The economic consequences of GASB financial statement disclosure

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ABSTRACT

We examine whether Governmental Accounting Standards Board (GASB) financial statement disclosure alters local governments' economic decision-making. To do so, we exploit a recent GASB standard that eliminated differences in the disclosure requirements for county governments' pension obligations. The standard, GASB 68, had no effect on pension economics or the annual budget—it affected only whether and how information was presented on GASB financial statements. Using a broad hand-collected dataset, we document that counties that did not disclose information about their pension obligations before GASB 68 reduced public welfare expenditures, employment, and salary expenses relative to those that had disclosed such information. We conduct extensive field research and employ several cross-sectional analyses to conclude that the effects we document are in part driven by increased awareness of the financial costs of pension obligations by newly disclosing counties.

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1. Introduction

Whether financial reporting disclosure mandates lead to changes in the economic decision-making of governmental entities is an important but unanswered question in the accounting literature. In a frictionless world, the disclosure of an existing obligation in GASB financial reports should have no real effects on managerial decision-making. This expectation is especially applicable in the public sector because municipalities often rely more heavily on the cash budget than on disclosed items in the GASB report to manage the annual financial cycle (e.g., Costello et al., 2017). However, some studies suggest that governments do make economic decisions using information contained in GASB financial statements (e.g., Naughton et al., 2015; Baber et al., 2021). Thus, it is ex ante unclear whether governments make decisions based on changes to GASB disclosure requirements.

Our study examines the real effects of disclosure in the governmental setting using the implementation of GASB 68.[1] Three aspects of this standard facilitate our analysis. First, GASB 68 focuses on the reporting of pension obligations, which are among the most economically significant obligations for many local governments (e.g., Bonsall et al., 2019; Mortimer and Henderson, 2014). Second, the standard has no effect on the economics of the pension plan. Third, the standard's impact varies based on one

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aspect of the pension plan, which allows us to employ a difference-in-differences research design to isolate the effect of financial statement disclosure. Before GASB 68, counties that participated in shared pension plans administered by another governmental entity (e.g., the state) did not disclose pension obligations, whereas all other counties disclosed the net pension deficit in the supplementary information section of their annual reports. GASB 68 eliminated these reporting differences across pension plan type by requiring all counties to disclose and recognize pension information on the same basis in their financial reports.

From a research design perspective, our use of counties that differed only with respect to the pre−GASB 68 disclosure of their pension obligation allows us to control for macroeconomic trends. In addition, because the structure of each pension plan was determined decades before GASB, accounting concerns did not play a role in the county's selection of a specific pension plan. To further mitigate concern that other county-level factors could influence our results, we use an entropy-matching procedure that ensures covariate balance across a comprehensive set of economic and pension variables for the two county types. Our empirical approach also uses county-level fixed effects, which absorb the effects of differential non-time-varying county attributes, such as employment level. We use data primarily extracted from Census Bureau reports and hand-collected from GASB financial statements for 432 unique counties across 45 states over the four-year window surrounding GASB 68's implementation, which was effective for fiscal years beginning after June 15, 2014. Within this sample, 50% of counties did not disclose liability information for their primary defined benefit plan in their audited financial reports prior to GASB 68's implementation.

We find that when counties disclose an underfunded defined benefit position for the first time, relative to already disclosing counties, they experience a differential reduction in payroll expenses, public welfare expenses, and employee head count of approximately 2.5%, 6%, and 1.9%, respectively. These results are primarily driven by a combination of newly disclosing counties maintaining their current spending levels and other counties continuing to increase theirs. In contrast, we find no differential consequences on per capita county total tax revenues, fee revenues, miscellaneous revenues, or property tax revenues across the two types of counties. These results are consistent with several key findings from prior research and economic intuition. First, previous studies have generally found that local governments respond to fiscal shocks with expense reductions rather than revenue increases (e.g., Costello et al., 2017; Kido et al., 2012). Second, our finding that newly disclosing counties generally maintain expenses and head count at pre−GASB 68 levels aligns with the belief that hiring and pay freezes are far easier to implement in the public sector than layoffs or pay cuts.

To better understand GASB 68's reception by various stakeholders, we met with GASB directors, representatives from each of the three credit rating agencies (CRAs), and governmental financial reporting consultants. We also reviewed the comment letters submitted as part of GASB 68's enactment process and transcripts of GASB public hearings. Overall, our field research suggests that GASB 68 changed the way some counties perceived their pension arrangements, from a bill (i.e., the county only has to make an annual pension contribution and is not responsible for any pension deficit) to a liability (i.e., the county is ultimately responsible for funding the pension deficit, and the current year contribution reflects only a fraction of what is ultimately owed).[2] We leverage this insight to conduct a series of tests to provide additional context for our results.

