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Presidential Compensation and Institutional Revenues: Testing the Return on Investment for Public University Presidents

James M. Hunt, David A. Tandberg, and Toby J Park

Abstract: Many critics consider public institution presidents' compensation to be excessive, while others argue the money yields a return on investment in private fundraising and state appropriations. Our study asks whether presidential compensation at public, four-year institutions is associated with increased institutional revenue from state appropriations and private fund-

James M. Hunt is the Director of Institutional Research at Florida State University where he leads the university's state and federal data reporting efforts, student success research efforts, and the empowerment of faculty and staff with data. His interests center on state higher education policy, financial aid, and postsecondary student success.

David A. Tandberg is vice president for policy research and strategic initiatives at the State Higher Education Executive Officers Association. His interests center on state higher education policy, finance, politics, leadership, governance, and economics. His research has appeared in a variety of peer-reviewed outlets.

Toby J Park is associate director of the Center for Postsecondary Success and associate professor of education policy at Florida State University. His primary research utilizes quasi-experimental methods and large statewide datasets to investigate student outcomes in postsecondary education and explore potential policy initiatives that could improve student success. His recent publications have appeared in *Research in Higher Education* and *The Journal of Higher Education*.

raising. Using executive salary data from *The Chronicle of Higher Education*, our study implements ordinary least squares regression with fixed effects and temporally adjusted outcome variables while controlling for institutional and state attributes. We find no evidence of a relationship between presidential compensation and revenue generation from increased fundraising or state appropriations.

Presidential salaries have come under increased scrutiny over the last several years (Newman, 2013; Stripling & Fuller, 2011, 2012). Possibly motivating this increased attention is the steady increase in executive pay, even within public higher education. The latest data indicate that in 2011–2012, four public college presidents earned more than \$1-million dollars (which was an increase of 1 president from the year before). The largest growth was among presidents making \$600,000 to \$700,000, with 13 presidents included in that pay range in 2010–2011 and 28 in 2011–2012. However, median total compensation also increased by 4.7 percent over the same period. The previous year-to-year increase was 3 percent. Figure 1 illustrates this trend of increasing compensation for presidents, particularly among doctoral extensive institutions. Such increases have resulted in some states mandating caps on the amount of public funds that can be used to compensate presidents and increased scrutiny of state lawmakers (Stripling & Fuller, 2011), and the California State University system adopted a policy that freezes all salaries for incoming presidents at current levels, unless a campus foundation can independently finance an increase of up to 10 percent (Stripling & Fuller, 2012). One private institution is considering mandating that the president gets paid no more than 10 times the salary of the lowest paid full-time employee (Rivard, 2014).

Within the context of a public becoming increasingly aware of constrained state budgets, student debt issues and the utilization of part-time and adjunct instructors, executive compensation is an easy target for criticism. A recent study by the Institute for Policy Studies highlights this point. Their analysis revealed that at the top 25 public universities for executive pay, the sharpest rise in student debt occurred when executive compensation increased, administrative spending exceeded scholarship spending by more than 2 to 1, the use of part-time faculty increased 22% faster than the national average, and average executive pay increased more than twice as fast as the national average for public research universities (Erwin & Wood, 2014). While the authors do not attempt to make any causal claims, their report emphasizes the tension between boards' desire to recruit the most talented leaders possible and the realities of institutional budgets.

While critics of "excessive" presidential pay at public institutions point to tight state and institutional budgets; pay discrepancies between presidents, faculty, and staff; and rising tuition and fees as reasons to be concerned about

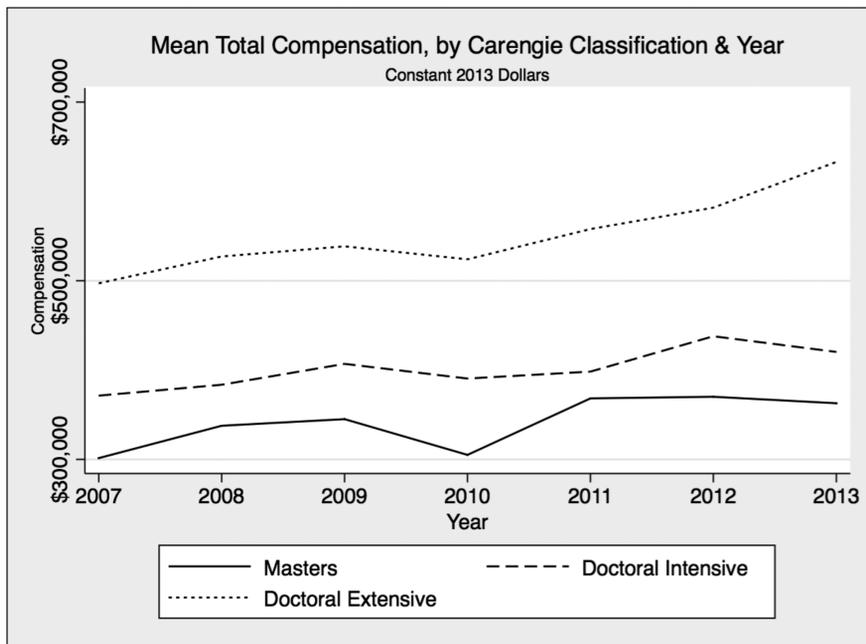


Figure 1. Mean Total Compensation, by Carnegie Classification and Year

presidential pay and pay increases, others argue that there is little reason to be concerned and that such pay is justified. Supporters argue that institutions must compete in a competitive national market for the best talent. This talent, they argue, benefits the institution by, among other things, bringing in additional revenue in the form of state appropriations, contracts, and capital funds, and, perhaps most importantly, private fundraising (Vedder, 2016). The argument in support of high presidential salaries appears to be that “you get what your pay for” and that the very best talent is worth the cost. In other words, there should be a return on investment to presidential compensation (Kingkade & Friend, 2014; Newman, 2013; Stripling & Fuller, 2012). However, little to no empirical evidence exists to validate or invalidate these arguments. Therefore, the purpose of this study is to test whether presidential salary is associated with a return on investment in the form of increased institutional revenue from state sources and private fundraising for public universities.

