Exploring Factors Influencing Administrative Spending in Higher Education

Robert Kelchen[1]

Professor and Department Head

University of Tennessee, Knoxville

rkelchen@utk.edu

February 2026

Keywords: Higher education expenditures, administrative spending, resource allocation

Abstract: Despite increasing financial challenges facing much of higher education, relatively little is known about how institutions allocate resources to different activities, particularly in areas other than instruction. In this research, I used detailed personnel spending data from HelioCampus and less granular functional expenditure data from the Integrated Postsecondary Education Data System to document variations in spending patterns across institutions, examine the role of decentralized functions in administrative spending allocations, and explore factors associated with institutional spending during periods of overall budget cuts. I find that budget models and centralization are associated with spending intensity in some key spending areas and that some areas are prioritized over others when budget deficits occur.

[1] 325 Jane and David Bailey Education Complex, 1126 Volunteer Boulevard, Knoxville, TN 37996. (865) 974-6150.
This research was supported by a grant from HelioCampus, who also provided me with access to their personnel spending database. I am particularly grateful to Darren Catalano for offering me the data and Peter Vermeer for answering my many data questions. I would also like to thank HelioCampus consortium members and attendees of NACUBO's 2025 Planning, Budget, and Analytics Forum for feedback on early versions of this work. All analyses and opinions included in this paper are my own and do not necessarily reflect the views of HelioCampus or its member institutions. All errors are also my own.

The business model of higher education is facing rapidly intensifying pressures. On the revenue side, total enrollment has declined by ten percent since the Great Recession (National Center for Education Statistics, 2023), and the number of high school graduates is expected to decline for the foreseeable future (Lane et al., 2024). After listed tuition prices nearly doubled in real dollars between 1995 and 2015, increases have slowed to the rate of inflation over the last decade (Ma et al., 2025) as a growing number of states placed caps on tuition increases in public higher education (Kelchen & Pingel, 2024), Tuition discount rates continued to rise at private colleges, placing further pressure on budgets (McCreary, 2025). Institutions with large research and graduate student portfolios are now grappling with potential restrictions to international student enrollment, cuts to federal research funding, and caps placed on graduate student borrowing.

These revenue challenges have forced colleges and universities to focus on reducing expenses instead of growing their way out of financial problems like has been the norm over the past half-century (e.g., Jaquette, 2013; McClure & Titus, 2018). The costs of operating a college have steadily risen faster than inflation (Commonfund Institute, 2024), driven by growing expenditures in both instructional and non-instructional areas.[2] Well over half of total expenditures in American higher education are for employee salaries/benefits and facilities-related expenses (author's calculations using data from the Integrated Postsecondary Data System—IPEDS), making it difficult to rapidly change financial priorities.

Higher education has long faced criticism for increased spending and an alleged lack of cost control (e.g., Bennett, 1987; Bowen, 1980), and these criticisms have accelerated as public trust in higher education has declined over the past decade (Parker, 2025). The concept of "administrative bloat"—too much spending on items other than instruction—unites faculty unions and political conservatives (e.g., American Council of Trustees and Alumni, 2021; Ginsberg, 2011; Greene et al., 2010) even though faculty report more job stress when there are fewer employees to support administrative tasks (Taggart, 2021). While spending on areas other than instruction (such as student services and research) can improve student outcomes (Griffith & Rask, 2016; Webber, 2012; Webber & Ehrenberg, 2010), institutional leaders and governing boards frequently focus on non-instructional spending in order to preserve what they view as the core mission of academics.

There is a limited body of quality research examining administrative spending and operating efficiency in American higher education. Most of this research (e.g., Darnley et al., 2019; Hedrick et al., 2009; Titus et al., 2017) is based on spending in broad functional expenditure categories such as academic support and institutional support reported by colleges to the IPEDS finance survey. However, these categories are quite broad, spread core functions such as information technology and human resources across functional expenditure areas (thus

[2] Consistent with the economics of education literature, I use the term "cost" to refer to how much money is spent to provide an education and "price" to refer to how much students pay for that education.

obscuring administrative spending), and combine spending on personnel with spending on other items. The field of higher education has called for changes to the IPEDS finance survey to provide more nuanced and useful data (Kolbe & Kelchen, 2017), but this has yet to happen.

While there is a longstanding interest in how universities make financial decisions, particularly in difficult times (Gumport & Pusser, 1999; Kissler, 1997; Massy, 1996), there is little empirical research on how institutions allocate funds during these difficult times. In this research, I use detailed unit-level personnel expenditure data from more than 100 institutions and systems of higher education to explore questions regarding administrative spending in a way that IPEDS data cannot. I then supplement this with IPEDS data on public universities to get a broader sense of how institutions operate.

My research questions are the following:

(1) How much variation exists in administrative spending across institutions?

(2) Is there a relationship between administrative spending and the level of centralization across institutions?

(3) In which areas do institutions reduce personnel spending during budget cuts? Where do they make additional investments?

Theoretical Framework and Literature Review

There are two frequently used explanations within the field of higher education for why the cost of providing a college education has risen over time. The first is Baumol's (1967) cost disease, in which the rising cost of providing a college education is driven by higher education being a labor-intensive service industry that is unable to use technology to save costs in the same manner as many other industries. The second is Bowen's (1980) rule, in which universities will seek to obtain as much money as possible and spend it on improving the educational experience even in the presence of diminishing marginal returns. Of these two most prominent explanations, Archibald and Feldman (2008) contend that Baumol's cost disease is by far a more important driver than Bowen's rule based on historical data.

Cheslock et al. (2016) offer two other reasons for why costs have continued to escalate. One is the positional arms race, in which institutions constantly strive to maintain or improve their standing in the overall hierarchy of higher education. This can be done through additional spending on amenities, seeking to enhance research enterprises to gain Research I or Association of American Universities standing, or attempting to improve student outcomes by increasing spending on student success initiatives (e.g., Jacob et al., 2018; Morphew & Baker, 2004; O'Meara, 2007; Taylor & Cantwell, 2019). All of these can result in additional spending in non-instructional areas.

An additional explanation comes from principal-agent models in economics, in which higher education employees prefer high-cost models that preserve their autonomy that funders

such as families and taxpayers may not prefer (Martin, 2011). This has led faculty to shift their effort from teaching and institutional service to research and professional service while a growing cadre of non-faculty employees run increasingly complicated universities (Massy & Zemsky, 1994; Zemsky & Massy, 1995). There is also evidence that universities increase spending on research and employee compensation when they gain autonomy over their financial decisions, supporting this explanation (Odle, 2022).

The additional complexity of universities results in pieces alleging administrative bloat in higher education, when in fact the reality is much more complicated. A high-profile *Wall Street Journal* opinion piece authored by former Education Secretary Betsy DeVos alleged that Stanford University had more administrators than undergraduate students based on a misinterpretation of IPEDS data to count research employees—who are largely funded from grant dollars—as administrators (DeVos, 2023; Zahneis, 2023); a similar logic model also appears in peer-reviewed research (Pearce, 2025). Institutional leaders also point to federal compliance and accreditation requirements as cost drivers. A study commissioned by Vanderbilt University estimated that compliance costs across higher education were $27 billion per year (Vanderbilt University, 2015), although critics of the study noted that much of the costs are due to accreditation and complying with federal research regulation (Woodhouse, 2015).

Research from the field of public administration has examined factors associated with administrative intensity in public-sector organizations. This has found that both small and very large organizations tend to have higher levels of administrative intensity, and that a positive relationship between administrative spending and program delivery outcomes becomes negative after a certain point (e.g, Altamimi & Liu, 2022; Boyne & Meier, 2013; Kim & Kang, 2024; Park & Matkin, 2021). This inverted U-shaped relationship has generally held in examining relationships between administrative spending and institutional outcomes in Australia (Tran et al., 2025), the United Kingdom (Andrews et al., 2017), and the United States (Darnley et al., 2019), although Rutherford (2016) found the opposite relationship using an administrative staffing metric from IPEDS.

A novel analysis by Kay and Honeycutt (2025) used both IPEDS expenditure data and information on employee job titles and salaries collected through open records requests from public institutions in four states to examine trends in administrative spending. They found that estimated increases in administrative spending (measured by excluding spending on instruction, research, and academic support) were smaller using IPEDS definitions than through their metrics that classified individuals into administrative, research/teaching, and other categories based on their job titles.[3] This is arguably an improvement over the federal definition, but classifies individuals fully into one category when hybrid roles in higher education are common. For example, department chairs are classified by Kay & Honeycutt (2025) into the administrative

[3] Using data from the 2000s. Hedrick et al. (2009) also found limited increases in administrative spending using IPEDS expenditures data.

category even when these individuals have teaching and research expectations. This compares to IPEDS, which classifies department chairs under instruction and deans under academic support.

A body of research has exploited variations in institutional spending to estimate the technical efficiency of universities using techniques such as data envelopment analysis and stochastic frontier analysis. These studies, from both the United States and internationally) have typically found substantial variation in institutional efficiency and that identified inefficiencies can last for years (Agasisti & Gralka, 2019; Gralka, 2018; Titus et al., 2017; Titus et al., 2021). However, while these studies can identify inefficiencies, it is more challenging to predict whether increasing or decreasing administrative spending will result in higher levels of efficiency.

One of the key tensions present in complex organizations is whether centralized or decentralized operating structures result in more efficient operations. In higher education, this fits into a debate about the pros and cons of responsibility center management (RCM) budget models that encourage academic units to become more innovative by allowing them to retain a portion of the additional revenues and/or cost savings that they generate (Strauss & Curry, 2002). The number of public universities using RCM budget models nearly tripled to 68 institutions between 2013 and 2023 (Kelchen, 2024), although a few universities have chosen to move away from RCM to meet their particular financial challenges (e.g., Temple University, 2025). The limited body on research on early RCM adopters finds some evidence that decentralized budget models may increase tuition revenue and degree completions (Jaquette et al., 2018; Rutherford & Rabovsky, 2018).

An important question for the field of higher education, particularly given current financial challenges, is where institutions decide to make cuts during challenging financial times. Yet there is little research on this important question, in part because institutional revenues have generally increased even during difficult times. For example, during the Great Recession, most universities actually increased spending across functional areas as increases in tuition revenue offset lost endowment funds and reductions in state funding (Gansemer-Topf et al., 2018). A growing number of institutions are declaring financial exigency, which makes it easier to lay off tenured faculty to plug budget holes (Ambrose & Nietzel, 2023). However, the core question—where institutions make cuts—is largely unanswered, as financial exigency is usually a last-ditch effort to reduce expenditures.

Sample, Data, and Methods

To explore questions about administrative spending in higher education, I leverage a heretofore unused proprietary dataset of detailed personnel spending supplemented with IPEDS data from four-year public universities. Details about my sample, data, and methods are in the following section.

Sample

The primary sample in my analyses is based on institutions working with HelioCampus (Helio), a higher education analytics company that was launched from the University of Maryland Global Campus in 2015. Helio provides labor cost analytics and decision support resources to a broad swath of primarily four-year public universities and systems. One hundred and eight universities and systems participated in Helio's Labor Cost Analytics consortium at some point between Fiscal Years 2015 and 2024, with a growing number of participants throughout the panel. Of the 154 unique institutions (at the IPEDS UnitID level, excluding special-focus institutions and system offices), 112 are public four-year institutions as measured by 2021 Carnegie basic classifications.

Table 1 shows summary statistics (from IPEDS in the 2022-23 academic year) for three groups of institutions: all Helio participants (n=154), four-year public universities that are Helio participants (n=112), and four-year public universities that are not Helio participants (n=439). Overall, institutions that participated in the Helio consortium tended to be larger research universities with much larger budgets than other public universities. However, while Helio participants spent nearly $2,600 more per FTE on instruction and $1,000 more on academic support than non-Helio institutions, they spent $400 less on student services and $300 on institutional support. As these latter two categories are key measures of administrative spending in IPEDS, it suggests that institutions that sign up to be a part of the Helio consortium may be more focused on reducing administrative spending than other institutions.