First, we examine whether the identified shift toward fiscal austerity could be driven by contemporaneous changes in pension economics. We find no relative change in pension contributions surrounding the implementation of GASB 68 for counties with shared pension plans, indicating that the relative reduction in expenses is not due to a simultaneous need for increased pension contributions. In addition, we confirm that the actuarial changes introduced by GASB 67, which was adopted the year prior to GASB 68, do not influence our conclusions.[3] We find that GASB 67's actuarial assumption and method changes are relatively infrequent and evenly dispersed across both county types, such that our results are robust to excluding affected counties. The relative unimportance of the discount rate and actuarial cost method changes in our data is consistent with the insights shared by both practitioners we interviewed, and the information contained in the GASB 67 and 68 comment letters we reviewed.

We suggest two possible mechanisms for counties' fiscal response to GASB 68: external monitoring and managerial learning. In our setting, external monitoring is the level of financial statement scrutiny that counties face from outside stakeholders, the most salient of which is the municipal debt market (Beck, 2018). If external monitoring drives behavior, then counties facing higher external monitoring should respond to the financial statement impact of GASB 68 through choices that improve the overall appearance of their financial statements, so as to minimize the potential impact of GASB 68 on their cost of debt. Empirically, we test this mechanism through an analysis that leverages the heterogeneous role of the municipal debt market in county finances. Managerial learning implies that counties that were less informed about their share of existing pension deficits and corresponding future cash flow requirements should respond more strongly to learning about these obligations through the process of implementing GASB 68. Empirically, we test this mechanism through analyses that use a variety of proxies for the amount of "new" information imparted by the standard.

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[2] For example, a municipal accounting consultant noted that prior to GASB 68, some counties did not know they had an unfunded pension liability. Similarly, a CRA director informed us that prior to GASB 68, the counties believed that contributions were the only obligation, because often only the contribution requirements, not the pro-rata share of the unfunded pension liability, were communicated to the counties. After GASB 68, the counties' mindsets shifted, as they now had to reconcile the pension liability with expectations about future contribution requirements.

[3] GASB 67 imposed two major changes—the requirement that the discount rate be based on a blended rate that incorporated zero coupon state general obligation bonds for underfunded plans (which was required of only 14 counties in our sample) and the requirement that the entry age normal (EAN) actuarial cost method be used for valuation purposes. These technical changes are described in more detail in Section 6.2.

These two sets of analyses do not indicate that our results are driven by only one mechanism. However, our results collectively suggest that managerial learning likely played the most prominent role. From a timing perspective, the changes we document first occurred in the year when GASB 68 statements were prepared, suggesting that managers incorporated the new information as part of their financial statement planning and preparation process rather than awaiting feedback from external constituents after their review of audited post−GASB 68 financial statements. Our cross-sectional tests show that the fiscal importance of the new information (e.g., the size of the unfunded pension liability relative to contribution requirements) and the likelihood that the new disclosure requirements represented new information (e.g., because of the dearth of pre−GASB 68 pension disclosures) accentuate the county response to the standard. While the cross-sectional tests that rely on the fiscal importance of the newly disclosed pension obligation could capture increases in either internal or external learning from constituents regarding shared pension liabilities, our cross-sectional tests that rely on measures that represent new information more directly relate to managers' awareness and/or ability, and, as such, are more likely to reflect only internal learning. However, our analyses are limited by the fact that we measure ex ante managerial awareness with noise, and we caution readers to interpret our cross-sectional results accordingly.

Our research should interest scholars, practitioners, and regulators. First, we add to the academic literature on the economic consequences of governmental accounting by documenting how GASB financial statement disclosure requirements alter local governments' economic decisions (e.g., Baber and Gore, 2008; Beck, 2018; Khumawala et al., 2020; Baber et al., 2021). We also complement several recent studies that examine differing aspects of the GASB 67/68 reporting regime for governmental pensions (e.g., Fan, 2020; Allen and Petacchi, 2022; Anantharaman and Chuk, 2022). Our evidence that pension reporting changes have non-pension consequences is unique to the extant governmental reporting literature. This is an important feature of our work because it highlights the interconnected nature of governmental pension reporting and local government economic decision making.

More broadly, our findings contribute to the academic literature that examines the real effects of financial statement disclosure (e.g., Bonaime, 2015; Kanodia and Sapra, 2016; Baik et al., 2022). Prior studies have generally examined how corporate choices are shaped by FASB and SEC accounting disclosure requirements. Unlike these studies, we provide evidence of a relation between disclosure regulation and economic decision-making in the governmental setting. This feature of our study is uniquely interesting as governmental accounting does not have the same essential and well-understood role in valuation and contracting as corporate accounting (e.g., Barth et al., 2001; Kothari et al., 2010).

From a regulator perspective, our paper examines the unintended economic consequences of major changes in pension funding and accounting requirements. Related prior studies have examined how managers exploit private sector pension accounting and funding reforms to improve earnings performance or to redirect internal capital to shareholders (e.g., Dambra, 2018; Naughton, 2019a). By contrast, our study finds that GASB 68 led managers to exercise fiscal prudence by allocating relatively less capital to public welfare and labor expenses. Our study has important implications for the design of GASB standards, both in the types of new standards that are most appropriate and the composition of those standards. For example, our findings suggest that GASB statements should continue to adhere to accrual accounting principles rather than shift to the cash accounting principles of the annual budget.