This study seeks to answer the following research questions:

1. What is the relationship between presidential salary and state appropriations per full-time equivalent student (FTE) at public, four-year institutions?

2. What is the relationship between presidential salary and private fundraising per FTE at public, four-year institutions?

To answer these questions, we begin with a review of the existing literature on higher education and nonprofit executive compensation, focusing on the relationship between compensation and organizational outcomes. Next, we describe our use of data from the Integrated Postsecondary Education Data System, (IPEDS) and *The Chronicle of Higher Education*, including our use of fixed effects regression and temporally adjusted dependent variables. We will then share results from our models and conclude the paper with a discussion of the implications of our findings for both scholars and policymakers.

LITERATURE AND THEORETICAL FRAMEWORK

Our study is the first we are aware of that empirically tests the assumption that paying public college and university presidents more is associated with increased institutional revenue. We openly acknowledge that presidents are asked to do much more than simply generate revenue (see the Limitations section below for a more detailed discussion); however, revenue generation is a significant and growing responsibility of college presidents (Cook & Kim, 2012; Duderstadt, 2009; Rubins, 2007). Nevertheless, despite the prominence of revenue generation among presidential responsibilities, previous research has primarily focused on the factors that are associated with presidential compensation and the factors that distinguish compensation among public versus private institutions. These bodies of research have identified a variety of factors having an impact on presidential salary, including institutional factors such as enrollment, reputation, complexity, endowment value, dependence on donations, level of institution, and control of institution, as well as individual characteristics of presidents themselves such as job tenure, gender, and age (Bartlett & Sorokina, 2005; Ehrenberg, Cheslock, & Epifantseva, 2000; Galle & Walker, 2015; Monks, 2007). Past research has found only weak evidence that presidents were rewarded for institutional performance (e.g., Ehrenberg et al., 2000).

Two studies have attempted to link measures of presidential compensation to institutional outcomes. The first looked at whether being listed among the top 10 institutions for presidential pay impacted donor giving (Galle & Walker, 2014). Using multiyear panel data of colleges and universities and OLS regression analysis, Galle and Walker argued that donors represent a potential source of monitoring and executive pay discipline in the nonprofit sector, including higher education. Focusing only on private institutions, the authors found that appearing on a top 10 list is associated with reduced average donations of \$4.5 million in the first full fiscal year following disclosure, despite greater fundraising by “top 10” schools. They also found

some evidence that top 10 appearances slow the growth of compensation while increasing enrollment in subsequent years. These results confirmed the authors' earlier findings regarding the relationship between presidential compensation and donations to private institutions (Galle & Walker, 2015).

The second study (Parsons & Reitenga, 2013) asked whether there is a return for compensating college and university presidents relatively more than their peers and whether there is a difference in a relationship between relative compensation and organizational performance for public and private colleges and universities. Using *U.S. News & World Report* rankings data and a two-stage model in which the authors used predicted standard errors in a model of presidential compensation as the variable of interest in their main model, the authors found that private institutions reward improvements in academic quality but not improvements in the academic environment (i.e., reductions in class size). Excess compensation in public institutions was not found to be related to the *U.S. News & World Report* performance metrics.

The results of these higher education studies are largely confirmed by studies examining the relationship between CEO compensation and non-profit and for-profit firm performance. Generally, the literature regarding non-profit firm performance finds there is little to no relationship between CEO compensation and a variety of firm performance outcomes, such as growth in contributions and liquid assets (e.g., Frumkin & Keaton, 2010). However, a recent study found a possible negative relationship with non-profit firm performance if the ratio of CEO to employee pay becomes too large (Newton, 2015). The literature regarding CEO compensation and for-profit firm performance is decidedly mixed with one study finding a modest positive relationship (van Essen, Heugens, Otten, & van Oosterhout, 2012), two more revealing a significant negative relationship (Carpenter & Sanders, 2004; Cooper, Gulen, & Rau, 2014), and one that revealed no significant relationship between CEO compensation and for-profit firm performance (Michaud & Gai, 2009).

While the literature in support for higher presidential salaries and institutional outcomes is mixed at best, there is a conceptual basis for the notion that institutions actively seek to generate revenue in any way they can. An economist and former university president, Howard R. Bowen (1980) theorized that higher education institutions raise all the money they can to then spend all the money they can. Bowen's (1980) "Revenue Theory of Costs" suggests that institutions find themselves in an arms race for prestige and perception of quality, and institutions have an insatiable thirst for revenue to fund their quest for prestige. Revenue Theory of Costs may shed light on the motivations of institutional and state boards in allocating large amounts of funding to presidential salaries; if the prevailing belief is that high presidential salaries yield a return on investment, higher education leaders could see hiring a highly-paid president as an opportunity to raise additional revenues.

Research has examined this notion of institutions constantly seeking new revenue. Conceptually, one might expect that public higher education institutions would respond to increasing state appropriations by decreasing the intensity of their own fundraising efforts. However, research indicates that state support for higher education may not be related to success in generating private funds. Using IPEDS data and other data sources, Cheslock and Gianneschi (2008) found that contrary to expectations, government funding for higher education was not significantly related to institutional efforts to generate private funds. Cheslock and Gianneschi (2008) attributed this finding to Bowen's (1980) Revenue Theory of Costs, suggesting that institutions are inclined to generate funds in any way possible, even if they enjoy sufficient support from state government. Although the literature does provide some support to a constant institutional quest for revenue, the question that has not been taken up by scholars is whether higher presidential compensation is associated with higher revenue.

