Financial Disclosure by Government Contractors and Government Investment: Evidence from U.S. Research Universities*

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ABSTRACT

Using the implementation of Governmental Accounting Standards Board Statements No. 34 and 35 (GASB 34/35) across U.S. public colleges and universities, I examine how financial disclosure by research universities affects the allocation of federal research funding. I find that GASB 34/35 reduces federal research funding to public universities relative to private ones. The cross-sectional analyses suggest that enhanced monitoring and government learning are mechanisms through which GASB 34/35 affects funding decisions. Specifically, the decline is more pronounced among institutions with greater pre-reform administrative and academic complexity, and federal funding to public universities becomes more responsive to prior private gifts and state funding. My results further show that, after GASB 34/35, public universities experience a decline in publications relative to private universities, while both patent and publication output per unit of research expenditure increase. Additionally, I document a decline in faculty compensation across academic ranks at public universities. Overall, these results show that GASB affects government investment in the higher education sector.

Keywords: Financial Disclosure; Government Investment; Governmental Accounting Standards; Public Procurement; Higher Education
JEL Classification Codes: H52, H57, M41, M48

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"The Commission, though, was deeply concerned that most institutions of higher education have permitted a veil of obscurity to settle over their financial operations."

— National Commission on the Cost of Higher Education (NCCHE, 1998)

1 Introduction

The efficiency of government investment in Institutions of Higher Education (IHEs) has long been a concern for policymakers. Every year, the U.S. federal government allocates roughly $40 billion in research funding to IHEs to support scientific research (NCSES, 2026). However, delegating the production of public goods to organizations gives rise to agency problems (Jensen and Meckling, 1976; Fama and Jensen, 1983; Core et al., 2006): IHEs possess better information than government agencies about their financial condition, operations, and use of public resources. This information asymmetry may weaken oversight and impair the efficient allocation of government funding. As Bennett (1987), then U.S. Secretary of Education, stated, "*Higher education is not underfunded. It is under-accountable and under-productive.*" In response, the NCCHE urged national accounting standard setters for IHEs to improve financial transparency and comparability across institutions, with the goal of promoting more efficient allocation of public funds[1] (NCCHE, 1998).

In the context of Governmental Accounting Standards Board Statements No. 34 and 35 (GASB 34/35) across U.S. public colleges and universities, I examine whether financial disclosure by IHEs affects the allocation of federal research funding[2]. This speaks to the central issue underlying financial reporting regulation: its cost-benefit trade-off, which requires evaluating the overall desirability, economic efficiency, and aggregate outcomes of disclosure (Leuz and Wysocki, 2008, 2016). In the setting of IHEs, a key consideration is whether low-cost financial disclosure mandates can improve the allocative efficiency of substantial government investment.

U.S. colleges and universities had historically followed a fund-based reporting model, filing the "Common Form" to disclose their financial information (AICPA, 1973). Under the fund-based model, an institution reports only current-period revenues, expenditures, and transfers separately

[1] For example, the Implementing Recommendations No. 7 states: *"The Commission urges the national accounting standards bodies for institutions of higher education (The Financial Accounting Standards Board for private institutions and the Government Accounting Standards Board for public institutions) take whatever steps are necessary to assure that the financial reports of these institutions offer fiscally transparent information about college finances that allow for valid comparisons between public and private institutions."*

[2] This study focuses on federal funding because public and private universities compete for it through federal review and award processes. In contrast, state funding is primarily directed toward public universities within the state and therefore does not provide a comparable allocation setting. See Section 2.1 for details.

by fund group (e.g., federal funds and plant funds). The fund-based reporting does not provide an entity-wide view of the institution's long-run financial position and operations, including total assets, revenues, and other institution-wide measures[3]. In response to a growing need for transparency, private institutions had already adopted FASB in 1996[4] (FASB, 1995); public institutions remained on the "Common Form" until GASB 34/35 (GASB 34, 1999; GASB 35, 1999), phased in from 2001.

GASB 34/35 replaces the prior fund-based reporting model with entity-wide, accrual-based financial statements. Under the new reporting model, public colleges and universities are required to report a statement of net assets, a statement of revenues, expenses, and changes in net assets, and a statement of cash flows for the institution as a whole. It also requires Management's Discussion and Analysis (MD&A) to reduce readers' information processing costs. These changes reach federal agencies through the Single Audit, as an institution's Single Audit package requires its general-purpose financial statements prepared under the applicable reporting standards (OMB, 1997). GASB 34/35 therefore replaces fragmented fund-level reporting with comprehensive entity-wide information available to federal agencies[5].

The effects of GASB 34/35 on the allocation of federal research funding[6] are theoretically ambiguous. On the one hand, GASB 34/35 could reduce the information asymmetry between institutions and federal agencies and therefore curb discretionary charges. Policymakers have long been concerned that federal funds awarded to institutions may not always be used for their intended purposes (GAO, 2002; 2024). Institutions may exploit financial opacity and use reporting discretion to inflate funding claims. For example, several audits and investigations have documented cases in which research funds were used for inappropriate or unrelated expenditures, including luxury items for university executives[7] (Bozeman and Anderson, 2016). GASB 34/35 constrains such opportunistic behavior by requiring institutions to disclose more transparent

[3] As Ingram (1984) criticized, ***"****The basic accounting entity is the fund. … [and] consolidated reporting of these funds is prohibited****"***.

[4] Years refer to the fall semester of an academic year. For example, 1996 refers to the 1996/97 academic or fiscal year.

[5] Although GASB 34/35 does not change award-level compliance requirements, it materially changes the institution-level financial information available to federal agencies. See Section 2.2 for details.

[6] Federal agencies provide research funding to universities through both grants and contracts, with grants accounting for most of this funding (roughly seven-eighths of the total). In this study, federal funding refers to the aggregated amount received through both. See Section 2.1 for details.

[7] Section 2.1.2 offers some specific cases. For example, a $32 million settlement by the University of Minnesota in 1998 over inflated billings on NIH awards.

financial information. The reform expands the information available to federal agencies through existing oversight arrangements, including the Single Audit, while also facilitating scrutiny by taxpayers, the media, and other stakeholders. If pre-GASB funding partly reflects overcharging enabled by institutions' informational advantage, GASB 34/35 could reduce federal funding to affected institutions by mitigating the information asymmetry.

However, several frictions may attenuate or even offset the informational role of GASB 34/35 in practice. First, GASB 34/35 provides aggregated entity-wide rather than project-specific information, limiting its relevance to funding decisions. Second, complex financial reports impose processing costs, and federal agencies or external monitors may lack the expertise to use them. Moreover, in the public sector, the benefits of public oversight accrue to society, whereas the costs of processing disclosure and negotiation are borne by a few actors. This misalignment gives rise to collective-action and free-rider problems that limit the effectiveness of transparency (Coase, 1960; Olson, 1965; Bonetti et al., 2024). Thus, the net effects of GASB 34/35 on federal funding remain an empirical question.

Leveraging the difference in disclosure regimes across U.S. research universities, I use a staggered difference-in-differences[8] (DiD) design to compare changes in federal research funding to public research universities relative to private ones around the implementation of GASB 34/35. During the sample period, only public research universities experienced a change in their disclosure regime, transitioning from the "Common Form" to GASB 34/35, while private research universities remained under FASB reporting standards throughout the period. These private universities therefore constitute the control group for isolating the effects of GASB 34/35.

I begin my empirical analysis by assessing the impact of GASB 34/35 on the level of federal funding to public universities. I find that federal funding to public universities declines by 7.8% relative to private universities following GASB 34/35, equivalent to roughly $9.33 million at the

[8] Although GASB 34/35 was phased in over three years, 143 of the 154 public universities adopted in Phase 1, leaving only eight and three later-adopters in Phases 2 and 3, respectively. This limited timing variation makes stacked estimators biased due to cohort composition and weighting (Wing et al., 2024). I therefore use staggered DiD as the baseline (see Section 4.2 for details). To address the concerns related to the staggered estimator, I also conduct several robustness tests (see Section 5.2 for details).

sample means[9][10]. The estimate remains negative and statistically significant after including state-by-year fixed effects. These results indicate that financial transparency reform reduces the federal funding to public universities relative to private universities.

Next, I explore two potential mechanisms underlying changes in federal funding decisions: enhanced monitoring and government learning. Consistent with the monitoring channel, the decline is larger among universities with higher pre-reform administrative and academic complexity, where information asymmetry was likely higher. Specifically, multi-campus universities experience an additional 9.8% decline, while universities with above-median academic breadth experience an additional 6.9% decline. Second, consistent with the government learning channel, federal research funding becomes more responsive to prior private donations following GASB 34/35. Specifically, for public universities, the elasticity of federal research funding with respect to prior private donations increases by 0.034 after GASB 34/35. Based on the sample means, this estimate implies that one additional dollar of prior private donations is associated with approximately 7.3 cents more subsequent federal research funding for public universities relative to private universities. Using prior state funding as an alternative external signal, I find similar results. The elasticity of federal research funding with respect to prior state funding increases by 0.060 for public universities relative to private universities following GASB 34/35. This implies about $0.546 more subsequent federal research funding for each additional dollar of prior state funding based on the sample means. This finding is consistent with an indirect learning channel in which GASB 34/35 informs external funders, whose funding decisions provide additional signals to government agencies.

Finally, I examine the real economic consequences of GASB 34/35 on university research and faculty. I distinguish between two dimensions of university research: output and efficiency. Output captures absolute research production, whereas efficiency captures research output relative to research input (i.e., research expenditure). Relative to private universities, public ones experience

[9] The primary analysis focuses on the public-private allocation because public–private margin is the one the reform itself targeted: GASB 34/35 changed what public universities disclose while leaving private universities under FASB, and the 1998 Commission had asked for exactly this comparability. Reallocation within the public sector is a distinct question, and the two are not mutually exclusive. Figure A5 in Online Appendix A reports treatment heterogeneity across public universities by field composition.

[10] A potential concern is that reductions in federal funding to public universities may be mechanically reallocated to private universities, thereby violating the SUTVA assumption. However, institutional features (NIH, 2003; NSF, 2004) make such mechanical reallocation unlikely (see footnote 22).

no significant change in patent applications or patent grants following GASB 34/35, while publications decline by approximately 4.1%. In contrast, they produce 0.066 additional patent applications and 0.076 additional patent grants per million dollars of research expenditure. Publications per million dollars increase by approximately 11.1%, equivalent to about 2 additional publications at the sample means. These findings reveal a trade-off between output scale and efficiency behind transparency. The effects of GASB 34/35 also extend to universities' internal labor markets. Federal awards partly sponsor faculty compensation[11], so lower research funding may pass through to salaries. Consistent with this prediction, average faculty salaries fall 2.1%, 3.1%, and 2.7% for assistant, associate, and full professors at public relative to private universities.

This paper mainly contributes to four strands of literature. First, this study contributes to the literature examining the impact of transparency on government procurement. Several studies document how publicization of procurement information affects bidder participation and contract execution (Coviello and Mariniello, 2014; Lewis-Faupel et al., 2016; Duguay et al., 2023; Nathan, 2024; He et al., 2024). Most evidence suggests that publicizing procurement information strengthens oversight, leading to more competitive award procedures and better contract execution. At the same time, however, some research reveals potential downsides of transparency: Duguay et al. (2023) show that increased transparency can induce rigidity in procurement processes by limiting officials' use of private information, and He et al. (2024) document that heightened transparency can impose proprietary costs on contractors.

My paper differs from the existing literature in two respects. First, and most importantly, this study extends the literature from procurement contracts to federal research grants. Procurement contracts are used to acquire specified goods or services for the government's direct use. However, federal grants finance risky research in pursuit of broader public purposes, with social returns that are realized over long horizons and difficult to contract upon. My findings show that financial reporting can serve as a governance mechanism in these less contractible relationships. Second, whereas prior studies mainly focus on auction- and contract-level outcomes, such as contract renegotiations and cost overruns (e.g., Duguay et al., 2023; Nathan, 2024), this study documents the real economic consequences of financial transparency, including impacts on research

[11] For example, Federal awards can be used to support faculty salaries (NIH, 2003). UC Davis reported that research grants and contracts funded faculty compensation and summer salaries (Parker, 2006).

production and faculty's labor market outcomes.

Second, this study adds to the literature on the real effects of disclosure. Prior accounting research documents that disclosure regulation has real effects on corporate actions, including corporate investment (e.g., Biddle et al., 2009), workplace safety (e.g., Christensen et al., 2017), natural-resources extraction (e.g., Rauter, 2020), poverty alleviation (e.g., Lu et al., 2025), and pollution emissions (e.g., Jing et al., 2026). Related works in microeconomics also show that disclosure can generate economic externalities in settings such as healthcare and environment (e.g., Dranove et al., 2003; Greenstone et al., 2023; Bonetti et al., 2024). Departing from this literature, this study focuses on financial disclosure by government contractors and documents its real effects on government investment.

Third, this study extends the literature on the economic consequences of GASB reporting standards. Prior research documents the effects of GASB on public pension (e.g., Naughton et al., 2015; Anantharaman and Chuk, 2024; Fan, 2025), municipal financing and debt markets (e.g., Plummer et al., 2007; Baber and Gore, 2008; Davies et al., 2017; Baber et al., 2024; Cuny and Dube, 2025), and local socioeconomic and administrative outcomes, including labor markets (Dambra et al., 2023), infrastructure maintenance (McDonough and Yan, 2024), and housing markets (Fan, 2025). I extend this literature to the higher education sector by showing that GASB reporting affects the allocation of federal research funding and generates downstream consequences for university research and faculty.

Lastly, this study adds to the emerging literature on nonprofit organizations. Previous studies examine how donors and grantors respond to internal-control deficiencies, governance quality, and executive compensation (Petrovits et al., 2011; Balsam and Harris, 2014; Harris et al., 2015; Dong et al., 2025), as well as how mandatory audits affect the allocation of donations and public funds (Duguay, 2022, 2024; Dong, 2024). The past literature primarily focuses on internal controls and external audits in nonprofit organizations, while my paper seeks to isolate the economic consequences of disclosure mandates from other existing governance mechanisms and regulatory provisions.

This study is not without limitations. First, my causal inference rests on the comparability between public and private research universities, which can be argued for but not proven. Second, while official documents indicate that entity-wide financial information informs federal oversight

and funding decisions, the agency-specific discretion and deliberations through which officials interpret disclosures and incorporate them into funding decisions remain unobservable. Finally, although I provide evidence about changes in federal funding, research output, and efficiency, I cannot make any claims about changes in social welfare. Despite these limitations, this study offers novel insight into the role of disclosure in government investment and provides empirical findings that may prove informative to the policy debate over the higher education sector.

2 Institutional Background

2.1 Background of Federal Government Procurement in IHEs

The federal government procures public goods from research universities through funding federally sponsored programs[12]. Federally sponsored programs here are those "research and development, training, and other sponsored work performed by colleges and universities under grants, contracts, and other sponsored agreements with the federal government" (Office of Management and Budget, 1979). Unlike state funding or private gifts, federal research funding is allocated through competitive processes in which universities compete for awards based on the merits of proposed projects and programmatic priorities[13].

The federal government funds university research by reimbursing the associated costs, which are classified as either direct costs or facilities and administrative (F&A) costs (Figure A1 in Online Appendix). Direct costs are those that can be directly attributed to a specific research project, including personnel, equipment, materials and supplies, and travel. These costs are proposed at the project level and reviewed internally by the university before being included in a funding application or reimbursement request. By contrast, F&A costs, also referred to as indirect costs, are "those that are incurred for common or joint objectives and therefore cannot be identified readily and specifically with a particular sponsored activity" (Office of Management and Budget, 1979). Since F&A costs cannot be allocated to individual projects, they are reimbursed as a fixed

12 The federal government supports university research mainly through grants and procurement contracts. These two instruments are legally distinct: grants provide federal assistance to support specific programs or public objectives, whereas procurement contracts are used primarily to acquire specified goods or services for federal use. (31 U.S.C. § 6303; 31 U.S.C. § 6304). Throughout this paper, I refer to these two forms of support collectively as federal funding. In practice, federal research funding is predominantly grant-based. For example, in fiscal year 2024, NIH funding for research project grants was about seven times that for R&D contracts (NIH, 2026).

13 Both public and private institutions are eligible for federal research grants, and competing applications undergo peer review for available funding (NIH, 2003; NSF, 2008). State grants and appropriations, by contrast, are structurally concentrated among public institutions and constitute a negligible revenue source for private institutions (Barbett and Korb, 1994). Private gifts are donor-directed and reflect donors' institutional ties and preferences (Clotfelter, 2003).

percentage of direct costs, known as the F&A cost rate. The F&A rate is periodically negotiated between IHEs and their cognizant federal agency using historical institutional data. Once established, the negotiated rate applies uniformly to federally funded research across agencies (Azoulay et al., 2025).

2.1.1 The Federal Research Funding Processing

I illustrate the federal research funding process using the funding-making practices of the National Institutes of Health (NIH) as an example (NIH, 2024). The process typically involves two main screenings: scientific screening and fiduciary and administrative screening. Scientific screening identifies high-quality research projects, whereas fiduciary and administrative screening assesses the university's capacity to manage federal funds. Importantly, although researchers are responsible for preparing and executing research projects, the institution is the legal applicant and award recipient[14]. Accordingly, the institution bears primary responsibility for complying with federal oversight requirements, including audits, reviews, and other monitoring activities. The process generally consists of three stages: pre-award assessment, award review and budget negotiation, and post-award monitoring (Figure A2 in Online Appendix).

First, before an award is issued, federal agencies conduct an institutional and administrative assessment of the prospective recipient. Universities receiving federal awards are required to maintain financial-management systems and internal controls capable of identifying, administering, and accounting for federal funds. At this stage, agency officials usually consider its financial-management systems, prior performance, audit findings, and other available financial information. For example, the NSF office responsible for award oversight conducted pre-award cost analyses and financial-system reviews, while NIH grants management officials could review recent audit reports and other available information when assessing a recipient's administrative capacity (NSF, 2002; NIH, 2003).

Second, federal agencies evaluate the proposed research and determine the amount and terms of the award. Peer reviewers assess the scientific merit of the proposed project, while program

14 NIH states: "*For the most part, NIH makes awards to organizations, not individual researchers. The organization is the applicant and award recipient. If you're the project director/principal investigator (PD/PI), you must work in close partnership with your organization's officials to ensure appropriate responsibility and accountability for the proper conduct of research*" (NIH, 2024). Because NIH awards are made to institutions rather than individual researchers, the recipient institution retains formal control over the award. For example, when a PI moves to another institution, the grant does not automatically transfer with the PI, and the recipient institution may request that another PI assume responsibility for the project (Lauer, 2018).

officials consider scientific merit together with program priorities and available funding. Grants management officials separately review the proposed budget for compliance with applicable cost principles and administrative requirements (Dong et al., 2025). Thus, at this stage, the review is largely project-specific, and existing agency policies do not identify university-wide financial statements as formal inputs to scientific peer-review scores.

Third, after an award is made, federal agencies monitor both project performance and the recipient's administration of federal funds. At the project level, award-specific monitoring relies on expenditure reports, cash-drawdown records, progress reports, etc. Federal agencies also use audit findings, site visits, and other compliance information to assess whether expenditures comply with federal cost principles and award conditions. At the institutional level, universities subject to OMB Circular A-133 (OMB, 1997) are required to submit a Single Audit reporting package to the Federal Audit Clearinghouse. The package includes the institutional audited financial statements and accompanying notes, a schedule of expenditures of federal awards, auditor reports, a summary schedule of prior audit findings, and a corrective-action plan. Notably, Circular A-133 does not prescribe a separate accounting basis or financial reporting model for the auditee's financial statements. Rather, these financial statements are prepared under the reporting standards applicable to the university. The financial-statement component of the Single Audit package therefore changes when the university's applicable financial reporting model changes. As a result, the information sets available to federal agencies for assessment changes accordingly.

2.1.2 The Agency Issues in IHEs

Despite rigorous ex ante approval processes and ex post federal audits, a large body of evidence documents inefficient use of federal funds. A key source of this inefficiency is that decision makers in IHEs do not bear the wealth consequences of inefficient spending, while much of the related social cost is ultimately borne by taxpayers (Fama and Jensen, 1983; Core et al., 2006). This separation between private benefits and public costs weakens incentives for cost discipline.

In practice, both researchers and institutions have incentives to overcharge the government (Jenny, 1996). Researchers can inflate direct costs to generate excess funds for personal benefit, such as food, supplies, or unrelated travel (e.g., DOJ, 2020; OIG, 2021). Institutions can also benefit because higher direct costs can increase reimbursable indirect costs. These additional indirect funds can support facilities and administrative functions that would otherwise require

institutional resources (e.g., Lichtenberg, 1992; Rogerson, 1992a; Thomas and Tung, 1992).

These incentives give rise to an agency problem for federal funders. As the funding party, federal agencies face adverse selection during the screening stage and moral hazard after an award is made. Ex ante, agencies must evaluate institutions and researchers with limited information about their quality, capabilities, and intended use of federal funds. IHEs may therefore exploit their informational advantage to obtain "informational rent"[15] when awards are determined. Ex post, because funding agreements are necessarily incomplete, recipient institutions retain discretion over implementation and may behave opportunistically in ways that are costly for federal agencies to observe or prevent.

A substantial body of anecdotal evidence illustrates these agency problems in federally sponsored university research. For example, in the early 1990s, the GAO found significant weaknesses in the allocation of costs at the University of California, Berkeley. Errors in the university's space-allocation system alone resulted in around $680,000 of costs being overallocated to the federal government, while additional questionable and improperly allocated expenses were also charged to federally sponsored research (GAO, 1992). In a more severe case, the University of Minnesota agreed in 1998 to pay $32 million to resolve allegations involving the mishandling of NIH-supported activities and other federal funds. Among other findings, the government alleged that the university inflated billings on 29 federal funds by charging salaries for employees who did not work on the funds and supplies that were not used for fund purposes (DOJ, 1998). These cases were not isolated; many reviews also documented weaknesses in federal oversight of university research spending. An HHS OIG review of NIH awards administered by 44 universities found substantial discrepancies between approved budgets and actual expenditures and questioned agencies' ability to adequately monitor research spending (HHS OIG, 1992). Similarly, the GAO reported that NIH did not routinely use Single Audit reports to assess grantees' financial-management systems, limiting its ability to evaluate whether federal funds were properly managed (GAO, 2000).

2.2 Financial Disclosure in IHEs

The Higher Education Act of 1965 mandated that institutions participating in Title IV federal

[15] Economic rent is the portion of a payment that exceeds the recipient's opportunity cost in competitive markets. Online Appendix F provides a stylized example illustrating the intuition underlying informational rent.

student aid programs report data on institutional finance. The IPEDS finance survey, conducted by the U.S. Department of Education's National Center of Education Statistics, serves the national need for disclosure in IHEs. IPEDS has collected institutional finance data for eligible institutions since the academic year 1986/87.

2.2.1 The History of Financial Reporting Standard for IHEs

From 1986[16] to 1995, both public and private institutions were required to report financial information using the same form, known as the "Common Form" (or "Old Form"). During this period, all colleges and universities followed the accounting and reporting standards described in the American Institute of Certified Public Accountants' (AICPA) 1973 audit guide[17] (AICPA, 1973). However, the Common Form relied on a fund-accounting structure and differed substantially from the entity-wide accrual-based reporting models adopted later (see Figure A3 and Figure A4 in Online Appendix for an example). As Ingram (1984) criticized, ***"****the basic accounting entity … is the fund. … [and] consolidated reporting of these funds is prohibited****"***. As a result, key elements of modern financial reporting (e.g., total assets, total liabilities, or differentiation among operation activities) were entirely absent from the Common Form. The financial information is fragmented and less informative for users. Consistent with these concerns, GASB later concluded that *"fund group reporting … was not essential for most users' understanding of the financial position and results of operations of public colleges and universities"* and that *"fund group information … does not help users to understand how short-term results affect the long term"* (GASB 35, 1999).

The limitations of Common Form reduced comparability across institutions and increasingly conflicted with a growing need for transparency in the public sector. Starting in year 1996, private institutions were first required to follow the financial reporting models issued by the FASB[18] (U.S. Department of Education, NCES 2000). Relative to the Common Form, the FASB offered a materially richer depiction of institutional financial position, greatly enhancing transparency and facilitating more effective external monitoring (Benston et al., 2007). Later, public institutions were

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[16] Throughout this paper, years refer to the fall semester of an academic year. For example, 1986 refers to the 1986/87 academic or fiscal year.

[17] The AICPA's guidance for IHEs was first issued in 1973 and later revised in several editions (including, but not limited to, *Audits of Colleges and Universities*). Nevertheless, the accounting and reporting framework throughout this period remained fundamentally fund-based.

[18] The new FASB model is contained in Statement of Financial Accounting Standards (SFAS) Nos. 116 (FASB, 1993a), 117 (FASB, 1993b), and 124 (FASB, 1995).

also affected by changes to the Governmental Accounting Standards Board (GASB), which was phased in across public colleges and universities between 2001 and 2003[19]. Beginning in 2007, IPEDS introduced the "Aligned Form" to further enhance comparability across institutions reporting under FASB and GASB standards. The Aligned Form harmonized item definitions and reporting categories across sectors, but did not alter the underlying accounting frameworks themselves; institutions continued to follow either FASB or GASB, with the aligned templates simply standardizing how those standards were translated into the IPEDS survey. Figure 1 presents the full timeline.

