of nearly \$400,000, according to an analysis by *The Chronicle of Higher Education* (Kambhampati, 2015). By 2021, that figure had reached \$952,159, far outpacing inflation (Piper & Perez, 2021). Presidents are not the only highly compensated employees in higher education, with multi-million-dollar salaries for athletic staff such as football coaches making headlines (Gluckman, 2021). Even for less visible roles in an institution, salaries can be very high, with chief financial officers at private doctoral institutions earning a median wage of \$395,091 in 2021 (Staff, 2021). The wage growth and high level of pay come as private colleges and universities struggle with growing expenses despite charging an average of \$57,000 a year for tuition (Querolo, 2024). In contrast, the wage picture is very different for full-time college faculty, who have experienced modest real wage growth on their way to an average of \$112,000 a year (Quinn, 2024). Recent articles have focused on specific examples of seemingly excessive pay in higher education, such as Amy Gutmann's record-breaking payout of almost \$23 million from the University of Pennsylvania in 2023 (Zimmerman, 2023). While some criticize the pay of college executives as excessive and detrimental to the organizations, others believe that they are underpaid relative to both their responsibilities and their corporate counterparts (Yeung et al., 2019).

Many variables factor into how much an executive earns, and this is especially true in higher education. One of the most prominent college and university executives is the president. Presidents have a wide range of duties, responsibilities, and groups they are responsible for (Ehrenberg et al., 2001). They must juggle the demands of students and their families, faculty, staff, other administrators, trustees, and outside stakeholders. Presidents are also expected

to make important decisions, attract good students, and generate fundraising revenue for their schools. Outside of their control, their pay depends on the size, type, and specific features of their institution (Bai, 2014; Ehrenberg et al., 2001; Tang et al., 2000). Larger, research-focused universities are even more difficult to manage than smaller, liberal arts colleges, often resulting in higher executive salaries (Bai, 2014). Finally, when it comes to performance, it is more difficult to objectively measure how well college and university presidents are performing compared to corporate executives in the absence of measures like profits or stock price (Ehrenberg et al., 2001). As a result, it is more difficult for trustees or other people setting pay levels to know exactly how much value these administrators bring to their institutions. While presidents are the primary group that previous literature has explicitly focused on, these trends likely hold to some extent for other executives, especially for roles like CFO and vice president.

One determinant of executive salaries that has not previously applied significantly to college executives is tax law. Executives at for-profit companies have been subject to various tax rules in the past, and research has shown conflicting results regarding the impacts of these rules. However, the Tax Cuts and Jobs Act of 2017 (TCJA) is one of the first significant pieces of tax law that applies to tax-exempt organizations like colleges and universities. As part of the TCJA, Congress added Section 4960 to the Internal Revenue Code. Section 4960 imposes a 21% excise tax on every dollar of compensation to covered employees at non-profits over \$1 million. This new addition to the tax code provides an opportunity to see how private, not-for-profit colleges and universities react to tax incentives and whether their responses differ from those of for-profit and other non-profit counterparts. In addition, it may provide some insight into the relative importance of other determinants of college executive pay compared to tax considerations.

Recent research on the TCJA has focused on the reactions to the law among both for-profit and tax-exempt organizations in general, but the effects on private colleges and universities have yet to be studied separately. For for-profits, studies have found conflicting results on the efficacy of the new policy in altering executive compensation amounts. The outcomes for non-profits are more consistent, with three recent studies showing that the policy was relatively effective in constraining compensation for executives at these organizations. There are a few reasons why we may see these larger observed effects in non-profits compared to for-profits. Non-profits are subject to pressure from stakeholders (Galle & Walker, 2015), and higher compensation of non-profit executives has been linked to lower levels of donations (Balsam & Harris, 2014). However, similarly to for-profits, non-profits have other ways to compensate employees, including perks, loans, and delegations of management services (Maas, 2024). Private, non-profit colleges and universities are worth studying separately because they have their own characteristics that make them both an interesting and somewhat disparate subset of non-profits.

In this paper, I will utilize the implementation of the new 21% excise tax on excessive executive compensation to get a better idea of how private colleges and universities respond to tax incentives. Specifically, I want to know if there was a change in compensation or compensation growth for executives at private US colleges and universities in response to the excess compensation tax under the TCJA, controlling for other factors that influence executive pay. I hypothesize that there will be a similarly significant reaction to the new tax among private colleges and universities as other non-profits, with affected executives seeing smaller increases in real pay compared to unaffected executives. Using IRS 990 data for the top 100 liberal arts colleges and top 87 private colleges and universities based on average USNWR ranking over the past 10 years, I will see if there was a material change in executive salary growth among individuals affected by Section 4960 of the IRC compared to unaffected individuals following

the enactment of the law at the beginning of the 2018 calendar year. To determine whether the policy had a significant effect, I will use a difference-in-difference approach, which is broadly supported in the literature. This approach involves comparing the change in salary and salary growth among unaffected employees from before to after the law to that of affected employees.

This study finds no evidence that the implementation of Section 4960 significantly impacted executive compensation at private colleges and universities. Difference-in-differences regression analyses, using both linear and logarithmic specifications for multiple treatment groups, show no statistically significant effect of the policy change on executive salaries when comparing affected and unaffected employees. While treated employees did earn substantially more than untreated employees overall (approximately \$1.1 million more on average), this difference predated the policy change and cannot be attributed to the TCJA. These findings hold across multiple model specifications, including those with institutional controls and fixed effects. However, the analysis is limited by violations of the parallel trends assumption, as the treatment and control groups showed diverging compensation patterns before the policy's implementation in 2018. In order to contribute substantially to the broader literature, this paper would need to be redone with a different methodology and a larger sample size. The violation of the parallel trends assumption in the sample data precludes the usage of a difference-in-differences approach for this specific sample. A larger sample may produce more consistent salary trends between the treatment and control groups prior to the TCJA. Including more data may also provide a more accurate picture of the relationship between the implementation of Section 4960 and the change in executive salaries at private colleges and universities.