Our study advances prior research by focusing specifically on public institutions' total compensation for presidents and one of the most visible outcomes related to presidential performance: revenue generation. Adopting the perspective of the Revenue Theory of Costs, where institutions have an assumed interest in maximizing revenue, we test two opposing hypotheses related to presidential pay and revenue generation. The first, which is most commonly argued in the popular media and by institutional leaders and boards, suggests that you get what you pay for; if an institution is willing to pay a president more, the institution will receive more in return (in this case, increased donations and state appropriations). The second, which is suggested by Galle and Walker (2014) and additional anecdotal evidence regarding state lawmakers (Stripling & Fuller, 2011, 2012), suggests that potential funders might be turned off by increased presidential salaries and will serve as an outside regulator. In the case of our research, those outside supporters would include donors and state lawmakers (legislators and governors).

DATA SOURCES, SAMPLE, AND VARIABLES

We primarily utilize the National Center for Education Statistics' IPEDS for institution-level finance, enrollment, completions and other characteristics. Our source for presidential compensation is *The Chronicle of Higher Education*, whose editors generously provided the results from multiple years of their executive compensation survey for use in this project. We also complement these data with data from the U.S. Census Bureau, the Bureau of Economic Analysis, and datasets of state-level political features developed by political scientists Richard Fording and Carl Klarner.

Sample

After using casewise deletion to remove any institutions with missing data in one or more years in the sample period, the analytic sample for our study consists of 119 public, four-year institutions with 7 years of observations. All 119 institutions in the study are doctoral degree-granting institutions as of the 2010 Carnegie Classifications in which 11 (9.42%) of the institutions are classified as doctoral research universities, 48 (40.34%) are classified as research universities with high research activity, and 60 (50.24%) are classified as research universities with very high research activity. The sample consists of institutions in 44 of the 50 states, including all states except Alaska, Delaware, Florida, Idaho, New Jersey, and South Dakota. Although some of the institutions in these states have data available from *The Chronicle of Higher Education*, the institutions in these states are dropped from the sample because of the unavailability of complete institutional data.

Dependent Variables

We have two dependent variables. The first we call *fundraising per FTE*, which we take from the “gifts and contributions from affiliated entities” in the IPEDS Finances survey and divide by full-time equivalent (FTE) enrollment from the IPEDS 12-Month Enrollment survey. Our second dependent variable is *state appropriations per FTE*, also taken from the IPEDS Finances survey and calculated in the same fashion as *fundraising per FTE* (see Tandberg & Griffith (2013) for a complete discussion of this measure). It is important to clarify here that although we recognize fundraising and state appropriations are only two of a multitude of public institution revenue streams (other common sources of revenue include tuition and fees, room and board charges, contracts and grants, sales and auxiliary services, and more), we contend that fundraising and state appropriations represent revenue streams in which a college or university president may have the greatest degree of influence. Additionally, although it is plausible that these other forms of revenue may, either individually or in the aggregate, be related to presidential compensation, we further contend that given the nature of the work of public college presidents in the political arena and with private donors (Hodson, 2010; Kaufman, 2004; Nicholson, 2007; Tandberg & Griffith, 2013), state appropriations and fundraising are, arguably, the two most logical sources of revenue to consider as it seems most plausible that a president would have some degree of influence on these revenue streams if she or he has influence on any revenue streams at all.

Independent Variables

Our primary independent variable of interest in this study is *presidential compensation*. *The Chronicle of Higher Education* provided us with their executive salary survey data, and we use the value for a president’s total com-

pensation (consisting of base compensation, bonus compensation, deferred compensation, unvested compensation, and retirement compensation, less any reported severance pay) for the fiscal years 2007 to 2013. Figure 2 plots total presidential compensation (in constant 2013 dollars) by Carnegie Classification, illustrating unsurprising differences in compensation by classification. We also include a variety of institution-level covariates to account for differences among institutions that may also be related to state appropriations and institutional fundraising (e.g., Coughlin & Erekson, 1986; McLendon, Mokher, & Doyle, 2009). We include the following variables from IPEDS: *flagship institutions*, an indicator of whether the institution is the flagship institution in its state, important to net out possible funding differences for flagship institutions; *medical school*, an indicator of whether the institution offers medical degrees, included to net out any funding differences for colleges and universities with a medical school; *graduation rate*, which is six-year graduation rate for the entering First Time in College (FTIC) cohort and a proxy for institutional prestige; *tuition revenue per FTE*, total institutional revenue per student from tuition dollars used to account for tuition as a major source of funding and as a measure of institutional funding capacity; *test scores*, the ACT/SAT concordance 75th percentile score of the incoming FTIC cohort as a control for student academic achievement; *selectivity*, the percentage of applicants who were admitted as a control for institutional prestige and proxy for institutional popularity; *doctoral research university*, *research university—high research activity*, and *research university—very high research activity* dummy variables for the time-invariant Carnegie 2010 classifications as a way to isolate any effects of institutional type; *male enrollment*, the percentage of enrolled students who identify as male as a demographic descriptor of student enrollment; and *underrepresented minority enrollment*, the percentage of the student population identifying as one of two underrepresented racial/ethnic minorities—Black and Hispanic/Latino.

The last set of covariates we include are state-level political, economic, and demographic measures. Because previous studies have shown relationships between state support of higher education and state political and other state characteristics (Coughlin & Erekson, 1986; McLendon et al., 2009; McLendon, Hearn, & Mokher, 2009; Tandberg & Griffith, 2013), we include several state-level measures considered to be related to state appropriations: *citizen ideology*, a continuous measure of the ideology of a state's citizenry (put another way, how liberal the citizenry is); *Republican governor*, an indicator of whether the governor is a Republican; *Gini Coefficient*, a measure of income inequality; *unemployment*, a state's unemployment rate of 25–64 year olds; *population minority*, the percentage of underrepresented minorities in a state's population; and *total population*, the total population of 25–64 year olds in the state.