[INSERT TABLE 1 HERE]

Data

The data source for my primary analyses is from Helio's database of labor cost expenses spanning FY15-24, which includes nearly $370 billion in spending on salary during the panel. HelioCampus collects payroll and human resources data from participating institutions and standardizes information across institutions using two key categorizations (HelioCampus, 2025). The first is a Standard Activity Model (SAM), which uses multiple approaches based on institutional data and available information to break down individual employees' workload into functional areas. For example, all individuals working on communications would be placed in the communications area regardless of whether they worked for central administration or an academic unit. Individuals who span multiple functional areas, such as department chairs, have their personnel expenditures allocated into each area based on their estimated workload. This is consistent with the principles of activity-based costing, in which there is a concerted effort made to allocate expenses to their sources in order to carefully track spending (Soares et al., 2016).

There are 11 SAM categories for non-academic spending: administrative student employees, athletics, communications, development, facilities, finance, general administration,

human resources, information technology, research administration, and student services.[4] I also combined the 11 SAM categories into one overall measure of non-academic spending. This compares to five non-instructional functional expenditures categories in IPEDS: academic support, institutional support, public service, research, and student services. Libraries, which are typically included in academic support in IPEDS, are counted as a separate academic unit in the Helio data and excluded from these analyses.

The second key categorization is the Standard Organizational Model (SOM), which is designed to measure the extent to which personnel spending is centralized. I collapse SOM into three categories: centralized (controlled by central administration), decentralized (controlled by other units on campus), and a remaining category that includes shared services, external labor (such as outsourced work), and system labor. This classification is particularly useful given unanswered questions about whether centralized spending results in efficient or inefficient spending.

In addition to the above measures, the Helio dataset also includes other relevant institutional characteristics, drawn from a range of data sources such as IPEDS, the National Science Foundation, institutional records, and audited financial statements, that are used to describe the institutions and serve as control variables in regressions. Metrics that broadly describe participating campuses include control (public or private), the presence of a hospital, and whether the institution is a Carnegie research university. Helio collects data on institutional budget models, including the presence of a RCM, hybrid, or incremental model. Other metrics include FTE enrollment, the undergraduate share of total enrollment, per-FTE expenditures, funds raised, tuition as a share of total revenue, the tuition discount rate, and the personnel share of total spending. Table 2 contains summary statistics of the Helio dataset.

[INSERT TABLE 2 HERE]

The next set of key variables examines budget cuts, both for the entire institution (including non-personnel expenditures) and by SAM expenditure category. I also calculated the percent change in expenditures to ascertain how institutions were prioritizing certain expenditure categories during different financial situations. These variables are not adjusted for inflation because institutions tend to budget using nominal dollars and a nominal budget cut requires more difficult personnel decisions than a nominal increase that is below the rate of inflation.

A supplementary analysis repeats these exercises focusing solely on IPEDS expenditures data for all public universities between Fiscal Years 2014 and 2023; this allows for a general comparison between IPEDS-based and HelioCampus-based results. Here, I focus on the key functional expenditure categories in IPEDS (instruction, academic support, student services, institutional support, research, and public service).

[4] A small percentage of spending on categories such as catering, community outreach, hotels, and performing arts is not classified in any category and is excluded from these analyses.

Methods

To answer my three research questions, I used a combination of descriptive and correlational methods. For Research Question 1 (examining the variation in administrative spending across institutions), I plotted the percent of spending for each individual category on the x-axis and inflation-adjusted spending per FTE student for that same category on the y-axis using both IPEDS and Helio data. This is presented as a share of total personnel spending for Helio data and as a share of overall spending for the IPEDS expenditure categories, with the only exception being a personnel share metric that is calculated as a share of total expenditures in both datasets. I used panel regressions with the percent of personnel spending (Helio) or total expenditures (IPEDS) as the outcome of interest after controlling for the characteristics found in Table 2 and including institution and year fixed effects.

Research Question 2 (examining the relationship between centralization and administrative spending) solely relied on Helio data because IPEDS does not track expenditures by whether they are centralized or decentralized. The descriptive portion of the analyses included plots with spending on personnel or administrative categories per student FTE on the x-axis and the percent of personnel expenditures from decentralized institutional units on the y-axis. The regression portion of the analyses was identical to the Helio-based regressions in the first research question, with the exception of the percentage of decentralized spending variable being added to the regressions for the second research question.

For Research Question 3 (how institutions respond to budget cuts), I first created tables using IPEDS and Helio data examining the frequency of cuts to different parts of the budget and the median change in nominal dollars when overall spending increased versus decreased. This provides a sense of how institutions allocated money in good versus bad years. I then ran two sets of regressions using both IPEDS and Helio data and the framework described above. The first set of regressions examined the relationship between an overall budget cut and budget cuts to the various spending categories, while the second set of regressions explored the relationship between the percentage change in the overall budget to the percentage change in each area.

Limitations

Both the Helio and IPEDS datasets come with limitations, although the overall limitations of the analyses are reduced by having two separate data sources. A key limitation is that institutions self-select into purchasing HelioCampus's services and that institutions are not in the panel for the full period. Based on the IPEDS descriptive statistics from Table 1, larger public universities and systems are more likely to be Helio partner institutions, but this sample is broadly representative of public research universities. Yet it is difficult to quantify the extent to which Helio institutions are more open to certain types of cost-cutting than other institutions even though they purchased access to detailed labor cost analytics data. Data are also provided at the system level for some observations, combining the actions of institutions that have their own campus-level leadership reporting to a single system head.

The origin of Helio's work in cost analytics is through its purchase of ABC Insights, a company that focused on non-academic costs, in 2020 (Kelly, 2020). As a result, data on academic spending are not consistently available until Fiscal Year 2020; before then, academic spending was coded in an excluded category along with services such as healthcare and catering. This limits a longer-term analysis to non-academic spending. Additionally, institutions have joined and left the Helio consortium over time, with the overall number of participating institutions with available data growing from 15 in 2015 to 75 in 2020 before leveling out for the remainder of the panel. Only eight institutions are in the dataset for the full ten-year panel, while 50 of the 117 institutions have five or more years of data.

IPEDS data do not have the same missing data issues as Helio data and also include a consistent metric of instructional spending over the panel. However, expert IPEDS finance data users and providers interviewed by Kolbe and Kelchen (2017) shared concerns about whether different institutions place the same type of expenditure in the same category. They provide an example of academic advising potentially being categorized under academic support, instruction, or student services, with sudden year-over-year changes likely being due to reclassification. Ecton and Dziesinski (2022) find evidence of these large changes occurring, but do not explore why they happen. As a whole, IPEDS finance data can be useful to examine trends, but individual institutions' reports for different expenditure categories should be viewed with caution.

Results

To examine Research Question 1, I began by plotting personnel spending per FTE student on each of the 12 SAM categories on the x-axis and the share of personnel spending for each category on the y-axis (Figure 1). This provides a sense of the variation in both the amount of spending and the relative priority of each category, as well as the extent to which these two metrics are correlated.

[INSERT FIGURE 1 HERE]

Most of the correlations (administrative student employees, athletics, development, human resources, information technology, research administration, and student services) are positive and significant, meaning that larger shares of personnel spending on these individual categories are associated with higher rates of per-FTE spending. Athletics had the strongest correlation at 0.864, which is likely driven by institutions in Power Four athletics conferences with athletics budgets over $100 million. On the other hand, the overall non-academic spending category had a negative correlation between the two metrics (-0.325), while communications, facilities, and general administration had correlations between the two metrics that were not significantly different than zero. These null findings on some key administrative categories suggest that institutions generally have a level of administrative spending that is not dependent on its share of overall spending.

There is a substantial amount of variation in spending shares at most levels of personnel spending, showing that institutions allocate their available funds in different ways. For example, while the median institution spent about 42% of its personnel budget in non-academic areas, the interquartile range of per-FTE non-academic spending ranged from $6,332 to $10,426 among institutions that spend between 40% and 45% of their personnel budgets in this area. Similar levels of dispersion are observed in most categories, such as student services (8.1% of spending), facilities (7.6%), information technology (4.9%), and general administration (4.4%).

Figure 2 presents similar graphics using the IPEDS functional expenditure categories, with non-Helio public universities shown using circles and Helio public universities shown using triangles. Similar to using Helio data, there are typically positive and significant correlations between spending shares and per-FTE spending using IPEDS data. The strongest correlations are in research and public service (0.809 and 0.725, respectively), while instruction had a modest negative correlation (-0.043) that was still significantly different from zero.

[INSERT FIGURE 2 HERE]

I then ran panel regressions with institution and year fixed effects to examine the relationships between institutional characteristics and the percentage of personnel spending on the Helio non-academic expenditure categories, with Table 3 showing which variables are statistically significant at $p<.05$. The two factors that most consistently predicted non-academic expenditures were related to the type of budget model. Compared to the reference group of an incremental budget model, both RCM and hybrid (with characteristics of RCM and traditional budgets) models were associated with reduced spending on the overall non-academic category as well as facilities, general administration, information technology, and student services.

[INSERT TABLE 3 HERE]

This provides evidence that more strategic budget models may yield less spending in some key categories that are frequently charged for in these models, as colleges may be less willing to pay charges to central administration. On the other hand, a higher tuition discount rate and more funds raised were associated with increased student services spending, while increased fundraising was correlated with reduced spending on communications and general administration.

I then repeated the analyses using IPEDS functional categories, breaking the sample down into Helio and non-Helio public universities (Table 4). In these regressions, increased per-FTE student expenditures were consistently associated with a smaller share of spending on each category except for research spending. Smaller institutions that were not a part of the Helio consortium spent a larger share of spending on each category except for research and public service, while there was no relationship for Helio institutions. The only variable that was related to the research share of expenditures at both Helio and non-Helio institutions was a lower share

of total revenue coming from tuition, which is an expected relationship due to diversified revenue sources.

[INSERT TABLE 4 HERE]

Turning to Research Question 2 (which can only be answered using Helio data), I plotted the amount of per-FTE student spending on each functional expenditure category on the x-axis and the share of personnel spending from decentralized sources on the y-axis. Nearly all of the correlations between per-student spending and the decentralization share are positive and significant, with most of the correlations being around 0.3. The only two exceptions are athletics (0.12) and student services (the only negative and significant correlation at 0.15). Given that some categories, such as facilities and development, are also highly centralized, the negative correlation for student services is an interesting relationship.

[INSERT FIGURE 3 HERE]

I then built upon the regressions from Table 3 that examined variables that predicted the percentage of personnel spending on functional expenditure categories by adding the percentage of decentralized spending to the model. The results (Table 5) show that the percentage of decentralized spending is negatively associated with the percentage of spending on personnel in four categories: total non-academic spending, facilities, information technology, and student services. Overall, adding a decentralization variable marginally improved the predictive power of the models without meaningfully affecting the relationships between other metrics and the spending share in other categories.

[INSERT TABLE 5 HERE]

Finally, to answer Research Question 3, I started by using Helio data to plot nominal changes in total operating expenses on the x-axis relative to nominal changes in each of the functional expenditure categories on the y-axis (Figure 4). The diagonal line in each figure represents an equivalent percent change in operating expenses relative to the functional category being examined. Any observations above the diagonal represents larger increases (or smaller cuts) in a functional category relative to total operating expenses, and the opposite is true for observations above the diagonal. The top left quadrant (increasing spending in a functional area while cutting overall budgets) and bottom right quadrant (increasing overall budgets while cutting spending in a functional area) are particularly interesting because they represent strategic actions by an institution to prioritize resources in certain areas. The correlations between the percent change in operating expenses and the percent changes in each SAM category were generally between 0.25 and 0.4, with the outlier being development (0.02).