The rest of the paper will proceed as follows: Section II provides background and details about the TCJA, why it was passed, what came before it, and a brief overview of the literature on the TCJA and previous tax law changes. Section III delves into the paper's methodology,

including the analytical approach and the specific variables and regressions used. Section IV covers the data analysis and resulting answers to the research question. Finally, Section V concludes the paper with a summary and a brief treatment of the limitations.

2 Settings and Context

The Tax Cuts and Jobs Act of 2017 (TCJA), colloquially referred to as the “Trump tax cuts,” was a sweeping set of changes to the Internal Revenue Code of 1986. The TCJA impacted several aspects of both individual and corporate tax law. Most notably, it altered the existing tax brackets for individuals, lowered the corporate income tax rate from 35% to 21%, changed international tax rules, and altered the child tax credit (Gale et al., 2018). The TCJA also changed the rules surrounding excessive compensation for executives at both tax-exempt and for-profit corporations.

2.1 Section 162(m)

The TCJA built off of Section 162(m), a 1993 addition to the Internal Revenue Code that attempted to constrain excessive executive compensation. Section 162(m), which was implemented as part of the Omnibus Budget Reconciliation Act of 1993, set a limit on the tax deductibility of executive compensation in for-profit corporations. Typically, tax-paying organizations receive a tax deduction for nearly all of the money they spend on employee compensation, with some minor exceptions. Pursuant to Section 162(m), any amount of compensation over \$1 million paid out to the CEO and the next four highest-paid employees of a publicly traded corporation was no longer deductible. CFOs were initially subject to this policy until a rule change in 2006 that exempted them. Importantly, performance-based compensation was exempt from the million-dollar limit if it met certain conditions. This exemption allowed

companies to compensate executives significantly beyond the stated limit without paying extra taxes as long as the compensation was part of a plan that explicitly tied the compensation to performance goals (Rose & Wolfram, 2000).

Owing to the performance-based exemption and other workarounds, Section 162(m) was an ineffective use of tax policy to constrain executive compensation. Multiple studies have found that firms had measurable reactions to the new excess compensation rules, reducing base salaries and increasing performance-based compensation (Hall & Liebman, 2000; Perry & Zenner, 2001; Rose & Wolfram, 2000). However, they do not find evidence that the policy constrained the growth or level of total compensation. Some researchers have even found that the policy led to a significant increase in executive compensation, the opposite effect of what was intended (Harris & Livingstone, 2002; Murphy, 2012). Harris and Livingstone (2002) suggest that some corporations that were previously paying lower salaries may have taken the new rule as an indicator of what reasonable compensation may be—just under \$1 million.

2.2 Tax Cuts and Jobs Act

The TCJA overhauled existing regulations on excess compensation in for-profit organizations and extended the excess compensation limit of \$1 million to non-profits. Due to the tax-exempt status of non-profits, the excess compensation disincentive came in the form of an excise tax on any compensation over the million-dollar limit rather than a loss of tax deductibility. The rate for this excise tax was set to the same level as the new corporate tax rate under the TCJA of 21%. With this tax in place, a non-profit that pays its top executive \$1,100,000 a year must pay \$21,000 in excise taxes (21% of the \$100,000 over the million-dollar limit). The tax applies to the "covered employees" within an organization: the top 5 highest-compensated employees and anyone who is no longer one of the top 5 but was deemed a covered employee in

a previous year. A notable exception to the rule is compensation paid to medical professionals for providing medical services, which is not taxed.

2.3 Rationale Behind New Rules

The reasons for the changes in excess compensation rules were to try to control the salary growth rate of executives and make the rules for non-profits and for-profits more similar. In their report on the TCJA, the House Ways and Means Committee explained that they wanted to make sure non-profit organizations, which are tax-exempt on the condition that they “use their resources for specific purposes” such as education, are not diverting too much of their funds to paying their executives (“Tax on Excess Tax-Exempt Organization Executive Compensation”, 2020). In addition, the Committee stated that it “believes that alignment of the tax treatment of excessive executive compensation . . . between for-profit and tax-exempt employers furthers the Committee’s larger tax reform effort of making the system fairer for all businesses” (“Tax on Excess Tax-Exempt Organization Executive Compensation”, 2020). The underlying assumption behind the new tax rules for executive compensation is that organizations will respond to the new tax incentives as Congress intended them to do in response to previous legislation targeting excessive compensation.

2.4 Mechanisms of TCJA Compared to Section 162(m)

Compared to Section 162(m), the mechanisms of the TCJA have some advantages and some drawbacks in terms of efficacy. Section 162(m) created a positive incentive to increase performance-based compensation because it became comparatively cheaper than normal salary. The TCJA, on the other hand, created a negative incentive by increasing the after-tax cost of performance-based compensation for for-profits and the cost of excessive compensation in

general for non-profits. De Simone et al. (2022) provide some reasons why we might expect even less of a response to the TCJA than Section 162(m). Due to executive bargaining power, it is more difficult to lower executive compensation than increase it (Simone et al., 2022). In addition, unless all corporations react to the changes by lowering executive compensation, a single firm may lose executives if they cut wages significantly or slow wage growth in response to the new laws (Simone et al., 2022).

2.5 Previous Literature

Recent studies have found that, for non-profits, the TCJA was relatively effective in curbing excessive compensation (Balsam et al., 2024; Feng et al., 2023; Maas, 2024). Rogal (2019) describes the three mechanisms by which the law helped control non-profit executives' excessive compensation. For one, the new law requires non-profits to publicly disclose their compensation agreements, which may discourage them from paying executives exorbitant sums (Rogal, 2019). In addition, the legislation provided for limited regulatory enforcement in the form of investigations into organizations that seem to be paying unfairly high wages (Rogal, 2019). Rogal (2019) describes the regulatory enforcement as dependent on "weak metrics for appropriate compensation and resource-intensive investigations". The third and likely most important mechanism is the 21% excise tax on compensation over \$1 million (Rogal, 2019).