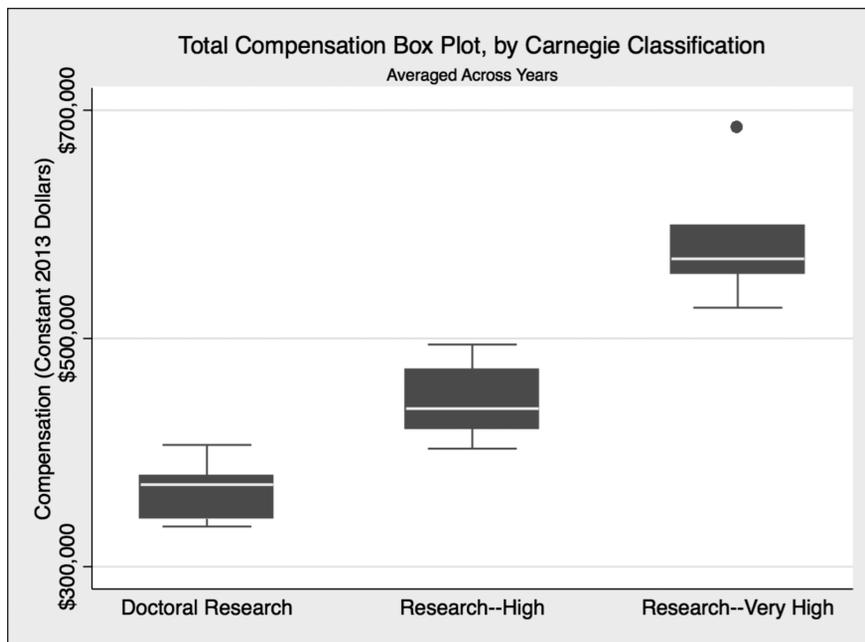


Figure 2. Total Compensation Box Plot by Carnegie Classification

Table 1 provides descriptive statistics of all variables of the 119 institutions included in the study for the years 2007–2013. All financial data are in real 2013 dollars, adjusted using the Consumer Price Index for All Urban Consumers (CPI-U).

METHODOLOGY

Utilizing available research on institutional fundraising (e.g., Coughlin & Ereksun, 1986; Harrison, 1995; Marudas & Jacobs, 2004; Sun, Hoffman, & Grady, 2007), state appropriations (e.g., McLendon et al., 2009; Lowry, 2001; Coughlin & Ereksun, 1986; see Tandberg & Griffith (2013) for a complete review), and the studies discussed above examining the impact of presidential salary on institutional outcomes, including donations (Galle & Walker, 2014; Parsons & Reitenga, 2013), we construct five sets of ordinary least squares (OLS) models, beginning with a naïve model in which we regress each dependent variable on presidential compensation. We then add controls in a stepwise fashion, first adding institutional factors, then state political, economic, and demographic factors. We then included year fixed effects, which allow us to net out any year-specific factors that may be influencing both presidential salary as well as our outcome measures, thus biasing our

TABLE 1.
DESCRIPTIVE STATISTICS

	<i>Mean</i>	<i>Std. Dev.</i>
<i>Variables of Interest</i>		
Presidential Compensation (constant 2013 Dollars)	506961.7	252542.6
State Appropriations per FTE (constant 2013 Dollars)	8845.1	4283.2
Fundraising per FTE (constant 2013 Dollars)	1282.1	1218.1
<i>Institutional Characteristics</i>		
Flagship Institution	0.34	0.48
Medical School	0.48	0.50
Graduation Rate	59.8	15.3
Tuition Revenue per FTE (constant 2013 Dollars)	10466.2	4561.4
Minority Enrollment (%)	36.5	17.0
Total Enrollment	25647.6	10316.2
Male Enrollment (%)	47.3	6.3
ACT/SAT Concordance (75th Percentile)	27.0	2.4
Selectivity (% Admitted of Applied)	67.7	15.8
Carnegie 2010: RUVH	0.50	0.50
Carnegie 2010: RUH	0.40	0.49
Carnegie 2010: Doctoral Research	0.09	0.30
<i>State Political, Economic, and Demographic Characteristics</i>		
Citizen Ideology	51.4	13.7
Republican Governor	0.51	0.50
Gini Coefficient	45.1	2.6
Unemployment Rate (%)	7.5	2.3
Population, Ages 25–64 (1000s)	1020.7	993.3
Underrepresented Minority Population (%)	25.7	13.4
n=833 (119 institutions)		

estimates. Lastly, because it is possible that the effects of presidential compensation may not appear immediately and because of the possibility of reverse causality (increased state appropriations and fundraising leading to increased presidential compensation), we also implement a set of year fixed effect models in which we advance the dependent variable by one, two, and three years. The full fixed effects model can be expressed as:

$$Y_{it} = \beta_0 + \beta_1(\text{compensation})_{it} + \beta_2 X_{it} + \mu_t + \epsilon_{it}$$

where Y_{it} is logged fundraising per FTE/state appropriations per FTE in constant 2013 dollars in institution i in year t , *compensation* is the logged total compensation for an institution's president in constant 2013 dollars, X_{it} is a vector for institution and state covariates (keeping all time-varying covariates as described previously and excluding the time-invariant Carnegie 2010 classification), μ_t represents year fixed effects, and ϵ_{it} is the error term.