[INSERT FIGURE 4 HERE]

Table 6 summarizes changes to administrative personnel spending using Helio data based on whether there was an increase or decrease in total operating expenses. When total operating

expenses were reduced, there was substantial variation in which units were cut. Administrative student employee spending was cut in 73% of overall budget cuts, with a median change of -11.3%. Facilities, general administration, and finance were all cut in more than 60% of overall budget cuts, while athletics was only cut 45% of the time and research administration was cut in 50% of observations.

[INSERT TABLE 6 HERE]

On the other hand, all categories were cut in at least 10% of observations where total expenses increased. Administrative student employees, development, and general administration were cut more than 25% of the time, while student services were least likely to be cut outside of total non-academic spending (12%). This pattern of results suggests strategic actions by institutions regardless of the strength of their overall financial situation. This is also augmented by the differences in correlations between the percent change in functional versus operating expenses when there was an increase or decrease in operating expenses. The correlations are generally smaller when there is an overall decrease in expenditures, which would hold if more strategic decisions are being made about spending.

Table 7 shows the analogous results for public universities using IPEDS functional expenditure categories, broken down by Helio and non-Helio institutions. Instruction was the most frequently cut category during overall budget cuts (66%), followed by academic support (59%), institutional support (57%), and student services (56%). Research (46%) and public service (50%) were less frequently cut. Correlations between the percent change in total expenses and each functional expense category were quite low, with only academic support and instruction being significantly different from zero during budget cuts. Helio and non-Helio campuses generally cut IPEDS functional expenditure categories in the same way.

[INSERT TABLE 7 HERE]

Compared to the more detailed Helio expenditure categories, cuts to the broader and less defined IPEDS expenditure categories were somewhat more common when total expenses increased. Public service expenditures were most frequently cut during stronger budget years (35%), followed by academic support, institutional support, and research at approximately 30%. Instruction and student services (both 27%) were cut slightly less frequently, which may be an artifact of them being larger shares of budgets at most institutions. Correlations between the percent change in functional categories versus total expenses were lower during budget cuts relative to increases for non-Helio institutions, while the relationship was mixed for Helio-institutions. These generally correlations could be due to strategic decisionmaking by institutions, or they could reflect a relatively scattered process of allocating funds.

I then turned to regressions to analyze relationships between cuts or percentage changes to functional expenditure categories and cuts or percentage changes to overall spending. Table 8 presents the results of panel regressions examining cuts in spending using Helio data. In general,

cuts to overall operating expenses are somewhat predictive of cuts to individual expenditure categories, with coefficients generally being between 0.15 and 0.3. Administrative student employees, communications, and development did not have a significant relationship between cuts in those categories and overall spending cuts, while facilities (one of the most discretionary and centrally-controlled categories) had the strongest coefficient at 0.344. Other variables in the model were occasionally significant, but less often when exploring the spending shares from the first two research questions.

[INSERT TABLE 8 HERE]

Table 9 contains the regression results examining the relationship between the percent change in operating expenses and each of the Helio expenditure categories. Most of the coefficients for the percent change in operating expenses are similar to the coefficients for the binary budget cut measure, with the exception of administrative student employees (now the largest coefficient at 0.709, general administration (considerably smaller), and research administration (considerably larger). The finding on general administration is noteworthy because this is the area that is cut the deepest during overall budget cuts and increased the least during overall budget increases. Several categories, such as administrative student employees, student services, and human resources, had a positive association between changes in functional expenditures and tuition reliance.

[INSERT TABLE 9 HERE]

The IPEDS analogue to Table 8—using budget cuts as the metrics of interest—can be found in Table 10. The coefficients estimating the relationship between overall budget cuts and reductions to IPEDS functional expenditure categories are generally between 0.15 and 0.3, slightly smaller than the coefficients using Helio data. Instruction, the largest expense item at most institutions, has the strongest relationship. There are no covariates that are significant in the same direction for both Helio and non-Helio institutions, and these models have relatively limited predictive power based on the within-observation R-squared value.

[INSERT TABLE 10 HERE]

The final regression table presents the results of IPEDS regressions using percentage changes in expenditures as the outcome of interest. Here, the coefficients on the percent change in total expenditure variable tend to be larger (between 0.2 and 0.45), and the models have a bit more predictive power although R-squared values remain low. The only covariate that is significant and in the same direction across Helio and non-Helio institutions is the personnel share of total expenses being negatively associated with student services. This differs from the regressions in Table 4, where overall per-FTE spending was consistently negatively related to the percentage of expenditures in functional categories.

[INSERT TABLE 11 HERE]

Discussion

Efficient resource allocation is one of the key issues facing higher education leadership during a period of increasing financial challenges for the vast majority of American higher education. Yet there is only limited research examining how colleges spend money, particularly on items other than direct instructional activities. Policymakers, advocates, and campus employees are all raising concerns about so-called "administrative bloat," but the factors associated with administrative spending have largely been unexamined by scholars.

In this analysis, I leveraged a combination of publicly available IPEDS data (focusing on public universities) and a detailed database of personnel spending by functional expenditure area from HelioCampus to answer questions about factors associated with non-academic spending intensity, the role of decentralized decisionmaking models in allocation decisions, and the extent to which institutions protect or sacrifice different functional areas during challenging budget situations. There are three key findings from my work, which I summarize below along with their implications for policy and practice and recommendations for future research.

First, there is an incredible amount of variation in both the intensity of spending in various administrative categories (as a share of overall personnel spending) and the amount of per-FTE student spending in these areas. The most obvious recommendation for both practice and research is to examine outliers among a set of similar institutions to learn more about their allocation decisions and to examine whether there is a relationship between spending intensity in a certain category and student outcomes. Given limited budgets at most institutions, spending is a zero-sum decision that requires an increase in one place to be matched by a decrease elsewhere. Updated research similar to Webber and Ehrenberg (2010) that uses more detailed spending categories than the standard IPEDS functional expenditure definitions is a crucial way to help institutions make the best decisions possible.

Second, decentralization is negatively associated with the share of spending in key administrative areas, particularly finance, general administration, and information technology, in two related ways. The first is through the presence of a RCM and/or hybrid budget model that taxes academic units' revenue to provide centralized services that benefit the entire institution, providing incentives for units to try to keep centrally-controlled administrative costs lower. The second is through a higher share of spending being executed by decentralized units; this can be a direct outgrowth of RCM budget models or it can be a result of longstanding institutional practices. While early research has found potentially promising benefits of RCM on degree completion and tuition revenue (Jaquette et al., 2018; Rutherford & Rabovsky, 2018), there are still longstanding concerns about operating efficiency and equity that should be addressed by practitioners and researchers (e.g., Strauss & Curry, 2002). Of particular concern is whether RCM adoption reduces operating expenses and whether larger-scale RCM adoptions have improved outcomes across all types of students.

Third, institutions cut "core" administrative functions such as facilities, finance, and general administration more during overall budget cuts and increased them less than other items when overall spending increased; the same held true for the broader academic support category in IPEDS. On the other hand, research administration, human resources, and student services were the categories that were the most protected from overall budget cuts and increased the most when budgets loosened. This is consistent with a focus on reining in core administrative costs, while recognizing that reining in human resources costs can be a challenge given mandatory compliance expenses and the need for a more employee-friendly workplace in higher education (e.g., McClure, 2025).

Building on these findings, there are several key questions for the field to consider. The first is diving deeper into how institutions make financial decisions. The average tenure of college presidents has dropped from 8.5 years in 2006 to 5.9 years in 2022 (Melidona et al., 2023), placing pressure on leaders to implement changes more quickly to avoid being fired for financial reasons (Harris & Ellis, 2018). While this places pressure on the shared governance process, research shows that new leaders at lesser-resourced private institutions quickly reduce expenses in an effort to balance budgets (Kelchen, 2025). More research is needed on how presidents make difficult financial decisions, as well as the role of governing boards—a historically under-researched area in higher education (Rall et al., 2022).

It is also important to recognize that factors outside of institutions' control, particularly in public higher education, affect whether and how leaders make financial decisions. Some examples include the strength of state-level governance structures, performance funding policies, tuition-setting authority, and the presence of collective bargaining agreements. Several of these factors have been shown in other research to affect how institutions spend and receive money (e.g., Kelchen & Stedrak, 2016; Ness & Tandberg, 2013; Odle, 2022; Odle & Otero, 2025. As accountability pressures continue to escalate from the norms of the last several decades (Kelchen, 2018) and administrative spending faces additional scrutiny, these factors should be incorporated into future research.

My findings also highlight the importance of more nuanced expenditure categories, as HelioCampus data allows for key administrative categories such as development, human resources, and information technology to be examined separately while IPEDS data do not; this creates data that are hard to compare across institutions. For example, because information technology largely developed following the creation of initial IPEDS expenditure categories, institutions are instructed to place information technology expenses in different IPEDS categories based on how institutions prepare IT budgets. For years, the field of higher education has asked for more consistency in how expenditures such as athletics, IT, and marketing have been allocated by institutions (Kolbe & Kelchen, 2017). The SAM framework provides a potential roadmap for better federal data collection should resources become available.

Finally, more needs to be done to examine how academic units allocate their funds and how those decisions can potentially affect student outcomes. In the next paper in this series, I will explore the level of variation in administrative spending within the same field of study across institutions and across fields of study within the same institution. These differences will then be examined to see if centralization or administrative spending have a relationship with student outcomes.

References

Agasisti, T., & Gralka, S. (2019). The transient and persistent efficiency of Italian and German universities: A stochastic frontier analysis. *Applied Economics, 51*(46), 5012-5030. https://doi.org/10.1080/00036846.2019.1606409.

Altamimi, H., & Liu, Q. (2022). The nonprofit starvation cycle: Does overhead spending really impact program outcomes? *Nonprofit and Voluntary Sector Quarterly, 51*(6), 1324-1348. https://doi.org/10.1177/08997640211057404.

Ambrose, C. M., & Nietzel, M. (2023). *Colleges on the brink: The case for financial exigency.* Rowman & Littlefield.

American Council of Trustees and Alumni (2021). *The cost of excess: Why colleges and universities must control runaway spending.*

Andrews, R., Boyne, G., & Mostafa, A. (2017). When bureaucracy matters for organizational performance: Exploring the benefits of administrative intensity in big and complex organizations. *Public Administration, 95*(1), 115-139. https://doi.org/10.1111/padm.12305.

Archibald, R. B., & Feldman, D. H. (2008). Explaining increases in higher education costs. *The Journal of Higher Education, 79*(3), 268-295. https://doi.org/10.1080/00221546.2008.11772099.

Baumol, W. J. (1967). Macroeconomics of unbalanced growth: The anatomy of urban crisis. *American Economic Review, 57*, 415-426.

Bennett, W. J. (1987, February 18). Our greedy colleges. *The New York Times.* https://www.nytimes.com/1987/02/18/opinion/our-greedy-colleges.html.

Bowen, H. R. (1980). *The costs of higher education: How much do colleges spend per student and how much should they spend?* Jossey-Bass.

Boyne, G. A., & Meier, K. J. (2013). Burdened by bureaucracy? Determinants of administrative intensity in public organisations. *International Public Management Journal, 16*(2), 307-327. https://doi.org/10.1080/10967494.2013.817261.

Cheslock, J. J., Ortagus, J. C., Umbricht, M. R., & Wymore, J. (2016). The cost of producing higher education: An exploration of theory, evidence, and institutional policy. In M. B. Paulsen (ed.), *Higher education: Handbook of theory and research (Vol. 31)* (pp. 349-392). Springer.

Darnley, M., Rutherford, A., & Rabovsky, T. (2019). Tipping the scales: The causes and consequences of administrative spending. *Public Administration, 97*(2), 467-482. https://doi.org/10.1111/padm.12579.

DeVos, B. (2023, April 2). The other Stanford DEI scandal. *The Wall Street Journal*. https://www.wsj.com/articles/the-other-stanford-dei-scandal-duncan-title-ix-due-process-sexual-misconduct-false-accusations-education-10ed9a16.