While studies on the TCJA in non-profits showed significant responses to the change in tax law, the literature on responses to the TCJA and other tax law changes among for-profits shows conflicting results in the overall effect on total executive compensation. One paper found a relatively significant response to the TCJA among for-profit entities. Durrant et al. (2021) studied firm behavior in the period before the TCJA went into effect and found evidence that for-profit firms made significant changes to their compensation structures in this period to prepare for

the law's enactment. They explain that tax reform had already been on the Republican Party's agenda for several years (Durrant et al., 2021). When the party took control of Congress and the White House, there was a clear opportunity to push a law change through (Durrant et al., 2021). Thus, for-profit entities anticipated the tax law change and changed compensation contracts accordingly. Other research has found that, while there were some reactions to the new legislation among for-profits, the "big picture" of executive compensation—the amount CEOs take home—was not altered (Galle et al., 2021; Luna et al., 2023; Simone et al., 2022).

The differences in the choices of methods used in these papers may explain the lack of agreement in their findings. De Simone et al. (2022) decided to "limit the sample to CEOs with reported total compensation above \$1 million," which omits the portion of firms below but close to the threshold. Previous studies on Section 162(m) have found reactions among firms below the limit (Rose & Wolfram, 2000). In addition, this choice of sample does not allow for a difference-in-difference analysis of firms likely to be affected compared to those not likely to be affected, which is the more commonly used technique in the literature (Balsam et al., 2024; Durrant et al., 2021; Feng et al., 2023; Maas, 2024; Simone et al., 2022). Galle et al. (2021) only look at newly-hired CEOs from the periods before and after the law's enactment for their difference-in-difference approach rather than all CEOs. In contrast to Durrant et al. (2021), Galle et al. (2021) specifically state that they "assume that anticipation of the 162(m) amendments did not affect [CEOs'] contracts". Finally, Luna et al. (2023) use OLS regression techniques, which are part of a substantially different approach than difference-in-differences analysis.

In this paper, I will use a combination of approaches used in the literature on the effects of the TCJA on non-profits and those from earlier literature on tax shocks. The prevailing methodology in the literature on organizational responses to tax changes is the difference-in-difference

approach. However, different researchers have made slightly different decisions about how to structure the approach. An earlier study on for-profit responses to tax changes used employees near the million-dollar threshold as part of the treatment group (Perry & Zenner, 2001), while recent papers on the TCJA only used individuals considered “covered employees,” who either are currently or were formerly making over \$1 million (Balsam et al., 2024; Feng et al., 2023; Maas, 2024; Simone et al., 2022). I plan to analyze both groups of employees separately to see how the responses differ among these groups.

Another goal of this study is to better understand the importance of tax considerations relative to other determinants of executive compensation at private colleges and universities. Previous studies have found several important determinants for private school president pay outside of tax incentives. Some of the most important determinants are institutional type, size, reputation, tuition level, level of spending, and executive bargaining power (Bai, 2014; Ehrenberg et al., 2001; Tang et al., 2000). In addition, Balsam et al. (2024) lay out some important categories of factors that influence executive pay in non-profits generally, including the size, efficiency, governance, fundraising, and revenue composition of organizations. There is conflicting evidence on whether the compensation of private college and university presidents is based on performance. Several researchers have found weak relationships between pay and various performance indicators, such as fundraising success, freshman test scores, graduation rate performance, and revenue generation (Ehrenberg et al., 2001; Sorokina, 2003). Others have found that pay is relatively strongly associated with performance using determinants such as USNWR ranking, whether presidents are recruited externally or given internal promotions, and how well the university performed financially in the previous period (Bai, 2014; Langbert & Fox, 2013; Yeung et al., 2019). Interestingly, Parsons and Reitenga (2014) find that

college presidents at private schools who are paid seemingly excessive levels of compensation compared to peers see larger increases in performance metrics than these peers.

In this paper, I will include several of the determinants with broad support from previous research on private college and university presidents and apply them to higher education executives more broadly. The passage of TCJA affords an opportunity to investigate whether tax considerations are a sufficiently strong determinant of private school president pay when compared to these other factors.

3 Methodology

This study utilizes a difference-in-differences approach to compare the changes in compensation among affected college executives to those of unaffected executives after the implementation of Section 4960 of the Internal Revenue Code. This approach allows the changes in unaffected employees' salaries to serve as a counterfactual for affected employees' salary growth. In other words, assuming the salaries of the two groups exhibit parallel trends prior to the implementation of the law, we expect to see similar patterns of change between the two groups if the law never went into effect or did not have an effect. Therefore, the difference in the change in the treatment group compared to the control can provide an estimate of the effect of the TCJA on college executive compensation. Following Balsam et al. (2024), the sample only includes schools that have both a covered and uncovered employee and have data for both before and after the enactment of the TCJA. This approach allows organizations to act as their own controls, which mitigates issues associated with whether they want to and can pay their employees over a million dollars in a year (Balsam et al., 2024).

The main features of the difference-in-differences analysis are a set of indicator variables: *Treated*, *Post*, and *Treated*Post*. For an individual in the main treatment group in a given year,

Treated takes a value of 1 if the employee is one of their organization’s top five most highly compensated members and made over \$1 million in total compensation. An employee is also *Treated* in 2019 and 2020 if they were treated in 2018, even if they are no longer in the top 5 and no longer make over \$1 million. The specific compensation variable I use to check the million-dollar limit is a combination of two values from Schedule J: total compensation from the filing organization and total compensation from closely related organizations, both of which count as compensation for Section 4960 purposes (“Sec. 4960 Tax on excess tax-exempt organization executive compensation”, n.d.). The compensation variable is winsorized at the 1% and 99% levels and adjusted for inflation using the Consumer Price Index, with 2018 as the base year. The second indicator, *Post*, takes a value of 1 if the observation is from after 2018, 2019, or 2020 and a value of 0 otherwise. Finally, *Treated*Post* is the interaction between *Treated* and *Post* and is the primary independent variable of interest. The coefficient on *Treated*Post* tells us how treated employees’ compensation changed in the post period compared to control employees.