Because we use panel data with repeated observations over time, it is possible that our error terms in our models could be serially correlated. Although serial correlation does not pose a threat to the unbiasedness of OLS, it does threaten efficiency. To test for the presence of serial correlation, we conducted Wooldridge tests (see Drukker, 2003) on our full models (fixed effects models and temporally adjusted models of both appropriations and fundraising). We found the presence of autocorrelation in the appropriations models, so we clustered the standard errors on institutions for those models.

RESULTS AND DISCUSSION

Our results largely do not lend support to those who justify presidential salaries by return on investment. Figures 3 and 4 are scatterplots of the bivariate relationships between presidential compensation and state appropriations per FTE as well fundraising per FTE, respectively. The plots also display fitted values and 95% confidence intervals for those values. As seen in Figure 3, the relationship between appropriations per FTE and presidential compensation is weak at best. Conversely, the relationship between compensation and fundraising per FTE appears to be positive, offering some descriptive support to the notion that highly paid presidents yield return on investment in private gifts. These figures also illustrate the presence of some extreme outliers, specifically in state appropriations per FTE, fundraising per FTE, and presidential compensation. We address these outliers in greater detail later.

Tables 2 and 3 provide coefficients and standard errors for the regression models for state appropriations and fundraising, respectively, and corroborate the findings from Figures 3 and 4. The naïve model for state appropriations per FTE yields significant results, revealing a negative association between presidential compensation and state appropriations, providing preliminary support for the theoretical view that state lawmakers might be turned off by increased presidential salaries. The effect of presidential compensation on appropriations remains significant and negative (albeit reduced) when institutional covariates are added to the regression model. The naïve model for fundraising does not approach statistical significance, calling into question any relationship between fundraising and presidential compensation.

However, as evidenced by the additional models in Tables 2 and 3 as well as the temporally adjusted models in Table 4, after controlling for covariates as well as year fixed effects, we fail to find statistically significant effects for presidential compensation on either fundraising per FTE or state appropriations per FTE in every additional model we run, including the models in which we temporally advance the outcome variables. While an outside observer may associate increased presidential pay with decreased state appropriations and increased private fundraising (i.e., our naïve models), these

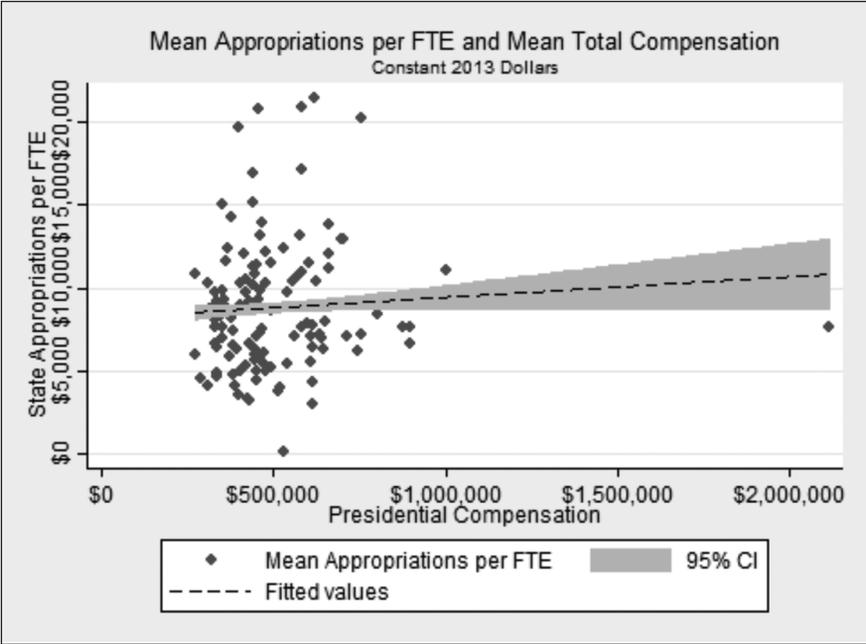


Figure 3. Scatterplot of Mean Appropriations per FTE and Mean Total Compensation

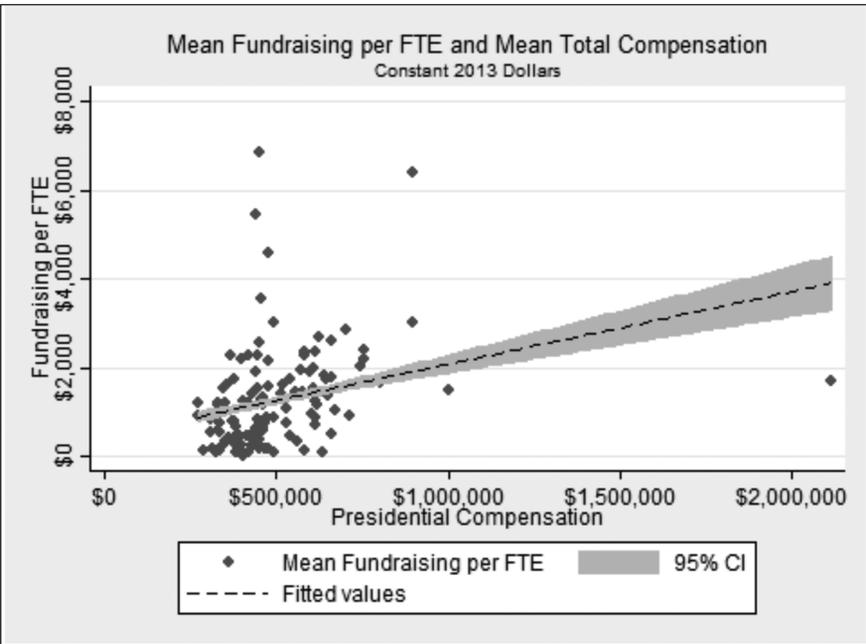


Figure 4. Mean Fundraising per FTE and Mean Total Compensation

TABLE 2.
PRESIDENTIAL COMPENSATION & STATE APPROPRIATIONS
PER FTE (LOGGED)