2.2.2 GASB 34/35 Implementation across U.S. Public Colleges and Universities

The implementation of GASB 34 responded to growing demand for greater transparency and accountability in the public sector. GASB 35 extended the GASB 34 framework to public colleges and universities, enhancing accountability in public higher education and improving comparability across IHEs.

As stated in GASB 34 (see Online Appendix B.1), its objective was to enhance transparency and accountability in the government sector (GASB 34, 1999). To achieve this purpose, GASB 34 introduced several fundamental changes. First, it adopted entity-wide accrual financial statements rather than the fund-based reporting standard, providing a comprehensive view of an institution's financial position and resource flows. Second, it mandated the inclusion of Management's Discussion and Analysis (MD&A), requiring management to offer narrative explanations of financial performance, major events, and year-to-year changes. Moreover, GASB 34 required clearer explanations in several concrete areas, including major revenue sources, expense classifications, and significant accounting policies. Prior studies indicate that GASB 34 significantly increased the quality of governmental financial reporting through the introduction of accrual-based financial statements and mandatory MD&A disclosures (e.g., Plummer et al., 2007; Bloch et al., 2016; Cuny and Dube, 2025).

GASB 35 extended GASB 34 framework to public colleges and universities (see Online Appendix B.2), formally integrating them into the governmental accrual-based reporting model and replacing the prior fund-based reporting approach under the AICPA College Guide. Under

[19] IPEDS Finance Data FASB and GASB - What's the Difference? A Guide for Data Users, IPEDS, available at: Link

GASB 35, public institutions became subject to the governmental reporting framework and were required to present MD&A, basic financial statements appropriate to their reporting category, notes to the financial statements, and required supplementary information (GASB 35, 1999). The central change was not simply an increase in the number of required disclosures. Rather, GASB 35 shifted the focus of financial reporting away from separate fund groups and toward the institution as an economic entity. Relative to the Common Form, the new framework provided more comprehensive information about institution-wide assets and liabilities, capital assets and depreciation, long-term obligations, operating and nonoperating activities, cash flows, and changes in net assets.

Importantly, this change also affected federal oversight. The financial statements included in the Single Audit package were the institution's general-purpose financial statements prepared under the reporting standards applicable to the institution at the time, rather than under a separate federal accounting model (OMB, 1997). Consequently, when GASB 35 changed the applicable reporting framework, it also changed the financial-statement information available to federal agencies through the Single Audit process. Before implementation, this component reflected a fragmented, fund-based reporting structure. After implementation, federal agencies and auditors had access to entity-wide, accrual-based information about financial position, operating performance, capital assets, liabilities, and cash flows. Although GASB 35 did not change award-specific compliance requirements, it expanded the broader financial information available for interpreting federal-award expenditures and assessing the recipient institution's financial-management capacity.

Taken together, GASB 34/35 materially expanded the scope and structure of the accounting information available to both public stakeholders and federal oversight bodies. This interpretation is consistent with research showing that GASB standards improve governmental information environments (e.g., Dambra et al., 2023; Baber et al., 2024), as well as the broader literature demonstrating that more disaggregated financial disclosure can facilitate monitoring and alter decision-making (e.g., Berger et al., 2003; Hirst et al., 2007; Berger et al., 2024; Jing et al., 2026).

3 Conceptual Framework and Hypothesis

Governments procure public goods from contractors like IHEs to promote social welfare. Through economies of scale, these contractors are more efficient than dispersed individuals to

address social needs (Coase, 1937). However, delegating the production of public goods to organizations gives rise to agency problems (Jensen and Meckling, 1976; Fama and Jensen, 1983; Core et al., 2006). For this, as Laffont and Tirole (1986) suggested, *"the use of accounting data in regulatory or procurement contracts"* can mitigate these problems and allocate public funds efficiently.

In theory, agents (e.g., IHEs) can exploit incomplete information to extract private benefits from principals (e.g., federal agencies). Contractors possess private information regarding their actual costs, operations, and quality, which principals cannot fully observe. This information asymmetry offers agents room for opportunistic misbehavior, such as cost padding and manipulation (e.g., Williamson, 1971; Rogerson, 1992b; Chen and Gunny, 2015). These practices ultimately lead to overcharge, allowing agents to capture informational rent that arises from information advantage (Bandiera et al., 2009; Bajari et al., 2014). Recent literature highlights how transparency and disclosure mandates reshape public procurement by mitigating information asymmetry. Coviello and Mariniello (2014) show that publicizing government purchases through newspapers significantly reduces procurement costs and rationalizes public spending. Duguay et al. (2023) find that disclosing procurement contracts on digital platforms promotes competitive bidding. Nathan (2024) further demonstrates that the data disclosure requirements under the Truth in Negotiations Act (TINA) significantly reduce cost overruns in public procurement. Moreover, Dong (2024) and Dong et al. (2025) show that Single Audits and Cost Accounting Standards (CAS), respectively, reduce the amount of public funds received or claimed by government-funded entities and improve the efficiency of fund use.

GASB 34/35, as a form of financial disclosure accessible to the public, plays an important role in reducing information asymmetry in the higher education sector. It provides interested parties (e.g., taxpayers, the media, and federal agencies) with comprehensive accrual-based information and enhances comparability across institutions, constraining discretionary charges by IHEs. As a result, the implementation of GASB 34/35 may reduce federal funding to affected IHEs by limiting the informational rent they could previously extract from federal agencies. I substantiate the argument by analyzing two underlying mechanisms and developing corresponding stylized models.

Monitoring Mechanism: In contract theory, principals with incomplete information have to provide agents with a residual surplus to ensure incentive compatibility (e.g., Laffont and Tirole,

1993; Laffont and Martimort, 2002; Bolton and Dewatripont, 2004). This "residual surplus" is commonly called informational rent, which represents the cost borne by the principal to prevent agents from deviating from the principal's best interest for self-interest. Specifically, to compensate agents' opportunity cost that exploits their private information in pursuit of self-interest, principals have to provide higher transfers. In this scenario, the allocation of federal funding deviate from the complete-information benchmark, leading to overpayment and output losses (Baron and Myerson, 1982; Krähmer and Strausz, 2011). GASB 34/35 can mitigate these frictions by strengthening monitoring both within and outside the government. For federal agencies, the reform expands the institution-level financial information available through existing oversight mechanisms (e.g., Single Audit), thereby improving risk assessment and the interpretation of audit and compliance information. At the same time, because GASB information is publicly available, the reform also increases scrutiny by taxpayers, the media, and other stakeholders. These complementary monitoring forces reduce IHEs' informational advantage and constrain their ability to extract rents through opaque financial operation. Accordingly, if part of pre-GASB federal funding reflected informational rent sustained by financial opacity, GASB 34/35 should reduce those rents and lower subsequent federal funding.

Building on the framework of Laffont and Tirole (1993), I provide a stylized model to formalize monitoring mechanism (see Appendix A). In this framework, asymmetric information gives rise to incentive-compatibility constraints that force the principal to deviate from the first-best allocation. Specifically, universities possess private information that federal agencies cannot observe, enabling them to strategically misreport and inflate their funding claims through reporting discretion. This information asymmetry requires federal agencies to leave informational rent to induce truthful reporting, with public universities receiving greater expected rents before GASB 34/35. By improving financial transparency, GASB 34/35 reduces this informational rent and, consequently, federal funding to public universities relative to private universities.

Government Learning Mechanism: Observational learning theory suggests that decision makers can infer information from others' observable actions and update their own decisions accordingly (Bikhchandani et al., 1992). Consistent with this theory, prior research shows that managers and regulators learn from outsiders' actions in capital markets and regulatory settings (e.g., Edmans et al., 2015; Zuo, 2016; Goldstein, 2023; Kang et al., 2021). Related evidence in

higher education also suggests that funding decisions can transmit information between government and private funders (e.g., Payne, 2001; Blume-Kohout et al., 2009). Since financial statements prepared under GASB 34/35 are publicly available, external funders can use the expanded disclosures to form more precise private assessments of IHEs. These assessments, together with funders' private information, are reflected in observable funding decisions such as private donations. Federal agencies can finally learn from these external funding signals when making subsequent allocation decisions. By improving the information available to external stakeholders, GASB 34/35 increases the informativeness of their funding signals and, in turn, makes federal agencies more responsive to these signals when allocating funds.

Based on the framework of Heutel (2014), I develop a stylized model to illustrate the economic intuition behind the government learning mechanism (see Appendix B). The private donor first infers project quality via disclosure and chooses a contribution accordingly. The government then observes this contribution, updates its beliefs about quality, and determines its funding decision. The model yields a separating Perfect Bayesian Equilibrium in which higher contributions signal higher quality. In equilibrium, the government increases its funding in response to a larger private contribution if the marginal value implied by the donor's quality signal exceeds the diminishing marginal returns to public-good provision.

So far, my discussion suggests that GASB 34/35 may reduce federal funding to affected IHEs by enhanced monitoring and government learning. Several frictions, however, may attenuate or even offset the informational role of GASB 34/35. First, GASB 34/35 mainly provides aggregated financial information and does not reveal granular information about IHEs' research grant and contract activities. Federal agencies and external donors may therefore obtain little incremental information relevant to direct funding decisions. Second, disclosure may fail to enhance monitoring given the information processing costs. Although GASB 34/35 expands the information set, governments and other monitors may lack the ability to effectively interpret and act on complex financial reports (e.g., Bloomfield, 2002; Hirshleifer and Teoh, 2003; Weil et al., 2013; Blankespoor et al., 2020). Third, the government learning mechanism may weaken when private signals are weakly informative. If individuals are influenced by non-pecuniary motives (e.g., political ideology or social preferences), their observable actions may not reliably reflect their information-based assessment (e.g., Bénabou and Tirole, 2006; DellaVigna et al., 2012). In such a

case, federal agencies may rationally discount private donations as noisy or biased signals, reducing their responsiveness to these actions. Fourth, transparency may not work when disclosure targets government actions with dispersed externalities. In such a case, the informational benefits accrue broadly, while the costs of processing disclosure and negotiation are borne privately by a few actors rather than internalized collectively, making Coasian bargaining difficult to achieve (e.g., Coase, 1960; Olson, 1965; Bonetti et al., 2024). As a result, collective action problems and free-rider incentives may prevent interested parties from translating GASB information into real changes. These competing forces make the net effect of GASB 34/35 on federal funding theoretically ambiguous. I therefore state my hypothesis in a null form:

Null Hypothesis: GASB 34/35 has no effect on the allocation of federal funding to public IHEs.

4 Data and Research Design

4.1 Data Collection and Sample Selection

I collect data from public data source, including the Integrated Postsecondary Education Data System (IPEDS), the United States Patent and Trademark Office (USPTO), and Elsevier's ScienceDirect/Scopus databases. IPEDS provides a comprehensive set of institution-level statistics, including information on institutional characteristics, enrollment, staffing, finances, etc. These data measure institutional structure (e.g., campus configuration, control, and size), financial resources (e.g., federal, state, and private funding), and research activity (e.g., research expenditures). Patent data are obtained from the USPTO, primarily using the "*U.S. Colleges and Universities—Utility Patent Grants*" series compiled by the Patent Technology Monitoring Team. This dataset provides annual counts of patent applications and grants assigned directly to U.S. universities[20]. Last, to measure academic research output, I use Elsevier's ScienceDirect/Scopus database, which provides annual institution-level publication counts, covering journal articles, conference papers, book chapters, and other indexed outputs.

I restrict the analysis sample to U.S. private not-for-profit and public research universities, defined as Research I (i.e., R1, or previously called "Doctoral/Research Universities-Extensive") and Research II (i.e., R2, or previously called "Doctoral/Research Universities-Intensive")

[20] To measure the full scope of institutions' innovation activities, I extend these records by identifying patents filed under affiliated entities (e.g., university foundations, research institutes, and technology transfer offices) through manual matching. Finally, this yields a consolidated patent record for each university that includes assignments under both the university's official name and its affiliated organizations.

institutions under the 2000/01 Carnegie Classification, which was one year prior to the implementation of GASB 34/35. I further exclude U.S. service schools and institutions located in U.S. overseas territories and insular areas to ensure comparability across institutions. I limit the sample period to academic years 1999 through 2008 for two reasons. First, data coverage in IPEDS prior to 1999 contains substantial missing observations, which would reduce data reliability. Second, I end the sample period in 2008 to avoid potential confounding factors of financial crisis.[21] The final sample for analysis is summarized in Table 1.

4.2 Research Design

Leveraging the implementation of GASB 34/35 as an exogenous regulatory shock for public institutions (Figure 2), I employ a staggered difference-in-differences design to investigate the effects of GASB 34/35 on the allocation of federal funds. Specifically, the identification strategy compares public institutions that transitioned from the Common Form to GASB 34/35 with private ones that remained under the FASB reporting regime throughout the sample period. The baseline two-way fixed-effects (TWFE) specification is as follows:

$$Outcome_{i,t} = \beta_0 + \beta_1 GASB_{i,t} + \gamma \boldsymbol{X}_{i,t} + \alpha_i + \varphi_t + \varepsilon_{i,t} \qquad (1)$$

where $Outcome_{i,t}$ is the variable of our interest in academic year t for institution i. $GASB_{i,t}$ is an indicator variable that equals 1 if institution i adopted GASB 34/35 in academic year t, otherwise 0. $\boldsymbol{X}_{i,t}$ is a vector of control variables at institution-level and state-level, including institutional size ($Size$), the natural logarithm of the number of faculty ($Ln(\#\ faculty)$), the natural logarithm of state GDP ($Ln(GDP)$), the natural logarithm of state population ($Ln(Pop)$), the natural logarithm of total state tax revenues ($Ln(total_tax)$), the natural logarithm of total state higher education expenditures ($Ln(higher_edu_exp)$), and the state budget balance ($Gov_balance$). α_i and φ_t are fixed effects for institutions and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by the academic year and state level. The definition of each variable is provided in Appendix C. β_1 is the diff-in-diffs estimator that captures the net effect of GASB 34/35 adoption on the variable of our interest. As discussed in hypothesis, the net effects are theoretically unclear ex ante, and therefore no directional prediction is imposed here.

[21] Prior evidence indicates that U.S. federal government contract spending declined following the financial crisis (e.g., Jordan 2012).

Two considerations are worth noting. First, although GASB 34/35 was phased in across three waves, I use a staggered DiD design rather than a stacked approach. Of the 154 public institutions in the sample, 143 adopted GASB 34/35 in the first phase, leaving few institutions in the later adoption cohorts (see Table 1). Such highly unbalanced treatment timing can lead to weighting and compositional concerns for stacked and related event-study estimators (de Chaisemartin and d'Haultfoeuille 2020; Sun and Abraham 2021; Callaway and Sant'Anna 2021; Borusyak et al. 2024; Wing et al. 2024). I address potential threats to identification through additional robustness tests. Second, heteroskedasticity-consistent standard errors are two-way clustered by academic year and state to account for common shocks over time and within-state dependence (Abadie et al. 2023).

4.3 Descriptive Statistics

Table 2 presents descriptive statistics for analysis sample. The sample comprises 2,160 institution-year observations and exhibits significant cross-sectional variation in institutional characteristics, funding, and academic outputs. Federal funds constitute a major component of institutional resources. The median amount of federal funding is about $59 million, with the interquartile range spanning from about $25 million at the 25th percentile to $148 million at the 75th percentile, which exhibits reasonable variations. Similar variation is observed for private gifts and state funding, though their magnitudes are relatively smaller. Given the wide dispersion in funding variables, the main analyses rely on their natural logarithms. Importantly, I do not employ log-one-plus transformations, as such adjustments may introduce bias in log-linear models when the dependent variable is right-skewed (e.g., Cohn et al., 2022; Chen and Roth, 2024).

5 Results: GASB 34/35 and Federal Funding

5.1 The Effects of GASB 34/35 on Federal Funding

I analyze the effects of GASB 34/35 on the allocation of federal funding by estimating equation (1). The baseline estimate in column (1) of Table 3 shows that the coefficient on $GASB$ is -0.078 (p-value <0.01), indicating that federal funding to public universities declines by 7.8% relative to private ones following the implementation of GASB 34/35[22]. Based on the sample

[22] A potential concern is that reductions in federal funding to public universities may be mechanically reallocated to private universities, thereby affecting the control group and violating SUTVA assumption. However, NIH policy during the sample period allowed unobligated balances to be carried forward or used to offset subsequent NIH awards, rather than requiring them to be immediately reassigned to another recipient (NIH, 2003). Similarly, NSF emphasizes that awards are selected through a competitive merit-review process rather than allocated according to a requirement to fully disburse available funds (NSF, 2004). These institutional features suggest that reductions in funding to public

means, this effect corresponds to a reduction of about $9.33 million in federal funding along the intensive margin. Since federal funding may also be affected by contemporaneous state-level factors, I estimate an alternative specification with state-by-year fixed effects. Column (2) of Table 3 reports the results. The coefficient on $GASB$ remains significantly negative (p-value < 0.01) and increases in magnitude, indicating that the main findings are robust to state-level confounding factors. Overall, these results suggest that, on average[23], the GASB 34/35 leads to a decrease in the level of federal funding received by public universities.

5.2 Robustness Check

I next conduct several robustness tests to address potential concerns about the main results.

Identifying Assumption. The internal validity of my causal inference requires that public and private universities would have experienced similar trends in federal funding but for the GASB 34/35 treatment. A common way to gauge the plausibility of the parallel trends assumption is to check for the absence of diverging trends before treatment. Figure 3 plots the dynamic event-study of TWFE model as equation (1), along with 95% confidence level. The figures confirm the absence of diverging pre-trends in federal funding, supporting a causal interpretation of the main results.

Honest DiD. While the absence of diverging pre-trends provides evidence for the parallel trends assumption, it cannot fully rule out the possibility of violations, as it is impossible to observe the counterfactual of the parallel trends post-treatment. To assess sensitivity to potential post-treatment violations, I apply the Honest DiD by Rambachan and Roth (2023). Figure 4 reports robust confidence intervals under both relative magnitude and smoothness restrictions. Across a wide range of sensitivity parameters, the estimated effects of GASB 34/35 on federal funding remain significantly negative. These results indicate that the main findings remain robust even under substantial deviations from the parallel trends assumption.

Bacon Decomposition and Treatment Heterogeneity. Recent studies show that, in settings with staggered treatment timing, TWFE DiD estimators may combine multiple 2×2 comparisons with potentially negative weights and distort the estimated causal effects (Baker et al.,

universities are less likely to mechanically translate into corresponding increases in funding to private universities.

[23] As an additional analysis, I examine whether the treatment effect varies with universities' exposure to different fields of study. Figure A5 in the Online Appendix suggests treatment effect heterogeneity. The decline in federal funding is larger for universities with greater exposure to Communications Technologies, Recreation/Fitness, and Engineering Technologies, but smaller or even more positive for universities more exposed to Agricultural Sciences and Mathematics and Statistics.

2022). To mitigate this concern, I decompose the TWFE estimator using the Goodman-Bacon decomposition (Goodman-Bacon, 2021). Panel A of Figure 5 reports the Bacon decomposition results, showing that the estimated treatment effect is primarily driven by comparisons between public and private universities. Although a limited number of 2×2 comparisons yield positive estimates, their weights and economic magnitude are negligible, and do not overturn the overall negative effect. Panel B further examines treatment effect heterogeneity using quantile DiD regression. The results reveal heterogeneity across institutions: the decline in federal funding after GASB 34/35 is more pronounced among universities that received larger federal funding prior to GASB 34/35.

Omitted Variable Bias[24]. To assess whether omitted variables drive the baseline results, I conduct two sensitivity analyses. First, following recent literature (e.g., Diegert et al., 2022; Masten and Poirier, 2026), I construct bounds on the estimated GASB effects under alternative assumptions about the strength of selection on unobservables relative to observables and the correlation between omitted and observed determinants. Figure 6 shows that the bounds widen as these parameters increase but remain significantly different from zero throughout the range considered. Second, I harness Oster's (2019) coefficient-stability test, which uses changes in coefficients and R-square after adding observed controls to assess the selection on unobservables required to eliminate the estimated effect. As reported in Online Appendix Table C1, $\hat{\delta}$ are negative across specifications. Following Satyanath et al. (2017), this indicates that selection on unobservables would strengthen rather than explain away the negative treatment effect.

Faculty Turnover as Alternative Explanation: If GASB 34/35 weakened public universities' ability to attract or retain faculty, the resulting change in researcher composition could reduce funding applications and awards, independent of the proposed information channel. I therefore re-estimate equation (1) using annual net changes in the numbers of assistant, associate, and full professors as outcomes. As reported in Table C2, the coefficients on GASB are statistically insignificant across all three ranks. Thus, I find no evidence that GASB 34/35 materially altered

[24] The timing of GASB 34/35 adoption was determined by an institution's total annual revenues in its first fiscal year ending after June 15, 1999. Under nonrandom treatment assignment, variables governing treatment should generally be included as controls (Angrist and Hahn, 2004). However, because the Common Form did not report an entity-wide measure of total revenues, its omission may confound the estimated treatment effect, motivating sensitivity analyses for omitted-variable bias.

faculty staffing, making this alternative explanation unlikely to account for the main results.

Additional Robustness Tests. I conduct four additional tests to assess the robustness of the baseline results (Online Appendix Tables C3–C6). First, I use federal funding in year $t+1$ as the outcome to allow the treatment effect to materialize with a delay. The estimated coefficients remain negative and significant (Table C3). Second, to further alleviate concerns about TWFE estimation with staggered treatment timing (Baker et al., 2022), I retain only Phase 1 public universities and never-treated private universities, thereby imposing a common treatment timing. The results remain negative and significant (Table C4). Third, using this restricted sample, I address observable differences between treatment and control institutions through propensity-score matching, entropy balancing, and inverse-probability weighting based on pre-treatment covariates. All three approaches yield negative and significant estimates (Table C5). Finally, following Cengiz et al. (2019), I implement a stacked DiD design using phase-specific samples and cohort-specific fixed effects. The estimates remain negative (Table C6).

5.3 Cross-Sectional Analyses for Mechanism

5.3.1 Mechanism: Monitoring

The monitoring channel operates through federal agencies' direct use of GASB information. Before GASB 34/35, higher organizational complexity made it more difficult for federal agencies to evaluate university-wide financial position and verify funding claims because relevant activities and information were dispersed across campuses and academic units. Complexity does not necessarily imply misconduct; rather, it increases monitoring costs and expands the scope for strategic reporting (e.g., Bushman et al., 2004; Bennedsen and Zeume, 2018). By introducing more comprehensive, entity-wide financial reporting, GASB 34/35 should constrain discretionary charges more effectively for universities that were more complex ex-ante. That is, if monitoring drives the baseline effect, the decline in federal funding should be more pronounced among these institutions.

I measure organizational complexity along two dimensions: administrative complexity and academic complexity. Table 4 reports results consistent with this prediction. In column (1), the interaction between $GASB$ and administrative complexity is significantly negative. The coefficient of -0.098 indicates that the decline in federal funding is 9.8% greater for multi-campus universities than for single-campus ones. Column (2) reports a similarly negative and significant

interaction between $GASB$ and academic complexity. The coefficient of -0.069 implies an additional decline of 6.9% for universities with above-median academic breadth. Together, these findings support the monitoring mechanism that mandatory disclosure has a greater effect when pre-existing information asymmetry is higher.

5.3.2 Mechanism: Government Learning

The government learning channel operates indirectly through informed external funders. GASB 34/35 provides donors and state governments with richer public information sets, enabling them to form more precise assessments of institutions. Their funding decisions consequently become more informative signals of underlying institution quality. Through observational learning, federal agencies can learn information from these observable decisions and adjust their subsequent funding decisions accordingly (Bikhchandani et al., 1992). Consistent with Heutel (2014), funding from external funders may transmit quality information to government agencies. Accordingly, this mechanism predicts that the association between external funding in academic year t and federal funding in year $t+1$ should become stronger following GASB 34/35. I test this prediction using private gifts and state funding as alternative external signals.

Table 5 reports evidence consistent with the government learning channel. In column (1), the interaction between GASB and prior private donations is positive and significant. The coefficient indicates that, following GASB 34/35, the elasticity of subsequent federal research funding with respect to prior private donations increases by 0.034 for public universities relative to private universities. Based on the sample means, this estimate implies that one additional dollar of prior private donations is associated with approximately 7.3[25] cents more subsequent federal research funding for public universities relative to private universities. Column (2) provides similar evidence using state funding as an alternative external signal. The interaction between GASB and prior state funding indicates that the elasticity of subsequent federal research funding with respect to state funding increases relatively by 0.060 following GASB 34/35. Based on the sample means, one additional dollar of prior state funding is associated with about \$0.546[26] more subsequent federal research funding.

Figure 7 provides complementary evidence on the timing of this relationship. The increased

[25] The dollar magnitude is calculated based on the sample means as 0.034 × (130,938,871 / 60,739,227) = 0.073.
[26] The dollar magnitude is calculated based on the sample means as 0.060 × (130,938,871 / 14,402,502) = 0.546.

responsiveness to both signals is not evident before GASB 34/35 but emerges gradually post-GASB. This delayed response supports a learning process in which federal agencies require time to observe external funding decisions under the new reporting regime and incorporate their informational content. Together, these findings are consistent with an indirect learning channel in which GASB 34/35 informs external funders, whose funding decisions provide additional signals to federal agencies.