Ecton, W. G., & Dziesinski, A. B. (2022). Using punctuated equilibrium to understand patterns of institutional budget change in higher education. *The Journal of Higher Education, 93*(3), 424-451. https://doi.org/10.1080/00221546.2021.1985884.

Gansemer-Topf, A. M., Downey, J., Thompson, K., & Genschel, U. (2018). Did the recession impact student success? Relationships of finances, staffing, and institutional type on retention. *Research in Higher Education, 59,* 174-197. https://doi.org/10.1007/s11162-017-9462-2.

Ginsberg, B. (2011). *The fall of the faculty: The rise of the all-administrative university and why it matters.* Oxford University Press.

Gumport, P. J., & Pusser, B. (1999). University restructuring: The role of economic and political contexts. In J. C. Smart & W. G. Tierney (Eds.), *Higher education: Handbook of theory and research (Vol. XIV)* (pp. 146-200). Springer.

Gralka, S. (2018). Persistent inefficiency in the higher education sector: Evidence from Germany, *Education Economics, 26*(4), 373-392. https://doi.org/10.1080/09645292.2017.1420754.

Greene, J. P., Kisida, B., & Mills, J. (2010). *Administrative bloat at American universities: The real reason for high costs in higher education.* Goldwater Institute.

Griffith, A. L., & Rask, K. N. (2016). The effects of institutional expenditures on employment outcomes and earnings. *Economic Inquiry, 54*(4), 1931-1945. https://doi.org/10.1111/ecin.12336.

Harris, M. S., & Ellis, M. K. (2018). Exploring involuntary presidential turnover in American higher education. *The Journal of Higher Education, 89*(3), 294-317. https://doi.org/10.1080/00221546.2017.1390969.

Hedrick, D. W., Wassell, Jr., C. S., & Henson, S. E. (2009). Administrative costs in higher education: How fast are they really growing? *Education Economics, 17*(1), 123-137. https://doi.org/10.1080/09645290701523184.

HelioCampus (2025). *Labor cost analytics: Definitions*. https://www.heliocampus.com/client-portal/benchmarking-consortium/definitions.

Jacob, B., McCall, B., & Stange, K. (2018). College as country club: Do colleges cater to students' preferences for consumption? *Journal of Labor Economics, 36*(2), 309-348. https://doi.org/10.1086/694654.

Jaquette, O. (2013). Why do colleges become universities? Mission drift and the enrollment economy. *Research in Higher Education, 54*, 514-543. https://doi.org/10.1007/s11162-013-9283-x.

Jaquette, O., Kramer II, D. A., & Curs, B. R. (2018). Growing the pie? The effect of responsibility center management on tuition revenue. *The Journal of Higher Education, 89*(5), 637-676. https://doi.org/10.1080/00221546.2018.1434276.

Kay, B. S., & Honeycutt, A. (2025). *Trends in administrative expenses in American higher education.* SSRN Working Paper.

Kelchen, R. (2018). *Higher education accountability.* Johns Hopkins University Press.

Kelchen, R. (2024, October 25). Documenting the growth of responsibility center management budget models in higher education. *Kelchen on Education*. https://robertkelchen.com/2024/10/25/documenting-the-growth-of-responsibility-center-management-budget-models-in-public-higher-education/.

Kelchen, R. (2025). Can new presidents improve colleges' financial health? *Innovative Higher Education.* https://doi.org/10.1007/s10755-025-09814-z.

Kelchen R., & Pingel S. (2024). Examining the effects of tuition controls on student enrollment. *Research in Higher Education*, 65, 70-91. https://doi.org/10.1007/s11162-023-09748-5.

Kelchen, R., & Stedrak, L. J. (2016). Does performance-based funding affect colleges' financial priorities? *Journal of Education Finance, 41*(3), 302-321. https://doi.org/10.1353/JEF.2016.0006.

Kelly, R. (2020, September 15). HelioCampus acquires higher ed benchmarking consortium. *Campus Technology.* https://campustechnology.com/articles/2020/09/15/heliocampus-acquires-higher-ed-benchmarking-consortium.aspx.

Kim, J., & Kang, H. (2024). Bureaucratic burden or administrative capacity? Administrative intensity and fiscal performance of local governments. *Public Management Review.* https://doi.org/10.1080/14719037.2024.2447314.

Kissler, G. R. (1997). Who decides which budgets to cut? *The Journal of Higher Education, 68*(4), 427-459. https://doi.org/10.1080/00221546.1997.11778992.

Kolbe, T., & Kelchen, R. (2017). *Identifying new metrics using IPEDS finance data*. National Postsecondary Education Cooperative.

Lane, P., Falkenstern, C., & Bransberger, P. (2024). *Knocking at the college door: Projections of high school graduates.* Western Interstate Commission for Higher Education.

Ma, J., Pender, M., & Hu, X. (2025). *Trends in college pricing and student aid 2025*. College Board.

Martin, R. (2011). *The college cost disease: Higher cost and lower quality.* Edward Elgar.

Massy, W. F. (Ed.) (1996). *Resource allocation in higher education.* University of Michigan Press.

Massy, W. F., & Zemsky, R. (1994). Faculty discretionary time: Departments and the "academic ratchet." *The Journal of Higher Education, 65*(1), 1-22. https://doi.org/10.1080/00221546.1994.11778471.

McClure, K. (2025). *The caring university: Reimagining the higher education workplace after the Great Resignation.* Johns Hopkins University Press.

McClure, K. R., & Titus, M. A. (2018). Spending up the ranks? The relationship between striving for prestige and administrative expenditures at U.S. public research universities. *The Journal of Higher Education, 89*(6), 961-987. https://doi.org/10.1080/00221546.2018.1449079.

McCreary, K. (2025, June 24). NACUBO study finds private colleges and universities are offering record financial aid to students. *National Association of College and University Business Officers*. https://www.nacubo.org/Press-Releases/2025/NACUBO-Study-Finds-Private-Colleges-and-Universities-Are-Offering-Record-Financial-Aid-to-Students.

Melidona, D., Cecil, B. G., Cassell, A., & Chessman, H. M. (2023). *The American college president: 2023 edition.* American Council on Education.

Morphew, C. C., & Baker, B. D. (2004). The cost of prestige: Do new Research I universities incur higher administrative costs? *The Review of Higher Education, 27*(3), 365-384. https://doi.org/10.1353/rhe.2004.0005.

National Center for Education Statistics (2023a, May). *Postbaccalaureate enrollment*. https://nces.ed.gov/programs/coe/indicator/chb/postbaccalaureate-enrollment.

National Center for Education Statistics (2023b, May). *Undergraduate enrollment*. https://nces.ed.gov/programs/coe/indicator/cha.

Ness, E. C., & Tandberg, D. A. (2013). The determinants of state spending on higher education: How capital project funding differs from general fund appropriations. *The Journal of Higher Education, 84*(3), 329-362. https://doi.org/10.1080/00221546.2013.11777292.

Odle, T. K. (2022). Free to spend? Institutional autonomy and expenditures on executive compensation, faculty salaries, and research activities. *Research in Higher Education, 63*, 1-32. https://doi.org/10.1007/s11162-021-09642-y.

Odle, T. K., & Otero, S. (2025). Institutional responses to tuition controls: Evidence from Tennessee's tuition ranges. *The Review of Higher Education.* https://doi.org/10.1353/rhe.0.a978513.

O'Meara, K. (2007). Striving for what? Exploring the pursuit of prestige. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research (Vol. 22)* (pp. 121-179). Springer.

Park, Y. J., & Matkin, D. S. T. (2021). The demise of the overhead myth: Administrative capacity and financial sustainability in nonprofit nursing homes. *Public Administration Review, 81*(3), 543-557. https://doi.org/10.1111/puar.13269.

Parker, K. (2025, October 15). Growing share of Americans say that U.S. higher education system is headed in the wrong direction. *Pew Research Center*. https://www.pewresearch.org/short-reads/2025/10/15/growing-share-of-americans-say-the-us-higher-education-system-is-headed-in-the-wrong-direction/.

Pearce, J. M. (2025). Quantifying administrative efficiency: Proposed figures of merit for university comparisons and ranking. *Studies in Higher Education.* https://doi.org/10.1080/03075079.2025.2493966.

Rall, R., Morgan, D. L., & Commodore, F. (2022). Bounded boards: A commentary on the limitations of knowledge and scope of research on boards of higher education. *Innovative Higher Education, 47*, 389-412. https://doi.org/10.1007/s10755-021-09582-6.

Rutherford, A. (2016). Reexamining causes and consequences: Does administrative intensity matter for organizational performance? *International Public Management Journal, 19*(3), 342-369. https://doi.org/10.1080/10967494.2015.1032459.

Rutherford, A., & Rabovsky, T. (2018). Does the motivation for market-based reform matter? The case of responsibility-centered management. *Public Administration Review, 78*(4), 626-639. https://doi.org/10.1111/puar.12884.

Soares, L., Steele, P., & Wayt, L. (2016). *Evolving higher education business models: Leading with data to deliver results.* American Council on Education.

Strauss, J. C., & Curry, J. R. (2002). *Responsibility center management: Lessons from 25 years of decentralized management.* National Association of College and University Budget Officials.

Taggart, G. (2021). Administrative intensity and faculty job stress. *Innovative Higher Education, 46*, 605-621. https://doi.org/10.1007/s10755-021-09573-7.

Taylor, B. J., & Cantwell, B. (2019). *Unequal higher education: Wealth, status, and student opportunity.* Rutgers University Press.

Temple University (2025). *Temple's budget model*. https://finance.temple.edu/budget-information-center/budget-model.

Titus, M. A., Vamosiu, A., Buenaflor, S. H., & Lukszo, C. M. (2021). Persistent cost efficiency at public community colleges in the US: A stochastic frontier analysis. *Research in Higher Education, 62*, 1168-1197. https://doi.org/10.1007/s11162-021-09634-y.

Titus, M. A., Vamosiu, A., & McClure, K. R. (2017). Are public master's institutions cost efficient? A stochastic frontier and spatial analysis. *Research in Higher Education, 58*, 469-496. https://doi.org/10.1007/s11162-016-9434-y.

Tran, C., Dollery, B., & Fellows, C. (2025). Administrative intensity and financial sustainability: An empirical analysis of the Australian public university system. *International Journal of Public Administration, 48*(1), 55-72. https://doi.org/10.1080/01900692.2024.2314046.

Vanderbilt University (2015). *The cost of federal regulatory compliance in higher education: A multi-institutional study*.

Webber, D. A. (2012). Expenditures and postsecondary graduation: An investigation using individual-level data from the state of Ohio. *Economics of Education Review, 31*(5), 615-618. https://doi.org/10.1016/j.econedurev.2012.02.003.

Webber, D. A., & Ehrenberg, R. G. (2010). Do expenditures other than instructional expenditures affect graduation and persistence rates in American higher education? *Economics of Education Review, 29*(6), 947-958. https://doi.org/10.1016/j.econedurev.2010.04.006.

Woodhouse, K. (2015, August 2). Does compliance cost $11K per student? *Inside Higher Ed*. https://www.insidehighered.com/news/2015/08/03/vanderbilt-university-weighs-its-controversial-compliance-costs-report.

Zahneis, M. (2023, April 3). Does Stanford have more administrators than undergraduates? *The Chronicle of Higher Education.* https://www.chronicle.com/article/does-stanford-have-more-administrators-than-undergrads.

Zemsky, R., & Massy, W. F. (1995). Expanding perimeters, melting cores, and sticky functions: Toward an understanding of our current predicaments. *Change: The Magazine of Higher Learning, 27*(6), 40-49. https://doi.org/10.1080/00091383.1995.10544675.

Table 1: Institutional characteristics of sample and non-sample institutions, 2022-23.