	<i>Naive Model b/(se)</i>	<i>Inst Controls b/(se)</i>	<i>Inst & State Controls b/(se)</i>	<i>Year Fixed Effects b/(se)</i>
Pres. Comp. (Log)	-0.1451*** (0.0358)	-0.0758** (0.0267)	-0.0285 (0.0239)	-0.0018 (0.0221)
Flagship Institution		0.1502 (0.1667)	0.2494 (0.1533)	0.2159 (0.1464)
Medical School		0.0585 (0.0840)	0.1061 (0.1119)	0.1368 (0.1024)
Grad. Rate		-0.0149*** (0.0031)	-0.0094*** (0.0024)	-0.0021 (0.0020)
Min. Enrollment (%)		-0.0166*** (0.0027)	-0.0077** (0.0025)	0.0054 (0.0028)
Male Enrollment (%)		-0.0038 (0.0096)	0.0052 (0.0064)	0.0083 (0.0058)
ACT/SAT (75 Percentile)		-0.0737*** (0.0200)	-0.0406** (0.0146)	-0.0049 (0.0147)
Admission (%)		-0.002 (0.0012)	-0.0009 (0.0011)	-0.0013 (0.0010)
Carnegie 2010: RUVH		1.0496*** (0.2533)	0.5933** (0.2179)	0.0821 (0.2235)
Carnegie 2010: RUH		0.2827 (0.1897)	0.1467 (0.1529)	-0.0607 (0.1546)
Tuition/FTE. (Log)		-0.0331 (0.0599)	-0.0837 (0.0546)	-0.028 (0.0392)
Citizen Ideology			0.0042*** (0.0012)	-0.0012 (0.0013)
Rep. Governor			0.0035 (0.0179)	0.0089 (0.0179)
Gini Coef.			-0.0450*** (0.0046)	-0.0009 (0.0056)
Unemployment Rate			-0.0053 (0.0033)	-0.012 (0.0062)
Age 25–64 Pop (100000s)			0.0109 (0.0072)	-0.0006 (0.0059)
Minority. Pop. (%)			0.0058 (0.0041)	0.0033 (0.0036)
Constant	10.8547*** (0.4655)	13.3318*** (0.6230)	12.9565*** (0.6052)	9.1290*** (0.6031)
r ²	0.0002	0.0035	0.072	0.2332
n	833	833	833	833
Clustered SEs?	Yes	Yes	Yes	Yes
Year Fixed Effects?	No	No	No	Yes

Note: p -value < .05*, < .01**, < .001***

TABLE 3.
PRESIDENTIAL COMPENSATION & FUNDRAISING PER FTE
(LOGGED)

	<i>Naive Model b/(se)</i>	<i>Inst Controls b/(se)</i>	<i>Inst & State Controls b/(se)</i>	<i>Year Fixed Effects b/(se)</i>
Pres. Comp. (Log)	0.0787 (0.0876)	-0.0209 (0.0875)	0.0031 (0.0891)	-0.0158 (0.0902)
Flagship Institution		0.2783 (0.2006)	0.3982 (0.2040)	0.4369* (0.2035)
Medical School		0.1077 (0.1472)	0.1742 (0.1442)	0.1738 (0.1433)
Grad. Rate		0.003 (0.0061)	0.0024 (0.0063)	0.0037 (0.0064)
Min. Enrollment (%)		-0.0154*** (0.0044)	-0.0152** (0.0054)	-0.0115 (0.0059)
Male Enrollment (%)		-0.0236 (0.0127)	-0.0182 (0.0123)	-0.0183 (0.0123)
ACT/SAT (75 Percentile)		0.0755* (0.0381)	0.0826* (0.0385)	0.0951* (0.0388)
Admission (%)		0.0018 (0.0030)	0.0025 (0.0030)	0.0021 (0.0030)
Carnegie 2010: RUVH		1.5729*** (0.3550)	1.3799*** (0.3402)	1.3862*** (0.3455)
Carnegie 2010: RUH		0.8595** (0.3211)	0.8109** (0.3029)	0.8715** (0.3030)
Tuition/FTE. (Log)		0.4235*** (0.1246)	0.4229*** (0.1273)	0.3500** (0.1293)
Citizen Ideology			-0.0018 (0.0037)	-0.0109* (0.0045)
Rep. Governor			0.0029 (0.0528)	0.0114 (0.0530)
Gini Coef.			-0.023 (0.0129)	-0.0023 (0.0201)
Unemployment Rate			-0.0184 (0.0119)	0.0554* (0.0269)
Age 25–64 Pop (100000s)			0.0181 (0.0122)	0.0159 (0.0123)
Minority. Pop. (%)			0.0019 (0.0083)	-0.006 (0.0087)
Constant	5.5894*** (1.1487)	1.0518 (1.7045)	1.3583 (1.8142)	1.2223 (2.0157)
r ²	0.0724	0.3961	0.4186	0.4525
n	833	833	833	833
Clustered SEs?	No	No	No	No
Year Fixed Effects?	No	No	No	Yes

Note: p -value < .05*, < .01**, < .001***

TABLE 4.
PRESIDENTIAL COMPENSATION & TEMPORALLY
ADJUSTED REVENUE OUTCOMES

	<i>Advanced 1 Year b/se</i>	<i>Advanced 2 Years b/se</i>	<i>Advanced 3 Years b/se</i>
State Appropriations per FTE (Logged)	0.0032 (0.0183)	-0.0018 (0.0181)	-0.0278 (0.0288)
Fundraising per FTE (Logged)	-0.0056 (0.0965)	-0.0383 (0.0999)	0.17 (0.1142)
r ² (State Appropriations per FTE)	0.2243	0.185	0.1374
r ² (Fundraising per FTE)	0.4342	0.4518	0.4132
n (Both Dependent Variables)	714	595	476
Institution-level Controls?	Yes	Yes	Yes
State-level Controls?	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes

Note: *p*-value < .05*, < .01**, < .001***
 State Appropriations per FTE models use clustered standard errors (institution level).

associations appear to be statistical artifacts that disappear once other factors are considered (or in the case of fundraising, not present at all).