6 The Real Economic Consequences of GASB 34/35

6.1 GASB 34/35 and University Research

GASB 34/35 enhances institutional financial transparency and affects universities' ability to obtain research funding. However, the resulting real effects are theoretically unclear because of competing economic forces. On the one hand, stronger oversight and cost control can reduce inefficient spending and improve the use of available resources (e.g., Olken, 2007; Biddle et al., 2009; Saito and McIntosh, 2010; Nathan, 2024). On the other hand, disclosure and oversight can impose documentation, approval, and compliance costs that constrain organizational discretion and innovation. Duguay et al. (2023), for example, show that procurement transparency can introduce rigidity into contract execution, while He et al. (2024) document proprietary-information costs associated with federal contracting requirements. In universities, similar burdens may divert researchers' and administrators' resources away from research activities, reducing research outputs.

I examine and distinguish two margins of research: the output margin and the efficiency margin. For the output margin, reported in Table 6, I follow Cohn et al. (2022) and estimate the following Poisson pseudo-maximum likelihood (PPML) specification:

$$\mathbb{E}[Research\ Output_{i,t+1}|GASB_{i,t}, \boldsymbol{X}_{i,t}, \alpha_i, \varphi_t] = \exp(\beta_0 + \beta_1 GASB_{i,t} + \gamma' \boldsymbol{X}_{i,t} + \alpha_i + \varphi_t) \quad (2)$$

Where $Research\ Output_{i,t+1}$ measures the number of patent applications, patent grants, or publications produced by university i in academic year $t+1$. For the efficiency margin, reported in Table 7, I re-estimate equation (1) using research output in academic year $t+1$, scaled by research expenditures academic year t, as the dependent variable[27].

Table 6 shows no significant effects on either patent applications or patent grants. In contrast,

[27] Research activities are inherently forward-looking because research expenditures incurred in a given period typically translate into outputs in subsequent periods. Accordingly, I relate research expenditures in year t to patents and publications realized in years $t+1$, allowing for the delayed nature of the research production process.

the coefficient on publications is −0.041 and statistically significant, corresponding to around 4.1% decline following GASB 34/35. Thus, the results provide no evidence that GASB 34/35 changes absolute patent output but indicate a modest reduction in research publication activity. Table 7 shows that research output scaled by expenditure increases after GASB 34/35. Public universities produce about 0.066 additional patent applications and 0.076 additional patent grants per million dollars of research expenditure. Publications per million dollars of research expenditure increase by approximately 11.1%[28].

Taken together, the results reveal a trade-off between output scale and efficiency[29]. Following GASB 34/35, public universities produce more research output per expenditure even though absolute output remains unchanged or even declines. This pattern suggests tighter cost discipline or a reallocation of resources toward more productive activities. Nevertheless, nor do they imply improvement in social welfare: the benefits of greater cost effectiveness must be weighed against the value of foregone research output and its potential knowledge spillovers (Azoulay et al., 2019; Myers and Lanahan, 2022).

6.2 GASB 34/35 and Faculty Compensation

The effects of GASB 34/35 in federal funding may extend beyond research to universities' internal labor markets. Existing anecdotal evidence indicates that faculty salaries are closely connected to and partly determined by the sponsored funding[30]. Consistent with this institutional linkage, Payne and Siow (2003) find that increases in federal research funding raise faculty salaries at U.S. research universities. Accordingly, if GASB 34/35 reduces federal research funding to public universities, faculty salaries may also decline relative to private universities. I examine this

[28] The increase in expenditure-scaled output should not be interpreted as a mechanical consequence of a declining denominator. The measure is designed to capture the proportional change in research output relative to the proportional change in research expenditure. Research efficiency is inherently defined by the relationship between output and the resources used to produce it. A reduction in research expenditure does not increase this measure if output declines proportionately or by a greater amount. The measure increases only when research output is maintained or declines less than research expenditure, indicating that more output is generated per expenditure.

[29] To allow for a longer research-production horizon, I repeat the analyses in Tables 6 and 7 using patent and publication outcomes measured in academic year $t+2$, while keeping the GASB treatment and research-expenditure measures in year t. The results are similar for both research output and expenditure-scaled research efficiency (Online Appendix Tables C7 and C8).

[30] Federal awards allow universities to charge faculty salaries to sponsored projects in proportion to the effort devoted to those projects (NIH, 2003). Consistent with this practice, UC Davis reported that competitive contracts and grants supported compensation for health-sciences faculty and that federal and private research sponsors funded summer salaries for general-campus faculty on nine-month appointments (Parker, 2006). More broadly, Lombardi (2005) observed that faculty who obtained grants tended to experience faster salary growth, reflecting both their value to the university and their stronger position in the external academic labor market.

possibility among tenure-track and tenured faculty on nine- or ten-month contracts, including Assistant Professors, Associate Professors, and Full Professors.

Table 8 reports the effects of GASB 34/35 on average faculty salaries. The coefficients are negative and statistically significant across all three academic ranks. Following GASB 34/35, average salaries at public universities decline relative to private universities by approximately 2.1% for Assistant Professors, 3.1% for Associate Professors, and 2.7% for Full Professors. The results suggest that the decline in federal research funding is accompanied by lower compensation for research-active faculty at public universities.

7 Conclusion

In this paper, I study how financial disclosure by government contractors affects the allocation of government investment through the lens of the U.S. higher education sector. I use a staggered diff-in-diffs design that compares public universities subject to the phased implementation of GASB 34/35 with private universities not subject to the mandate. I find that federal funding to public universities declines following GASB 34/35. The decline is larger among public universities with higher pre-reform organizational complexity. After adoption, federal funding to public universities also becomes more responsive to prior private gifts and state funding. The reform generates real effects within universities. GASB 34/35 has modest effects on research output: patent output remains unchanged, while publications decline. However, research efficiency improves significantly, as measured by increases in patents and publications scaled by research expenditure. Faculty compensation declines across academic ranks, while faculty turnover remains unchanged.

Unlike private investment, government investment targets public goods characterized by high uncertainty, long horizons, and diffuse social returns. However, such investment lacks the collateral and liquidation mechanisms through. As illustrated by the higher education sector, research projects may fail without recoverable value; and investments in human capital are non-collateralizable, as the individuals embodying such investments cannot be traded. Against this backdrop, policymakers face the question of how to allocate public funds efficiently. This study highlights the role of financial disclosure as a policy instrument that operates through information provision. At a minimum, my results indicate that disclosure regulation can help federal agencies and taxpayers better manage the public cost of IHEs.

REFERENCES

Abadie, A., Athey, S., Imbens, G.W. and Wooldridge, J.M., 2023. When should you adjust standard errors for clustering?. *The Quarterly Journal of Economics*, *138*(1), pp.1-35.

American Institute of Certified Public Accountants (AICPA) 1973, *Audits of Colleges and Universities*, American Institute of Certified Public Accountants, New York, NY.

Anantharaman, D. and Chuk, E., 2024. The impact of governmental accounting standards on public-sector pension funding. *Review of Accounting Studies*, *29*(2), pp.1948-1996.

Angrist, J. and Hahn, J., 2004. When to control for covariates? Panel asymptotics for estimates of treatment effects. *Review of Economics and Statistics*, *86*(1), pp.58-72.

Azoulay, P., Graff Zivin, J.S., Li, D. and Sampat, B.N., 2019. Public R&D investments and private-sector patenting: evidence from NIH funding rules. *The Review of Economic Studies*, *86*(1), pp.117-152.

Azoulay, P., Gross, D.P. and Sampat, B.N., 2025. *Indirect Cost Recovery in US Innovation Policy: History, Evidence, and Avenues for Reform* (No. w33627). National Bureau of Economic Research.

Baber, W., Beck, A. and Koester, A., 2024. Accounting standardization and separation in the municipal debt market: Evidence from GASB 34. *The Accounting Review*, *99*(4), pp.29-56.

Baber, W.R. and Gore, A.K., 2008. Consequences of GAAP disclosure regulation: Evidence from municipal debt issues. *The Accounting Review*, *83*(3), pp.565-592.

Bajari, P., Houghton, S. and Tadelis, S., 2014. Bidding for incomplete contracts: An empirical analysis of adaptation costs. *American Economic Review*, *104*(4), pp.1288-1319.

Baker, A.C., Larcker, D.F. and Wang, C.C., 2022. How much should we trust staggered difference-in-differences estimates?. *Journal of Financial Economics*, *144*(2), pp.370-395.

Balsam, S. and Harris, E.E., 2014. The impact of CEO compensation on nonprofit donations. *The Accounting Review*, *89*(2), pp.425-450.

Bandiera, O., Prat, A. and Valletti, T., 2009. Active and passive waste in government spending: evidence from a policy experiment. *American Economic Review*, *99*(4), pp.1278-1308.

Barbett, S. and Korb, R.A. (1994) *Current Funds Revenues and Expenditures of Institutions of Higher Education: Fiscal Years 1984 through 1992*. NCES 94-036. Washington, DC: U.S. Department of Education.

Baron, D.P. and Myerson, R.B., 1982. Regulating a monopolist with unknown costs. *Econometrica*, *50*(4).

Beck, T., Levine, R. and Levkov, A., 2010. Big bad banks? The winners and losers from bank deregulation in the United States. *The Journal of Finance*, *65*(5), pp.1637-1667.

Bénabou, R. and Tirole, J., 2006. Incentives and prosocial behavior. *American Economic Review*, *96*(5), pp.1652-1678.

Bennedsen, M. and Zeume, S., 2018. Corporate tax havens and transparency. *The Review of Financial Studies*, *31*(4), pp.1221-1264.

Bennett, W.J., 1987. Our greedy colleges. *The New York Times*, 18 February, Section A, p.31. Available at: https://www.nytimes.com/1987/02/18/opinion/our-greedy-colleges.html (Accessed: 18 September 2026).

Benston, G.J., Carmichael, D.R., Demski, J.S., Dharan, B.G., Jamal, K., Laux, R., Rajgopal, S. and Vrana, G., 2007. The FASB's conceptual framework for financial reporting: A critical analysis. *Accounting Horizons*, *21*(2), pp.229-238.

Berger, P.G. and Hann, R., 2003. The impact of SFAS No. 131 on information and monitoring. *Journal of Accounting Research*, *41*(2), pp.163-223.

Berger, P.G., Choi, J.H. and Tomar, S., 2024. Breaking it down: Economic consequences of disaggregated cost disclosures. *Management Science*, *70*(3), pp.1374-1393.

Biddle, G.C., Hilary, G. and Verdi, R.S., 2009. How does financial reporting quality relate to investment efficiency?. *Journal of Accounting and Economics*, *48*(2-3), pp.112-131.

Bikhchandani, S., Hirshleifer, D. and Welch, I., 1992. A theory of fads, fashion, custom, and cultural change as informational cascades. Journal of political Economy, 100(5), pp.992-1026.

Blankespoor, E., deHaan, E. and Marinovic, I., 2020. Disclosure processing costs, investors' information choice, and equity market outcomes: A review. *Journal of Accounting and Economics*, *70*(2-3), p.101344.

Bloch, R.I., Marlowe, J. and Mead, D.M., 2016. Infrastructure asset reporting and pricing uncertainty in the municipal bond market. *Journal of Governmental & Nonprofit Accounting*, *5*(1), pp.53-70.

Bloomfield, R.J., 2002. The 'incomplete revelation hypothesis' and financial reporting.

Blume-Kohout, M.E., Kumar, K.B. and Sood, N., 2009. *Federal life sciences funding and university R&D* (No. w15146). National Bureau of Economic Research.

Bolton, P. and Dewatripont, M., 2004. *Contract theory*. MIT press.

Bonetti, P., Leuz, C. and Michelon, G., 2024. Internalizing Externalities through Public Pressure: Transparency Regulation for Fracking and Water Quality. *University of Chicago, Becker Friedman Institute for Economics Working Paper*, (2023-06).

Borusyak, K., Jaravel, X. and Spiess, J., 2024. Revisiting event-study designs: robust and efficient estimation. *Review of Economic Studies*, *91*(6), pp.3253-3285.

Bozeman, B. and Anderson, D.M., 2016. Public policy and the origins of bureaucratic red tape: implications of the Stanford yacht scandal. *Administration & Society*, *48*(6), pp.736-759.

Bushman, R., Chen, Q., Engel, E. and Smith, A., 2004. Financial accounting information, organizational complexity and corporate governance systems. *Journal of Accounting and Economics*, *37*(2), pp.167-201.

Callaway, B. and Sant'Anna, P.H., 2021. Difference-in-differences with multiple time periods. *Journal of Econometrics*, *225*(2), pp.200-230.

Cengiz, D., Dube, A., Lindner, A. and Zipperer, B., 2019. The effect of minimum wages on low-wage jobs. *The Quarterly Journal of Economics*, *134*(3), pp.1405-1454.

Chen, H. and Gunny, K., 2015, August. Profitability and cost shifting in government procurement contracts. AAA.

Chen, J. and Roth, J., 2024. Logs with zeros? Some problems and solutions. *The Quarterly Journal of Economics*, *139*(2), pp.891-936.

Christensen, H.B., Floyd, E., Liu, L.Y. and Maffett, M., 2017. The real effects of mandated information on social responsibility in financial reports: Evidence from mine-safety records. *Journal of Accounting and Economics*, *64*(2-3), pp.284-304.

Clotfelter, C.T., 2003. Alumni giving to elite private colleges and universities. *Economics of Education review*, *22*(2), pp.109-120.

Coase, R.H., 1937. The nature of the firm. *Economica*, *4*(16), pp.386–405.

Coase, R.H., 1960. The Problem of Social Cost. *Journal of Law and Economics*, *3*, pp.1-44.

Cohn, J.B., Liu, Z. and Wardlaw, M.I., 2022. Count (and count-like) data in finance. *Journal of*

Financial Economics, *146*(2), pp.529-551.

Core, J.E., Guay, W.R. and Verdi, R.S., 2006. Agency problems of excess endowment holdings in not-for-profit firms. *Journal of Accounting and Economics*, *41*(3), pp.307-333.

Coviello, D. and Mariniello, M., 2014. Publicity requirements in public procurement: Evidence from a regression discontinuity design. *Journal of Public Economics*, *109*, pp.76-100.

Coviello, D. and Mariniello, M., 2014. Publicity requirements in public procurement: Evidence from a regression discontinuity design. *Journal of Public Economics*, *109*, pp.76-100.

Cuny, C. and Dube, S., 2025. The moderating role of reporting quality. *Contemporary Accounting Research*, *42*(1), pp.94-120.

Dambra, M., Even-Tov, O. and Naughton, J.P., 2023. The economic consequences of GASB financial statement disclosure. *Journal of Accounting and Economics*, *75*(2-3), p.101555.

Davies, S.P., Johnson, L.E. and Lowensohn, S., 2017. Ambient influences on municipal net assets: Evidence from panel data. *Contemporary Accounting Research*, *34*(2), pp.1156-1177.

De Chaisemartin, C. and d'Haultfoeuille, X., 2020. Two-way fixed effects estimators with heterogeneous treatment effects. *American Economic Review*, *110*(9), pp.2964-2996.

DellaVigna, S., List, J.A. and Malmendier, U., 2012. Testing for altruism and social pressure in charitable giving. *The Quarterly Journal of Economics*, *127*(1), pp.1-56.

Diegert, P., Masten, M.A. and Poirier, A., 2022. Assessing omitted variable bias when the controls are endogenous. *arXiv preprint arXiv:2206.02303*.

Dong, Q., 2024. The Impact of Single Audits on School Districts. *Available at SSRN 4259507*.

Dong, Q., Le, A. and Yoo, S., 2025. Cost Accounting Standards and the Cost Effectiveness of Federal Funds. *Available at SSRN 5187038*.

Dranove, D., Kessler, D., McClellan, M. and Satterthwaite, M., 2003. Is more information better? The effects of "report cards" on health care providers. *Journal of Political Economy*, *111*(3), pp.555-588.

Duguay, R., 2022. The economic consequences of financial audit regulation in the charitable sector. *Journal of Accounting Research*, *60*(4), pp.1463-1498.

Duguay, R., 2024. The effect of financial audits on governance practices: Evidence from the nonprofit sector. *The Accounting Review*, *99*(6), pp.157-189.

Duguay, R., Rauter, T. and Samuels, D., 2023. The impact of open data on public procurement. *Journal of Accounting Research*, *61*(4), pp.1159-1224.

Edmans, A., Goldstein, I. and Jiang, W., 2015. Feedback effects, asymmetric trading, and the limits to arbitrage. *American Economic Review*, *105*(12), pp.3766-3797.

Fama, E.F. and Jensen, M.C., 1983. Agency problems and residual claims. *The journal of law and Economics*, *26*(2), pp.327-349.

Fan, G.H., 2025. Economic consequences of public pension accounting regulation changes: Evidence from housing markets and local economies. *The Accounting Review*, *100*(4), pp.249-275.

Financial Accounting Standards Board (FASB) 1993a, *Accounting for Contributions Received and Contributions Made: Statement of Financial Accounting Standards No. 116*, Financial Accounting Standards Board, Norwalk, CT.

Financial Accounting Standards Board (FASB) 1993b, *Financial Statements of Not-for-Profit Organizations: Statement of Financial Accounting Standards No. 117*, Financial Accounting Standards Board, Norwalk, CT.

Financial Accounting Standards Board (FASB) 1995, *Accounting for Certain Investments Held by Not-for-Profit Organizations: Statement of Financial Accounting Standards No. 124*, Financial Accounting Standards Board, Norwalk, CT.

Goldstein, I., 2023. Information in financial markets and its real effects. *Review of Finance*, *27*(1), pp.1-32.

Goodman-Bacon, A., 2021. Difference-in-differences with variation in treatment timing. *Journal of Econometrics*, *225*(2), pp.254-277.

Governmental Accounting Standards Board (GASB) 1999, *Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments*, Statement No. 34, Governmental Accounting Standards Board, Norwalk, CT.

Governmental Accounting Standards Board (GASB). (1999). *Statement No. 35: Basic Financial Statements—and Management's Discussion and Analysis—for Public Colleges and Universities*. Norwalk, CT: GASB.

Greenstone, M., Leuz, C. and Breuer, P., 2023. Mandatory disclosure would reveal corporate carbon damages. *Science*, *381*(6660), pp.837-840.

Grossman, S.J. and Stiglitz, J.E., 1980. On the impossibility of informationally efficient markets. *The American economic review*, *70*(3), pp.393-408.

Harris, E., Petrovits, C.M. and Yetman, M.H., 2015. The effect of nonprofit governance on donations: Evidence from the revised form 990. *The Accounting Review*, *90*(2), pp.579-610.

He, J., Li, K., Li, N. and Zhang, W., 2024. Proprietary information cost of contracting with the government. *The Accounting Review*, *99*(2), pp.195-227.

Heutel, G., 2014. Crowding out and crowding in of private donations and government grants. *Public Finance Review*, *42*(2), pp.143-175.

Hirshleifer, D. and Teoh, S.H., 2003. Limited attention, information disclosure, and financial reporting. *Journal of Accounting and Economics*, *36*(1-3), pp.337-386.

Hirst, D.E., Koonce, L. and Venkataraman, S., 2007. How disaggregation enhances the credibility of management earnings forecasts. *Journal of Accounting Research*, *45*(4), pp.811-837.

Holmström, B., 1979. Moral hazard and observability. *The Bell Journal of Economics*, pp.74-91.

Ingram, R.W., 1984. Economic incentives and the choice of state government accounting practices. *Journal of Accounting Research*, pp.126-144.

Jenny, H.H. (1996). *Cost accounting in higher education: Simplified macro- and micro-costing techniques*. ERIC.

Jing, C., Xu, B. and Zuo, L., 2026. Do financial disclosures affect corporate sustainability practices?. *Journal of Accounting and Economics*, p.101901.

Jordan, J. (2012). *Historic savings in contracting - and plans for more*. The White House Blog. Available at: Link (Accessed: 15 December 2025).

Kang, J.K., Loumioti, M. and Wittenberg-Moerman, R., 2021. The harmonization of lending standards within banks through mandated loan-level transparency. *Journal of Accounting and Economics*, *72*(1), p.101386.

Krähmer, D. and Strausz, R., 2011. Optimal procurement contracts with pre-project planning. *The Review of Economic Studies*, *78*(3), pp.1015-1041.

Laffont, J.J. and Martimort, D., 2002. *The theory of incentives: the principal-agent model*. Princeton university press.

Laffont, J.J. and Tirole, J., 1986. Using cost observation to regulate firms. *Journal of Political Economy*, *94*(3, Part 1), pp.614-641.

Laffont, J.J. and Tirole, J., 1993. *A Theory of Incentives in Procurement and Regulation*. MIT press.

Lauer, M. (2018) 'Wait…It's Not MY Grant?', *NIH Extramural Nexus*, 29 May. Available at: Link (Accessed: 28 August 2026).

Leuz, C. and Wysocki, P.D., 2008. Economic consequences of financial reporting and disclosure regulation: A review and suggestions for future research. *Available at SSRN 1105398*.

Leuz, C. and Wysocki, P.D., 2016. The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research. *Journal of Accounting Research*, *54*(2), pp.525-622.

Lewis-Faupel, S., Neggers, Y., Olken, B.A. and Pande, R., 2016. Can electronic procurement improve infrastructure provision? Evidence from public works in India and Indonesia. *American Economic Journal: Economic Policy*, *8*(3), pp.258-283.

Lichtenberg, F.R., 1992. A perspective on accounting for defense contracts. *The Accounting Review*, *67*(4), pp.741-752.

Lombardi, J.V. (2005) 'The faculty salary game', *Inside Higher Ed*, 4 August. Available at: Link (Accessed: 4 September 2026).

Lu, Y., Tang, T., Xiao, T. and Zuo, L., 2025. Does Disclosure Mandate Affect Firms' Contribution to Poverty Alleviation?. *Available at SSRN 5104746*.

Masten, M.A. and Poirier, A., 2026. The effect of omitted variables on the sign of regression coefficients. *American Economic Review*, *116*(7), pp.2685-2710.

McDonough, R.P. and Yan, C.J., 2024. Maintaining maintenance: The real effects of financial reporting for infrastructure. *Contemporary Accounting Research*, *41*(3), pp.1952-1985.

Myers, K.R. and Lanahan, L., 2022. Estimating spillovers from publicly funded R&D: Evidence from the US Department of Energy. *American Economic Review*, *112*(7), pp.2393-2423.

Nathan, B., 2024. Show Your Hand: The Impacts of Fair Pricing Requirements in Procurement Contracting. *Journal of Accounting Research*, *62*(4), pp.1405-1448.

National Center for Science and Engineering Statistics (NCSES), 2026. *In FY 2024, Federal Science and Engineering Support for Higher Education Declined 4.3% from FY 2023; Federal Obligations to Nonprofits Totaled $11 Billion*. NSF 26-319. Alexandria, VA: U.S. National Science Foundation. Available at: https://ncses.nsf.gov/pubs/nsf26319 (Accessed: 18 September 2026).

National Commission on the Cost of Higher Education (1998) *Straight Talk About College Costs and Prices*. Phoenix, AZ: Oryx Press.

National Institutes of Health (2024). *NIH grants policy statement*. Revised April 2024. Available at: Link (Accessed: 15 December 2025).

National Institutes of Health (NIH) (2003) *NIH Grants Policy Statement*. Revised December 2003. Bethesda, MD: National Institutes of Health. Available at: Link (Accessed: 4 September 2026).

National Institutes of Health (NIH) (2024) *Information for Researchers*. Available at: Link (Accessed: 28 August 2026).

National Institutes of Health (NIH) (2026) *NIH Data Book*. Available at: Link (Accessed: 27 August 2026).

National Science Foundation (2004) *National Science Foundation Merit Review FY 2003*. Arlington, VA: National Science Foundation.

National Science Foundation (NSF) (2002) *NSF Grant Policy Manual*. NSF 02-151. Arlington, VA: National Science Foundation. Available at: Link (Accessed: 27 August 2026).

National Science Foundation (NSF) (2008) *Broader Impacts*. NSF 08-062. Arlington, VA: NSF.

Naughton, J., Petacchi, R. and Weber, J., 2015. Public pension accounting rules and economic outcomes. *Journal of Accounting and Economics*, *59*(2-3), pp.221-241.

Office of Inspector General (2021). *University of Nevada, Las Vegas agreed to pay $1.4 million for allegedly violating the Civil Monetary Penalties Law by submitting improper claims to NIH and HRSA grants*. Enforcement action. Available at: Link (Accessed: 3 December 2025).

Office of Management and Budget (1979). Cost principles for educational institutions. *Federal Register*, 44, pp.12368-12380.

Office of Management and Budget (OMB) (1997) *Circular A-133: Audits of States, Local Governments, and Non-Profit Organizations*. Revised 24 June 1997. Washington, DC: Executive Office of the President.

Olken, B.A., 2007. Monitoring corruption: evidence from a field experiment in Indonesia. *Journal of political Economy*, *115*(2), pp.200-249.