3.1 Explanation of Alternative Treatment Groups

This analysis also includes two alternative treatment groups. The first is comprised of executives who earned over \$800,000 and aims to capture the effects of Section 4960 on those close to but not yet over the million-dollar limit, in addition to employees already subject to the tax. The second alternative treatment group includes executives who made between \$1 and \$1.2 million, who are compared to a control group of executives earning between \$800,000 and \$1 million. Due to their proximity to the taxable threshold, this second alternative treatment group may react differently from employees making significantly more than \$1 million. For the alternative treatment groups, the indicator variables have the same meanings. *Treated* takes

a value of 1 for individuals in the various treatment groups, *Post* indicates observations in the post-treatment period, and *Treated*Post* takes a value of 1 for individuals in the treated salary ranges in the post-TCJA period.

3.2 Control Variables

Some of the regressions include control variables to account for other factors that influence executive compensation, such as institution type, size, wealth, revenue, performance, prestige, and governance. The control variables include *Liberal arts*, a dummy variable that is equal to one if the school is a liberal arts school and 0 otherwise; *Enrollment*, the number of full-time students at the institution; *Endowment per student*, how large the endowment is compared to the student population as an indicator of institutional wealth; *Total revenue*, which gives an idea of how money the school is taking in; *Average ranking*, the school's average USNWR ranking over the past 10 years which is used to measure the performance and prestige of the institution; *Admit rate*, another measure of prestige; *Total six-year graduation rate*, another measure of school performance; and *Total number of administrators*, which controls for governance. Each of the monetary variables is adjusted for inflation using the Consumer Price Index, with 2018 as the base year.

3.3 Sample Selection

The initial sample was composed of all individuals reported on available IRS 990 forms from the top 100 liberal arts colleges and the top 87 private colleges and universities in the United States. The data were processed and compiled using a modified version of the publicly available R package, *irs990efile*, and IRS data from Data Lake Commons. The sample only includes top colleges to ensure that the organizations are comparable to one another and have

sufficiently high levels of executive pay to complete the analysis ¹. The final sample excludes observations for employees who were missing important information, such as name and salary, and employees with medical titles. An indicator was created for each organization's top five highest-paid employees, with employees outside this range excluded. The set of years was then restricted to 2016, 2017, 2018, 2019, and 2020, and the compensation variable was winsorized at the 1% and 99% levels to limit the influence of outliers. Finally, the sample was limited to organizations with both covered and uncovered employees during the sample period and with data for at least one year before and after the policy implementation, resulting in a final sample of 885 observations of 339 employees.

3.4 Descriptive Statistics

The following tables show descriptive statistics for the final sample of employee-year observations. Table 1 shows the mean salary and number of observations for each treatment and control group before and after the implementation of Section 4960, as well as the average overall salary in the relevant sample before and after the law's implementation. The mean compensation across the entire sample for the entire set of years is \$840,000. The first row of the "Yes" column shows that the average salary of employees in the main treatment group is roughly \$1.71 million. Based on this number, a school would have to pay \$149,100 per covered employee under the new TCJA regulations. Table 2 shows descriptive statistics for the control variables before and after the implementation of the TCJA.

¹Rankings come from the average USNWR rankings over the past 10 years. I only look at 87 private colleges because this is all I could find in the USNWR archive, and I figured any school outside of the top 150 colleges (when public schools are included) was not worth including.

Table 1: Mean Compensation for Treated and Control Employees and Whole Sample Before and After TCJA Implementation

	Dummy equal to 1 for treated employees or post-treatment period		
	No	Yes	Total
Treated Employee (Group 1)	601,414 (204,447) N	1,713,461 (664,251) 190 (21.5%)	840,159 (579,553) 885 (100.0%)
Treated Employee (Group 2)	529,542 (157,814) N	1,370,201 (649,070) 327 (36.9%)	840,159 (579,553) 885 (100.0%)
Treated Employee (Group 3)	894,147 (61,469) N	1,104,014 (56,919) 54 (28.3%)	953,482 (112,192) 191 (100.0%)
Post-treatment	837,913 (377,296) N	842,281 (386,218) 455 (51.4%)	840,159 (381,927) 885 (100.0%)

Table 2: Descriptive Statistics for Control Variables Before and After TCJA Implementation

	Period		
	Before	After	Total
N	430 (48.6%)	455 (51.4%)	885 (100.0%)
Enrollment	0.007 (0.083)	0.013 (0.114)	0.010 (0.100)
Endowment	814,430,806 (577,031,977)	903,755,038 (630,447,418)	860,615,494 (606,543,270)
10-year USNWR average ranking	72.14 (38.94)	71.68 (40.97)	71.90 (39.97)
Admissions rate	0.472 (0.192)	0.467 (0.199)	0.469 (0.196)
Liberal arts college indicator			
Yes	323 (75.1%)	326 (71.6%)	649 (73.3%)
No	107 (24.9%)	129 (28.4%)	236 (26.7%)
Total yearly organizational revenue	516,468,535 (556,602,972)	530,173,839 (610,096,319)	523,514,765 (584,427,850)
Six-year total graduation rate	0.811 (0.079)	0.829 (0.072)	0.820 (0.076)
Tuition, room, and board	60,098 (8,274)	63,089 (8,418)	61,636 (8,477)
Total number of administrators	213 (116.940)	196 (110.838)	204 (114.114)

3.5 Regression Models

The analysis includes multiple regression models to address complexities in the data. The first set consists of basic difference-in-differences regressions with and without control variables. The next set incorporates organization and year fixed effects to account for organizational characteristics and time-specific effects. To address the positive skew of the dependent variable and identify differences in salary growth rates, the analysis includes a version of all these regressions with a logarithmic transformation of the compensation variable. The analysis section presents the results of each regression for both the primary and alternative treatment groups.