As presidential salaries have continued to increase, there is little to no discernable relationship between these increased salaries and revenue generation, both from private giving and state appropriations. While our findings do not explicitly support the critics of presidential salaries and their argument that increased salaries may deter giving and frustrate state lawmakers, our study does not appear to support the argument that higher presidential salaries will result in significant “returns on investment” in the form of increased state appropriations or private fundraising.

Our results appear to highlight that state funding of colleges and universities and private fundraising are driven by different factors. While this, to a certain extent, was to be expected, the model fit for both our state appropriations models and our private fundraising models are relatively similar. Nevertheless, the specific control variables that reach customary levels of statistical significance are different depending upon whether they are meant to predict state appropriations or private fundraising. Not surprisingly, fundraising per FTE is significantly higher at flagship institutions, even after controlling for other institutional characteristics, state-level covariates, and year fixed effects. Flagship institutions tend to be the most visible institutions in their states and often have a strong base of donor support from alumni and others. This finding also raises the possibility that the effect of presidential compensation on fundraising differs at flagships compared to

non-flagship institutions. More specifically, it is possible that there is a differential effect of compensation at flagships. We test for this possibility by running an additional set of regression models for fundraising in which we add an interactive term for presidential compensation and flagship institutions (*compensation * flagship*) and run the regression models in the same stepwise fashion as described above. The coefficient for this interaction is not significant in any of the models, suggesting there is no differential effect for compensation at flagship institutions.

Tuition revenue per FTE is significant and positive in the private fundraising models; however, tuition has no significant relationship with appropriations per FTE in any of the state appropriations models. It seems as tuition increases, so too does private fundraising. Perhaps as institutions become more dependent on tuition as a form of revenue they seek to further diversify their revenue by increasing their private fundraising efforts. If diversified revenue streams are indeed what is occurring, this finding is an example of the type of institutional behavior Bowen (1980) anticipates in Revenue Theory of Costs. In this case, some institutions may be acting in ways to maximize opportunities to generate revenue, at least in terms of increasing fundraising while also increasing tuition revenue. Put another way, if institutions were not seeking to generate all the revenue they can (as Bowen (1980) suggests), we would expect to see a complete absence of a relationship between various revenue sources as an institution with increasing revenue in one stream (tuition) may not be in a position in which it needs or wants to seek increasing revenue in another stream (fundraising or appropriations). Although we do see an absence of a relationship between tuition revenue increases and appropriations, this finding is not surprising when considering the natures of the revenue sources in the context of institutional behaviors. Universities have minimal to no control over their state appropriations and are dependent on states to make funding decisions. The revenue maximization concept in Bowen's theory suggests that institutions will seek to increase revenue in the face of increasing revenues, but it is only logical that institutions would increase revenue in funding categories more directly under their locus of control. Fundraising, much more so than state appropriations, is a funding category that colleges and universities influence directly from their own activities (alumni clubs, paid fundraisers, donor engagement, etc.). To that end, the significant and positive finding for fundraising offers compelling support to the notion that institutions appear to be exhibiting revenue maximizing behaviors by increasing fundraising even while increasing tuition, a behavior that supports Bowen's (1980) Revenue Theory of Costs.

Institution type (Carnegie 2010 classification) does appear to be a relevant factor in funding, particularly in fundraising per FTE. Although there is a significant and positive difference for RUVH institutions relative to doctoral

research universities in some of the state appropriations models, this effect falls from significance with the inclusion of year fixed effects. The relationship between institution type and fundraising per FTE, however, maintains significance in all of the models (including the fixed effects model). Not surprisingly, both RUH and RUVH appear to be at a relative advantage in fundraising relative to doctoral research universities.

Regarding the other significant findings in our models, unemployment has a significant and positive relationship with fundraising per FTE in the fixed effects model, suggesting that as unemployment increases, fundraising also increases. This finding somewhat perplexing as high unemployment typically occurs when the economy is weak, a time in which one would expect private fundraising to be lower. Although the models in this study provide no evidence of an association between unemployment and appropriations, perhaps unemployment has a negative relationship with other revenue streams (federal grants, research dollars) while also motivating increased private fundraising efforts from universities. Although there is a significant relationship between more liberal state ideologies and state appropriations, the effect disappears with the inclusion of fixed effects. However, the finding of a significant and negative effect for fundraising in the fixed effects model is somewhat surprising and difficult to interpret. Perhaps a more liberal citizenry is less likely to choose colleges and universities as places for charitable giving, or it may be the case that there is a negative relationship between citizen liberalism and personal wealth, suggesting that philanthropic giving could be reduced all together in a more liberal populace. This question is beyond the scope of this study. This conclusion may be supported (at least in part) by the finding for the Gini Coefficient in the institutional and state controls model for fundraising per FTE in which the Gini Coefficient has a negative relationship with fundraising per FTE. Although the effect of the Gini Coefficient disappears with the inclusion of year fixed effects, the significant result in the partial model suggests that as income inequality increases, private giving to higher education may decrease.