Olson, M., 1965. *The Logic of Collective Action: Public Goods and the Theory of Groups, With a New Preface and Appendix* (Vol. 124). Harvard University Press.

Oster, E., 2019. Unobservable selection and coefficient stability: Theory and evidence. *Journal of Business & Economic Statistics*, *37*(2), pp.187-204.

Parker, C.B. (2006) 'UC shines spotlight on $871M figure', *UC Davis*, 20 January. Available at: Link (Accessed: 4 September 2026).

Payne, A.A. and Siow, A., 2003. Does federal research funding increase university research output?. *Advances in Economic Analysis & Policy*, 3(1), pp. 1–24.

Payne, A.A., 2001. Measuring the effect of federal research funding on private donations at research universities: is federal research funding more than a substitute for private donations?. *International Tax and Public Finance*, *8*(5), pp.731-751.

Petrovits, C., Shakespeare, C. and Shih, A., 2011. The causes and consequences of internal control problems in nonprofit organizations. *The Accounting Review*, *86*(1), pp.325-357.

Plummer, E., Hutchison, P.D. and Patton, T.K., 2007. GASB No. 34's governmental financial reporting model: Evidence on its information relevance. *The Accounting Review*, *82*(1), pp.205-240.

Rambachan, A. and Roth, J., 2023. A more credible approach to parallel trends. *Review of Economic Studies*, *90*(5), pp.2555-2591.

Rauter, T., 2020. The effect of mandatory extraction payment disclosures on corporate payment and investment policies abroad. *Journal of Accounting Research*, *58*(5), pp.1075-1116.

Rogerson, W.P., 1992a. Overhead allocation and incentives for cost minimization in defense procurement. *Accounting Review*, pp.671-690.

Rogerson, W.P., 1992b. Contractual solutions to the hold-up problem. *The Review of Economic Studies*, *59*(4), pp.777-793.

Saito, Y. and Mcintosh, C.S., 2010. The economic value of auditing and its effectiveness in public school operations. *Contemporary Accounting Research*, *27*(2), pp.639-667.

Satyanath, S., Voigtländer, N. and Voth, H.J., 2017. Bowling for fascism: Social capital and the rise of the Nazi Party. *Journal of Political Economy*, *125*(2), pp.478-526.

Sun, L. and Abraham, S., 2021. Estimating dynamic treatment effects in event studies with heterogeneous treatment effects. *Journal of Econometrics*, *225*(2), pp.175-199.

Thomas, J.K. and Tung, S., 1992. Cost manipulation incentives under cost reimbursement: Pension costs for defense contracts. *Accounting Review*, pp.691-711.

U.S. Department of Education, National Center for Education Statistics, 2000. *IPEDS Finance Data Comparisons Under the 1997 Financial Accounting Standards for Private, Not-for-Profit Institutes: A Concept Paper*. Working Paper No. 2000-14. By Susan E. Budak. Project Officer: Peter Stowe. Washington, DC: U.S. Department of Education.

U.S. Department of Health and Human Services, Office of Inspector General (HHS OIG) (1992) Summary of Calendar Year 1991 Audit Activity at Colleges and Universities. Report No. A-01-92-04005. Washington, DC: Department of Health and Human Services, Office of Inspector General.

U.S. Department of Justice (2020). *Harvard University agrees to pay over $1.3 million to resolve allegations of overcharging NIH grants*. United States Attorney's Office press release. Available at: Link (Accessed: 13 December 2025).

U.S. Department of Justice (DOJ) (1998) 'University of Minnesota Pays $32 Million to Settle Allegations of Selling an Unlicensed Drug and Mishandling NIH Grant Funds', 17 November. Washington, DC: U.S. Department of Justice.

U.S. General Accounting Office (GAO) (1992) Federal Research: System for Reimbursing Universities' Indirect Costs Should Be Reevaluated. GAO/RCED-92-203. Washington, DC: U.S. General Accounting Office.

U.S. General Accounting Office (GAO) (2000) NIH Research: Improvements Needed in Monitoring Extramural Grants. GAO/HEHS/AIMD-00-139. Washington, DC: U.S. General Accounting Office.

U.S. Government Accountability Office (GAO), 2002. *Education financial management: Weak internal controls led to instances of fraud and other improper payments*. GAO-02-406. Washington, DC: U.S. Government Accountability Office. Available at: Link (Accessed: 5 September 2026).

U.S. Government Accountability Office (GAO), 2024. *Fraud risk management: 2018–2022 data show federal government loses an estimated $233 billion to $521 billion annually to fraud, based on various risk environments*. GAO-24-105833. Washington, DC: U.S. Government Accountability Office. Available at: Link (Accessed: 5 September 2026).

United States Code (2026) 31 U.S.C. § 6303, 'Using procurement contracts'. Available at: U.S. House of Representatives, Office of the Law Revision Counsel.

United States Code (2026) 31 U.S.C. § 6304, 'Using grant agreements'. Available at: U.S. House of Representatives, Office of the Law Revision Counsel.

Weil, D., Graham, M. and Fung, A., 2013. Targeting transparency. *Science*, *340*(6139), pp.1410-1411.

Williamson, O.E., 1971. The vertical integration of production: market failure considerations. *The American economic review*, *61*(2), pp.112-123.

Wing, C., Freedman, S.M. and Hollingsworth, A., 2024. *Stacked difference-in-differences* (No. w32054). National Bureau of Economic Research.

Zuo, L., 2016. The informational feedback effect of stock prices on management forecasts. *Journal of Accounting and Economics*, 61(2-3), pp.391-413.

Appendix A: Stylized Model for Monitoring Mechanism

Model Setup

A risk-neutral principal (e.g., federal agencies) provides funding to a risk-neutral agent (e.g., a university). Each university belongs to an observable institutional sector:

$$s \in \{Pub, Priv\}$$

where Pub denotes a public university and $Priv$ denotes a private university. Public/private status is observable. What the principal cannot fully observe is how easy it is for a university to use reporting discretion or private financial information when making and supporting a funding claim. Let:

$$\theta \in \{\theta_L, \theta_H\}, \qquad \theta_L < \theta_H.$$

θ_L is the low strategic-reporting-cost type (i.e., low-manipulation-cost). For this type, it is easier to use reporting discretion or private financial information to support a funding claim. In contrast, θ_H is the high strategic-reporting-cost type (i.e., high-manipulation-cost), for which doing so is more difficult or costly.

Let $x \geq 0$ denote the size of the funding claim that must be reported and supported with documentation, and let t denote the federal transfer. Supporting a claim of size x creates a reporting and substantiation cost:

$$C(x, \theta) = \theta x.$$

The university's utility is therefore:

$$U = t - \theta x.$$

The mix of low- and high-cost types can differ between public and private universities. For sector s, let

$$\Pr(\theta = \theta_L \mid s) = \lambda_s,$$

and

$$\Pr(\theta = \theta_H \mid s) = 1 - \lambda_s, \qquad 0 < \lambda_s < 1.$$

I assume

$$\lambda_{\text{Pub}} > \lambda_{\text{Priv}}$$

This assumption implies that, before GASB 34/35, public universities operated in an environment where exercising reporting discretion or exploiting private financial information

was relatively easier than for private universities. Next, I give two Lemmas and one Proposition. The proof for each is provided in Online Appendix D.

A.1 Incomplete Information: Second Best

The mechanism must satisfy individual rationality:

$$\begin{aligned} \text{IR}_L\text{:} \quad & t_L - \theta_L x_L \geq 0, \\ \text{IR}_H\text{:} \quad & t_H - \theta_H x_H \geq 0, \end{aligned}$$

and incentive compatibility:

$$\begin{aligned} \text{IC}_L\text{:} \quad & t_L - \theta_L x_L \geq t_H - \theta_L x_H, \\ \text{IC}_H\text{:} \quad & t_H - \theta_H x_H \geq t_L - \theta_H x_L. \end{aligned}$$

Assume the standard monotonicity condition

$$x_L^{\text{SB}} \geq x_H^{\text{SB}} > 0.$$

Lemma 1. Informational Rent under the Second Best

In the optimal incentive-compatible mechanism, the high-cost type receives no informational rent:

$$U_H^{\text{SB}} = 0.$$

The low-cost type receives a positive informational rent:

$$U_L^{\text{SB}} = (\theta_H - \theta_L) x_H^{\text{SB}} > 0.$$

The intuition is that, because the low-manipulation-cost type can easily support the high-cost type's claim, it has an incentive to choose the high-cost contract for high transfer. The principal must therefore leave the low-manipulation-cost type economic surplus to make truthful reporting worthwhile.

A.2 Complete Information: First Best

When θ is observable, the principal knows the university's type and does not need incentive-compatibility constraints.

Lemma 2. Informational Rent under the First Best

Under complete information, the participation constraint binds for both types. Hence,

$$U_L^{\mathrm{FB}} = U_H^{\mathrm{FB}} = 0.$$

Thus, informational rent arises only when the university possesses private information that the principal cannot fully verify; once this information becomes observable, the rents disappear.

A.3 Proposition 1: Public-versus-Private Informational Rent

For sector s, expected informational rent is

$$R_s = \lambda_s U_L^{\mathrm{SB}} + (1 - \lambda_s) U_H^{\mathrm{SB}}.$$

Using Lemma 1,

$$R_s = \lambda_s (\theta_H - \theta_L) x_H^{\mathrm{SB}}.$$

Proposition 1. *Before GASB 34/35, public universities have greater expected informational rent than private universities.*

$$R_{Pub} > R_{Priv}.$$

Once public universities become as transparent as private universities, public universities no longer receive a funding premium attributable to informational rent.

Appendix B: Stylized Models for Government Learning Mechanism

Model Setup

The non-government donors (i.e., private individuals), who become informed through GASB disclosure, contributes $g \geq 0$ to a university of quality α (i.e., agent). The government (i.e., principal), which is uninformed about α, supplies funding $S \geq 0$. Aggregate provision is

$$G = g + S$$

$v(G;\alpha)$ is utility function of the public good, which is a twice differentiable function mapping total provision G and quality α into social welfare. Preferences follow the separable specification $v(G;\alpha)$ with

$$v_G(G;\alpha) \equiv \frac{\partial v(G;\alpha)}{\partial G} > 0, \qquad v_{GG}(G;\alpha) \equiv \frac{\partial^2 v(G;\alpha)}{\partial G^2} < 0,$$

$$v_\alpha(G;\alpha) \equiv \frac{\partial v(G;\alpha)}{\partial \alpha} > 0, \qquad v_{G\alpha}(G;\alpha) \equiv \frac{\partial^2 v(G;\alpha)}{\partial G\, \partial \alpha} > 0.$$

The donor's utility function is:

$$U_D = \gamma\, v(G;\alpha) - c(g)$$

where $c(g)$ is the donor's cost of giving, and I assume that cost function is increasing and strictly convex, i.e., $c' > 0, c'' > 0$. γ ($\gamma > 0$) is a parameter scaling the donor's valuation of the public good. A larger γ means the donor cares more about the public good. The government's objective function of social welfare is:

$$W = v(G;\alpha) - \kappa S$$

κ ($\kappa \geq 0$) is the marginal social cost of public funds, which can be interpretable as the shadow cost of raising one unit of public revenue (e.g., via taxes or budget constraints).

Quality information. Nature draws α. The donor privately infers α through the disclosure; the government holds a prior. The government observes g but not α.

Timing.

1. Nature draws α.
2. Donor (first mover) infers α and chooses g at time t.
3. Government observes g, updates beliefs $\nu(\alpha; g)$, and chooses S at time $t+1$.

Equilibrium concept. A Perfect Bayesian Equilibrium (PBE) consists of a donation strategy $g(\alpha)$, a funding response $S(g)$, and beliefs $\nu(\alpha; g)$ consistent with Bayes' rule wherever

possible. I focus on separating equilibria with $g'(\alpha) > 0$, so that $\hat{\alpha} = \alpha(g)$ is well defined.

I give two Lemmas and one Proposition. The proof for each is provided in Online Appendix E.

B.1 Government's Optimal Grant Response

Lemma 1. Given belief $\hat{\alpha} = \alpha(g)$, the government's optimal funding satisfies

$$S'(g) = -1 - \frac{v_{G\alpha}}{v_{GG}}\,\alpha'(g).$$

The first term (-1) is mechanical substitution effect (holding beliefs fixed, more g reduces needed S); the second term is the government learning correction (a higher g raises inferred quality when $\alpha'(g) > 0$, and because $v_{G\alpha} > 0$, the government's optimal S rises).

B.2 Donor Optimization and Incentive Compatibility

Lemma 2. In any separating equilibrium with $g'(\alpha) > 0$, the donor's contribution satisfies

$$c'(g) = \gamma\, v_G(G;\alpha)\,\frac{v_{G\alpha}}{|\,v_{GG}\,|}\,\alpha'(g).$$

B.3 Proposition

Proposition 1. *In any separating PBE with $g'(\alpha) > 0$, the government's optimal funding increases with the private contribution if and only if*

$$v_{G\alpha}\,\alpha'(g) > |\,v_{GG}\,|. \qquad (1)$$

Equivalently, $S'(g) > 0$.

Under $v_{GG} < 0$, $\alpha'(g) > 0$ (separation), and $v_{G\alpha} > 0$, condition (1) states that the marginal value implied by the quality signal from the private donation exceeds the diminishing marginal benefits of the public good. If and only if this condition holds, the government optimally increases its funds in response to a higher private contribution.

Appendix C: Variable Definition

Variable	Definition
Panel A: Institution Characteristics	
$Admin_Complexity$	An indicator variable that measures the organizational complexity of a university based on the administrative complexity. An indicator variable equals 1 if university i in calendar year t has more than one campus, otherwise 0.
$Academic_Complexity$	An indicator variable that measures the organizational complexity of a university based on the breadth of its academic offerings. I measure the complexity using the number of academic programs offered at the two-digit CIP level in the academic year 2000/01. The indicator equals one if a university's number of majors in the academic year 2000/01 exceeds the sample median, and zero otherwise.
$Control$	A dummy variable that equals 1 if the university is private not-for-profit, and 0 if public.
$Size$	The categorical variable from IPEDS classification for institution size for university i in academic year t: 1 for size under 1,000 students; 2 for size of 1,000 - 4,999 students; 3 for size of 5,000 - 9,999: 4 for size of 10,000 - 19,999; 5 for size of 20,000 and above.
$Ln(\#\ faculty)$	The natural logarithm of the estimated number of faculty members at university i in academic year t. The number of faculty is estimated using the IPEDS student–faculty ratio and the total number of undergraduate students in each year. For observations where the student–faculty ratio is missing, the university-specific average ratio is used to impute the value.
$GASB$	The treatment indicator equals 1 if public university i adopts GASB 34/35 in academic year t, otherwise 0.
Panel B: Institution Funding	
$\$\ Federal\ funding$	The dollar amount of all revenues from federal agencies under grants and contracts for specific undertakings such as research projects, training programs, and similar activities, received by university i in academic year t. In the IPEDS data, a portion of private not-for-profit universities treat federal student aid grants (e.g., Pell Grants) as student aid expenses when awarded to students. Consequently, the reported federal grants and contracts for these institutions include student aid

	amounts in addition to research-related revenues. To ensure comparability across institutions, I exclude federal student aid grants from this variable for private not-for-profit universities. Information on the treatment of student aid grants is obtained from universities' official statements, and data on federal student aid grants are sourced from IPEDS. Public universities, by contrast, treat federal student aid grants as agency transactions; therefore, these amounts are not included in their reported federal grants and contracts in IPEDS, and no adjustment is needed.
$\$ Private\ gift$	The dollar amount of all revenues from private (non-governmental) entities under gifts, grants, and contracts for research, training projects, similar activities and all contributions (including contributed services) except those from affiliated entities, received by university i in academic year t.
$\$ State\ funding$	The dollar amount of all revenues from state agencies under grants and contracts for specific undertakings such as research projects, training programs, and similar activities, received by university i in academic year t. In the IPEDS data, a portion of private not-for-profit universities treat state student aid grants as student aid expenses when awarded to students. Consequently, the reported federal grants and contracts for these institutions include student aid amounts in addition to research-related revenues. To ensure comparability across institutions, I exclude state student aid grants from this variable for private not-for-profit universities. Information on the treatment of student aid grants is obtained from universities' official statements, and data on state student aid grants are sourced from IPEDS. Public universities, by contrast, treat state student aid grants as agency transactions; therefore, these amounts are not included in their reported state grants and contracts in IPEDS, and no adjustment is needed.
$Ln(\$\ Federal\ funding)$	The natural logarithm of $\$\ Federal\ funding$ for university i in academic year t.
$Ln(\$\ Private\ gift)$	The natural logarithm of $\$\ Private\ gift$ for university i in academic year t.
$Ln(\$\ State\ funiding)$	The natural logarithm of $\$\ State\ funding$ for

	university i in academic year t.
Panel C: Academic Output Measures	
$\#\ patent_{grant}$	The number of patents granted to university i in academic year t, including those under the university and its affiliated entities such as university foundations or research institutes.
$\#\ patent_{apply}$	The number of patent applications by university i in academic year t, including those under the university and its affiliated entities such as university foundations or research institutes.
$\#\ publication$	The number of publications by university i in academic year t that are indexed in Elsevier's Scopus database. Publications include journal articles, book chapters, conference papers, case reports, and other indexed outputs.
RE	The dollar amount of total research expenditures of university i in academic year t, including all research-related spending categories: salaries and wages, employee benefits, operation and maintenance of plant, depreciation, interest, and all other research expenses.
$\#\ patent_{grant,t+1}/RE_{million,t}$	The number of patents granted to university i in academic year $t+1$ per million dollars of research expenditure in academic year t.
$\#\ patent_{grant,t+2}/RE_{million,t}$	The number of patents granted to university i in academic year $t+2$ per million dollars of research expenditure in academic year t.
$\#\ patent_{apply,t+1}/RE_{million,t}$	The number of patent applications by university i in academic year $t+1$ per million dollars of research expenditure in academic year t.
$\#\ patent_{apply,t+2}/RE_{million,t}$	The number of patent applications by university i in academic year $t+2$ per million dollars of research expenditure in academic year t.
$Ln(\#\ publication_{t+1}/RE_{million,t})$	The natural logarithm of the number of publications by university i in academic year $t+1$ per million dollars of total research expenditure in academic year t.
$Ln(\#\ publication_{t+2}/RE_{million,t})$	The natural logarithm of the number of publications by university i in academic year $t+2$ per million dollars of total research expenditure in academic year t.
Panel D: Faculty Compensation and Mobility	
$Ln(salary)_{position}$	The natural logarithm of the average annual salary for faculty holding a given academic position at university i in academic year t. The average salary is calculated across faculty on nine- or ten-month contracts within each position.

	The positions considered include tenure-track and tenured faculty on nine- or ten-month contracts—specifically Assistant Professors, Associate Professors, and Full Professors—whose compensation is relatively more sensitive to research activity and the availability of research funding (e.g., merit-based adjustments).
$\#\ Net\ Change_{position}$	The net change in the number of faculty positions at university i between academic years $t-1$ and t. Specifically, for the net change in year t, this variable is constructed as the number of faculty holding a given position in year t minus the number holding that position in year $t-1$. The positions here include tenure-track and tenured faculty on nine- or ten-month contracts, specifically Assistant Professors, Associate Professors, and Full Professors, who are more sensitive to research activity and the availability of research funding.
Panel E: State Level Statistics	
$Ln(GDP)$	The natural logarithm of gross domestic product (GDP) for state s in year t. GDP is measured in millions of U.S. dollars.
$Ln(Pop)$	The natural logarithm of the total population for state s in year t.
$Ln(total_tax)$	The natural logarithm of total tax revenues collected by state s in year t. Total tax revenues include all categories of taxes collected by the state government, such as individual income, corporate income, and sales taxes. The variable is measured in thousands of U.S. dollars.
$Ln(higher_edu_exp)$	The natural logarithm of total higher education expenditures by state s in year t. Higher education expenditures include all spending on postsecondary education by state governments. The variable is measured in thousands of U.S. dollars.
$Gov_balance$	The state's budget balance for state s in year t, computed as the difference between total revenues and total expenditures, scaled by total expenditures, i.e., $(revenues - expenditures)/expenditures$.

Figure 1

The History of Disclosure Standards across U.S. Colleges

This figure illustrates the history of disclosure standards for U.S. colleges. The "Common Form," also known as the "Old Form," refers to the IPEDS survey format used at that time, during which all colleges and universities followed the fund accounting and reporting standards described in the AICPA's 1973 audit guide. The abbreviation FASB stands for the Financial Accounting Standards Board, and GASB stands for the Governmental Accounting Standards Board. The Aligned Form aims to standardize reporting templates to enhance comparability across FASB and GASB institutions, but without changing the accounting standards. Years refer to the fall semester of an academic year. For example, 1986 refers to the 1986/87 academic or fiscal year.

<table>
<tr><th>Years</th><th>Public Colleges and Universities</th><th>Private Not-for-profit Colleges and Universities</th></tr>
<tr><td>1986
1987
1988
1989
1990
1991
1992
1993
1994
1995</td><td rowspan="3">Common Form</td><td>Common Form</td></tr>
<tr><td>1996
1997
1998
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2000</td><td rowspan="3">FASB</td></tr>
<tr><td>2001
2002</td><td>Common Form/GASB</td></tr>
<tr><td>2003
2004
2005
2006</td><td>GASB</td></tr>
<tr><td>2007
2008</td><td>GASB/GASB Aligned Form</td><td>FASB/FASB Aligned Form</td></tr>
<tr><td>2009
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2017
2018
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2020
2021
2022</td><td>GASB Aligned Form</td><td>FASB Aligned Form</td></tr>
</table>

Figure 2

Identification Strategy: Financial Reporting Regimes for U.S. Research Universities

This figure illustrates the financial reporting regimes underlying the identification strategy. Public research universities constitute the treatment group. These institutions reported using the Common Form before adopting GASB 34/35 in one of three implementation phases beginning in academic years 2001/02, 2002/03, or 2003/04, with phase assignment determined by total annual revenues in academic year 1998/99. Private not-for-profit research universities constitute the control group. Having transitioned from the Common Form to FASB reporting in 1996/97, these institutions remained under the FASB reporting regime throughout the sample period and were not subject to GASB 34/35. The solid horizontal line represents the academic-year timeline, and the dashed vertical lines mark the beginning of the three GASB 34/35 implementation phases. An academic year (t/t+1) refers to the institutional reporting period, typically running from July 1 of year (t) through June 30 of year (t+1). For example, academic year 2001/02 corresponds to the period from July 1, 2001, through June 30, 2002.

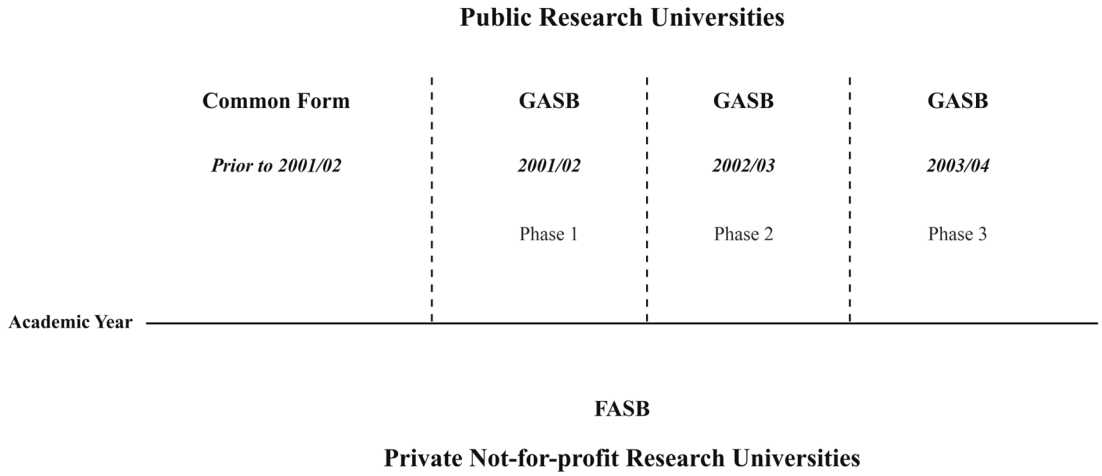


Figure 3

Testing for Diverging Pre-trends and Dynamic Treatment Effects

This figure presents federal-funding trends and dynamic treatment-effect estimates around the implementation of GASB 34/35. Panel A plots annual average federal funding per institution, measured in millions of dollars, for public research universities (red line) and private not-for-profit research universities (blue line). The gray dashed lines show fitted linear trends, and the vertical dashed line marks the onset of GASB 34/35 implementation in academic year 2001/02. Panel B reports estimates from a dynamic event-study specification of the baseline TWFE model. Event time is measured relative to each public university's implementation of GASB 34/35. The treatment group consists of public universities that were classified as Research I (i.e., R1, or previously called "Doctoral/Research Universities-Extensive") or Research II (i.e., R2, or previously called "Doctoral/Research Universities-Intensive") institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Specifically, I estimate a dynamic event-study of the TWFE model specification with indicators for distance to/from the implementation of GASB 34/35 as follows:

$$Ln(\$\,Federal\ funding)_{i,t} = \beta_0 + \sum_{k=-4}^{7} \beta_k D_{k(i,t)} + \gamma \boldsymbol{X}_{i,t} + \alpha_i + \varphi_t + \varepsilon_{i,t}$$

where $D_{k(i,t)}$ is set of indicator variables that equals one if public university i is k academic years away from adopting GASB 34/35 in academic year t (with $k < 0$ denoting k years before adoption and $k > 0$ denoting k years after adoption), and zero otherwise. $\boldsymbol{X}_{i,t}$ is a vector of control variables at college-level and state-level, including $Size$, $Ln(\#\,faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. α_i and φ_t are fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by the academic year and state level. All specifications are estimated using OLS. The vertical lines represent 95% confidence intervals.