Lastly, our findings also have substantial implications for practioners. A common perception among practitioners is that economic decisions in the governmental sector are driven almost entirely by budget constraints, with GASB statements playing close to no role (e.g., Frank and Gianakis, 2010). Our observed change in managerial behavior following major financial reporting changes suggests that financial statements are more salient than many governmental practitioners would believe. While GASB's mission is to provide information to financial statement *users* (GASB, 2020), we provide novel evidence that changes in GASB disclosure requirements may also inform financial statement *preparers*, and influence their economic decision making.

2. Institutional background

In 1911, Massachusetts became the first state to offer a defined benefit pension plan to its general state employees. Over the next 40 years, most state and local governments adopted similar arrangements. By 2018, 83% of full-time public sector employees participated in a defined benefit pension plan.[4] Today, defined benefit plans' economic significance is reflected by their coverage of more than 25 million participants and annual pension payments in excess of $300 billion.

Local governments fund pension benefits using either a segregated or a pooled approach. Under the segregated approach, pension benefits are provided through specific assets set aside only for the contributing entity's employees. The Cook County (Illinois) Pension Fund, founded in 1915, applies this approach and is administered as a single employer plan. Under the pooled approach, benefits are provided through a pension arrangement administered by another entity (typically the state) that pools the obligations and contributions of each contributing entity.[5] The Illinois Municipal Retirement Fund, founded in

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[4] In contrast, only 16% of full-time employees in the private sector participated in a defined benefit pension plan in 2018.

[5] All multi-employer plans (i.e., both public and private sector) create a disconnect between an individual contributing entity's ownership of the unfunded liability and its ability to set contribution rates. However, the nature of public sector multi-employer plans does not generate the same "free rider" incentives found in private sector plans, which are chronically underfunded (e.g., Naughton, 2018; Naughton, 2019b). Counties that participate in shared plans are required to make pension contributions that are set by the sponsoring entity. If a county does not make the assessed contribution, it can be assessed a substantial withdrawal liability and possibly forced into bankruptcy to ensure payment. We are not aware of situations where participating counties have avoided assessed contributions, but they have occurred with private sector multi-employer plans.

1941, is an example of a state-administered cost-sharing multi-employer defined benefit pension plan where assets are pooled and made available to cover the benefits of employees of numerous local municipalities.[6] The adoption of these different approaches was largely influenced by the expected administration costs of each plan at the time of its adoption in the early to mid-twentieth century. Our data show that the number of counties with each type of plan is currently equal and that the two county groups are similar in economic size and types of benefits provided.

Until GASB 67 and 68, public sector accounting for pension plans had been governed since 1994 by GASB 25, *Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans*, and GASB 27, *Accounting for Pensions by State and Local Governmental Employers*. These standards provide guidance on how to measure, value, and disclose pension obligations. The application of these standards differs based on the organization of the defined benefit pension plan offered. In our study, we refer to counties that participate in a pooled pension plan as *PMEPP* (Pooled Multi-Employer Pension Plan), and to those that participate in any other arrangement as *OPP* (Other Pension Plan).[7] These are the two groups of counties across which the application of GASB standards differed. *OPP* counties were required to disclose the net pension liability in the supplementary information (i.e., footnotes) of their comprehensive annual financial reports (CAFRs), whereas *PMEPP* counties were not. Instead, the aggregate obligation of all participating *PMEPP* counties was reported by the sponsoring entity (typically the state). To illustrate this point, suppose a state-administered plan had 100 participating counties, each with a net pension liability of $1. In this scenario, although each county's financial reports would not disclose the approximate $1 net pension liability, those of the state would disclose a net pension liability of $100.

GASB 25 and GASB 27 were succeeded by GASB 67, *Financial Reporting for Pension Plans*, and GASB 68, *Accounting and Financial Reporting for Pensions*, effective for fiscal years beginning after June 15, 2013, and 2014, respectively. GASB 67 introduced several measurement changes to the valuation of pension obligations, most notably for the discount rate and the actuarial cost method.[8] From the perspective of our study, the most pertinent change introduced by GASB 68 is its elimination of differences in disclosure requirements for pension obligations across the two pension plan types (i.e., *PMEPP* and *OPP*). Whereas previously only *OPP*s disclosed net pension liability information, GASB 68 requires the same reporting of the county's proportionate share of the net pension liability for *PMEPP*s. Further, all plan types must now recognize pension obligations on the Statement of Net Position. The Statement of Net Position is the accrual-basis statement presented to measure the local government's net economic sources as of the end of the fiscal year. This is equivalent to a balance sheet for private sector firms. Even though GASB 68 generates changes in financial reporting, it has no direct effect on the funding requirements of the underlying pension plan.

Excerpts from the disclosed information for *PMEPP* and *OPP* counties are provided in Appendices C1 and C2, respectively. Appendix C1 illustrates the disclosure for Cumberland County, Maine, a county that participates in a state-administered cost-sharing multiple-employer defined benefit pension plan (i.e., *PMEPP*). The excerpts show that Cumberland County provided information about its status as a participating local district and its obligation to continue to fund the plan before GASB 68, and it began reporting its proportionate share of the net pension liability only in post−GASB 68 financial statements. Appendix C2 illustrates the disclosure for Kent County, Delaware, a county that administers a single employer defined benefit pension plan (i.e., *OPP*). In contrast to Cumberland County, Kent County disclosed the amount of unfunded actuarial accrued liability both before and after GASB 68.