	All Helio institutions		Public 4-year Helio		Public 4-year non-Helio	
Characteristic	Mean	(SD)	Mean	(SD)	Mean	(SD)
Institutional characteristics						
Public (pct)	90.9	(28.8)	100.0	--	100.0	--
Private nonprofit (pct)	9.1	(28.8)	0.0	--	0.0	--
Four-year (pct)	81.8	(38.7)	100.0	--	100.0	--
Carnegie research (2021, pct)	77.0	(42.3)	78.6	(41.2)	32.3	(46.8)
Student characteristics						
FTE enrollment	16,264	(15,558)	20,491	(15,618)	9,345	(9,899)
Undergraduate enrollment share (pct)	85.0	(13.3)	83.5	(10.1)	86.8	(10.2)
White (pct)	59.3	(24.8)	60.0	(23.7)	52.3	(26.4)
Black (pct)	8.4	(12.4)	9.1	(14.2)	16.6	(22.3)
Hispanic (pct)	15.4	(16.1)	14.3	(13.8)	17.9	(20.4)
Asian (pct)	7.9	(9.3)	8.1	(9.3)	5.2	(7.3)
Pell recipients (pct)	26.0	(10.9)	27.2	(10.9)	37.1	(14.3)
Admit rate (pct)	70.3	(23.8)	73.4	(20.6)	78.0	(18.2)
8-year graduation rate (pct)	60.1	(21.1)	64.8	(15.4)	55.6	(14.4)
Revenues						
Total ($mil)	1,107	(1,671)	1,293	(1,585)	437	(1,076)
Per-FTE revenue ($)	50,771	(54,151)	52,714	(48,844)	37,785	(33,042)
Tuition revenue ($, per FTE)	11,370	(7,982)	10,990	(5,483)	7,160	(3,940)
State funding ($, per FTE)	8,014	(7,931)	9,429	(8,598)	9,972	(7,417)
Endowment ($, per FTE)	52,655	(108,949)	32,885	(41,339)	16,701	(33,738)
Expenses						
Total ($mil)	1,030	(1,537)	1,199	(1,495)	408	(1,027)
Per-FTE expenses ($)	47,928	(51,390)	49,690	(46,258)	34,918	(30,018)
Instruction ($, per FTE)	14,426	(17,039)	13,112	(7,055)	10,535	(6,081)
Academic support ($, per FTE)	3,893	(3,421)	4,145	(2,565)	3,093	(2,729)
Student services ($, per FTE)	2,738	(1,929)	2,531	(1,229)	2,932	(2,310)
Institutional support ($, per FTE)	4,293	(4,105)	3,835	(2,807)	4,151	(3,763)
Research ($, per FTE)	7,336	(15,728)	7,480	(12,710)	2,901	(7,987)
Number of observations	154		112		439	

Source: Integrated Postsecondary Education Data System.

Notes:

(1) All financial values are adjusted into 2024 dollars using the Consumer Price Index.

(2) System-level observations and special-focus institutions are excluded.

Table 2: Summary statistics of the dataset, Fiscal Years 2015-2024.

Characteristic	Mean	Median	(SD)	Source
Institutional characteristics				
Public (pct)	91.6	100.0	(27.8)	IPEDS
Research university (2021, pct)	43.2	0.0	(49.6)	IPEDS
Reporting as a system (pct)	18.4	0.0	(38.7)	Helio
Has a hospital (pct)	16.8	0.0	(37.4)	Helio
RCM budget model (pct)	24.6	0.0	(43.1)	Helio
Hybrid budget model (pct)	32.3	0.0	(46.8)	Helio
FTE enrollment (fall)	24,327	22,572	(16,871)	IPEDS
Pct undergraduate	77.4	79.1	(11.7)	IPEDS
Overall financial characteristics				
Per-FTE expenditures ($)	61,109	48,316	(60,605)	Calculated
Personnel share of expenses (pct)	48.8	48.1	(5.6)	Calculated
Research expenses ($mil)	364	164	(493)	HERD
Tuition share of total revenue (pct)	35.8	29.4	(25.6)	IPEDS
Tuition discount rate (pct)	28.1	26.2	(14.5)	IPEDS
Funds raised ($mil)	133	69	(213)	Institution files
Non-academic salaries as share of total salaries (pct)				
Overall	42.3	42.5	(7.2)	Helio
Admin student employees	3.4	3.0	(1.8)	Helio
Athletics	1.9	1.7	(2.0)	Helio
Communications	2.3	2.3	(0.7)	Helio
Development	1.8	1.6	(0.7)	Helio
Facilities	8.0	7.6	(2.2)	Helio
Finance	3.7	3.6	(0.7)	Helio
General administration	4.6	4.4	(1.6)	Helio
Human resources	1.5	1.5	(0.4)	Helio
Information technology	5.1	4.9	(1.1)	Helio
Research administration	1.5	1.6	(0.8)	Helio
Student services	8.6	8.1	(3.5)	Helio
Personnel share of expenses (pct)				
Centralized	24.1	23.1	(7.7)	Helio
Decentralized	73.0	74.0	(8.4)	Helio
Shared/external/system	2.9	2.6	(2.6)	Helio
Number of institutions/systems		117		
Number of observations		523		

Note: Financial values are adjusted into 2024 dollars using the Consumer Price Index.

Figure 1a: Comparing spending shares and levels (Helio)

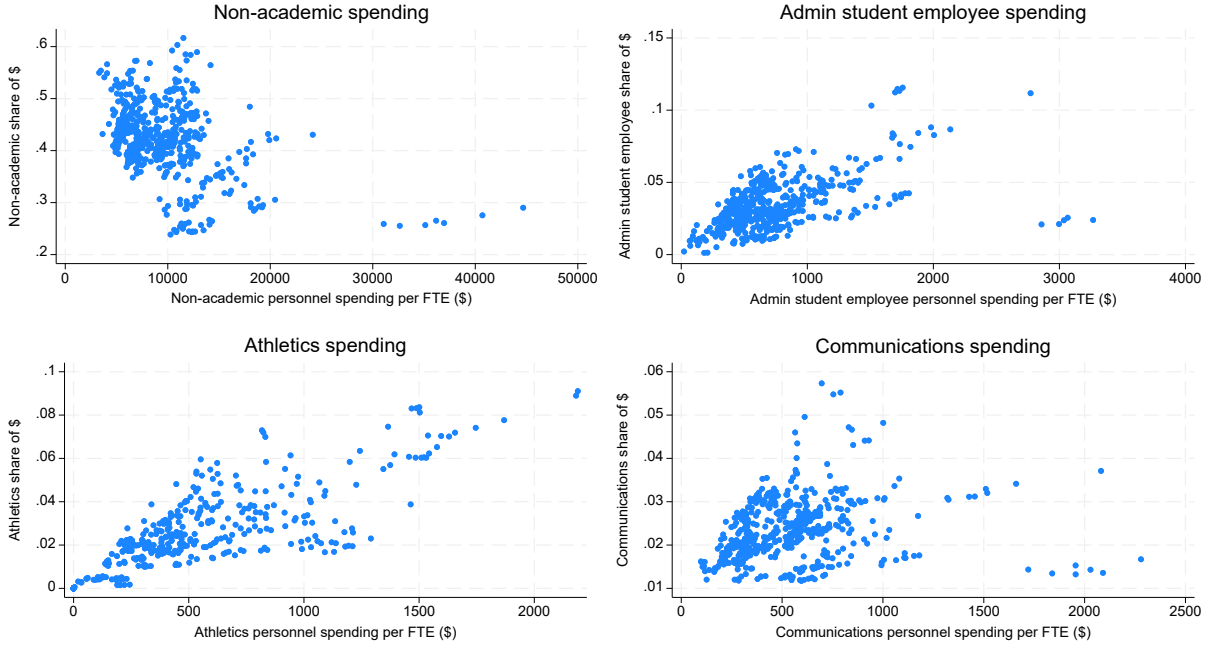

Figure 1b: Comparing spending shares and levels (Helio)

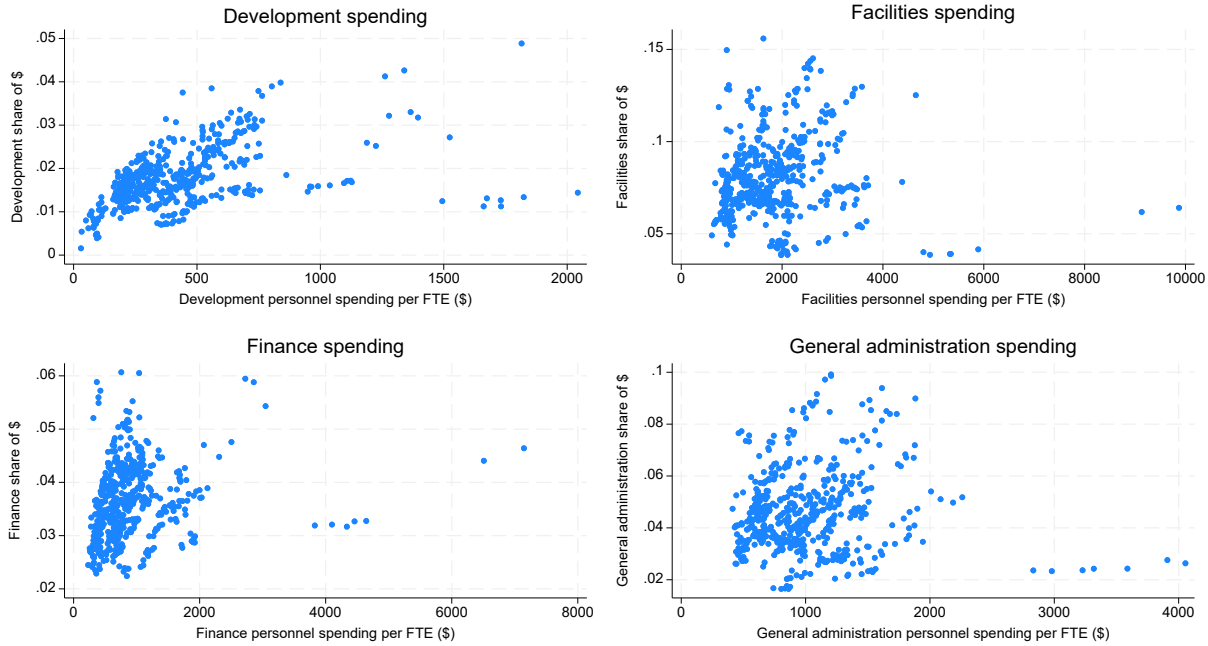

Figure 1c: Comparing spending shares and levels (Helio)

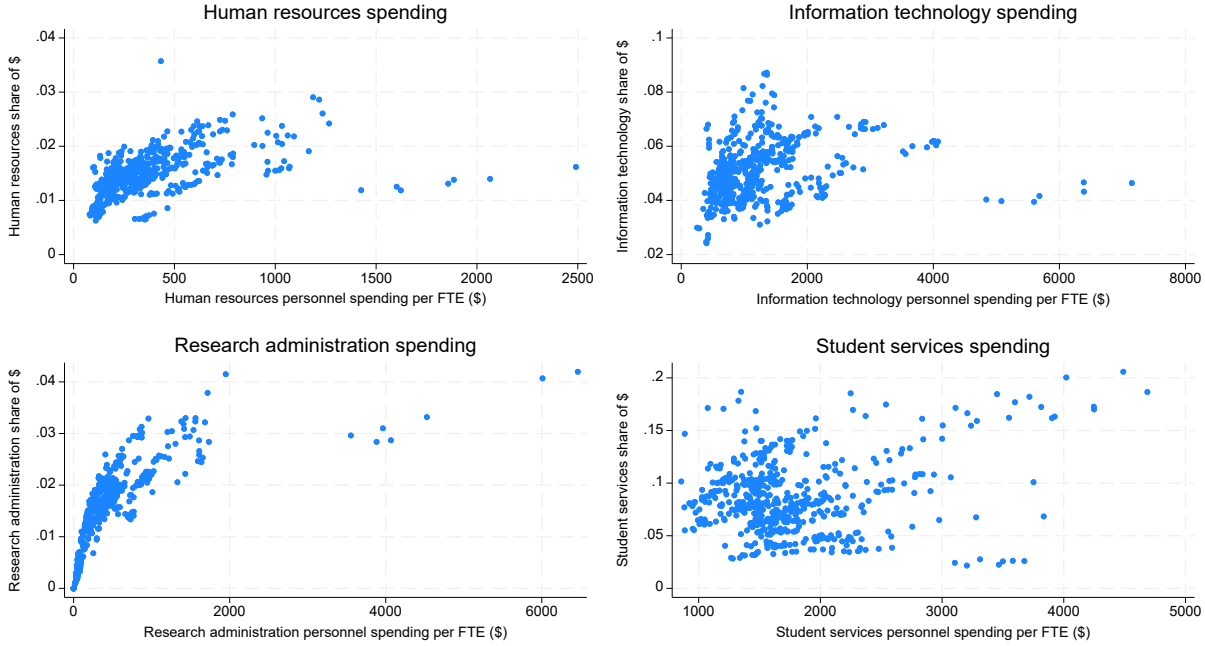

Figure 2a: Comparing spending shares and levels (IPEDS)