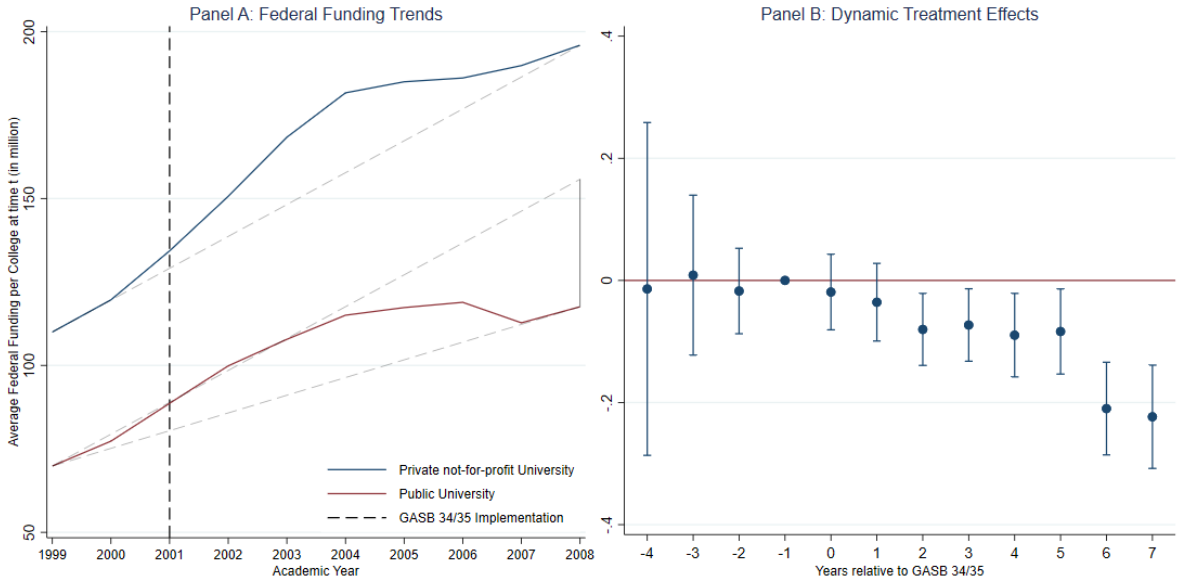


Figure 4

Sensitivity to Violations of Parallel Trends: Honest DiD Analysis

This figure reports sensitivity analyses following Rambachan and Roth (2023) to assess the robustness of the estimated treatment effect to potential violations of the parallel-trends assumption. I construct robust confidence intervals by allowing post-treatment deviations from parallel trends to be up to Mbar ($\bar{M}$) times the largest pre-treatment deviation. Panel A imposes smoothness restrictions that bound the maximum change in the slope of the differential trend between consecutive periods by $\bar{M}$. Panel B imposes relative-magnitude restrictions that bound the absolute post-treatment deviation from parallel trends by $\bar{M}$ times the largest absolute pre-treatment deviation. Larger values of $\bar{M}$ therefore permit greater departures from parallel trends. The red intervals denote the original 95% confidence intervals without restrictions, and the blue intervals show the robust confidence intervals under increasing values of $\bar{M}$. All specifications are based on equation (1) and estimated using OLS, including control variables and fixed effects for academic year and university. Heteroscedasticity-consistent standard errors are two-way clustered by the academic year and state level. The outcome variable is $Ln(\$\,Federal\ funding)_{i,t}$.

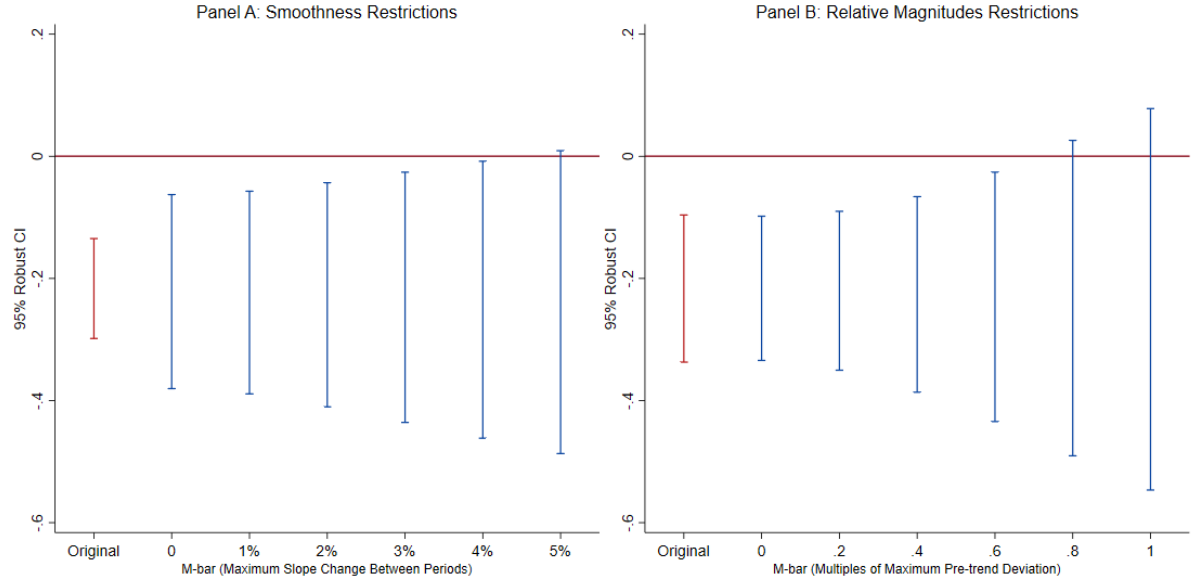


Figure 5

TWFE Decomposition and Heterogeneous Treatment Effects

This figure shows the composition of baseline TWFE estimate and treatment effect heterogeneity. Panel A presents the Goodman-Bacon decomposition of the TWFE DiD estimate. Each marker plots a 2×2 DiD estimate against the weight it receives in the overall TWFE estimate. Circles correspond to comparisons between earlier-treated public universities (treatment) and later-treated public universities (control); crosses indicate comparisons between later-treated public universities (treatment) and earlier-treated public universities (control); and diamonds represent comparisons between treated public universities (treatment) and never-treated private not-for-profit universities (control). The gray dashed horizontal line denotes the overall TWFE DiD estimate. Panel B reports quantile-regression DiD estimates at the 10th through 90th conditional quantiles of the federal-funding distribution. The solid blue line represents the treatment effect heterogeneity, and the dashed blue lines report the corresponding 95 percent confidence intervals. All specifications in panel A and B are based on equation (1) and estimated using OLS, including control variables and fixed effects for academic year and university. Heteroscedasticity-consistent standard errors are two-way clustered by the academic year and state level.

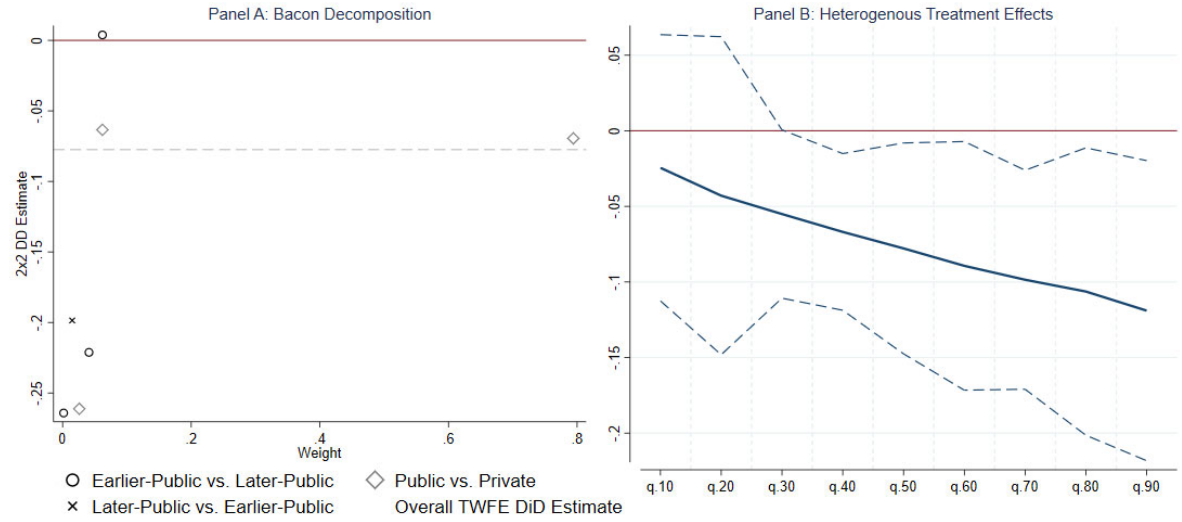


Figure 6

Robustness of the Baseline Estimate to Omitted Variable Bias

This figure reports sensitivity analyses following Diegert, Masten, and Poirier (2022) to assess the robustness of the baseline treatment effect to omitted variable bias. I construct bounds on the estimated treatment effect of GASB 34/35 by allowing selection on unobservables to be up to rbar ($\bar{r}$) times as strong as selection on the observed control variables. The horizontal axis reports $\bar{r}$, the relative strength of the omitted variables. Each pair of lines corresponds to a value of cbar ($\bar{c}$), which bounds the correlation between the omitted variable and the observed controls. Larger values of $\bar{r}$ and $\bar{c}$ permit stronger omitted-variable confounding and therefore produce wider coefficient bounds. When ($\bar{r}$=0), the bounds collapse to the baseline point estimate. All specifications are based on equation (1) and estimated using OLS, including control variables and fixed effects for academic year and university. Heteroscedasticity-consistent standard errors in the baseline specification are two-way clustered by academic year and state. The outcome variable is $Ln(\$\,Federal\ funding)_{i,t}$.

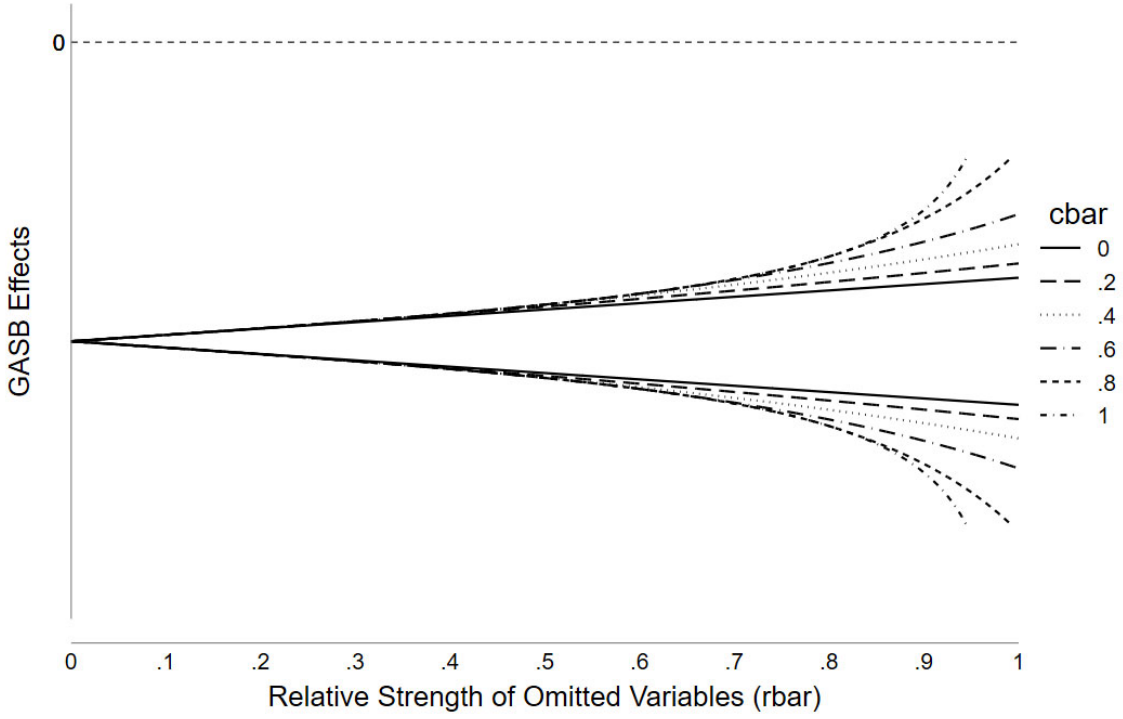


Figure 7

Dynamic Learning Effects

This figure plots dynamic learning effects associated with the government learning mechanism. The estimates are obtained from a dynamic event-study using a TWFE specification for the government learning mechanism:

$$Outcome_{i,t+1} = \beta_0 + \beta_1 I_{i,[-4,-1]} * External_signal_{i,t} + \beta_2 I_{i,[0,3]} * External_signal_{i,t} + \beta_3 I_{i,[4,7]} * External_signal_{i,t} + \beta_4 External_signal_{i,t} + \sum_{k=-4}^{7} \theta_k D_{k(i,t)} + \gamma \boldsymbol{X}_{i,t} + \alpha_i + \varphi_t + \varepsilon_{i,t}$$

$I_{i,[a,b]}$ is an indicator equal to one if university i is in treated group and academic year t falls between a and b years relative to the implementation of GASB 34/35, and zero otherwise. $D_{k(i,t)}$ is set of indicator variables that equals one if public university i is k academic years away from adopting GASB 34/35 in academic year t (with $k < 0$ denoting k years before adoption and $k > 0$ denoting k years after adoption), and zero otherwise. $Outcome_{i,t+1}$ is $Ln(\$\, Federal\ funding)_{t+1}$, which is the natural logarithm of federal funding received by university i in academic year $t + 1$. I focus on two primary sources of external funding signals ($External_signal$): private gifts ($Ln(\$\, Private\ gift)_t$) and state funding ($Ln(\$\, State\ funding)_t$). The treated group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include the proxy for institutional size and the natural logarithm of faculty number. All specifications are estimated using OLS, including controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. Following Beck et al., (2010), I report the estimates that are de-trended and centered on pre-GASB period, i.e., $[-4, -1]$. The vertical lines represent 90% confidence intervals. Variable definitions are provided in Appendix C.

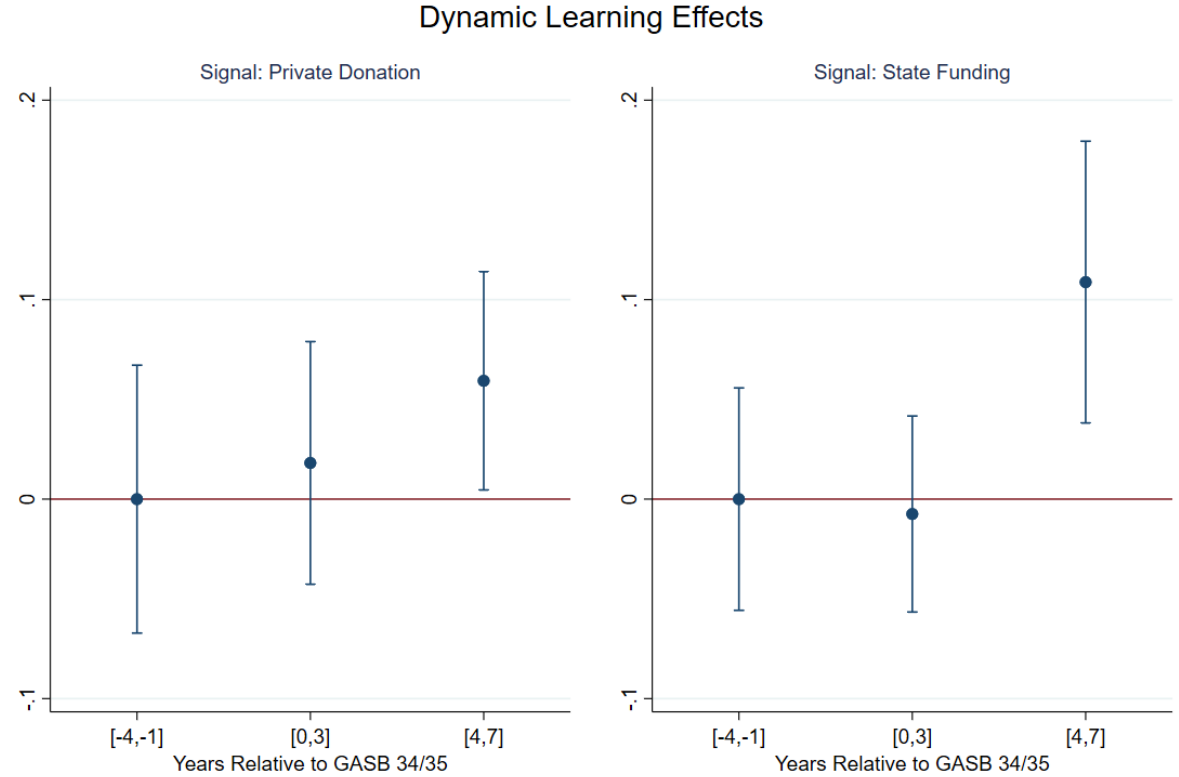


Table 1

Sample Selection

This table presents the sample selection in this study. The research sample is restricted to U.S. research universities classified under the 2000/01 Carnegie Classification (one year prior to the earliest implementation of GASB 34/35) to ensure that sample construction is not contaminated by post-GASB information. The treatment group consists of public universities that were classified as Research I (i.e., R1, or previously called "Doctoral/Research Universities-Extensive") or Research II (i.e., R2, or previously called "Doctoral/Research Universities-Intensive") institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The adoption of GASB 34/35 among public universities was phased in over three waves, corresponding to the implementations in 2001/02, 2002/03, and 2003/04 academic years. For details on the phase-in process of GASB 34/35, see Figure 2.

Carnegie Classification (2000/01)	Reporting Regime (Adoption Cohort)	# by Adoption Phase	# of Total Universities
Panel A: Public Universities (Treatment Group)			
Research I			96
	GASB 34/35 Phase 1 (2001/02)	90	
	GASB 34/35 Phase 2 (2002/03)	5	
	GASB 34/35 Phase 3 (2003/04)	1	
Research II			58
	GASB 34/35 Phase 1 (2001/02)	53	
	GASB 34/35 Phase 2 (2002/03)	3	
	GASB 34/35 Phase 3 (2003/04)	2	
Total			**154**
Panel B: Private Not-for-profit Universities (Control Group)			
Research I	FASB		46
Research II	FASB		16
Total			**62**

Table 2

Descriptive Statistics

This table reports the descriptive statistics for institution characteristics, institution fundings, academic outputs, faculty compensation and mobility, and state level statistics, respectively. Variable definitions are provided in Appendix C.

Variable	# obs.	Min	p10	p25	p50	p75	p90	Max	Mean	SD
Panel A: Institution Characteristics										
$Admin_Complexity$	2,160	0	0	0	0	0	1	1	0.111	0.314
$Academic_Complexity$	2,160	0	0	0	1	1	1	1	0.528	0.499
$Control$	2,160	0	0	0	0	1	1	1	0.287	0.452
$Size$	2,160	2	3	4	4	5	5	5	4.235	0.842
$Ln(\#\ faculty)$	2,160	3.296	5.823	6.249	6.641	6.966	7.213	7.894	6.573	0.591
$GASB$	2,160	0	0	0	1	1	1	1	0.564	0.496
Panel B: Institution Funding										
$\$\ Federal\ funding_t$ *(in million $)*	2,160	0.711	12.58	25.11	59.38	148.2	302.3	1167	119.6	152.2
$\$\ Private\ gift_t$ *(in million $)*	2,160	0	0.638	5.931	20.09	55.92	147.1	937.3	56.55	101.5
$\$\ State\ funding_t$ *(in million $)*	2,160	0	1.133	3.144	8.296	17.74	35.02	115.4	14.00	16.72
$Ln(\$\ Federal\ funding)_t$	2,160	13.47	16.35	17.04	17.90	18.81	19.53	20.88	17.93	1.206
$Ln(\$\ Private\ gift)_t$	2,011	1.609	14.93	15.90	16.95	17.95	18.86	20.66	16.84	1.678
$Ln(\$\ State\ funding)_t$	2,100	7.313	14.22	15.04	15.97	16.72	17.39	18.56	15.83	1.322
Panel C: Academic Output										
$\#\ patent_{grant,t+1}$	2,160	0	0	0	3	14	34	437	12.99	32.97
$\#\ patent_{apply,t+1}$	2,160	0	0	0	4	16	39.50	533	14.77	34.69
$\#\ publication_{t+1}$	2,007	0	20	79	234	613	1214	6276	476.2	675.5
RE *(in million $)*	2,160	0.165	9.930	20.65	66.45	165.9	331.2	1129	125.7	157.3
$\#\ patent_{grant,t+1}/RE_{million,t}$	2,160	0	0	0	0.0524	0.120	0.202	18.23	0.115	0.651
$\#\ patent_{grant,t+2}/RE_{million,t}$	2,160	0	0	0	0.0568	0.124	0.216	16.93	0.110	0.510
$\#\ patent_{apply,t+1}/RE_{million,t}$	2,160	0	0	0	0.0595	0.140	0.254	11.29	0.118	0.367
$\#\ patent_{apply,t+2}/RE_{million,t}$	2,160	0	0	0	0.0518	0.129	0.241	12.16	0.111	0.366
$Ln(\#\ publication_{t+1}/RE_{million,t})$	1,923	-6.115	0.342	0.929	1.362	1.932	2.974	7.570	1.378	1.523

$Ln(\#\ publication_{t+2}/RE_{million,t})$	1,933	-6.046	0.312	0.976	1.412	1.994	3.013	7.597	1.414	1.549
Panel D: Faculty Compensation and Mobility										
$Ln(salaray)_{Assistant\ Prof}$	1925	8.277	10.77	10.85	10.97	11.10	11.22	11.53	10.98	0.184
$Ln(salaray)_{Associate\ Prof}$	1925	7.822	10.93	11.02	11.13	11.25	11.37	11.76	11.14	0.186
$Ln(salaray)_{Full\ Prof}$	1933	8.299	11.18	11.31	11.45	11.60	11.75	12.24	11.46	0.234
$\#\ Net\ Change_{Assistant\ Prof}$	1,924	-79	-14	-4	3	13	24	217	4.650	18.65
$\#\ Net\ Change_{Associate\ Prof}$	1,924	-131	-10	-4	2	9	16	205	2.724	14.68
$\#\ Net\ Change_{Full\ Prof}$	1,932	-169	-12	-4	1	8	16	487	1.984	19.54
Panel E: State Level Statistics										
$Ln(GDP)$	2,160	9.665	11.10	11.86	12.61	13.19	13.89	14.50	12.52	1.037
$Ln(Pop)$	2,160	13.11	14.21	15.26	15.67	16.35	16.91	17.42	15.71	1.011
$Ln(total_tax)$	2,160	13.61	15.14	15.77	16.51	17.06	17.63	18.58	16.44	1.004
$Ln(higher_edu_exp)$	2,160	11.28	13.60	14.58	15.11	15.62	16.27	16.84	15.00	1.023
$Gov_balance$	2,160	-0.322	-0.126	-0.0324	0.0859	0.171	0.226	1.249	0.0701	0.140

Table 3

The Effects of GASB 34/35 on Federal Funding

This table reports diff-in-diffs estimates of the effects of GASB 34/35 on the allocation of federal funding. $Ln(\$\ Federal\ grant)_t$ is the natural logarithm of federal funding received by university i in academic year t. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\ faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	Baseline	Alternative Fixed Effects
	(1)	(2)
Dep. Variable	$Ln(\$\ Federal\ funding)_t$	$Ln(\$\ Federal\ funding)_t$
$GASB$	-0.078***	-0.143***
	(-2.94)	(-4.46)
Controls	Y	Y
Year FE	Y	...
College FE	Y	Y
State×Year FE	N	Y
Dep. Mean without log	119,634,362	119,548,324
Within R^2	0.012	0.016
No. of colleges	216	208
No. of observations	2,160	2,080

Table 4

Mechanism: Monitoring

This table examines the monitoring channel underlying the GASB 34/35 implementation. I estimate the following model specification to test the monitoring mechanism:

$$Outcome_{i,t} = \beta_0 + \beta_1 GASB_{i,t} + \beta_2 Org_complexity_{i,t} + \beta_3 GASB_{i,t} * Org_complexity_{i,t} + \gamma \boldsymbol{X}_{i,t} + \alpha_i + \varphi_t + \varepsilon_{i,t}$$