3. Literature review and hypothesis development

Several recent studies have examined how governments exploit discretion in GASB financial reporting rules. Kido et al. (2012) document that both the liability associated with compensated absences and unfunded pension liabilities are lower during an election year, suggesting that local governments make opportunistic GASB reporting choices. Beck (2018) and Bonsall et al. (2019) also find that local governments exploit accounting and actuarial discretion in financial reporting prior to bond issuances, consistent with opportunism for economic gain through more favorable capital market outcomes. Naughton et al. (2015) find that the use of discretion in reporting GASB pension liabilities is negatively associated with state government decisions to increase taxes and cut spending.

A number of recent studies examine the consequences of GASB standards on financial reporting choices and financing outcomes. Khumawala et al. (2020) provide evidence that the usage of derivative instruments changed after changes in the financial reporting requirements for derivatives were modified. Fan (2020) provides evidence that increases in pension liabilities generated by changes in GASB reporting had spillover effects on house prices, and Anantharaman and Chuk (2022) show that these same increases have consequences for pension funding decisions.

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[6] The Illinois Municipal Retirement Fund has more than 410,000 members and serves about 3000 different units of government, including towns and villages, libraries and park districts, and counties and school districts (nonteaching personnel). It has a funded status of about 93% and nearly $40 billion in assets as of 2018.

[7] *OPP*s include county-administered cost-sharing multi-employer pension plans, agent multi-employer pension plans, and county-administered single-employer pension plans. An agent multi-employer pension plan maintains separate accounts so that each employer's share of the pooled assets is legally available to pay benefits to only its employees. In cost-sharing multi-employer pension plans, the assets can be used to pay the benefits of any participating employer.

[8] We describe and analyze these changes, which were effective for the year prior to GASB 68, in Section 6.2, to provide assurance that these changes do not influence our conclusions about GASB 68.

We extend the existing literature by isolating the disclosure-related component of a recent GASB standard and examining whether this component alters counties' expenditure and revenue choices that are unrelated to the new standard (i.e., whether there are spillover effects on non-financing decisions). Prior studies provide evidence that recent FASB disclosure regulations have influenced economic decisions at corporate entities. For instance, mandating segment disclosure led managers to increase their capital allocation efficiency, by improving either external monitoring or their firms' internal information environments (e.g., Cho, 2015). More broadly, disclosure's real effects are often based on the notion that managers are receiving information that changes decision-making, either because the inputs are more accurate or because the manager acquires a new perspective on how to interpret existing inputs. Shroff (2017) proposes a learning effects hypothesis for mandated disclosure, where managers with limited information sets collect and process information, which in turn informs managers about the future cash flow consequences of their decisions. The learning effects hypothesis is one explanation for why disclosure (by itself) can stimulate real effects.

In the GASB 68 setting, our field evidence (described in more detail in Section 6.1) indicates that the new disclosure requirement increased awareness and clarity regarding the ownership and future funding requirements of pension obligations at the local government level. In other words, the new requirement changed the information set of county managers who did not previously understand the future cash flow requirements of their pension plan (i.e., through managerial learning of higher future contribution requirements). Along with managers, the new disclosures may be informative to the county's stakeholders, which could encourage managers to respond as if the county incurred a negative fiscal shock. Overall, we suggest that this increased clarity and awareness meant that GASB 68 generated increased concern from external constituents and county government about future pension funding requirements. Accordingly, we propose that a county's response to GASB 68's disclosure requirement would approximate its response to a negative fiscal shock. Our first hypothesis focuses on expenditures (stated in the affirmative):

H1. *Local governments that participate in shared pension plans will reduce expenditures in response to GASB 68's financial statement disclosure requirement.*

The relation between fiscal shocks and revenue adjustments is less certain. Naughton et al. (2015) find that state pension accounting discretion is negatively associated with both increasing taxes and cutting expenditures, suggesting that accounting regulations and fiscal tax policy are codetermined. However, since municipality revenues are notoriously difficult to adjust, particularly in the short term (e.g., Costello et al., 2017), symmetrical responses to the new disclosures are unlikely. For ease of exposition, we again state our second hypothesis in the affirmative:

H2. *Local governments that participate in shared pension plans will increase revenue in response to GASB's 68 financial statement disclosure requirement.*

Two recent papers examine the effects of GASB 67 and 68 in ways that are distinct from our approach. Allen and Petacchi (2022) provide evidence that states opposed to the accounting standards' reform were more likely to cut pension benefits after GASB 67 and 68 took effect. Anantharaman and Chuk (2022) find that governmental application of GASB 67 and 68 leads to increased pension contributions and reduced pension benefits. Our paper is distinct from these studies in several ways. First, while the aforementioned work explores the new standards' impact on pension funding strategies at the state level, we focus on non-pension real effects at the county level. Our treated counties have little to no control over the administration and actuarial discretion of state-sponsored pension plans, so we do not consider the same outcomes. Second, our paper isolates the effect of pension plan information disclosure from other contemporaneous changes introduced by GASB 67 and 68. We do this by exploiting the different reporting requirements for specific pension plans in the pre–GASB 68 period, which allows us to distinguish disclosure's differential effect for treated municipalities, which is not possible at the state level.