3.6 Parallel Trends Assumption

Unfortunately, the trends in the sample data violate the parallel trends assumption, which limits the internal validity of the results. Difference-in-differences analysis requires that the changes in the dependent variable among the treatment and control groups exhibit similar patterns in the pre-treatment period. The figures below show the results of three graphical tests for this assumption using the average winsorized, inflation-adjusted compensation of the relevant sample of employees from 2015 to 2020. Figure 1 shows the trends for employees in the main treatment group, Figure 2 shows the trends for employees in the first alternative treatment group, and Figure 3 shows the trends for employees in the second alternative treatment group. The figures indicate that the trends for employee compensation differed between the treatment and control groups prior to the implementation of Section 4960 at the beginning of 2018. Specifically, the average real salaries of uncovered employees in the main treatment group had been relatively consistent prior to 2018, while the average salaries of covered employees had been more variable. For the first alternative treatment group, we see the compensation levels

trending in opposite directions for each group. Therefore, we can expect the analysis results to be biased. The diverging trends of the groups before the TCJA's implementation suggest that the untreated groups may be unreasonable counterfactuals for the treated groups.

Figure 1: Trends for Mean Real Employee Compensation in Main Treatment Group Before and After Section 4960 Implementation

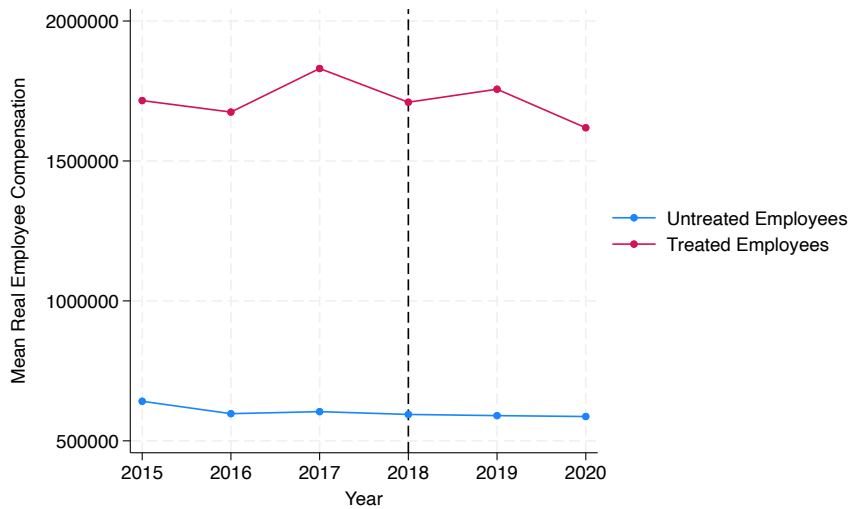


Figure 2: Trends for Mean Real Employee Compensation in First Alternative Treatment Group Before and After Section 4960 Implementation

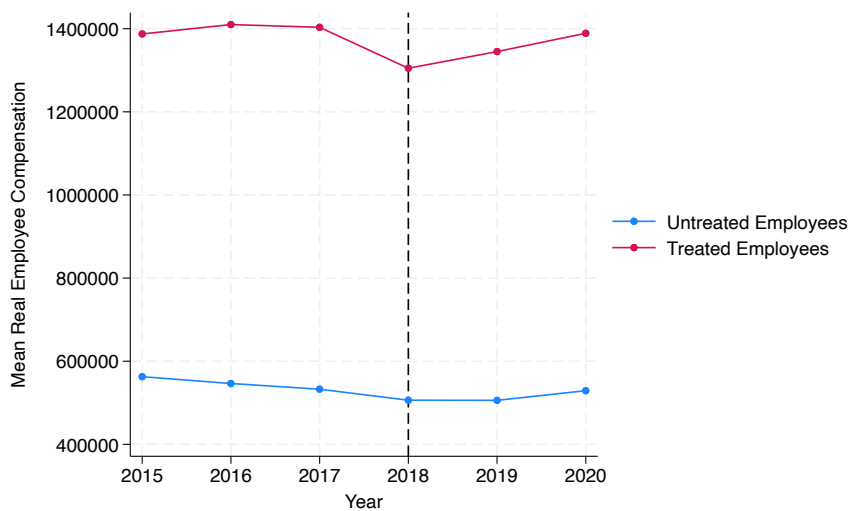
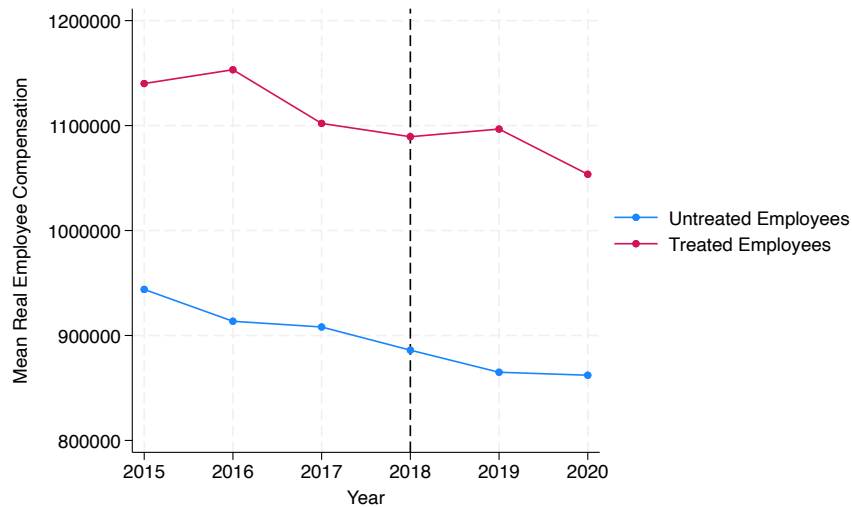