$Outcome_{i,t}$ is $Ln(\$\, Federal\ funding)_t$, which is the natural logarithm of federal funding received by university i in academic year t. Organizational complexity ($Org_complexity$) is proxied using two alternative measures: $Admin_Complexity$ for administrative complexity and $Academic_Complexity$ for academic complexity. $Admin_Complexity$ is an indicator equal to one if university i operates more than one campus in academic year t, and zero otherwise. $Academic_Complexity$ is an indicator measuring a university's organizational complexity based on the breadth of its academic offerings, which equals one if the number of academic programs offered at the two-digit CIP level by university i in the 2000/01 academic year exceeds the sample median, and zero otherwise. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\, faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	(1)	(2)
Dep. Variable	$Ln(\$\, Federal\ funding)_t$	$Ln(\$\, Federal\ funding)_t$
$GASB$	-0.065***	-0.036
	(-2.63)	(-1.07)
$GASB * Admin_Complexity$	-0.098**	
	(-2.25)	
$GASB * Academic_Complexity$		-0.069**
		(-2.04)
Controls	Y	Y
Year FE	Y	Y
College FE	Y	Y
Dep. Mean without log	119,634,362	119,634,362
Within R^2	0.014	0.015
No. of colleges	216	216
No. of observations	2,160	2,160

Table 5

Mechanism: Government Learning

This table examines the government learning channel underlying the GASB 34/35 implementation. I estimate the following model specification to test the government learning mechanism:

$$Outcome_{i,t+1} = \beta_0 + \beta_1 GASB_{i,t} + \beta_2 External_signal_{i,t} + \beta_3 GASB_{i,t} * External_signal_{i,t} + \gamma \boldsymbol{X}_{i,t} + \alpha_i + \varphi_t + \varepsilon_{i,t}$$

$Outcome_{i,t+1}$ is $Ln(\$\, Federal\ funding)_{t+1}$, which is the natural logarithm of federal funding received by university i in academic year $t+1$. I focus on two primary sources of external funding signals ($External_signal$): private gifts ($Ln(\$\, Private\ gift)_t$) and state funding ($Ln(\$\, State\ funding)_t$). $Ln(\$\, Private\ gift)_t$ is the natural logarithm of private gifts received by university i in academic year t. $Ln(\$\, State\ funding)_t$ is the natural logarithm of state funding received by university i in academic year t. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\, faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	(1)	(2)
Dep. Variable	$Ln(\$\, Federal\ funding)_{t+1}$	$Ln(\$\, Federal\ funding)_{t+1}$
$GASB$	-0.691***	-1.091***
	(-2.74)	(-3.16)
$Ln(\$\, Private\ gift)_t$	-0.036	
	(-1.60)	
$GASB * Ln(\$\, Private\ gift)_t$	0.034**	
	(2.37)	
$Ln(\$\, State\ funding)_t$		0.079***
		(4.10)
$GASB * Ln(\$\, State\ funding)_t$		0.060***
		(2.90)
Controls	Y	Y
Year FE	Y	Y
College FE	Y	Y
Dep. Mean without log	130,938,871	130,938,871
External Signal Mean	60,739,227	14,402,502
Within R^2	0.021	0.056
No. of colleges	216	211
No. of observations	2,011	2,100

Table 6

The Real Effects of GASB 34/35 on University Research Outputs

This table reports Poisson pseudo-maximum likelihood (PPML) estimates of the real effects of GASB 34/35 on university research outputs. I estimate the following conditional-mean specification:

$$\mathbb{E}[Research\ Output_{i,t+1}|GASB_{i,t}, \boldsymbol{X}_{i,t}, \alpha_i, \varphi_t] = \exp(\beta_0 + \beta_1 GASB_{i,t} + \gamma' \boldsymbol{X}_{i,t} + \alpha_i + \varphi_t)$$

The university research output is proxied using three measures. $\#\ patent_{apply,t+1}$ is the number of patent applications by university i in academic year $t+1$. $\#\ patent_{grant,t+1}$ is the number of patents granted to university i in academic year $t+1$. $\#\ publication_{t+1}$ is the number of publications by university i in academic year $t+1$. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\ faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using PPML and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and z-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	(1)	(2)	(3)
Dep. Variable	$\#\ patent_{apply,t+1}$	$\#\ patent_{grant,t+1}$	$\#\ publication_{t+1}$
$GASB$	0.030	-0.027	-0.041***
	(0.58)	(-0.56)	(-2.58)
Controls	Y	Y	Y
Year FE	Y	Y	Y
College FE	Y	Y	Y
Dep. Mean without log	17	16	504
Pseudo R^2	0.859	0.865	0.984
No. of colleges	174	170	199
No. of observations	1,740	1,700	1,993

Table 7

The Real Effects of GASB 34/35 on University Research Efficiency

This table examines the real effects of GASB 34/35 on the efficiency of university research. The efficiency of university research is proxied using three measures. $\#\,patent_{apply,t+1}/RE_{million,t}$ is the number of patent applications by university i in academic year $t+1$ per million dollars of total research expenditure in academic year t. $\#\,patent_{grant,t+1}/RE_{million,t}$ is the number of patents granted to university i in academic year $t+1$ per million dollars of total research expenditure in academic year t. $Ln(\#\,publication_{t+1}/RE_{million,t})$ is the natural logarithm of the number of publications by university i in academic year $t+1$ per million dollars of total research expenditure in academic year t. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\,faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	(1)	(2)	(3)
Dep. Variable	$\#\,patent_{apply,t+1}/RE_{million,t}$	$\#\,patent_{grant,t+1}/RE_{million,t}$	$Ln(\#\,publication_{t+1}/RE_{million,t})$
$GASB$	0.066***	0.076**	0.111***
	(3.20)	(2.48)	(3.51)
Controls	Y	Y	Y
Year FE	Y	Y	Y
College FE	Y	Y	Y
Dep. Mean without log	0.115	0.118	19.070
Within R^2	0.004	0.002	0.013
No. of colleges	216	216	188
No. of observations	2,160	2,160	1,922

Table 8

The Real Effects of GASB 34/35 on Faculty Compensation

This table examines the real effects of GASB 34/35 on faculty compensation. $Ln(Avg\ salary)_{position}$ is the natural logarithm of the average annual salary for faculty holding a given academic position at university i in academic year t. Average salaries are calculated across faculty on nine- or ten-month contracts within each position. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\ faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	(1)	(2)	(3)
Dep. Variable	$Ln(salary)_{Assistant\ Prof}$	$Ln(salary)_{Associate\ Prof}$	$Ln(salary)_{Full\ Prof}$
$GASB$	-0.021**	-0.031***	-0.027***
	(-2.40)	(-3.57)	(-3.52)
Controls	Y	Y	Y
Year FE	Y	Y	Y
College FE	Y	Y	Y
Dep. Mean without log	59,773	70,014	97,325
Within R^2	0.020	0.025	0.026
No. of colleges	197	197	198
No. of observations	1,924	1,924	1,932

Online Appendix to

Financial Disclosure by Government Contractors and Government Investment: Evidence from U.S. Research Universities

Chi Zhenghai

Online Appendix A

Figure A1

Costs of Federally Funded Research

This figure illustrates the costs of federally funded research, available from the Association of American Universities. Research facilities on the right hand provide examples of various research costs. These costs are grouped into two main types: direct costs and facilities administrative (F&A) costs. The graph on the left hand zooms in on the research laboratory, providing common examples of direct costs.

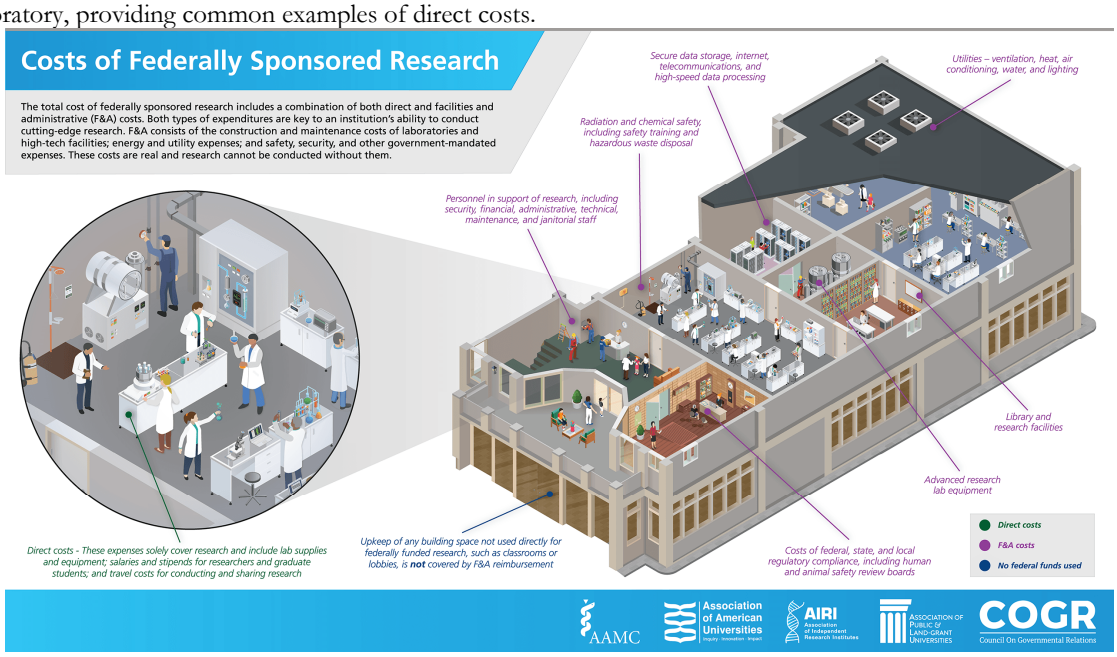


Figure A2

Stylized Federal Research Funding Process: Scientific and Administrative Screening

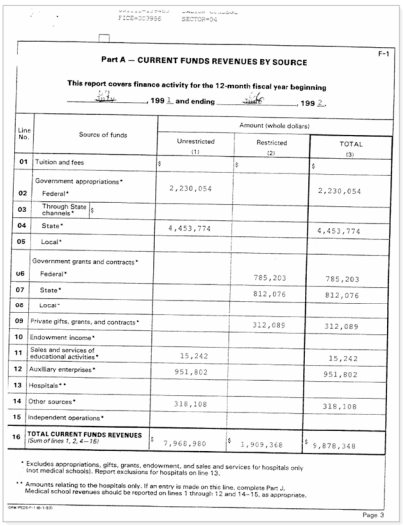
This figure presents a stylized overview of the federal research funding process, illustrated using the grant-making practices of the National Institutes of Health (NIH). The process consists of three stages: pre-award assessment, scientific review and award determination, and post-award monitoring. Pre-award assessment focuses primarily on the recipient institution's administrative and financial-management capacity, including internal controls, prior performance, audit findings, and other available financial information. During award determination, peer reviewers assess scientific merit, program officials consider program priorities and available funding, and grants management officials review the proposed budget and applicable cost requirements. After an award is made, agencies monitor both project performance and institutional compliance using expenditure and progress reports, cash-drawdown records, audit findings, site visits, and other compliance information. The institution, rather than the individual principal investigator, is the legal applicant and award recipient.



Figure A3

Selected Pages from the Pre-GASB IPEDS Common Form

This figure reproduces selected pages from the 1991/92 IPEDS Finance Survey ("Common Form") to illustrate the fund-based reporting format used by colleges and universities before the adoption of the GASB 34/35 reporting model. The selected pages report revenues, expenditures, transfers, and changes in fund balances across separate fund categories and related institutional activities. Only selected pages are reproduced for brevity; the complete reporting instrument is available from IPEDS.



Part A — CURRENT FUNDS REVENUES BY SOURCE F-1

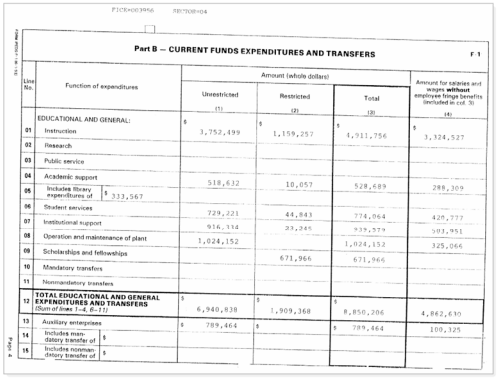
This report covers finance activity for the 12-month fiscal year beginning 7 1, 199 1, and ending 6 30, 199 2.

Line No.	Source of funds	Amount (whole dollars) Unrestricted (1)	Restricted (2)	TOTAL (3)
01	Tuition and fees	$	$	$
02	Government appropriations* Federal*	2,230,054		2,230,054
03	Through State channels* $			
04	State*	4,453,774		4,453,774
05	Local*			
U6	Government grants and contracts* Federal*		785,203	785,203
07	State*		812,076	812,076
08	Local*			
09	Private gifts, grants, and contracts*		312,089	312,089
10	Endowment income*			
11	Sales and services of educational activities*	15,242		15,242
12	Auxiliary enterprises*	951,802		951,802
13	Hospitals**			
14	Other sources*	318,108		318,108
15	Independent operations*			
16	TOTAL CURRENT FUNDS REVENUES (Sum of lines 1, 2, 4–15)	$ 7,968,980	$ 1,909,368	$ 9,878,348

* Excludes appropriations, gifts, grants, endowment, and sales and services for hospitals only (not medical schools). Report exclusions for hospitals on line 12.

** Amounts relating to the hospitals only. If an entry is made on this line, complete Part J. Medical school revenues should be reported on lines 1 through 12 and 14–15, as appropriate.

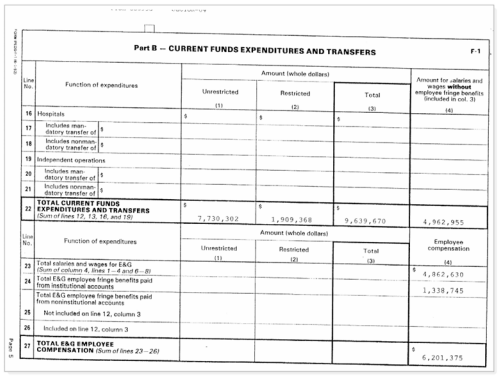
Page 3



Part B — CURRENT FUNDS EXPENDITURES AND TRANSFERS F-1

Line No.	Function of expenditures	Amount (whole dollars) Unrestricted (1)	Restricted (2)	Total (3)	Amount for salaries and wages without employee fringe benefits (included in col. 3) (4)
	EDUCATIONAL AND GENERAL:				
01	Instruction	$ 3,752,499	$ 1,159,257	$ 4,911,756	$ 3,324,527
02	Research				
03	Public service				
04	Academic support	518,632	10,057	528,689	288,309
05	Includes library expenditures of $ 333,567				
06	Student services	729,221	44,843	774,064	426,777
07	Institutional support	916,114	23,245	939,359	503,951
08	Operation and maintenance of plant	1,024,152		1,024,152	325,066
09	Scholarships and fellowships		671,966	671,966	
10	Mandatory transfers				
11	Nonmandatory transfers				
12	TOTAL EDUCATIONAL AND GENERAL EXPENDITURES AND TRANSFERS (Sum of lines 1–4, 6–11)	$ 6,940,838	$ 1,909,368	$ 8,850,206	4,862,630
13	Auxiliary enterprises	$ 789,464	$	$ 789,464	100,325
14	Includes mandatory transfer of $				
15	Includes nonmandatory transfers of $				

Page 4

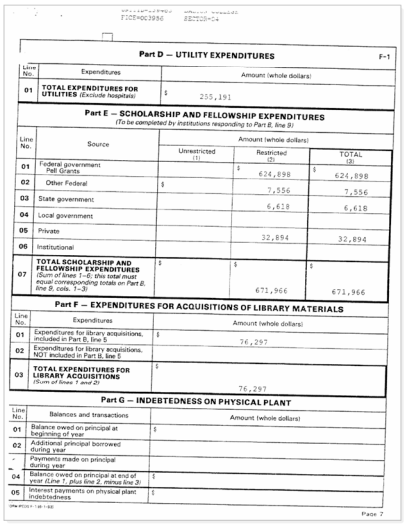


Part B — CURRENT FUNDS EXPENDITURES AND TRANSFERS F-1

Line No.	Function of expenditures	Amount (whole dollars) Unrestricted (1)	Restricted (2)	Total (3)	Amount for salaries and wages without employee fringe benefits (included in col. 3) (4)
16	Hospitals	$	$	$	
17	Includes mandatory transfer of $				
18	Includes nonmandatory transfer of $				
19	Independent operations				
20	Includes mandatory transfer of $				
21	Includes nonmandatory transfer of $				
22	TOTAL CURRENT FUNDS EXPENDITURES AND TRANSFERS (Sum of lines 12, 13, 16, and 19)	$ 7,730,302	$ 1,909,368	$ 9,639,670	4,962,955

Line No.	Function of expenditures	Amount (whole dollars) Unrestricted (1)	Restricted (2)	Total (3)	Employee compensation (4)
23	Total salaries and wages for E&G (Sum of column 4, lines 1–4 and 6–9)				$ 4,862,630
24	Total E&G employee fringe benefits paid from institutional accounts				1,338,745
25	Total E&G employee fringe benefits paid from noninstitutional accounts — Not included on line 12, column 3				
26	Included on line 12, column 3				
27	TOTAL E&G EMPLOYEE COMPENSATION (Sum of lines 23 – 26)				$ 6,201,375

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Part D — UTILITY EXPENDITURES F-1

Line No.	Expenditures	Amount (whole dollars)
01	TOTAL EXPENDITURES FOR UTILITIES (Exclude hospitals)	$ 255,191

Part E — SCHOLARSHIP AND FELLOWSHIP EXPENDITURES
(To be completed by institutions responding to Part B, line 9)

Line No.	Source	Amount (whole dollars) Unrestricted (1)	Restricted (2)	TOTAL (3)
01	Federal government Pell Grants		$ 624,898	$ 624,898
02	Other Federal	$	7,556	7,556
03	State government		6,618	6,618
04	Local government			
05	Private		32,894	32,894
06	Institutional			
07	TOTAL SCHOLARSHIP AND FELLOWSHIP EXPENDITURES (Sum of lines 1–6; this total must equal corresponding totals on Part B, line 9, cols. 1–3)	$	$ 671,966	$ 671,966

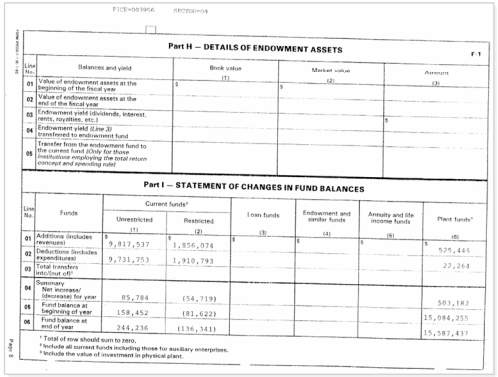
Part F — EXPENDITURES FOR ACQUISITIONS OF LIBRARY MATERIALS

Line No.	Expenditures	Amount (whole dollars)
01	Expenditures for library acquisitions, included in Part B, line 5	$ 76,297
02	Expenditures for library acquisitions, NOT included in Part B, line 5	
03	TOTAL EXPENDITURES FOR LIBRARY ACQUISITIONS (Sum of lines 1 and 2)	$ 76,297

Part G — INDEBTEDNESS ON PHYSICAL PLANT

Line No.	Balances and transactions	Amount (whole dollars)
01	Balance owed on principal at beginning of year	$
02	Additional principal borrowed during year	
-	Payments made on principal during year	
04	Balance owed on principal at end of year (Line 1, plus line 2, minus line 3)	$
05	Interest payments on physical plant indebtedness	$

Page 7



Part H — DETAILS OF ENDOWMENT ASSETS F-1

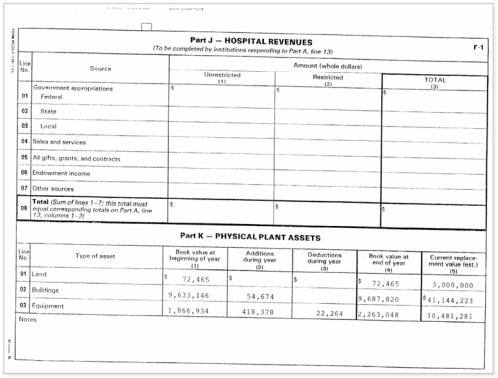
Line No.	Balances and yield	Book value (1)	Market value (2)	Amount (3)
01	Value of endowment assets at the beginning of the fiscal year	$	$	
02	Value of endowment assets at the end of the fiscal year			
03	Endowment yield (dividends, interest, rents, royalties, etc.)			$
04	Endowment yield (Line 3) transferred to endowment fund			
05	Transfer from the endowment fund to the current fund (Only for those institutions employing the total return concept and spending rate)			

Part I — STATEMENT OF CHANGES IN FUND BALANCES

Line No.	Funds	Current funds* Unrestricted (1)	Restricted (2)	Loan funds (3)	Endowment and similar funds (4)	Annuity and life income funds (5)	Plant funds* (6)
01	Additions (includes revenues)	9,817,537	1,856,074	$	$	$	$ 525,445
02	Deductions (includes expenditures)	9,731,753	1,910,793				22,264
03	Total transfers (etc/(out of)*						
04	Summary Net increase/(decrease) for year	85,784	(54,719)				503,182
05	Fund balance at beginning of year	158,452	(81,622)				15,084,255
06	Fund balance at end of year	244,236	(136,341)				15,587,437

* Total of row should sum to zero.
* Include all current funds including those for auxiliary enterprises.
* Include the value of investment in physical plant.

Page 8



Part J — HOSPITAL REVENUES
(To be completed by institutions responding to Part A, line 13)

Line No.	Source	Amount (whole dollars) Unrestricted (1)	Restricted (2)	TOTAL (3)
01	Government appropriations Federal	$	$	$
02	State			
03	Local			
04	Sales and services			
05	All gifts, grants, and contracts			
06	Endowment income			
07	Other sources			
08	Total (Sum of lines 1–7; this total must equal corresponding totals on Part A, line 13, columns 1–3)	$	$	$

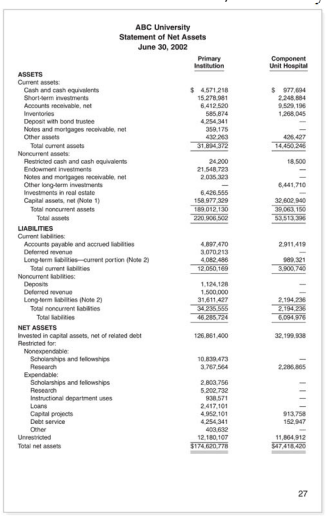
Part K — PHYSICAL PLANT ASSETS

Line No.	Type of asset	Book value at beginning of year (1)	Additions during year (2)	Deductions during year (3)	Book value at end of year (4)	Current replacement value (est.) (5)
01	Land	$ 72,465	$	$	$ 72,465	3,000,000
02	Buildings	9,633,146	54,674		9,687,820	$41,144,223
03	Equipment	1,866,934	418,378	22,264	2,263,048	10,481,281
	Notes					

Figure A4

Selected Pages from the GASB 35 Financial Statements

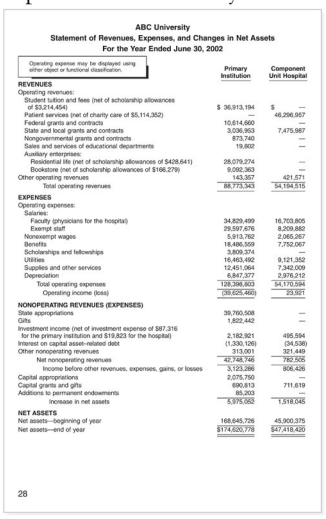
This figure reproduces selected pages from the financial statements in Appendix D of GASB Statement No. 35. The selected pages include the Statement of Net Assets, the Statement of Revenues, Expenses, and Changes in Net Assets, the Statement of Cash Flows and its reconciliation schedule, and illustrative disclosures of capital assets and long-term liabilities for a model public university. Together, these pages illustrate the entity-wide, accrual-based reporting framework introduced under GASB 34/35. Only selected pages are reproduced for brevity.