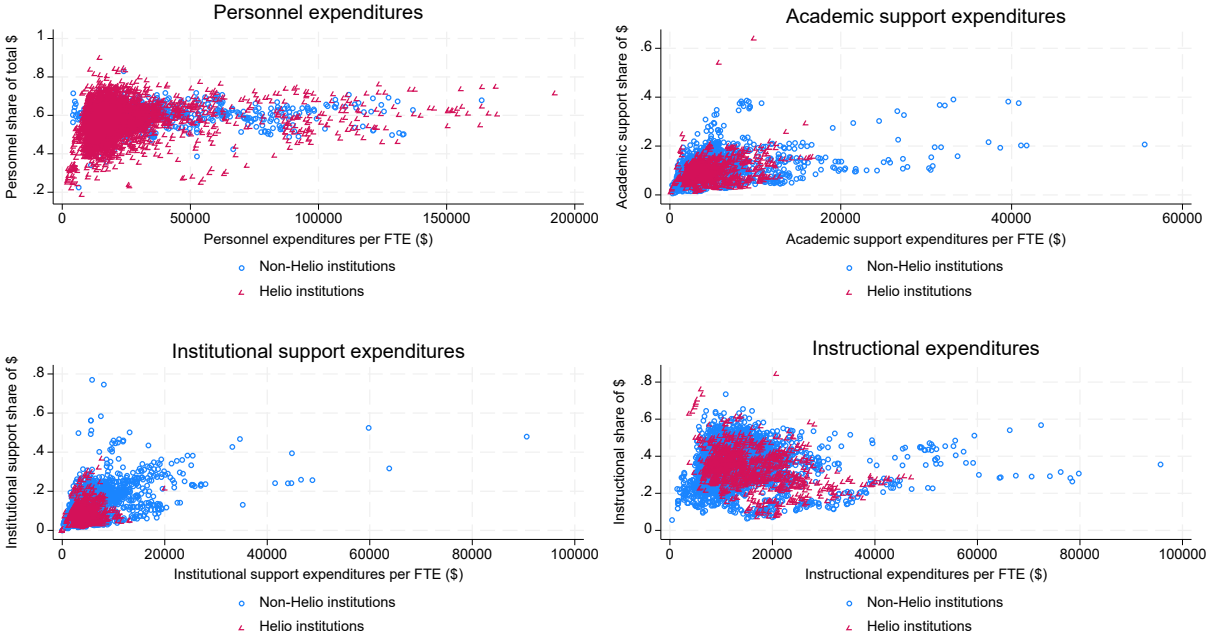

Figure 2b: Comparing spending shares and levels (IPEDS)

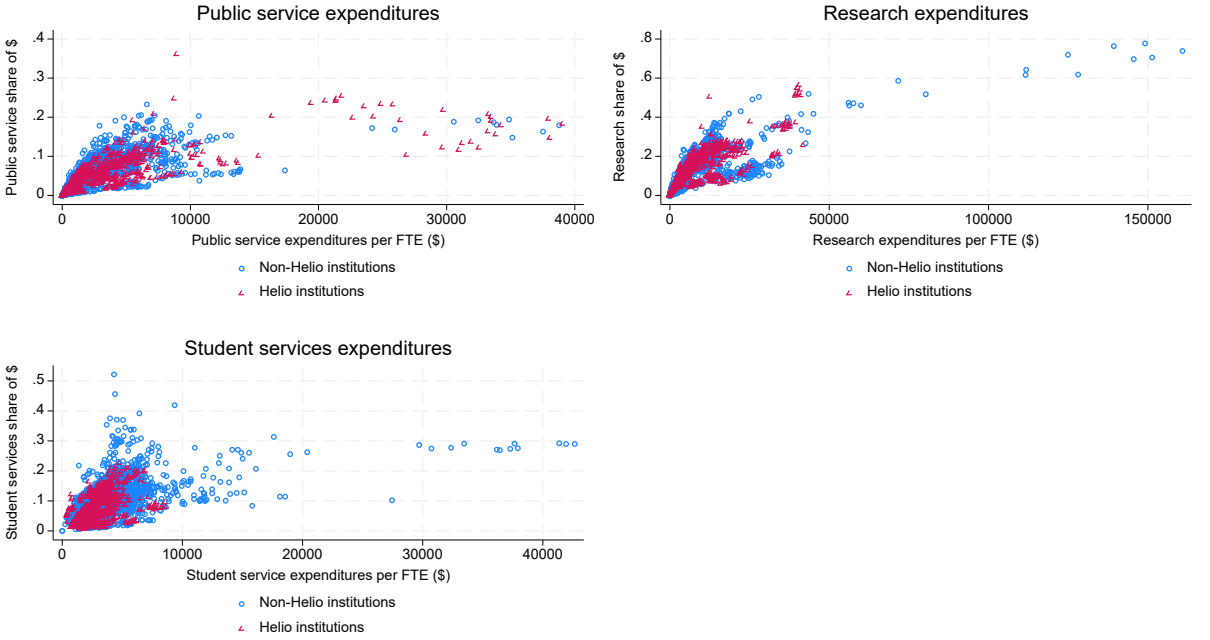

Table 3: Significant variables predicting the percentage of personnel spending on Helio functional expenditure categories.

Characteristic	Non-academic spending	Admin student employees	Athletics	Comms.	Develop-ment	Facilities	Finance	Gen. admin	HR	IT	Research admin	Student services
Institutional characteristics												
RCM budget model (vs. incremental)	---					--		--		---		---
Hybrid budget model (vs. incremental)	---		---			--		--		-		-
FTE enrollment (log)		+										
Pct undergraduate												
Overall financial characteristics												
Per-FTE expenditures (log)												
Personnel share of expenses		+							+			
Research expenses (log)				+			+			--		
Tuition share of total revenue (pct)						++						
Tuition discount rate (pct)										+		+++
Funds raised (log)				-				---				++
Number of observations	499	499	499	499	499	499	499	499	499	499	499	499
Number of institutions	100	100	100	100	100	100	100	100	100	100	100	100
R-squared (within)	0.544	0.396	0.754	0.216	0.061	0.178	0.121	0.241	0.308	0.128	0.225	0.422

Source: HelioCampus data.

Notes:

(1) +/- represents positive/negative significant at p<.05, ++/-- represents p<.01, and +++/--- represents p<.001.

(2) Models also include institution and year fixed effects and institution-clustered standard errors.

(3) Each column is the result of a separate regression.

Table 4: Significant variables predicting the percentage of spending on IPEDS functional expenditure categories at public universities.

	Academic support		Institutional support		Instruction		Public service		Research		Student services	
Characteristic	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio
Institutional characteristics												
FTE enrollment (log)		---		---		---	--				-	---
Pct undergraduate												
Pct Pell					-							--
Admit rate (pct)									+			
Black students (pct)								-				+++
Hispanic students (pct)												
Asian students (pct)												
Overall financial characteristics												
Per-FTE expenditures (log)		---	--	---	---	---	--				---	---
Personnel share of expenses	-			--			-		-			
Per-FTE gift revenue (log)							-					
Tuition share of total revenue (pct)			-					---		-		
Tuition discount rate (pct)												
Number of observations	1,057	3,887	1,057	3,887	1,057	3,887	1,057	3,887	1,057	3,887	1,057	3,887
Number of institutions	106	404	106	404	106	404	106	404	106	404	106	404
R-squared (within)	0.193	0.149	0.108	0.147	0.496	0.379	0.236	0.055	0.286	0.062	0.148	0.182

Sources: HelioCampus (list of participating institutions), IPEDS (all others).

Notes:

(1) +/- represents positive/negative significant at p<.05, ++/-- represents p<.01, and +++/--- represents p<.001.

(2) Models also include institution and year fixed effects and institution-clustered standard errors.

(3) Each column is the result of a separate regression.

Figure 3a: Comparing spending levels and decentralization (Helio)

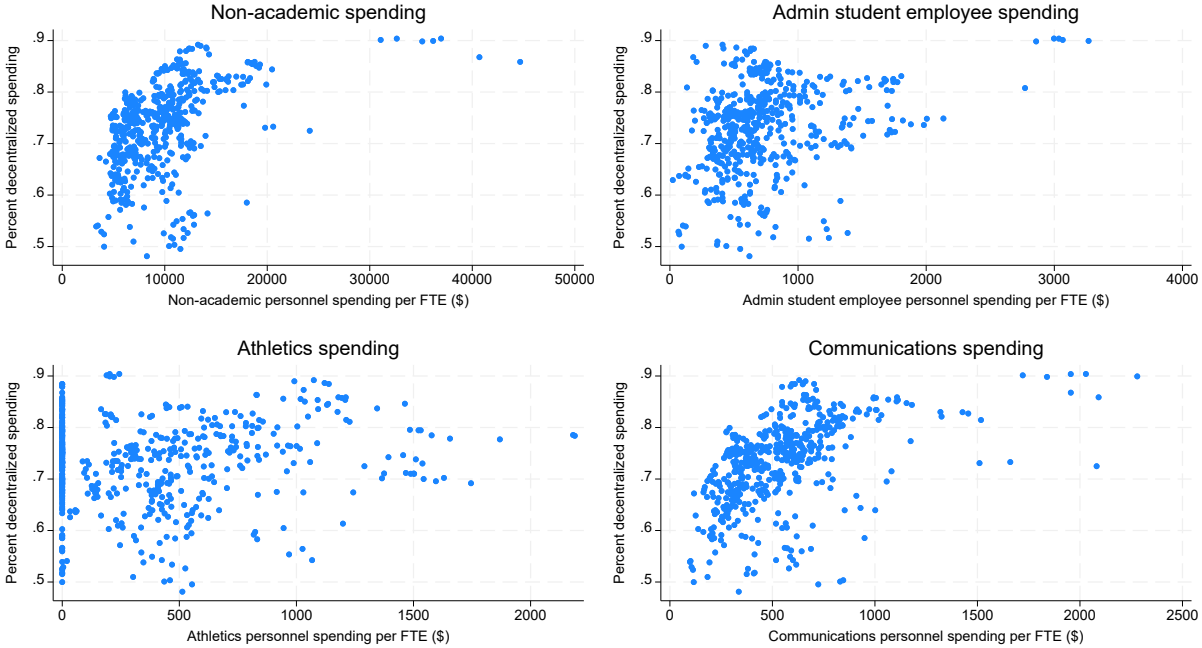

Figure 3b: Comparing spending levels and decentralization (Helio)