Figure 3: Trends for Mean Real Employee Compensation in Second Alternative Treatment Group Before and After Section 4960 Implementation



3.7 Econometric Issues

Multiple other econometric issues may further affect the results of the analysis, including the relatively small sample size, the stickiness of executive contracts, and the double-counting of deferred compensation on IRS 990 forms. Due to the number of applicable colleges and universities and the sample specifications, the final sample has 190 treatment observations and 695 control observations for the primary treatment variable, which limits the statistical power. For the first alternative treatment group, there are 327 treatment observations and 558 controls; for the second alternative treatment group, there are 54 treatment observations and 137 controls. Another critical factor is that the salaries of employees making over a million dollars may have taken longer than two years to react to the law change, especially if they had pre-existing contracts that they could not immediately alter in response to the policy. Finally, the total compensation of some employees may appear higher than it is due to the way that the IRS counts deferred compensation. On the IRS 990 form, organizations report deferred com-

pensation both when it is vested and when it is paid out, leading to inflated salaries for some employees in some years.

4 Analysis and Results

4.1 Main Results

The results of the regressions do not provide evidence that the passage of the TCJA had a significant effect on the salaries of top private college and university executives. Table 3 shows the regression results for the main treatment group. The interaction term, *Treated*Post*, is not statistically significant in any of the regressions, and each of the coefficients on this variable has a large confidence interval. The coefficients range from roughly -27,000 to -54,000. If these values were statistically significant, this would mean that we would expect treated employees to earn between \$27,000 and \$54,000 less than untreated employees in the post-TCJA period compared to the pre-TCJA period, on average. The *Treated* variable is statistically significant in all the models, and the coefficient in Column 1 of Table 1 shows that treated employees earned an additional \$1.13 million on average than untreated employees when controlling for other factors in the model. This value is very similar to the real difference in means between the two groups of roughly \$1.11 million. The *Post* variable is not statistically significant in any of the models and is omitted in the two models with year fixed effects. In the basic model with control variables added, some of the control variables are statistically significant at the 5% level, including *Endowment*, *Admissions rate*, *Liberal arts*, *Total Revenue*, *Tuition*, and *Total number of administrators*. However, with the addition of fixed effects for school and year, only the enrollment and total revenue variables are statistically significant at the 5% level.

Table 3: Linear Regressions for Main Treatment Group

VARIABLES	(1) Basic	(2) Basic with Controls	(3) Fixed Effects	(4) Fixed Effects with Controls
Dummy equal to 1 for treated employees	1,127,838.53*** (43,025.75)	1,082,156.49*** (42,026.46)	1,070,532.84*** (41,103.33)	1,068,764.23*** (41,457.49)
Dummy equal to 1 for post-treatment period	-21,643.83 (27,075.86)	-12,794.49 (27,216.35)		
Interaction between treated and post-treatment period	-27,176.53 (58,640.64)	-38,829.81 (55,876.44)	-53,728.20 (54,130.03)	-46,974.99 (55,293.05)
Enrollment		-141,408.98 (114,751.71)		-164,346.78 (113,312.70)
Endowment		0.00** (0.00)		-0.00** (0.00)
10-year USNWR average ranking		-1,517.95* (878.24)		
Admissions rate		382,346.97***		-175,061.83 (239,299.36)
Dummy equal to 1 for liberal arts colleges		(101,457.20)		
Total yearly organizational revenue		-127,994.55*** (46,283.63)		0.00** (0.00)
Six-year total graduation rate		-0.00*** (0.00)		
Tuition, room, and board		-14,771.42 (301,977.38)		992,701.98 (669,287.47)
Total number of administrators		3.49** (1.76)		10.34 (17.58)
Constant		744.60*** (148.52)		11.26 (575.64)
		612,345.05*** (19,241.70)	616,640.55*** (12,582.11)	-605,921.41 (1,223,291.00)
Fixed effects	N/A	N/A	Organization, Year	Organization, Year
Observations	885	880	885	880
R-squared	0.62	0.66	0.70	0.70

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 4: Logarithmic Regressions for Main Treatment Group

VARIABLES	(1) Basic	(2) Basic with Controls	(3) Fixed Effects	(4) Fixed Effects with Controls
Dummy equal to 1 for treated employees	1.05*** (0.04)	0.94*** (0.04)	0.93*** (0.04)	0.93*** (0.04)
Dummy equal to 1 for post-treatment period	-0.04 (0.03)	-0.03 (0.03)		
Interaction between treated and post-treatment period	0.00 (0.06)	-0.01 (0.05)	-0.02 (0.05)	-0.02 (0.05)
Enrollment		-0.17 (0.11)		-0.23** (0.10)
Endowment		0.00*** (0.00)		-0.00 (0.00)
10-year USNWR average ranking		-0.00 (0.00)		
Admissions rate		0.27*** (0.10)		-0.17 (0.22)
Dummy equal to 1 for liberal arts colleges		-0.30*** (0.04)		
Total yearly organizational revenue		-0.00*** (0.00)		0.00* (0.00)
Six-year total graduation rate		-0.08 (0.28)		0.38 (0.60)
Tuition, room, and board		0.00*** (0.00)		0.00 (0.00)
Total number of administrators		0.00*** (0.00)		-0.00 (0.00)
Constant	13.26*** (0.02)	12.83*** (0.30)	13.27*** (0.01)	12.95*** (1.10)
Fixed effects	N/A	N/A	Organization, Year	Organization, Year
Observations	885	880	885	880
R-squared	0.58	0.68	0.74	0.74