ABC University
Statement of Net Assets
June 30, 2002

	Primary Institution	Component Unit Hospital
ASSETS		
Current assets:		
Cash and cash equivalents	$ 4,571,218	$ 977,694
Short-term investments	15,278,981	2,248,884
Accounts receivable, net	6,412,520	9,529,196
Inventories	585,874	1,268,045
Deposit with bond trustee	4,254,341	—
Notes and mortgages receivable, net	359,175	—
Other assets	432,263	426,427
Total current assets	31,894,372	14,450,246
Noncurrent assets:		
Restricted cash and cash equivalents	24,200	18,500
Endowment investments	21,548,723	—
Notes and mortgages receivable, net	2,035,323	—
Other long-term investments	—	6,441,710
Investments in real estate	6,426,555	—
Capital assets, net (Note 1)	158,977,329	32,602,940
Total noncurrent assets	189,012,130	39,063,150
Total assets	220,906,502	53,513,396
LIABILITIES		
Current liabilities:		
Accounts payable and accrued liabilities	4,897,470	2,911,419
Deferred revenue	3,070,213	—
Long-term liabilities—current portion (Note 2)	4,082,486	989,321
Total current liabilities	12,050,169	3,900,740
Noncurrent liabilities:		
Deposits	1,124,128	—
Deferred revenue	1,500,000	—
Long-term liabilities (Note 2)	31,611,427	2,194,236
Total noncurrent liabilities	34,235,555	2,194,236
Total liabilities	46,285,724	6,094,976
NET ASSETS		
Invested in capital assets, net of related debt	126,861,400	32,199,938
Restricted for:		
Nonexpendable:		
Scholarships and fellowships	10,839,473	—
Research	3,767,564	2,286,865
Expendable:		
Scholarships and fellowships	2,803,756	—
Research	5,202,732	—
Instructional department uses	938,571	—
Loans	2,417,101	—
Capital projects	4,952,101	913,758
Debt service	4,254,341	152,947
Other	403,632	—
Unrestricted	12,180,107	11,864,912
Total net assets	$174,620,778	$47,418,420

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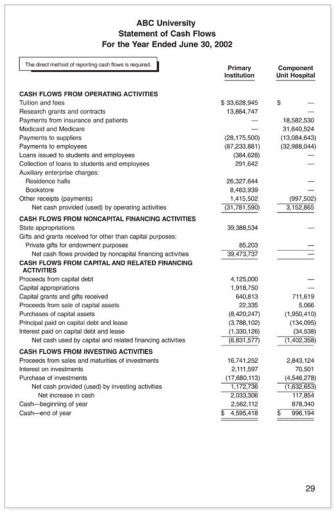


ABC University
Statement of Revenues, Expenses, and Changes in Net Assets
For the Year Ended June 30, 2002

Operating expense may be displayed using either object or functional classification.

	Primary Institution	Component Unit Hospital
REVENUES		
Operating revenues:		
Student tuition and fees (net of scholarship allowances of $3,214,454)	$ 36,913,194	$ —
Patient services (net of charity care of $5,114,352)	—	46,296,957
Federal grants and contracts	10,614,660	—
State and local grants and contracts	3,036,953	7,475,987
Nongovernmental grants and contracts	873,740	—
Sales and services of educational departments	19,802	—
Auxiliary enterprises:		
Residential life (net of scholarship allowances of $428,641)	28,079,274	—
Bookstore (net of scholarship allowances of $166,279)	9,092,363	—
Other operating revenues	143,357	421,571
Total operating revenues	88,773,343	54,194,515
EXPENSES		
Operating expenses:		
Salaries:		
Faculty (physicians for the hospital)	34,829,499	16,703,805
Exempt staff	29,597,676	8,209,882
Nonexempt wages	5,913,762	2,065,267
Benefits	18,486,559	7,752,067
Scholarships and fellowships	3,809,374	—
Utilities	16,463,492	9,121,352
Supplies and other services	12,451,064	7,342,009
Depreciation	6,847,377	2,976,212
Total operating expenses	128,398,803	54,170,594
Operating income (loss)	(39,625,460)	23,921
NONOPERATING REVENUES (EXPENSES)		
State appropriations	39,760,508	—
Gifts	1,822,442	—
Investment income (net of investment expense of $87,316 for the primary institution and $19,823 for the hospital)	2,182,921	495,594
Interest on capital asset–related debt	(1,330,126)	(34,536)
Other nonoperating revenues	313,001	321,449
Net nonoperating revenues	42,748,746	782,505
Income before other revenues, expenses, gains, or losses	3,123,286	806,426
Capital appropriations	2,075,750	—
Capital grants and gifts	690,813	711,619
Additions to permanent endowments	85,203	—
Increase in net assets	5,975,052	1,518,045
NET ASSETS		
Net assets—beginning of year	168,645,726	45,900,375
Net assets—end of year	$174,620,778	$47,418,420

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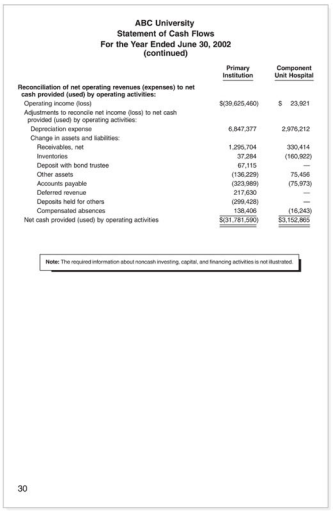


ABC University
Statement of Cash Flows
For the Year Ended June 30, 2002

The direct method of reporting cash flows is required.

	Primary Institution	Component Unit Hospital
CASH FLOWS FROM OPERATING ACTIVITIES		
Tuition and fees	$ 33,628,945	$ —
Research grants and contracts	13,884,747	—
Payments from insurance and patients	—	18,582,530
Medicaid and Medicare	—	31,640,524
Payments to suppliers	(28,175,500)	(13,084,643)
Payments to employees	(87,233,881)	(32,988,044)
Loans issued to students and employees	(384,628)	—
Collection of loans to students and employees	291,642	—
Auxiliary enterprise charges:		
Residence halls	26,327,644	—
Bookstore	8,463,939	—
Other receipts (payments)	1,415,502	(997,502)
Net cash provided (used) by operating activities	(31,781,590)	3,152,865
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES		
State appropriations	39,388,534	—
Gifts and grants received for other than capital purposes:		
Private gifts for endowment purposes	85,203	—
Net cash flows provided by noncapital financing activities	39,473,737	—
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Proceeds from capital debt	4,125,000	—
Capital appropriations	1,918,750	—
Capital grants and gifts received	640,813	711,619
Proceeds from sale of capital assets	22,335	5,066
Purchases of capital assets	(6,420,247)	(1,950,410)
Principal paid on capital debt and lease	(3,788,102)	(134,095)
Interest paid on capital debt and lease	(1,330,126)	(34,536)
Net cash used by capital and related financing activities	(6,831,577)	(1,402,356)
CASH FLOWS FROM INVESTING ACTIVITIES		
Proceeds from sales and maturities of investments	16,741,252	2,843,124
Interest on investments	2,111,597	70,501
Purchase of investments	(17,680,113)	(4,546,278)
Net cash provided (used) by investing activities	1,172,736	(1,632,653)
Net increase in cash	2,033,306	117,854
Cash—beginning of year	2,562,112	878,340
Cash—end of year	$ 4,595,418	$ 996,194

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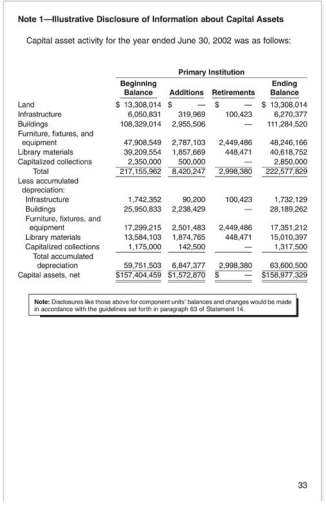


ABC University
Statement of Cash Flows
For the Year Ended June 30, 2002
(continued)

	Primary Institution	Component Unit Hospital
Reconciliation of net operating revenues (expenses) to net cash provided (used) by operating activities:		
Operating income (loss)	$(39,625,460)	$ 23,921
Adjustments to reconcile net income (loss) to net cash provided (used) by operating activities:		
Depreciation expense	6,847,377	2,976,212
Change in assets and liabilities:		
Receivables, net	1,295,704	330,414
Inventories	37,284	(160,922)
Deposit with bond trustee	67,115	—
Other assets	(136,229)	75,466
Accounts payable	(323,986)	(75,973)
Deferred revenue	217,630	—
Deposits held for others	(299,428)	—
Compensated absences	138,406	(16,243)
Net cash provided (used) by operating activities	$(31,781,590)	$3,152,865

Note: The required information about noncash investing, capital, and financing activities is not illustrated.

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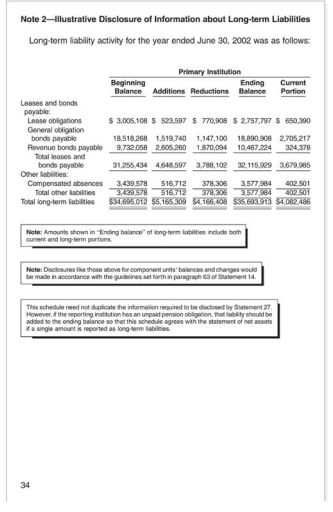
Note 1—Illustrative Disclosure of Information about Capital Assets

Capital asset activity for the year ended June 30, 2002 was as follows:

	Primary Institution			
	Beginning Balance	Additions	Retirements	Ending Balance
Land	$ 13,308,014	$ —	$ —	$ 13,308,014
Infrastructure	6,050,831	319,969	100,423	6,270,377
Buildings	108,329,014	2,955,506	—	111,284,520
Furniture, fixtures, and equipment	47,908,549	2,787,103	2,449,486	48,246,166
Library materials	39,209,554	1,857,669	448,471	40,618,752
Capitalized collections	2,350,000	500,000	—	2,850,000
Total	217,155,962	8,420,247	2,998,380	222,577,829
Less accumulated depreciation:				
Infrastructure	1,742,352	90,200	100,423	1,732,129
Buildings	25,950,833	2,238,429	—	28,189,262
Furniture, fixtures, and equipment	17,299,215	2,501,483	2,449,486	17,351,212
Library materials	13,584,103	1,874,765	448,471	15,010,397
Capitalized collections	1,175,000	142,500	—	1,317,500
Total accumulated depreciation	59,751,503	6,847,377	2,998,380	63,600,500
Capital assets, net	$157,404,459	$1,572,870	$ —	$158,977,329

Note: Disclosures like those above for component units' balances and changes would be made in accordance with the guidelines set forth in paragraph 63 of Statement 14.

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Note 2—Illustrative Disclosure of Information about Long-term Liabilities

Long-term liability activity for the year ended June 30, 2002 was as follows:

	Primary Institution				
	Beginning Balance	Additions	Reductions	Ending Balance	Current Portion
Leases and bonds payable:					
Lease obligations	$ 3,005,108	$ 523,597	$ 770,908	$ 2,757,797	$ 650,390
General obligation bonds payable	18,518,268	1,519,740	1,147,100	18,890,908	2,705,217
Revenue bonds payable	9,732,058	2,605,260	1,870,094	10,467,224	324,378
Total leases and bonds payable	31,255,434	4,648,597	3,788,102	32,115,929	3,679,985
Other liabilities:					
Compensated absences	3,439,578	516,712	378,306	3,577,984	402,501
Total other liabilities	3,439,578	516,712	378,306	3,577,984	402,501
Total long-term liabilities	$34,695,012	$5,165,309	$4,166,408	$35,693,913	$4,082,486

Note: Amounts shown in "Ending balance" of long-term liabilities include both current and long-term portions.

Note: Disclosures like those above for component units' balances and changes would be made in accordance with the guidelines set forth in paragraph 63 of Statement 14.

This schedule need not duplicate the information required to be disclosed by Statement 27. However, if the reporting institution has an unpaid pension obligation, that liability should be added to the ending balance so that this schedule agrees with the statement of net assets if a single amount is reported as long-term liabilities.

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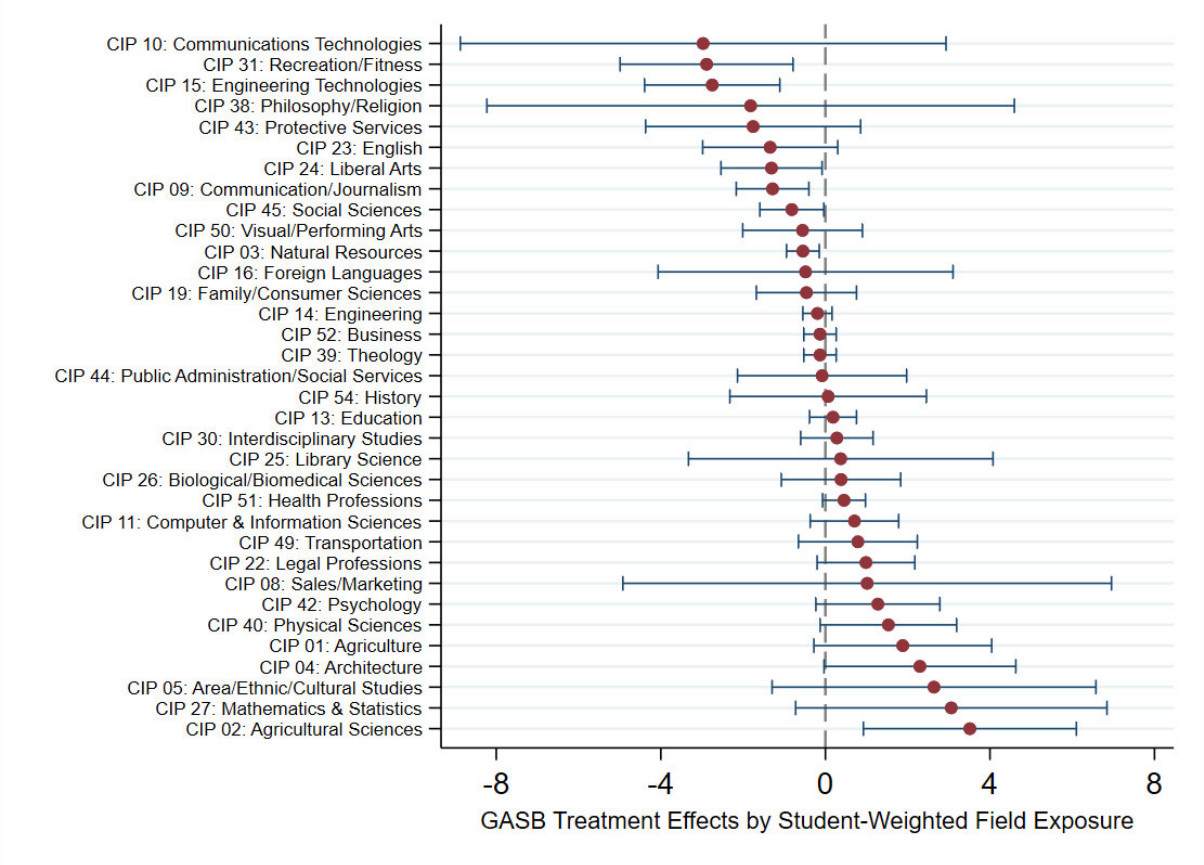
Figure A5

Heterogeneous Effects of GASB 34/35 by Student-Weighted Field Exposure

This figure plots heterogeneous effects of GASB 34/35 on federal funding according to the within-university student-weighted field exposure. The estimates are obtained from the following TWFE specification:

$$Ln(\$Federal\ funding)_{i,t} = \beta_0 + \beta_1 GASB_{i,t} + \sum_{c \in C} \delta_c CIP_exposure_{i,t}^{c} + \sum_{c \in C} \theta_c CIP_exposure_{i,t}^{c} * GASB_{i,t} + \gamma \boldsymbol{X}_{i,t} + \alpha_i + \varphi_t + \varepsilon_{i,t}$$

$CIP_exposure_{i,t}^{c}$ is the proportion of students at university i in academic year t enrolled in programs classified in two-digit CIP field c, relative to total enrollment across the included CIP fields. CIP 52 (Business) is the baseline exposure category. Accordingly, the estimated GASB effect for Business is β_1, while the implied effect for each other field c is $\beta_1 + \theta_c$. The circles represent the implied treatment effects, and the horizontal lines represent 95% confidence intervals. The dashed vertical line denotes a zero treatment effect. Estimates are ordered from the smallest to the largest. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\ faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.



Online Appendix B.1: Summary of GASB Statement No. 34

Summary

This Statement establishes financial reporting standards for state and local governments, including states, cities, towns, villages, and special-purpose governments such as school districts and public utilities. It establishes that the basic financial statements and required supplementary information (RSI) for general purpose governments should consist of:

- *Management's discussion and analysis (MD&A).* MD&A should introduce the basic financial statements and provide an analytical overview of the government's financial activities. Although it is RSI, governments are required to present MD&A *before* the basic financial statements.
- *Basic financial statements.* The basic financial statements should include:
  - *Government-wide financial statements,* consisting of a statement of net assets and a statement of activities. Prepared using the economic resources measurement focus and the accrual basis of accounting, these statements should report all of the assets, liabilities, revenues, expenses, and gains and losses of the government. Each statement should distinguish between the governmental and business-type activities of the primary government and between the total primary government and its discretely presented component units by reporting each in separate columns. Fiduciary activities, whose resources are not available to finance the government's programs, should be excluded from the government-wide statements.
  - *Fund financial statements* consist of a series of statements that focus on information about the government's major governmental and enterprise funds, including its blended component units. Fund financial statements also should report information about a government's fiduciary funds and component units that are fiduciary in nature. *Governmental* fund financial statements (including financial data for the general fund and special revenue, capital projects, debt service, and permanent funds) should be prepared using the current financial resources measurement focus and the modified accrual basis of accounting. *Proprietary* fund financial statements (including financial data for enterprise and internal service funds) and *fiduciary* fund financial statements (including financial data for fiduciary funds and similar component units) should be prepared using the economic resources measurement focus and the accrual basis of accounting.
  - *Notes to the financial statements* consist of notes that provide information that is *essential* to a user's understanding of the basic financial statements.
- *Required supplementary information* (RSI). In addition to MD&A, this Statement requires budgetary comparison schedules to be presented as RSI along with other types of data as required by previous GASB pronouncements. This Statement also requires RSI for governments that use the modified approach for reporting infrastructure assets.

Special-purpose governments that are engaged in only governmental activities (such as some library districts) or that are engaged in both governmental and business-type activities (such as some school districts) generally should be reported in the same manner as general purpose governments. Special-purpose governments engaged only in business-type activities (such as utilities) should present the financial statements required for enterprise funds, including MD&A and other RSI.

Important Aspects of MD&A

MD&A should provide an objective and easily readable analysis of the government's financial activities based on currently known facts, decisions, or conditions. MD&A should include comparisons of the current year to the prior year based on the government-wide information. It should provide an analysis of the government's overall financial position and results of operations to assist users in assessing whether that financial position has improved or deteriorated as a result of the year's activities. In addition, it should provide an analysis of significant changes that occur in funds and significant budget variances. It should also describe capital asset and long-term debt activity during the year. MD&A should conclude with a description of currently known facts, decisions, or conditions that are expected to have a significant effect on financial position or results of operations.

Important Aspects of the Government-wide Financial Statements

Governments should report all capital assets, including infrastructure assets, in the government-wide statement of net assets and generally should report depreciation expense in the statement of activities. Infrastructure assets that are part of a network or subsystem of a network are not required to be depreciated as long as the government manages those assets using an asset management system that has certain characteristics and the government can document that the assets are being preserved approximately at (or above) a condition level established and disclosed by the government.

The net assets of a government should be reported in three categories—invested in capital assets net of related debt, restricted, and unrestricted. This Statement provides a definition of the term *restricted.* Permanent endowments or permanent fund principal amounts included in restricted net assets should be displayed in two additional components—expendable and nonexpendable.

The government-wide statement of activities should be presented in a format that reports expenses reduced by program revenues, resulting in a measurement of "net (expense) revenue" for each of the government's functions. Program expenses should include all direct expenses. General revenues, such as taxes, and special and extraordinary items should be reported separately, ultimately arriving at the change in net assets for the period. Special items are significant transactions or other events that are either unusual or infrequent and are within the control of management.

Important Aspects of the Fund Financial Statements

To report additional and detailed information about the primary government, separate fund financial statements should be presented for governmental and proprietary funds. Required governmental fund statements are a balance sheet and a statement of revenues, expenditures, and changes in fund balances. Required proprietary fund statements are a statement of net assets; a statement of revenues, expenses, and changes in fund net assets; and a statement of cash flows. To allow users to assess the relationship between fund and government-wide financial statements, governments should present a summary reconciliation to the government-wide financial statements at the bottom of the fund financial statements or in an accompanying schedule.

Each of the fund statements should report separate columns for the general fund and for other major governmental and enterprise funds. Major funds are funds whose revenues, expenditures/expenses, assets, or liabilities (excluding extraordinary items) are at least 10 percent of corresponding totals for all governmental or enterprise funds and at least 5 percent of the aggregate amount for all governmental and enterprise funds. Any other fund may be reported as a major fund if the government's officials believe that fund is particularly important to financial statement users. Nonmajor funds should be reported in the aggregate in a separate column. Internal service funds also should be reported in the aggregate in a separate column on the proprietary fund statements.

Fund balances for governmental funds should be segregated into reserved and unreserved categories. Proprietary fund net assets should be reported in the same categories required for the government-wide financial statements. Proprietary fund statements of net assets should distinguish between current and noncurrent assets and liabilities and should display restricted assets.

Proprietary fund statements of revenues, expenses, and changes in fund net assets should distinguish between operating and nonoperating revenues and expenses. These statements should also report capital contributions, contributions to permanent and term endowments, special and extraordinary items, and transfers separately at the bottom of the statement to arrive at the all-inclusive change in fund net assets. Cash flows statements should be prepared using the direct method.

Separate fiduciary fund statements (including component units that are fiduciary in nature) also should be presented as part of the fund financial statements. Fiduciary funds should be used to report assets that are held in a trustee or agency capacity for others and that cannot be used to support the government's own programs. Required fiduciary fund statements are a statement of fiduciary net assets and a statement of changes in fiduciary net assets.

Interfund activity includes interfund loans, interfund services provided and used, and interfund transfers. This activity should be reported separately in the fund financial statements and generally should be eliminated in the aggregated government-wide financial statements.

Required Supplementary Information

To demonstrate whether resources were obtained and used in accordance with the government's legally adopted budget, RSI should include budgetary comparison schedules for the general fund and for each major special revenue fund that has a legally adopted annual budget. The budgetary comparison schedules should present both (a) the original and (b) the final appropriated budgets for the reporting period as well as (c) actual inflows, outflows, and balances, stated on the government's budgetary basis. This Statement also requires RSI for governments that use the modified approach for reporting infrastructure assets.

Effective Date and Transition

The requirements of this Statement are effective in three phases based on a government's total annual revenues in the first fiscal year ending after June 15, 1999. Governments with total annual revenues (excluding extraordinary items) of $100 million or more (phase 1) should apply this Statement for periods beginning after June 15, 2001. Governments with at least $10 million but less than $100 million in revenues (phase 2) should apply this Statement for periods beginning after June 15, 2002. Governments with less than $10 million in revenues (phase 3) should apply this Statement for periods beginning after June 15, 2003. Earlier application is encouraged. Governments that elect early implementation of this Statement for periods beginning before June 15, 2000, should also implement GASB Statement No. 33, *Accounting and Financial Reporting for Nonexchange Transactions,* at the same time. If a primary government chooses early implementation of this Statement, all of its component units also should implement this standard early to provide the financial information required for the government-wide financial statements.

Prospective reporting of general infrastructure assets is required at the effective dates of this Statement. Retroactive reporting of all major general governmental infrastructure assets is encouraged at that date. For phase 1 and phase 2 governments, retroactive reporting is *required* four years after the effective date on the basic provisions for all major general infrastructure assets that were acquired or significantly reconstructed, or that received significant improvements, in fiscal years ending after June 30, 1980. Phase 3 governments are encouraged to report infrastructure retroactively, but may elect to report general infrastructure prospectively only.

Components of This Statement

This Statement consists of several components. The detailed authoritative standards established by this Statement are presented in paragraphs 3 through 166. Appendix C provides nonauthoritative illustrations of MD&A; the basic financial statements required for a variety of types of governments, such as towns, school districts, fire districts, and utilities; notes to those financial statements required by this Statement; and RSI other than MD&A. The reasons for the Board's conclusions on the major issues are discussed in the Basis for Conclusions (Appendix B). Appendix D summarizes how the new standards would be incorporated into the GASB's June 30, 1999, *Codification of Governmental Accounting and Financial Reporting Standards.*

Unless otherwise specified, pronouncements of the GASB apply to financial reports of all state and local governmental entities, including general purpose governments, public benefit corporations and authorities, public employee retirement systems, and public utilities, hospitals and other healthcare providers, and colleges and universities. Paragraph 3 discusses the applicability of this Statement.

Statement No. 34 of the Governmental Accounting Standards Board

Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments

June 1999

INTRODUCTION

1. The objective of this Statement is to enhance the understandability and usefulness of the general purpose external financial reports of state and local governments to the citizenry, legislative and oversight bodies, and investors and creditors. GASB Concepts Statement No. 1, *Objectives of Financial Reporting,* recognizes these groups as the primary intended users of governmental financial reports and establishes financial reporting objectives to meet their information needs. Those objectives are the foundation for the standards in this Statement.

2. Accountability is the paramount objective of governmental financial reporting—the objective from which all other financial reporting objectives flow.[1] Governments' duty to be accountable includes providing financial information that is useful for economic, social, and political decisions. Financial reports that contribute to these decisions include information useful for (a) comparing actual financial results with the legally adopted budget, (b) assessing financial condition and results of operations, (c) assisting in determining compliance with finance-related laws, rules, and regulations, and (d) assisting in evaluating efficiency and effectiveness.[2]

[1]Concepts Statement 1, paragraphs 56 and 76.
[2]Concepts Statement 1, paragraph 32.