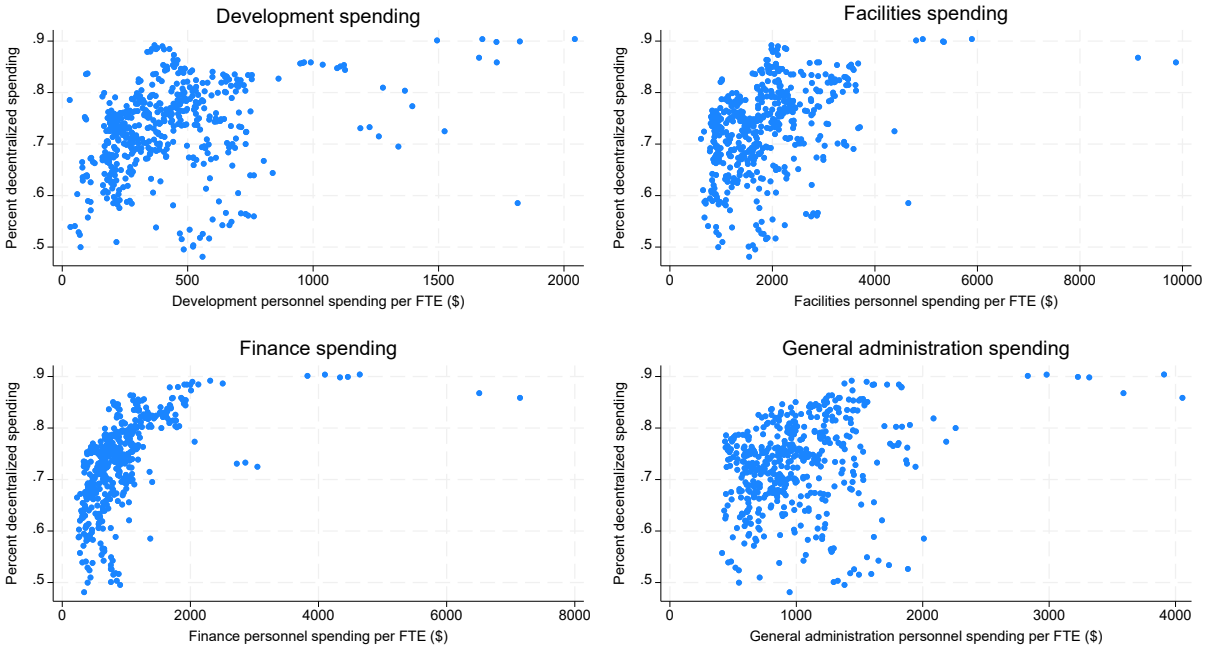

Figure 3c: Comparing spending levels and decentralization (Helio)

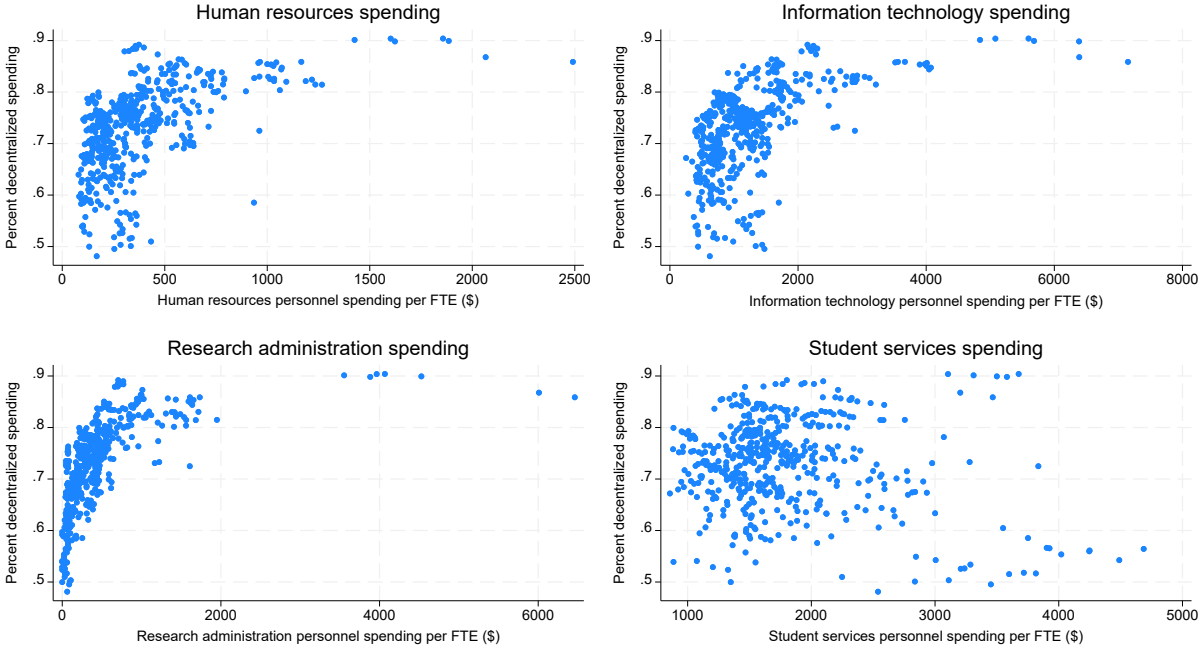

Table 5: Significant variables predicting the percentage of personnel spending on functional expenditure categories (including decentralization).

Characteristic	Non-academic spending	Admin student employees	Athletics	Comms.	Develop-ment	Facilities	Finance	Gen. admin	HR	IT	Research admin	Student services
Pct decentralized spending	---					---				-		---
Institutional characteristics												
RCM budget model (vs. incremental)	---							--		---		--
Hybrid budget model (vs. incremental)	---		---			-		-			+	
FTE enrollment (log)		+										
Pct undergraduate												
Overall financial characteristics												
Per-FTE expenditures (log)												
Personnel share of expenses		+							+			
Research expenses (log)							+			-		+
Tuition share of total revenue (pct)												
Tuition discount rate (pct)					-			-				++
Funds raised (log)	--			--				---				+++
Number of observations	499	499	499	499	499	499	499	499	499	499	499	499
Number of institutions	100	100	100	100	100	100	100	100	100	100	100	100
R-squared (within)	0.621	0.396	0.754	0.218	0.077	0.263	0.121	0.243	0.308	0.157	0.231	0.591

Source: HelioCampus data.

Notes:

(1) +/- represents positive/negative significant at p<.05, ++/-- represents p<.01, and +++/--- represents p<.001.

(2) Models also include institution and year fixed effects and institution-clustered standard errors.

(3) Each column is the result of a separate regression.

Figure 4a: Categorical versus overall spending changes (Helio)

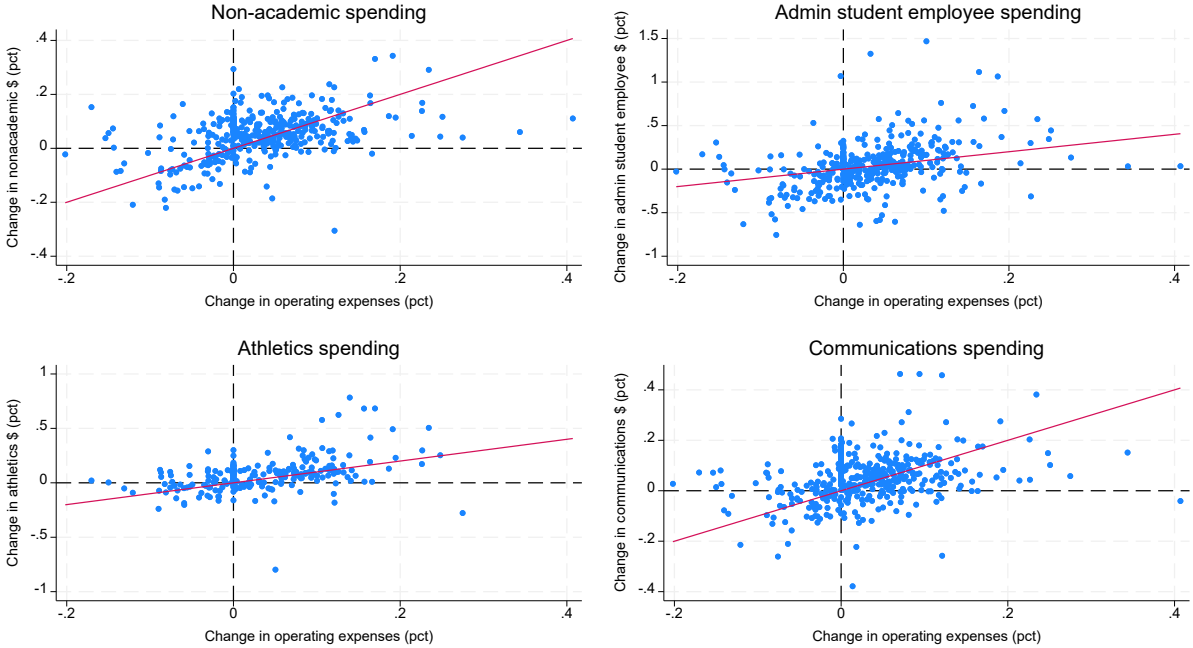

Figure 4b: Categorical versus overall spending changes (Helio)

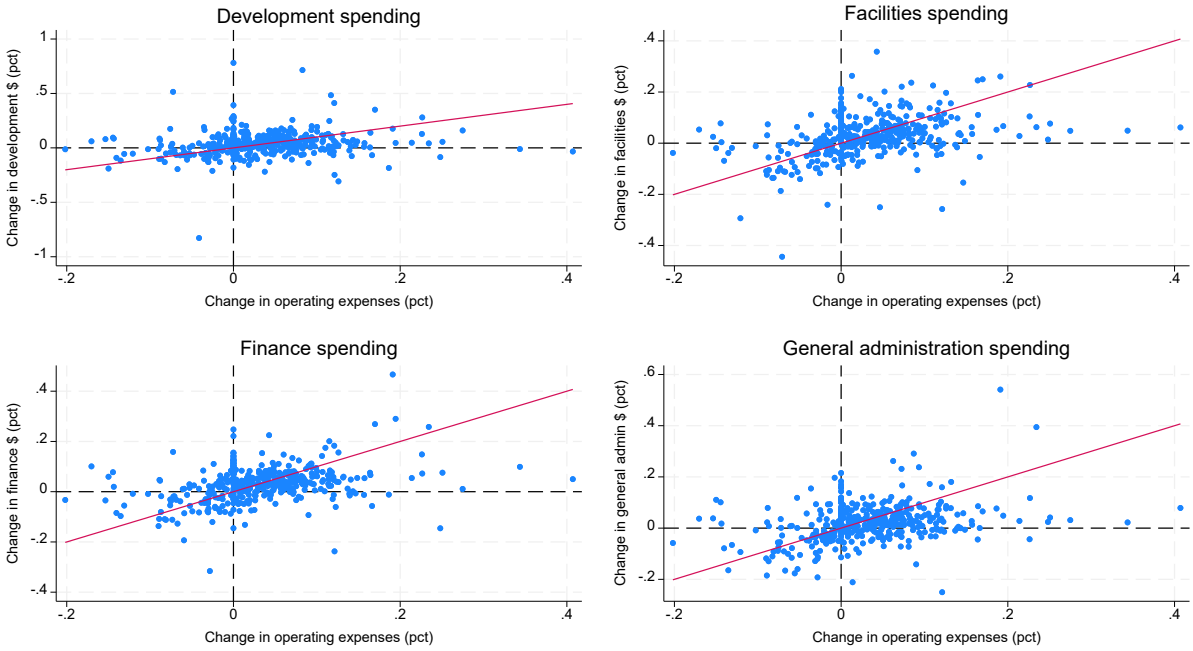

Figure 4c: Categorical versus overall spending changes (Helio)