4. Data, research design, and descriptive statistics

4.1. Sample collection

Our study uses county-level economic, demographic, and financial statement information collected from several different sources. We start with the annual population survey administered by the Census Bureau (CB) to identify all counties with county-level governments and populations greater than 100,000.[9] We exclude counties in Connecticut, Massachusetts, Rhode Island, and Vermont, since they do not have county-level governments.[10] Next, we collect financial information from the CB's Annual Survey on the Census of Governments (ASCG), which includes information on county-level revenues, expenses, and debt. More specifically, we utilize ASCG's data to collect annual payroll expenses, welfare-related expenses, total debt outstanding, total revenues, tax revenues, fee revenues, miscellaneous revenues, and property taxes.

We add local employment and payroll information from the CB's Annual Survey of Public Employment and Payroll, unemployment data from the Bureau of Labor Statistics survey of Local Area Unemployment, business establishment data from the CB survey of County Business Patterns, county-square-footage data from the 2010 CB Survey on Square Footage, and

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[9] County-level population data is drawn from CB's annual population survey (https://www.census.gov/programs-surveys/popest.html).

[10] We also exclude the five boroughs of New York City since these counties do not have individual financial reports.

personal income data from the Bureau of Economic Analysis. Please refer to Appendix A for details regarding source documentation of the variables used in our empirical analysis.

Finally, we gather information for each county's pension plans from county-level financial statements found on the Electronic Municipal Market Access database (EMMA) or the county's website. If we could not locate an annual audit report or a CAFR from these sources, we contacted the county treasurer to request an electronic copy. For each county in the sample, we hand-code the net pension liability and pension plan contributions for calendar years 2013 through 2016. In addition, we hand-code whether a county adopted certain pension actuarial changes related to GASB 67 (see Section 6.2 for more detail). We also classify each pension plan and aggregate the net pension liabilities across the *PMEPP* and *OPP* classifications. If a county reported both types of pension plan, we classify the county as *PMEPP* or *OPP* based on its largest net pension liability. For consistency across each county time-series, we apply the PMEPP or OPP designation based on the pension funding position for the first−GASB 68 fiscal year. We drop counties if we cannot identify at least one pre− and post−GASB 68 observation. Our final sample of 1,700 county years (432 counties) consists of those observations with complete information on pension obligations (hand-collected pension liabilities and contributions), non-pension debt obligations, full-time employment, and control variables.

4.2. Identification strategy and research design

We examine whether the mandate to disclose pension obligations had real effects on municipalities' operations. In regulatory studies, it is often difficult to isolate the impact of a regulatory change from contemporaneous economic effects (Leuz and Wysocki, 2016). Even though pension liabilities constitute large obligations for municipalities, a plausible alternative explanation is a time-series increase in expected future pension funding over our sample period, leading to a decline in other discretionary funds.

GASB 68 provides a unique setting to understand how disclosure regulation could precipitate a decline in municipal spending and head count for two reasons. First, before GASB 68, disclosure requirements varied by pension plan type. Counties that participate in shared plans with their state (i.e., *PMEPP*) did not disclose pension liabilities in their financial reports before the standard's implementation. Although each county is ultimately responsible for the future funding of its pension promises, *PMEPP* pension liabilities were disclosed only at the state level. In contrast, before GASB 68, *OPPs* disclosed the net pension deficit in their annual reports' supplementary information. GASB 68 mandated that both *PMEPP* and *OPP* counties disclose and recognize the net pension liability on their financial statements. As a result, plans that were reported differently before GASB 68 (i.e., *PMEPP* versus *OPP*) were subject to the same reporting practices after its implementation. Second, because the structure of each municipality's pension plan was determined decades before our event window, we can separate the initial selection of pension plan structure from current operating decisions.

We use a difference-in-differences research design to isolate the effect of disclosure, and we attribute the differential change in each outcome variable for *PMEPP* relative to *OPP* as the incremental effect of disclosure. We investigate the economic effects of GASB financial statement disclosure using the following specification:

$$Outcome_{it} = \beta_0 + \beta_1 Post\ GASB\ 68\ Ind._{it} + \beta_2 Post\ GASB\ 68\ Ind._{it} \times PMEPP\ Ind._{i} + \beta Controls_{it} + \phi County_i + \varepsilon_{it} \qquad (1)$$