Online Appendix B.2: Summary and Introduction of GASB Statement No. 35

Summary

This Statement establishes accounting and financial reporting standards for public colleges and universities within the financial reporting guidelines of GASB Statement No. 34, *Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments*. The standards are designed to provide financial information that responds to the needs of three groups of primary users of general purpose external financial reports: the citizenry, legislative and oversight bodies, and investors and creditors. Generally, this amendment to Statement 34 permits public colleges and universities, in separately issued financial statements, to use the guidance for special-purpose governments engaged only in business-type activities, engaged only in governmental activities, or engaged in both governmental and business-type activities in their separately issued reports. Under this guidance, in its separately issued reports, a public institution is required to include management's discussion and analysis (MD&A); basic financial statements, as appropriate for the category of special-purpose government reporting selected; notes to the financial statements; and required supplementary information other than MD&A.

Unless otherwise specified, pronouncements of the GASB apply to financial reports of all state and local governmental entities, including general purpose governments, public benefit corporations and authorities, and public employee retirement systems, utilities, hospitals and other healthcare providers, and colleges and universities. Paragraph 2 discusses the applicability of this Statement.

Statement No. 35 of the Governmental Accounting Standards Board

Basic Financial Statements—and Management's Discussion and Analysis—for Public Colleges and Universities

an amendment of GASB Statement No. 34

November 1999

INTRODUCTION

1. The objective of this Statement is to enhance the understandability and usefulness of the general purpose external financial reports issued by public colleges and universities. The standards are designed to provide financial information that responds to the needs of the three groups of primary users of general purpose external financial reports: (a) those to whom government is primarily accountable (the citizenry), (b) those who directly represent the citizens (legislative and oversight bodies), and (c) those who lend or who participate in the lending process (investors and creditors).[1]

STANDARDS OF GOVERNMENTAL ACCOUNTING AND FINANCIAL REPORTING

Scope and Applicability

2. This Statement amends GASB Statement No. 34, *Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments,* to include public colleges and universities (institutions).

3. This Statement supersedes GASB Statement No. 8, *Applicability of FASB Statement No. 93, "Recognition of Depreciation by Not-for-Profit Organizations," to Certain State and Local Governmental Entities;* GASB Statement No. 14, *The Financial Reporting Entity,* paragraph 48; GASB Statement No. 15, *Governmental College and University Accounting and Financial Reporting Models;* GASB Statement No. 16, *Accounting for Compensated Absences,* footnote 2; GASB Statement No. 18, *Accounting for Municipal Solid Waste Landfill*

[1] GASB Concepts Statement No. 1, *Objectives of Financial Reporting,* paragraph 30.

Online Appendix C

Table C1

Robustness Check: Oster Test for Selection on Unobservables and Coefficient Stability

This table reports Oster (2019) tests for the main results in Table 3 using the specification in equation (1). For each estimate, I report the value of $\hat{\delta}$ required to reduce the estimated treatment effect to zero, using the bound $R_{max} = 1$. Following Oster (2019), an estimate is considered robust when $\hat{\delta} > 1$, indicating that selection on unobservables would need to be stronger than selection on observables to explain away the estimated effect. A negative $\hat{\delta}$ indicates that adding observed controls increases the magnitude of the estimated treatment effect. In this case, omitted variables would need to operate in the opposite direction to attenuate the estimate toward zero, suggesting that the baseline coefficient is conservative (Satyanath et al., 2017). All specifications are estimated using OLS and include controls and different sets of fixed effects. Heteroscedasticity-consistent standard errors are two-way clustered by university and academic year. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	Estimated treatment effects ($\hat{\beta}$)	$\hat{\delta} \mid (R_{max} = 1, \beta = 0)$	Pass Oster test?
$Ln(\$\ Federal\ funding)_t$	-0.078***	-4.438	Yes
$Ln(\$\ Federal\ funding)_{t+1}$	-0.114***	-6.480	Yes

Table C2

Robustness Check: Faculty Turnover as an Alternative Explanation

This table rules out the alternative explanation that changes in faculty turnover lead to the decline in federal funding following GASB 34/35. If GASB 34/35 affected universities' ability to attract or retain faculty, changes in researcher composition could reduce subsequent grant applications and awards independently of the proposed information channel. The dependent variable is $\#\ Net\ Change_{position}$, which measures the net change in the number of faculty holding a given academic rank between consecutive academic years. Specifically, the net change in year t is calculated as the number of faculty in a given rank in year t minus the corresponding number in year $t-1$. I focus on tenure-track and tenured faculty on nine- or ten-month contracts, including assistant, associate, and full professors. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\ faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	(1)	(2)	(3)
Dep. Variable	$\#\ Net\ Change_{Assistant\ Prof}$	$\#\ Net\ Change_{Associate\ Prof}$	$\#\ Net\ Change_{Full\ Prof}$
$GASB$	1.796	1.023	-0.170
	(0.88)	(0.74)	(-0.10)
Controls	Y	Y	Y
Year FE	Y	Y	Y
College FE	Y	Y	Y
Dep. Mean	6	2	2
Within R^2	0.007	0.005	0.004
No. of colleges	197	197	198
No. of observations	1,923	1,923	1,931

Table C3

Robustness Check: Lagged Effects of GASB 34/35 on Federal Funding

This table reports diff-in-diffs estimates of the lagged effects of GASB 34/35 on the allocation of federal funding. Specifically, I re-estimate the baseline specification using $Ln(\$\ Federal\ grant)_{t+1}$, the natural logarithm of federal funding received by university i in academic year $t+1$, as the dependent variable, while measuring GASB 34/35 adoption and the control variables in academic year t. This specification allows the effect of GASB 34/35 on federal funding to materialize with a lag. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\ faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	Baseline	Alternative Fixed Effects
	(1)	(2)
Dep. Variable	$Ln(\$\ Federal\ funding)_{t+1}$	$Ln(\$\ Federal\ funding)_{t+1}$
$GASB$	-0.114***	-0.164***
	(-3.97)	(-4.91)
Controls	Y	Y
Year FE	Y	...
College FE	Y	Y
State×Year FE	N	Y
Dep. Mean without log	126,611,664	126,528,928
Within R^2	0.012	0.013
No. of colleges	216	208
No. of observations	2,160	2,080

Table C4

Robustness Check: Phase 1 Treatment Only

This table reports difference-in-differences estimates of the effects of GASB 34/35 on federal funding using restricted sample. The analysis is restricted to public research universities treated in Phase 1 and private not-for-profit research universities. Public universities assigned to Phases 2 and 3 are excluded. Control variables include $Size$, $Ln(\#\,faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	Baseline	Alternative Fixed Effects
	(1)	(2)
Dep. Variable	$Ln(\$\,Federal\ funding)_t$	$Ln(\$\,Federal\ funding)_t$
$GASB$	-0.068**	-0.135***
	(-2.25)	(-3.44)
Controls	Y	Y
Year FE	Y	...
College FE	Y	Y
State×Year FE	N	Y
Dep. Mean without log	122,167,958	129,324,457
Within R^2	0.014	0.017
No. of colleges	205	205
No. of observations	2,050	2,050

Table C5

Robustness Check: Matching and Reweighting Estimates of the Main Results

This table reports difference-in-differences estimates of the effects of GASB 34/35 on federal funding using alternative matching and reweighting methods. The analysis is restricted to public research universities treated in Phase 1 and private not-for-profit research universities. Public universities assigned to Phases 2 and 3 are excluded. The matching and reweighting procedures use institution- and state-level control variables measured one year before treatment. Panel A uses one-to-one nearest-neighbor propensity-score matching (PSM) without replacement, imposing common support and a caliper of 0.1. Panel B uses entropy balancing to balance the first moments of the pretreatment covariates. Panel C uses inverse probability weighting (IPW) to estimate the average treatment effect on the treated. The institution-level weights obtained from the entropy-balancing and inverse-probability-weighting procedures are applied throughout the panel period. The dependent variable is $Ln(\$\,Federal\ funding)_t$, the natural logarithm of federal funding received by university i in academic year t. Control variables include $Size$, $Ln(\#\,faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	Baseline	Alternative Fixed Effects
Dep. Variable	$Ln(\$\,Federal\ funding)_t$	$Ln(\$\,Federal\ funding)_t$
Panel A: PSM		
	(1)	(2)
$GASB$	-0.207***	-0.187***
	(-3.76)	(-2.96)
No. of observations	620	460
Panel B: Entropy Balancing		
	(1)	(2)
$GASB$	-0.118***	-0.131***
	(-3.16)	(-2.96)
No. of observations	2,050	1,970
Panel C: IPW		
	(1)	(2)
$GASB$	-0.135***	-0.117**
	(-4.00)	(-2.28)
No. of observations	2,050	1,970
Controls	Y	Y
Academic Year FE	Y	...
College FE	Y	Y
State-Academic Year FE	N	Y

Table C6

Robustness Check: Stacked DiD Estimates of the Main Results

This table reports stacked difference-in-differences estimates of the effect of GASB 34/35 on federal funding. For each of the three treatment phases, I construct a cohort-specific sample centered on the treatment year, covering two years before and after treatment. The treatment group in each cohort consists of public research universities treated in that phase, while the control group consists of never-treated private not-for-profit research universities. The three cohort-specific samples are then stacked for estimation. Control variables include $Size$, $Ln(\#\ faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and cohort-specific fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	Baseline	Alternative Fixed Effects
	(1)	(2)
Dep. Variable	$Ln(\$\ Federal\ funding)_t$	$Ln(\$\ Federal\ funding)_t$
$GASB$	-0.034	-0.081***
	(-1.61)	(-2.87)
Controls	Y	Y
Cohort-Specific Year FE	Y	...
Cohort-Specific College FE	Y	Y
Cohort-Specific State×Year FE	N	Y
Dep. Mean without log	122,167,958	129,324,457
Within R^2	0.035	0.034
No. of colleges	216	205
No. of observations	1,700	1,545

Table C7

Robustness Check: Research Outputs with a Two-Year Lag

This table reports a robustness test that extends the lag between GASB 34/35 and university research output from one year to two years. Research output is measured in academic year $t+2$ relative to GASB 34/35 treatment. I estimate the following conditional-mean specification:

$$\mathbb{E}[Research\ Output_{i,t+2}|GASB_{i,t}, \boldsymbol{X}_{i,t}, \alpha_i, \varphi_t] = \exp(\beta_0 + \beta_1 GASB_{i,t} + \gamma' \boldsymbol{X}_{i,t} + \alpha_i + \varphi_t)$$

The dependent variables are the number of patent applications, patent grants, and publications by university i in academic year $t+2$. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\ faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using PPML and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and z-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

	(1)	(2)	(3)
Dep. Variable	$\#\ patent_{apply,t+2}$	$\#\ patent_{grant,t+2}$	$\#\ publication_{t+2}$
$GASB$	0.056	0.050	-0.038**
	(0.92)	(0.83)	(-2.21)
Controls	Y	Y	Y
Year FE	Y	Y	Y
College FE	Y	Y	Y
Dep. Mean without log	16	16	530
Pseudo R^2	0.856	0.865	0.984
No. of colleges	174	171	199
No. of observations	1,740	1,710	1,996

Table C8

Robustness Check: Research Output Efficiency with a Two-Year Lag

This table reports a robustness test that extends the lag between research expenditures and research output from one year in the main analysis to two years. Research efficiency is measured by matching research expenditures in academic year t with research output in academic year $t+2$. The dependent variables are the number of patent applications in year $t+2$ per million dollars of research expenditures in year t, the number of patent grants in year $t+2$ per million dollars of research expenditures in year t, and the natural logarithm of publications in year $t+2$ per million dollars of research expenditures in year t. The treatment group consists of public universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. The control group comprises private not-for-profit universities that were classified as Research I or Research II institutions in the 2000/01 Carnegie Classification. Control variables include $Size$, $Ln(\#\,faculty)$, $Ln(GDP)$, $Ln(Pop)$, $Ln(total_tax)$, $Ln(higher_edu_exp)$, and $Gov_balance$. All specifications are estimated using OLS and include controls and fixed effects for university and academic year. Heteroscedasticity-consistent standard errors are two-way clustered by state and academic year, and t-statistics are shown in parentheses. * p<0.1; ** p<0.05; *** p<0.01. Variable definitions are provided in Appendix C.

Dep. Variable	(1) $\#\,patent_{apply,t+2}/RE_{million,t}$	(2) $\#\,patent_{grant,t+2}/RE_{million,t}$	(3) $Ln(\#\,publication_{t+2}/RE_{million,t})$
$GASB$	0.071***	0.063**	0.128***
	(3.61)	(2.34)	(4.28)
Controls	Y	Y	Y
Year FE	Y	Y	Y
College FE	Y	Y	Y
Dep. Mean without log	0.110	0.111	20.155
Within R^2	0.004	0.003	0.015
No. of colleges	216	216	188
No. of observations	2,160	2,160	1,932

Online Appendix D: The Proof of Lemmas and Proposition in Appendix A

D.1 Proof of Lemma 1

Lemma 1. In the optimal incentive-compatible mechanism,

$$U_H^{\mathrm{SB}} = 0,$$

and

$$U_L^{\mathrm{SB}} = (\theta_H - \theta_L)x_H^{\mathrm{SB}} > 0.$$

Proof. Define

$$\Delta\theta \equiv \theta_H - \theta_L > 0.$$

The low-cost type's incentive-compatibility constraint is

$$t_L - \theta_L x_L \geq t_H - \theta_L x_H.$$

Using $U_L = t_L - \theta_L x_L$ and $U_H = t_H - \theta_H x_H$, the right-hand side can be written as

$$t_H - \theta_L x_H = U_H + \Delta\theta x_H.$$

Therefore,

$$U_L \geq U_H + \Delta\theta x_H.$$

Now consider the high-cost type's participation constraint. Suppose that

$$U_H > 0.$$

Then the inequality above implies $U_L > 0$. The principal could reduce both transfers by the same small amount $\varepsilon > 0$:

$$t_L{}' = t_L - \varepsilon, \qquad t_H{}' = t_H - \varepsilon.$$

This reduces both utilities by the same amount, so the incentive-compatibility constraints are unchanged. For a sufficiently small ε, both types still prefer participating. The principal pays less, so the original contract cannot be optimal. Hence,

$$U_H^{\mathrm{SB}} = 0.$$

Next, suppose that the low-cost type's incentive-compatibility constraint is slack:

$$U_L > U_H + \Delta\theta x_H.$$

Because $U_H^{\mathrm{SB}} = 0$ and $x_H^{\mathrm{SB}} > 0$, the low-cost type has strictly positive utility. The principal can therefore reduce t_L slightly. The low-cost type still participates, and its incentive-compatibility constraint remains satisfied because it was initially slack. Reducing t_L also makes the low-cost contract less attractive to the high-cost type, so the high-cost incentive-compatibility constraint is not tightened. The principal again pays less, contradicting optimality.
Therefore, the low-cost incentive-compatibility constraint must bind:

$$U_L^{\mathrm{SB}} = U_H^{\mathrm{SB}} + \Delta\theta x_H^{\mathrm{SB}}.$$

Using $U_H^{\mathrm{SB}} = 0$,

$$U_L^{\mathrm{SB}} = \Delta\theta x_H^{\mathrm{SB}} = (\theta_H - \theta_L)x_H^{\mathrm{SB}}.$$

Because $\theta_H - \theta_L > 0$ and $x_H^{\mathrm{SB}} > 0$,

$$U_L^{\mathrm{SB}} > 0.$$

D.2 Proof of Lemma 2

Lemma 2. Under complete information,

$$U_L^{\mathrm{FB}} = U_H^{\mathrm{FB}} = 0.$$

Proof. When θ is observable, the principal knows the university's type and does not need incentive-compatibility constraints.

For each type $i \in \{L, H\}$, participation requires

$$t_i - \theta_i x_i \geq 0.$$

At the optimum, this constraint binds. If it did not bind, the principal could reduce t_i while leaving x_i unchanged, and the university would still participate. Therefore,

$$t_i^{\mathrm{FB}} = \theta_i x_i^{\mathrm{FB}}.$$

The university's utility is then

$$U_i^{\mathrm{FB}} = t_i^{\mathrm{FB}} - \theta_i x_i^{\mathrm{FB}} = 0.$$

Hence,

$$U_L^{\mathrm{FB}} = U_H^{\mathrm{FB}} = 0.$$

D.3 Proof of Proposition 1

Proposition 1. *Before GASB 34/35, public universities have greater expected informational rent than private universities.*

$$R_{Pub} > R_{Priv}.$$

Proof. In sector s, the probability of the low strategic-reporting-cost type is λ_s. Expected informational rent is

$$R_s = \lambda_s U_L^{\mathrm{SB}} + (1 - \lambda_s) U_H^{\mathrm{SB}}.$$

By Lemma 1,

$$U_H^{\mathrm{SB}} = 0,$$

and

$$U_L^{\mathrm{SB}} = (\theta_H - \theta_L) x_H^{\mathrm{SB}}.$$

Therefore,

$$R_s = \lambda_s (\theta_H - \theta_L) x_H^{\mathrm{SB}}.$$

For public universities,

$$R_{\mathrm{Pub}} = \lambda_{\mathrm{Pub}} (\theta_H - \theta_L) x_H^{\mathrm{SB}}.$$

For private universities,

$$R_{\text{Priv}} = \lambda_{\text{Priv}}(\theta_H - \theta_L)x_H^{\text{SB}}.$$

Subtracting gives

$$R_{\text{Pub}} - R_{\text{Priv}} = (\lambda_{\text{Pub}} - \lambda_{\text{Priv}})(\theta_H - \theta_L)x_H^{\text{SB}}.$$

By assumption,

$$\lambda_{\text{Pub}} > \lambda_{\text{Priv}}.$$

Also, $\theta_H - \theta_L > 0$ and $x_H^{\text{SB}} > 0$. Hence,

$$R_{\text{Pub}} - R_{\text{Priv}} > 0.$$

Therefore,

$$R_{\text{Pub}} > R_{\text{Priv}}.$$

The result does not come from uncertainty about whether a university is public or private. The difference comes from the assumed pre-GASB sectoral difference in the likelihood of being a low strategic-reporting-cost type.

Online Appendix E: The Proof of Lemmas and Proposition in Appendix B

E.1 Lemma 1

Lemma 1. Given belief $\hat{\alpha} = \alpha(g)$, the government's optimal grant satisfies

$$S'(g) = -1 - \frac{v_{G\alpha}}{v_{GG}}\,\alpha'(g).$$

Proof. Given belief $\hat{\alpha} = \alpha(g)$, the government solves

$$\max_{S \geq 0}\ v(g + S; \hat{\alpha}) - \kappa S.$$

The first-order condition (FOC):

$$v_G(g + S; \hat{\alpha}) = \kappa. \qquad (1)$$

Taking the total differential of (1) with respect to g and using $\hat{\alpha} = \alpha(g)$ yields

$$v_{GG}(1 + S'(g)) + v_{G\alpha}\,\alpha'(g) = 0 \Rightarrow S'(g) = -1 - \frac{v_{G\alpha}}{v_{GG}}\,\alpha'(g). \qquad (2)$$

Thus, the effect of private donations on public funding consists of a mechanical substitution term (-1) and a signaling term $-\frac{v_{G\alpha}}{v_{GG}}\alpha'(g)$.

E.2 Lemma 2

Lemma 2. In any separating equilibrium with $g'(\alpha) > 0$, the donor's contribution satisfies

$$c'(g) = \gamma\, v_G(G; \alpha)\,\frac{v_{G\alpha}}{|\, v_{GG}\,|}\,\alpha'(g).$$

Proof. Anticipating $S(g)$, the donor chooses g to solve

$$\max_{g \geq 0}\ -c(g) + \gamma\, v(g + S(g); \alpha).$$

FOC (interior):

$$-c'(g) + \gamma\, v_G(G; \alpha)\,(1 + S'(g)) = 0. \qquad (3)$$

To substitute the government's response $S'(g)$ into (3), we first rewrite the term $-\frac{1}{v_{GG}}$ in equation (2). Since public good exhibits diminishing marginal utility,

$$v_{GG} < 0,$$

it follows that

$$-\frac{1}{v_{GG}} = \frac{1}{|\, v_{GG}\,|} \text{ because } |\, v_{GG}\,| = -v_{GG}.$$

Using this identity, equation (2) can be written as

$$1 + S'(g) = \frac{v_{G\alpha}}{|\, v_{GG} \,|}\, \alpha'(g).$$

Substituting this expression into (3) yields the local incentive-compatibility (IC) condition:

$$c'(g) = \gamma\, v_G(G;\alpha)\, \frac{v_{G\alpha}}{|\, v_{GG} \,|}\, \alpha'(g). \qquad (4)$$

Since v_G and $v_{G\alpha}$ are increasing in α, (4) satisfies the single-crossing property; thus, a monotone separating strategy $g'(\alpha) > 0$exists (and beliefs invert $g \mapsto \alpha$).

E.3 Proposition 1

Proposition 1. *In any separating PBE with $g'(\alpha) > 0$, the government's optimal grant increases with the private contribution if and only if*

$$v_{G\alpha}\, \alpha'(g) > |\, v_{GG} \,|. \qquad (5)$$

Equivalently, $S'(g) > 0$.

Proof. By Lemma 2, a separating PBE with a strictly increasing contribution strategy $g(\alpha)$ exists. We therefore focus on such equilibria and characterize the government's grant response to g.

From Lemma 1,

$$S'(g) = -1 - \frac{v_{G\alpha}}{v_{GG}}\, \alpha'(g).$$

We seek conditions under which $S'(g) > 0$. Rearranging the inequality:

$$S'(g) > 0 \Leftrightarrow -1 - \frac{v_{G\alpha}}{v_{GG}}\, \alpha'(g) > 0,$$

which is equivalent to

$$-\frac{v_{G\alpha}}{v_{GG}}\, \alpha'(g) > 1.$$

we rewrite the left-hand side as

$$-\frac{v_{G\alpha}}{v_{GG}}\, \alpha'(g) = \frac{v_{G\alpha}}{|\, v_{GG} \,|}\, \alpha'(g).$$

Thus, the inequality becomes

$$\frac{v_{G\alpha}}{|\, v_{GG} \,|}\, \alpha'(g) > 1.$$

Multiplying both sides by $|\, v_{GG} \,| > 0$ yields

$$v_{G\alpha}\,\alpha'(g) > |\,v_{GG}\,|.$$

Therefore,

$$S'(g) > 0 \Leftrightarrow v_{G\alpha}\,\alpha'(g) > |\,v_{GG}\,|.$$

Online Appendix F: Economic Intuition underlying Informational Rent

Economic rent is the portion of a payment that exceeds the recipient's opportunity cost. The same definition covers factor rent and informational rent, but the source of the excess payment differs. Factor rent reflects scarcity in the set of productive inputs. Informational rent reflects a restriction on the principal's ability to observe and contract on the agent's private information.

Informational Rent

Informational rent arises because the agent knows a payoff-relevant parameter that the principal cannot observe or verify.

Suppose the principal requires an agent to provide a fixed quantity q > 0. The agent's cost is

$$C(\beta, q) = \beta q$$

where the cost parameter is privately observed by the agent:

$$\beta \in \{\beta_L, \beta_H\}, \beta_L < \beta_H$$

The low-cost type has opportunity cost $\beta_L q$, while the high-cost type has opportunity cost $\beta_H q$. Let t_j denote the transfer assigned to report i. The utility of true type i from selecting the contract intended for report j is

$$U_i(j) = t_j - \beta_i q$$

Standard IC and IR Result

For a fixed quantity q, the standard incentive-compatibility and individual-rationality argument implies that the two reports must carry the same transfer and that the high-cost type's participation constraint binds at the transfer-minimizing optimum (Laffont and Tirole, 1993; Laffont and Martimort, 2002). Thus,

$$t_L = t_H$$

and the binding high-cost participation constraint gives

$$t_L = t_H = \beta_H q$$

The high-cost type consequently receives zero rent, $U_H = 0$, whereas the low-cost type receives

$$R^I = U_L = (\beta_H - \beta_L)q > 0$$

The low-cost type supplies the same fixed quantity and no additional productive input. Its surplus arises because the principal must cover the high-cost claim without observing the agent's true cost.

Complete Information Benchmark

If β were observable, the principal could condition the transfer on the realized cost:

$$t(\beta) = \beta q$$

Each type would receive exactly its opportunity cost, so

$$U_L = U_H = 0$$

Using SB for the incomplete-information second-best mechanism and FB for the complete-information first-best benchmark, the rent comparison is

$$R^{\mathrm{SB}} = (\beta_H - \beta_L)q > 0$$

$$R^{\mathrm{FB}} = 0$$

Expected Informational Rent

Let λ denote the probability that the agent is the low-cost type:

$$\Pr(\beta = \beta_L) = \lambda, \Pr(\beta = \beta_H) = 1 - \lambda$$

Only the low-cost type receives rent under incomplete information. Expected rent is therefore

$$E(R^{\mathrm{SB}}) = \lambda(\beta_H - \beta_L)q$$

While

$$E(R^{\mathrm{FB}}) = 0$$

Expected informational rent increases with the probability of the favorable type, the cost difference between types, and the scale of the required transaction:

$$\frac{\partial E(R^{\mathrm{SB}})}{\partial \lambda} = (\beta_H - \beta_L)q > 0$$

$$\frac{\partial E(R^{\mathrm{SB}})}{\partial (\beta_H - \beta_L)} = \lambda q > 0$$

$$\frac{\partial E(R^{\mathrm{SB}})}{\partial q} = \lambda(\beta_H - \beta_L) > 0$$