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 5: Linear Regressions for First Alternative Treatment Group

VARIABLES	(1) Basic	(2) Basic with Controls	(3) Fixed Effects	(4) Fixed Effects with Controls
Dummy equal to 1 for larger treatment group	854,607.65*** (42,065.26)	807,345.80*** (41,933.34)	794,527.65*** (41,067.28)	791,659.79*** (41,844.56)
Dummy equal to 1 for post-treatment period	-32,899.38 (35,034.73)	-6,923.85 (35,305.62)		
Interaction between treatment and post-treatment period	-21,896.23 (57,819.25)	-36,515.91 (55,955.53)	-75,504.78 (54,884.03)	-67,563.06 (56,779.77)
Enrollment		-122,666.02 (134,869.40)		-168,248.02 (135,688.46)
Endowment		0.00* (0.00)		-0.00 (0.00)
10-year USNWR average ranking		-1,979.66* (1,033.63)		
Admissions rate		298,521.05** (119,147.59)		122,213.60 (286,717.76)
Dummy equal to 1 for liberal arts colleges		-220,458.49*** (54,455.31)		
Total yearly organizational revenue		-0.00** (0.00)		0.00 (0.00)
Six-year total graduation rate		-333,312.86 (355,179.45)		877,021.03 (801,684.73)
Tuition, room, and board		0.63 (2.07)		18.06 (21.15)
Total number of administrators		544.34*** (176.03)		175.09 (691.79)
Constant	545,756.19*** (24,595.07)	725,515.72* (379,644.99)	561,944.31*** (16,992.46)	-1209059.27 (1,468,187.76)
Fixed effects	N/A	N/A	Organization, Year	Organization, Year
Observations	885	880	885	880
R-squared	0.49	0.53	0.57	0.58

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 6: Logarithmic Regressions for First Alternative Treatment Group

VARIABLES	(1) Basic	(2) Basic with Controls	(3) Fixed Effects	(4) Fixed Effects with Controls
Dummy equal to 1 for larger treatment group	0.91*** (0.04)	0.83*** (0.03)	0.83*** (0.03)	0.82*** (0.03)
Dummy equal to 1 for post-treatment period	-0.06** (0.03)	-0.04 (0.03)		
Interaction between treatment and post-treatment period	0.01 (0.05)	-0.01 (0.04)	-0.04 (0.04)	-0.03 (0.04)
Enrollment		-0.13 (0.10)		-0.21** (0.10)
Endowment		0.00*** (0.00)		-0.00 (0.00)
10-year USNWR average ranking		-0.00* (0.00)		
Admissions rate		0.20** (0.09)		0.13 (0.21)
Dummy equal to 1 for liberal arts colleges		-0.39*** (0.04)		
Total yearly organizational revenue		-0.00*** (0.00)		0.00 (0.00)
Six-year total graduation rate		-0.44 (0.27)		0.27 (0.58)
Tuition, room, and board		0.00 (0.00)		0.00 (0.00)
Total number of administrators		0.00*** (0.00)		0.00 (0.00)
Constant	13.16*** (0.02)	13.40*** (0.29)	13.17*** (0.01)	12.38*** (1.06)
Fixed effects	N/A	N/A	Organization, Year	Organization, Year
Observations	885	880	885	880
R-squared	0.61	0.71	0.77	0.77

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 7: Linear Regressions for Second Alternative Treatment Group

VARIABLES	(1) Basic	(2) Basic with Controls	(3) Fixed Effects	(4) Fixed Effects with Controls
Dummy equal to 1 for threshold treatment group	211,657.85*** (12,848.32)	196,935.71*** (13,831.74)	199,056.87*** (15,224.18)	196,226.93*** (16,269.82)
Dummy equal to 1 for post-treatment period	-48,898.63*** (9,430.33)	-38,978.17*** (9,913.43)		
Interaction between treatment and post-treatment period	-6,870.03 (17,667.88)	-902.31 (17,798.74)	-8,699.68 (19,278.15)	-3,776.83 (20,556.97)
Enrollment		-19,623.07 (39,918.22)		-21,288.32 (43,228.80)
Endowment		-0.00 (0.00)		-0.00 (0.00)
10-year USNWR average ranking		-342.59 (310.93)		
Admissions rate		-48,434.61 (37,944.16)		-21,262.61 (111,324.73)
Dummy equal to 1 for liberal arts colleges		-19,634.95 (17,697.95)		
Total yearly organizational revenue		0.00 (0.00)		-0.00 (0.00)
Six-year total graduation rate		-62,401.75 (109,941.32)		-194,552.54 (257,145.63)
Tuition, room, and board		-1.62** (0.68)		2.55 (6.60)
Total number of administrators		6.24 (44.68)		-338.25 (239.00)
Constant	921,273.71*** (7,023.82)	1,128,568.93*** (118,151.98)	898,479.08*** (4,947.60)	1,024,967.38** (444,920.03)
Fixed effects	N/A	N/A	Organization, Year	Organization, Year
Observations	191	190	191	190
R-squared	0.76	0.78	0.82	0.83

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 8: Logarithmic Regressions for Second Alternative Treatment Group