The economic outcome variables encompass broad measures of expenses (welfare expenses, salary expenses, and employee head count) and revenues (tax revenues per capita, fee revenues per capita, miscellaneous revenues, and property taxes per capita) to capture each county's real operating activities. In our main analysis, we focus on the real effects of GASB 68 on broad measures of expenses and revenue, and not on changes in actuarial assumptions or pension contributions as these items can only be adjusted at the state level.[11] In additional tests (see Section 5.2), we supplement our main expense and head count variables by hand-collecting employee counts (*Ln(CAFR FTE)*) and public welfare expenditures from county CAFRs. The hand-collected public welfare expenditures and headcount provide us with two data sources for each of our expense variables of interest (i.e., payroll, head count, and public welfare expenses). We specifically examine headcount and payroll outcomes because reducing (or stabilizing) these items relative to other budget items has a multiplier effect by (1) improving the fiscal budgeting of a local government by reducing salary expenditures and (2) lowering future pension liabilities, since either there are fewer participants or eligible participants have lower compensation bases in the pension system.

We employ a four-year window surrounding GASB 68's implementation, effective for the fiscal years beginning after June 15, 2014. *Post GASB 68 Ind.* is an indicator variable equal to 1 for fiscal years ending later than or equal to June 30, 2015, and 0 otherwise. The coefficient on *Post GASB 68 Ind.* captures two disparate effects: the recognition-based effects of GASB 68 and contemporaneous economic changes (at the local level) that occur concurrently with the passage of GASB 68. *PMEPP Ind.* is an indicator variable equal to 1 if a county participates in *PMEPPs* and these plans constitute a majority of the county's net

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[11] This aspect of shared pension plans is supported both in the comment letters, discussion with practitioners, and in state-level retirement system documents that we reviewed. For example, as cited by the Arizona State Retirement System, "GASB 68 accounting and reporting changes do not alter the actual pension payments to be made. GASB 68 amounts recorded to your financial statements are "paper" entries used for accounting purposes only. Employer contribution requirements will continue to be based on the ASRS's actuarial funding methodology, the objective of which is to maintain reasonably stable contribution rates and to achieve an ultimate funded status of 100% over time."

Table 1
Full sample descriptive statistics.

Variable	N	Q1	Mean	Median	Q3	σ
PMEPP Ind.	1700	0.00	0.50	0.00	1.00	0.50
Post GASB 68 Ind.	1700	0.00	0.50	1.00	1.00	0.50
Tax Rev/Capita	1700	0.29	0.54	0.41	0.64	0.40
Fee Rev/Capita	1694	0.08	0.24	0.15	0.26	0.33
Misc. Rev/Capita	1699	0.03	0.06	0.05	0.08	0.06
Property Taxes/Capita	1700	0.20	0.37	0.31	0.45	0.24
Welfare Exp/Capita	1548	0.01	0.13	0.06	0.21	0.16
Salary Exp/Capita	1447	0.17	0.41	0.25	0.43	0.46
Payroll/Capita	1700	0.02	0.04	0.02	0.04	0.04
FTE	1700	928.00	3566.70	1841.50	3802.50	4934.13
Ln(FTE)	1700	6.83	7.59	7.52	8.24	1.02
CAFR Welfare Exp/Capita	897	10.55	75.45	22.34	47.80	146.87
CAFR FTE	1187	915.00	2949.55	1579.00	3051.00	4038.63
Ln(CAFR FTE)	1187	6.82	7.48	7.37	8.02	0.95
Population	1700	156,428.50	439,773.72	249,223.50	502,964.50	526,255.20
Ln(Population)	1700	11.96	12.60	12.43	13.13	0.81
No. Establishments	1700	3215.00	10,588.45	5567.50	11,939.00	13,825.97
Ln(Estabs)	1700	8.08	8.80	8.62	9.39	0.89
Personal Income	1700	37,979.00	45,110.70	42,742.50	49,214.00	10,864.00
Ln(PI/Capita)	1700	10.54	10.69	10.66	10.80	0.22
Unemp. Rate	1700	4.90	6.25	6.00	7.30	1.95
Density	1700	225.03	692.00	367.14	765.20	881.94
Pension Contributions	1700	16.86	34.37	26.32	40.35	30.20
NPL/FTE	1700	8.63	43.12	36.38	60.6	43.66
Debt/Capita	1700	0.19	0.70	0.45	0.89	0.79

Table 1 reports the summary statistics of variables used in our analysis. Refer to Appendix A for detailed variable descriptions.

pension obligations for fiscal years ending June 30, 2015, to May 31, 2016 (Fiscal YE, 2015), and 0 otherwise. To test our hypotheses, our coefficient of interest is β_2, which accounts for the differential operating responses of majority-PMEPP counties subsequent to the new disclosure requirement. To the extent that GASB 68's disclosure requirements increase awareness of future budgetary requirements at the local level, we expect β_2 to be negative for our expense outcomes. Alternatively, if disclosure of future pension obligations motivates mangers to generate future cash flows to offset future associated costs, we would expect β_2 to be positive for our revenue outcomes.