Institutional profile measures appear to have varied relationships with both state appropriations per FTE and fundraising per FTE. The percentage of minority enrollment is negatively associated with state appropriations per FTE and fundraising per FTE in the initial models, but the effect falls from significance in the fixed effects models. Higher standardized test scores are associated with increased fundraising revenue in all the models, suggesting that institutions with a higher student profile may have higher fundraising per FTE. This may mean that more elite institutions, which typically have higher ACT/SAT scores on average, are better able to raise private funds; however, the models provide limited evidence that the opposite is true for academic profile and state appropriations per FTE. Net of other factors, both six-year

graduation rates and standardized test scores are negatively related to state appropriations in the initial models, although the effects of both variables fall from significance with the inclusion of year fixed effects. Perhaps this finding speaks to the college access focus in some states and that lawmakers, taking other factors into account, provide added support to institutions with lower academic profiles as a means to increase college opportunity.

LIMITATIONS

While the findings in this study are of interest, there are some limitations that should be considered. First, despite the use of fixed effects and temporally adjusting dependent variables, we remain cautious about asserting our results to be causal estimates of the effect of presidential salaries on state appropriations and fundraising. Because of the observational nature of our data and our inability to exploit some measure of exogenous variation as a means to rule out bias, readers should be cautioned to avoid interpreting our results as causal claims. However, because most of our models show no significant relationship between presidential compensation and the dependent variables, we contend there is likely no causal estimate to recover.

Additionally, there are some imperfections in our compensation data that should be considered. Because *The Chronicle of Higher Education* has altered its survey collection process during the study period, it is difficult to confidently determine how institutions responded to the surveys. Varying institutional respondents may have included some forms of benefits or compensation in their reported data for one year but may not have in the next. Additionally, some institutions in certain years reported a distinct amount for severance pay in the event of a presidential transition, but in other years a distinct severance package was not clearly marked in the data. We addressed this issue, in part, by removing any documented severance pay from our compensation data; however, it is plausible that some institutions did not make a distinction between severance or other forms of compensation and salary in their responses to *The Chronicle of Higher Education* surveys.

As discussed previously, both Figures 3 and 4 reveal the presence of extreme outliers in appropriations per FTE, fundraising per FTE, and presidential compensation. These outliers raise the possibility that our regression estimates may be biased. Given some of the questions around the data from *The Chronicle of Higher Education* and its changes in collection procedures, it is possible that some of the extreme observations in presidential pay are a function of the data incorrectly including severance or some other pay we intended to exclude. Indeed, the extreme outlier for compensation is The Ohio State University in 2013, the timeframe in which the university's president transitioned. The University of Wisconsin-Madison, University of Virginia,

University of California-Los Angeles, and University of California-Berkeley each are outliers in fundraising per FTE, while Colorado State University, University of Alabama at Birmingham, University of Connecticut, University of North Carolina Chapel Hill, Stony Brook University, and University of Wyoming are extreme outliers in appropriations per FTE. To test whether these outliers affect the regression results, we dropped all observations from these institutions and ran the models again. None of the coefficients changed in direction or are substantively different in the absence of the outliers, so we have left these institutions in the models in this study.

Presidential transitions also create another limitation in our analysis in terms of our inability to understand the effects of the transition itself on revenue generation. It is possible that a new president may immediately produce results if that person has established relationships with lawmakers and donors; conversely, it also seems plausible that a new president would need time (years) to cultivate relationships. This issue is compounded by the fact that many presidential terms are short (only a few years), so transitions can happen frequently. We approach this issue in part through our models in which we temporally advance the outcomes to test for any delayed effects of presidential compensation on revenue generation; however, these models do not look explicitly at transitions. Although presidential tenure and transitions do represent a limitation of our study, we contend that they also speak to the larger limitation facing the fundamental logic of associating presidential pay and revenue generation. The focus of our study is to test that logic empirically, and as we find no support in the data, we contend the logic of associating pay with revenue is flawed.

Lastly, this study considers only one aspect (revenue generation) of any number of rationale that a governing board may choose to support its compensation level for a college or university president. Although we do not find evidence to support the notion that presidential compensation provides a return on investment in terms of state appropriations or private fundraising, a board may have other valid reasons to set compensation that are beyond revenue generation. Other elements, such as leadership quality, marketplace competition, institutional priorities, or general perceptions of the board could all factor in a board's decision making relative to revenue generation. Any one of these elements could be relevant explanations of presidential compensation, but they are beyond the scope of this study.

CONCLUSION

Our study has revealed several opportunities for future research on the relationship between presidential salaries and revenue. As we discussed previously, one of the challenges we confronted with the data from *The Chronicle of*

Higher Education was severance pay and other compensation for presidential departures. It is possible that a president's departure may signal legislators and prospective donors that the institution is experiencing challenges, thereby reducing confidence in the institution and, by extension, reducing revenue. Likewise, it is also plausible that a new president may serve to reinvigorate an institution's relationships with state leaders and donors. Whatever the case may be, transitions in presidential leadership and revenue is a largely unexplored research area. Future research could also more closely examine individual presidents themselves, exploring the relationships between characteristics of presidents and revenue generation. Years in office, professional background, and academic discipline (among others) could yield insight into the successes and failures of presidents in generating revenue. Lastly, as states have implemented policies capping executive salaries, there may be sources of exogenous variation in executive pay that could be exploited in a quasi-experimental study of the relationship between compensation and revenue.

Our study is significant because it calls into question two of the prevailing justifications public institutions use to provide high salaries to college and university presidents. As our research has demonstrated, the argument that high presidential salaries drive private giving and state funding appears dubious. Institutions, particularly those engaged in presidential searches, should give careful consideration to the level of investment they are making in their executives and look closely at their spending priorities, particularly in the context of increased public and governmental scrutiny on institutional expenditures, of increasingly scarce resources, and of the increasing disparities between presidential and faculty/administrative salaries.

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