VARIABLES	(1) Basic	(2) Basic with Controls	(3) Fixed Effects	(4) Fixed Effects with Controls
Dummy equal to 1 for threshold treatment group	0.21*** (0.01)	0.19*** (0.01)	0.19*** (0.02)	0.19*** (0.02)
Dummy equal to 1 for post-treatment period	-0.05*** (0.01)	-0.04*** (0.01)		
Interaction between treatment and post-treatment period	0.00 (0.02)	0.01 (0.02)	0.00 (0.02)	0.00 (0.02)
Enrollment		-0.02 (0.04)		-0.02 (0.05)
Endowment		-0.00 (0.00)		0.00 (0.00)
10-year USNWR average ranking		-0.00 (0.00)		
Admissions rate		-0.05 (0.04)		-0.03 (0.12)
Dummy equal to 1 for liberal arts colleges		-0.02 (0.02)		
Total yearly organizational revenue		0.00 (0.00)		-0.00 (0.00)
Six-year total graduation rate		-0.05 (0.12)		-0.22 (0.27)
Tuition, room, and board		-0.00** (0.00)		0.00 (0.00)
Total number of administrators		0.00 (0.00)		-0.00 (0.00)
Constant	13.73*** (0.01)	13.94*** (0.13)	13.71*** (0.01)	13.83*** (0.47)
Fixed effects	N/A	N/A	Organization, Year	Organization/Year
Observations	191	190	191	190
R-squared	0.75	0.77	0.81	0.81

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Using a logarithmic transformation to account for the positive skewness of the compensation data yields similar regression results. Table 4 displays the results of the logged regressions for the primary treatment group. The coefficients on the primary independent variable of interest, *Treated*Post*, are insignificant, with values close to zero. For the *Treated* variable, the coefficients are still highly statistically significant. The *Post* variable is still insignificant, and the control variables follow an almost identical pattern as in the untransformed regressions, except that total revenue is not significant at the 5% level in the fixed effects model. Finally,

4.2 Results for Alternative Treatment Groups

The regression results for the first alternative treatment variable follow similar patterns to those of the main treatment group. Tables 5 and 6 show the results of the regressions for the first alternative treatment variable for linear and logged compensation, respectively. The coefficients on the interaction term, *Treated*Post*, are statistically insignificant with large confidence intervals. The *Treated* variable is significant, with values between roughly \$792,000 and \$854,000. *Post* is also statistically insignificant. Compared to the earlier regressions, there are some minor differences in the specifics of the control variables. In the linear model without fixed effects, *Admissions rate*, *Liberal arts*, *Total revenue*, and *Total number of admin* are statistically significant at the 5% level or lower. None of the controls are statistically significant in the linear fixed effects model. In the logged model without fixed effects, *Endowment*, *Admissions rate*, *Liberal arts*, *Total revenue*, and *Total number of administrators* are statistically significant at the 5% level or lower. The only significant control in the logged model with fixed effects is enrollment.

The results of the regressions for the second alternative treatment variable also follow similar trends. Tables 7 and 8 show these results for linear and logged compensation, respectively.

Each of the coefficients on *Treated*Post* is statistically insignificant. *Treated* is significant in all eight models, with coefficients hovering around \$200,000 for the linear models and roughly 0.2 for the logarithmic specification. *Post* is statistically significant in the four models without fixed effects with this second alternative treatment variable. In both the linear and the logged models, only *Tuition* is significant when fixed effects are omitted, and none of the controls are statistically significant in the model with fixed effects included.

5 Conclusion

This paper makes a unique contribution to the literature by examining how private colleges and universities specifically responded to Section 4960 of the Internal Revenue Code, which imposed an excise tax on non-profit executive compensation exceeding \$1 million. Included in the Tax Cuts and Jobs Act of 2017, this provision represents Congress's attempt to curb what they perceived as excessive executive compensation growth in non-profit organizations. The primary aim of this paper was to determine whether executives at private colleges and universities earning over \$1 million experienced reductions in their salaries or their rates of salary growth compared to employees under this threshold as a result of Section 4960. While previous studies have analyzed the broader impact of this Tax Cuts and Jobs Act provision on non-profits generally, this research represents the first focused investigation of its effects within higher education institutions—organizations with distinct characteristics and compensation structures that warrant separate analysis.

The study employed a difference-in-differences methodology, leveraging the 2018 implementation of the TCJA as a natural experiment. This approach compared compensation trends between executives earning above and below the \$1 million threshold, controlling for key institutional factors, including organizational wealth, revenue, prestige, performance met-

rics, complexity, and size. The policy's clear effective date and compensation threshold made it suitable for this analytical framework, which has been successfully employed in previous studies examining Section 4960's impact on other organizational types.

However, several methodological challenges prevented drawing definitive conclusions about the policy's effects on higher education executive compensation. First, the analysis revealed violations of the parallel trends assumption—a crucial prerequisite for difference-in-differences estimation—as pre-TCJA compensation trajectories differed significantly between treatment and control groups. Second, data limitations restricted both sample size and temporal scope, potentially obscuring policy effects that might become apparent with a larger dataset. These constraints stand in contrast to previous research that identified significant policy impacts in the broader non-profit sector, leaving open the question of whether higher education institutions respond similarly or differently to such tax incentives. On account of these issues, it is also difficult to make conclusions about the relative importance of tax considerations compared to other determinants of executive pay in private schools.

These limitations suggest several promising directions for future research. Alternative methodological approaches might better accommodate the non-parallel pre-treatment trends observed in higher education executive compensation. For instance, researchers might consider using a synthetic control method to construct a more appropriate comparison group. Synthetic control methods could overcome the parallel trends violation by constructing a comparison group that better matches the pre-treatment compensation trajectories of high-earning executives, using weighted combinations of institutions with similar characteristics but no executives over the threshold. This approach would allow for more customized comparisons than traditional difference-in-differences, potentially revealing policy effects that the current methodology's limitations might obscure. Additionally, future studies would benefit from expanded data

collection efforts, potentially including a more extended time series for compensation data, a broader sample of institutions, and additional control variables.

While this study was unable to definitively characterize higher education's response to Section 4960, it highlights the unique challenges of analyzing compensation policies in this sector. It also provides a foundation for future research examining how tax incentives affect various types of non-profit organizations differently. These insights may prove valuable for policymakers considering targeted regulations for specific non-profit sectors rather than one-size-fits-all approaches.

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