Following prior literature (e.g., Naughton et al., 2015), we control for county-level variables that capture potentially important differences in county characteristics. Specifically, we control for county size (Ln(Population)); county density (Density); and economic conditions, including poverty rates, unemployment rates, personal income, and business activity (Poverty Rate, Unemp. Rate, Ln(PI/Capita), and Ln(Estabs)). Finally, in an attempt to isolate the disclosure change from differential pension requirements, we control for both the amount of annual contributions per capita for all county plans (Contributions) and each county's total net pension liability per employee-equivalent (NPL/FTE). Please refer to Appendix A for a detailed description of each variable deployed in Eq. (1). We also include county-level fixed effects to mitigate concerns regarding unobservable differences across PMEPP and OPP counties. Since we include county-level fixed effects, the time invariant PMEPP Ind. is omitted from Eq. (1). Our use of county-level fixed effects ensures that the average level of county attributes (e.g., employment level) will not affect our conclusions.[12] Finally, we winsorize the non-dichotomous variables at the 1% level to mitigate potential concerns from data outliers.

4.3. Descriptive statistics

The descriptive statistics in Table 1 indicate that the two categories of pension plans (i.e., PMEPP and OPP) occur with equal frequency. Half of our sample is classified as a PMEPP-majority county (PMEPP Ind. = 1), and half of our sample observations occur subsequent to GASB 68. Most county tax revenue is generated from property taxes ($370 per resident), and miscellaneous revenues constitute a small portion of operating revenues ($60 per resident, on average). From an expense perspective, the average county incurs salary expenditures of $410 and welfare expenditures of $130 per county resident, which correspond to 30% and 10% of total revenues per capita (untabulated), respectively. In our sample, the median county year employs 1,842 full-time equivalent workers and has approximately 249,000 residents, 5,600 business establishments, and an unemployment rate of 6%.

We compare counties that predominantly participate in PMEPPs (i.e., PMEPP Ind. = 1) with counties that predominantly administer or participate in OPPs (i.e., PMEPP Ind. = 0) in Table 2. OPP counties have approximately an average of $34,000 of net pension liabilities per employee, compared with $52,000 for PMEPP counties, where a positive net pension liability indicates

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[12] Our main results are qualitatively similar when we employ an ordinary least squares model omitting fixed effects.

Table 2
Descriptive statistics by plan type.

Panel A: Unweighted Sample Comparison across PMEPP and OPP Counties

Variable	PMEPP Ind. = 0		PMEPP Ind. = 1		
	Mean	Std. Dev.	Mean	Std. Dev.	Diff
Outcome Variables					
Welfare Exp/Capita	0.16	0.17	0.11	0.14	0.05***
Salary Exp/Capita	0.51	0.55	0.30	0.29	0.21***
Payroll/Capita	0.05	0.04	0.03	0.02	0.02***
Ln(FTE)	7.77	1.07	7.42	0.94	0.35***
CAFR Welfare Exp/Capita	74.15	133.83	77.09	162.02	−2.94
Ln(CAFR FTE)	7.51	0.94	7.43	0.96	0.08
Tax Rev/Capita	0.54	0.46	0.54	0.32	0.00
Fee Rev/Capita	0.26	0.35	0.23	0.31	0.03
Misc. Rev/Capita	0.06	0.05	0.07	0.06	−0.01***
Property Taxes/Capita	0.39	0.29	0.34	0.19	0.05**
Modifying Variables					
Debt/Capita	0.75	0.83	0.64	0.74	0.11
Control Variables					
Post GASB 68 Ind.	0.50	0.50	0.51	0.50	−0.01**
Ln(Population)	12.68	0.82	12.52	0.79	0.16**
Ln(Estabs)	8.86	0.88	8.74	0.88	0.12
Ln(PI/Capita)	10.70	0.22	10.68	0.22	0.02
Unemp. Rate	6.54	2.08	5.97	1.77	0.57***
Density	727.88	829.86	655.95	930.43	71.93
Pension Contributions	31.37	33.20	37.38	26.54	−6.01**
NPL/FTE	33.84	43.51	52.45	41.81	−18.61***

Panel B: Entropy-Balanced Weighted Sample Comparison across PMEPP and OPP Counties

Variable	PMEPP Ind. = 0		PMEPP Ind. = 1	
	Mean	Std. Dev.	Mean	Std. Dev.
Post GASB 68 Ind.	0.51	0.50	0.51	0.50
Ln(Population)	12.52	0.79	12.52	0.79
Ln(Estabs)	8.74	0.88	8.74	0.88
Ln(PI/Capita)	10.68	0.22	10.68	0.22
Unemp. Rate	5.97	1.77	5.97	1.77
Density	656.00	930.43	656.00	930.43
Pension Contributions	37.38	26.54	37.38	26.54
NPL/FTE	52.45	41.81	52.45	41.81

Table 2 reports the means and difference-in-means of variables used in our analyses, partitioned by whether or not the county predominately participated in a *PMEPP*. Statistical significance is determined using clustered standard errors at the county level. ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. Panel A (Panel B) provides our descriptive statistics across our unweighted sample variables (entropy-balanced weighted control variables) between *PMEPP* and *OPP* counties for our full sample. Refer to Appendix A for detailed variable descriptions.

that the pension liability exceeds the pension assets (i.e., the pension plan is underfunded). In terms of outcome variables, *OPP* counties incur higher salary and welfare expenses and have higher employee head counts. *OPP* counties also have higher property taxes per capita. Lastly, *OPP* counties have larger populations and higher unemployment rates than *PMEPP* counties.