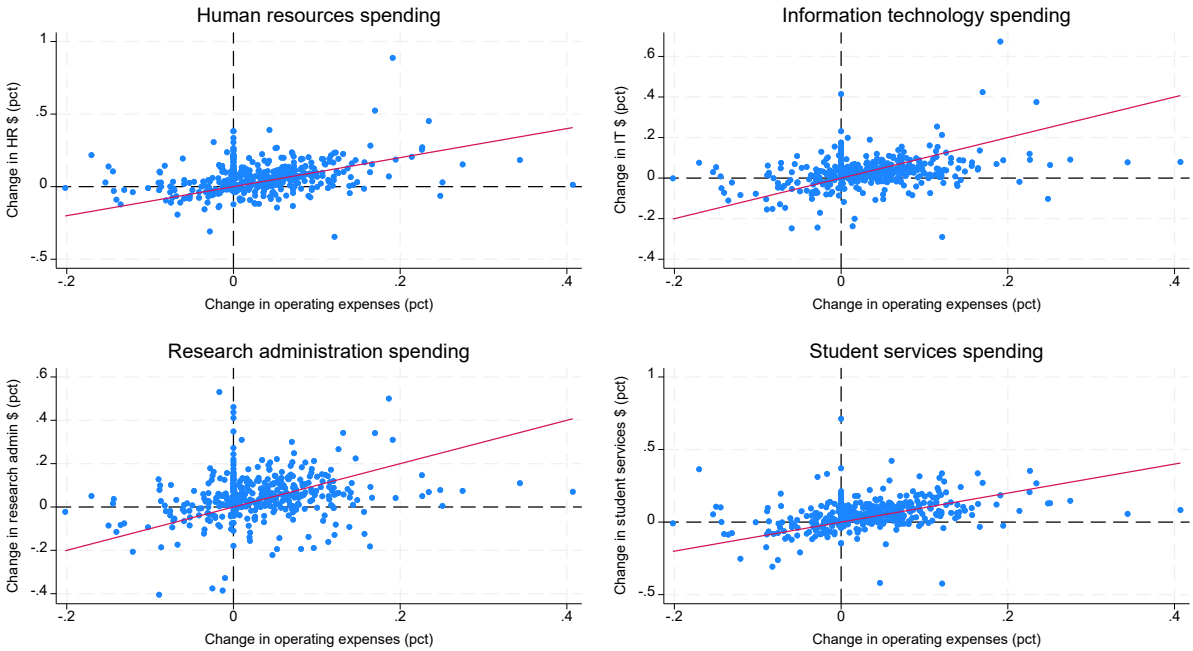

Table 6: Changes to administrative personnel spending by changes in total operating expenses.

	Decrease in expenses (n=94)			Increase in expenses (n=312)		
Functional area	Cuts (pct)	Median change (pct)	Corr w/total expenses	Cuts (pct)	Median change (pct)	Corr w/total expenses
Non-academic spending	60.6	-2.4	0.170	9.9	6.2	0.165
Admin student employees	73.4	-11.3	0.097	34.0	6.6	0.268
Athletics	45.2	-1.6	0.100	14.7	8.6	0.225
Communications	56.4	-1.1	0.081	17.9	6.7	0.119
Development	53.2	-0.7	0.081	25.3	5.0	-0.037
Facilities	70.2	-3.2	0.135	20.5	4.1	0.103
Finance	62.8	-1.9	0.042	18.3	4.4	0.115
General administration	67.0	-3.2	0.096	25.3	3.1	0.120
Human resources	56.4	-0.9	0.008	17.6	7.3	0.180
Information technology	55.3	-0.8	0.126	17.9	4.1	0.131
Research administration	50.0	-0.3	0.136	16.3	6.3	0.018
Student services	55.3	-0.8	0.062	11.5	7.4	0.162

Source: HelioCampus data.

Notes:

(1) Financial values are not adjusted for inflation.

(2) Budget cuts and budget increases are determined by total operating expenses, not just personnel expenses.

Table 7: Changes to spending categories during different budget conditions (IPEDS data).

	Decrease in total expenses			Increase in total expenses		
Functional area	Cuts (pct)	Median change (pct)	Corr w/total expenses	Cuts (pct)	Median change (pct)	Corr w/total expenses
Helio members (n=106)						
Academic support	59.1	-2.3	0.240	30.2	4.5	0.116
Institutional support	56.8	-1.7	0.176	29.6	5.6	0.119
Instruction	65.6	-2.2	0.280	26.0	3.5	0.215
Public service	49.5	-1.4	0.024	35.1	5.0	0.084
Research	45.9	0.6	0.103	29.4	6.1	0.143
Student services	55.9	-1.2	0.189	25.9	5.2	0.128
Non-Helio members (n=402)						
Academic support	59.2	-2.2	0.160	31.0	4.2	0.242
Institutional support	56.7	-1.7	0.087	30.1	5.3	0.261
Instruction	65.5	-2.2	0.243	26.8	3.3	0.360
Public service	48.7	-1.2	0.061	35.7	5.0	0.123
Research	45.9	0.3	0.018	31.1	6.0	0.101
Student services	55.8	-1.2	0.105	26.6	4.9	0.233

Sources: HelioCampus (list of participating institutions), IPEDS (all others).

Notes:

(1) Financial values are not adjusted for inflation.

(2) Budget cuts and budget increases are determined by overall expenses, not just personnel expenses.

Table 8: Significant variables predicting a cut in Helio functional expenditure categories.

Characteristic	Non-academic spending	Admin student employees	Comms.	Develop-ment	Facilities	Finance	Gen. admin	HR	IT	Research admin	Student services
Cut to operating expenses	0.273+++	0.022	0.155	0.097	0.344++	0.175+	0.225++	0.248++	0.220++	0.184+	0.266+++
Institutional characteristics											
Hybrid budget model (vs. incremental)		+				--					
FTE enrollment (log)		+									
Pct undergraduate											
Overall financial characteristics											
Per-FTE expenditures (log)			-								
Personnel share of expenses											
Research expenses (log)			+		-	+		---	--	+++	
Tuition share of total revenue (pct)	--										
Tuition discount rate (pct)							--		-		
Funds raised (log)							+				
Pct salary on non-academic items											
Pct decentralized spending				++							
Number of observations	306	306	306	306	306	306	306	306	306	306	306
Number of institutions	88	88	88	88	88	88	88	88	88	88	88
R-squared (within)	0.671	0.581	0.353	0.250	0.382	0.415	0.327	0.322	0.310	0.174	0.524

Source: HelioCampus data.

Notes:

(1) +/- represents positive/negative significant at p<.05, ++/-- represents p<.01, and +++/--- represents p<.001.

(2) Models also include institution and year fixed effects and institution-clustered standard errors.

(3) Each column is the result of a separate regression.

(4) All characteristics are lagged one year except for the percent change in operating expenses, which is simultaneous.

(5) All variables are adjusted for inflation except for the cuts metrics.

(6) Athletics is omitted due to small cell sizes because of the prevalence of zero values.

(7) The RCM vs. incremental budget model variable is omitted due to collinearity.

Table 9: Significant variables predicting percentage changes in Helio functional expenditure categories.

Characteristic	Non-academic spending	Admin student employees	Comms.	Develop-ment	Facilities	Finance	Gen. admin	HR	IT	Research admin	Student services
Percent change in operating expenses	0.237+++	0.709++	0.133+	-0.026	0.293++	0.136++	0.084	0.254++	0.179+++	0.281++	0.308++
Institutional characteristics											
Hybrid budget model (vs. incremental)		+									
FTE enrollment (log)											
Pct undergraduate											-
Overall financial characteristics											
Per-FTE expenditures (log)							+				
Personnel share of expenses											
Research expenses (log)					-			+++		---	+
Tuition share of total revenue (pct)	+	++						+			+
Tuition discount rate (pct)											
Funds raised (log)						+	-		--	-	
Pct salary on non-academic items	+++									+	
Pct decentralized spending				++							
Number of observations	306	306	306	306	306	306	306	306	306	306	306
Number of institutions	88	88	88	88	88	88	88	88	88	88	88
R-squared (within)	0.645	0.505	0.362	0.037	0.374	0.405	0.362	0.355	0.326	0.223	0.470

Source: HelioCampus data.

Notes:

(1) +/- represents positive/negative significant at p<.05, ++/-- represents p<.01, and +++/--- represents p<.001.

(2) Models also include institution and year fixed effects and institution-clustered standard errors.

(3) Each column is the result of a separate regression.

(4) All characteristics are lagged one year except for the percent change in operating expenses, which is simultaneous.

(5) All variables are adjusted for inflation except for the percent change metrics.

(6) Athletics is omitted due to small cell sizes because of the prevalence of zero values.

(7) The RCM vs. incremental budget model variable is omitted due to collinearity.

Table 10: Significant variables predicting a cut in IPEDS functional expenditure categories.

	Academic support		Institutional support		Instruction		Public service		Research		Student services	
Characteristic	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio
	0.159	0.244	0.318	0.259	0.324	0.299	0.113	0.110	0.130	0.136	0.190	0.216
Cut in total expenditures	+++	+++	+++	+++	+++	+++	+	+	+	+++	++	+++
Institutional characteristics												
FTE enrollment (log)				+	++	--						
Pct undergraduate												
Pct Pell								-				
Admit rate (pct)											+	
Black students (pct)				+			+					
Hispanic students (pct)												
Asian students (pct)				+								
Overall financial characteristics												
Per-FTE expenditures (log)	+											-
Personnel share of expenses	+		+								+	+
Per-FTE gift revenue (log)										+		
Tuition share of total revenue (pct)									+			
Tuition discount rate (pct)					+							+
Number of observations	847	3,109	847	3,109	847	3,109	839	2,965	840	2,991	847	3,109
Number of institutions	106	401	106	401	106	401	106	385	106	383	106	401
R-squared (within)	0.096	0.095	0.082	0.065	0.196	0.150	0.067	0.052	0.055	0.026	0.167	0.158

Sources: HelioCampus (list of participating institutions), IPEDS (all others).

Notes:

(1) +/- represents positive/negative significant at p<.05, ++/-- represents p<.01, and +++/--- represents p<.001.

(2) Models also include institution and year fixed effects and institution-clustered standard errors.

(3) Each column is the result of a separate regression.

(4) All characteristics are lagged one year except for the percent change in total expenses, which is simultaneous.

(5) All variables are adjusted for inflation except for the cuts metrics.

Table 11: Significant variables predicting percentage changes in IPEDS functional expenditure categories.

	Academic support		Institutional support		Instruction		Public service		Research		Student services	
Characteristic	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio	Helio	Non-Helio
	0.238	0.442	0.410	0.467	0.234	0.364		0.400	0.198	0.309	0.195	0.269
Pct change in total expenditures	++	+++	+++	+++	++	+++	0.173	+++	++	+++	+	+++
<u>Institutional characteristics</u>												
FTE enrollment (log)	++											
Pct undergraduate					-							
Pct Pell												
Admit rate (pct)												
Black students (pct)				--								
Hispanic students (pct)												
Asian students (pct)			++	--				-				
<u>Overall financial characteristics</u>												
Per-FTE expenditures (log)	++			-							+	
Personnel share of expenses											-	-
Per-FTE gift revenue (log)							--					
Tuition share of total revenue (pct)												
Tuition discount rate (pct)					--							-
Number of observations	847	3,109	847	3,109	847	3,109	839	2,965	840	2,991	847	3,109
Number of institutions	106	401	106	401	106	401	106	385	106	383	106	401
R-squared (within)	0.105	0.099	0.075	0.075	0.154	0.165	0.067	0.052	0.055	0.026	0.140	0.122

Sources: HelioCampus (list of participating institutions), IPEDS (all others).

Notes:

(1) +/- represents positive/negative significant at p<.05, ++/-- represents p<.01, and +++/--- represents p<.001.

(2) Models also include institution and year fixed effects and institution-clustered standard errors.

(3) Each column is the result of a separate regression.

(4) All characteristics are lagged one year except for the percent change in total expenses, which is simultaneous.

(5) All variables are adjusted for inflation except for the percent changes metrics.