One potential concern with our empirical analysis is that differential county characteristics result in differential operational outcomes over the sample period. This concern is somewhat mitigated by the fact that our research design employs GASB 68 as a quasi-natural experiment. We further mitigate the concern about differential county characteristics in two ways. First, we include county-level fixed effects to control for time-invariant unobservable characteristics across *PMEPP* and *OPP* counties. Second, we use entropy balancing to reweight the control sample (i.e., *OPP*) such that no significant differences exist between *PMEPP* and *OPP* counties in the distribution (i.e., means and variances) of observable county-level determinants. This form of matching retains all control sample observations while limiting bias related to nonlinear relations with underlying covariates (Hainmueller, 2012; McMullin and Schonberger, 2020). This important design feature enables us to better separate the effects of disclosure reform from correlated county and plan fundamentals.[13]

We entropy match our samples of *PMEPP* and *OPP* counties using the full set of control variables listed in Table 2 Panel A at the first and second moments to mitigate the concern that differences in these underlying attributes influence our results. These control variables broadly capture the economics of both the county and its pension plan. The results of the entropy-balancing procedure provided in Table 2 Panel B show that the two county groups are very similar across each covariate. We entropy balance our sample based on the data availability of the corresponding outcome variable in Eq. (1) in each subsequent regression.

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[13] Our conclusions are unchanged if we use unweighted samples in lieu of entropy balancing. These results are discussed in Section 5.2.

Table 3
Outcome Variables pre- and post-GASB 68.

Panel A: Time Series Differences in OPP County Revenues and Expenses								
Variable	(1)			(2)			(3)	
	Pre-GASB 68			Post-GASB 68			Diff	
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	(2)−(1)	
Tax Rev/Capita	426	0.523	0.456	426	0.553	0.47	0.030	***
Fee Rev/Capita	425	0.245	0.332	425	0.268	0.365	0.023	***
Misc. Rev/Capita	426	0.058	0.05	426	0.056	0.048	−0.002	
Property Taxes/Capita	426	0.381	0.285	426	0.399	0.288	0.018	***
Welfare Exp/Capita	399	0.152	0.162	395	0.161	0.172	0.009	***
CAFR Welfare Exp/Capita	250	70.857	128.008	251	77.424	139.566	6.567	***
Salary Exp/Capita	390	0.475	0.485	376	0.538	0.603	0.063	***
Payroll/Capita	426	0.045	0.044	426	0.046	0.045	0.001	***
Ln(FTE)	426	7.764	1.072	426	7.78	1.07	0.016	**
Ln(CAFR FTE)	344	7.499	0.932	345	7.517	0.941	0.018	***

Panel B: Time Series Differences in PMEPP County Revenues and Expenses								
Variable	(4)			(5)			(6)	(7)
	Pre-GASB 68			Post-GASB 68			Diff.	Univariate DiD
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	(5)−(4)	(6)−(3)
Tax Rev/Capita	418	0.518	0.311	430	0.557	0.332	0.039 ***	0.009
Fee Rev/Capita	416	0.224	0.303	428	0.238	0.326	0.014 **	−0.009
Misc. Rev/Capita	417	0.071	0.062	430	0.07	0.06	−0.001	0.001
Property Taxes/Capita	418	0.329	0.178	430	0.351	0.197	0.022 ***	0.004
Welfare Exp/Capita	374	0.109	0.138	380	0.105	0.136	−0.004	−0.013 †††
CAFR Welfare Exp/Capita	196	77.65	163.974	200	76.54	160.494	−1.110	−7.677 †††
Salary Exp/Capita	341	0.319	0.255	340	0.289	0.323	−0.030 **	−0.093 †††
Payroll/Capita	418	0.03	0.021	430	0.031	0.022	0.001 **	0.000
Ln(FTE)	418	7.41	0.939	430	7.422	0.94	0.012	−0.004
Ln(CAFR FTE)	246	7.435	0.957	252	7.425	0.959	−0.010	−0.028 †

Table 3 reports the unweighted summary statistics of variables used in our analyses, partitioned by whether or not the county predominately participated in a *PMEPP*. Panel A (Panel B) reports the average pre- and post-GASB 68 outcomes for *OPP* (*PMEPP*) counties. In calculated difference-in-means across our columns, we cluster standard errors at the county level. ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. †††, ††, and † signify statistically significant difference-in-differences at the 1%, 5%, and 10% levels, respectively, between the *PMEPP* and *OPP* counties clustering at the county level. Refer to Appendix A for detailed variable descriptions.

5. Main results

5.1. Univariate analyses

Table 3 provides the unweighted summary statistics of county revenues, expenses, and employment before and after GASB 68, grouped by pension plan type (i.e., *PMEPP* and *OPP*). The data for *OPP* and *PMEPP* counties are presented in Panels A and B, respectively. The data show that both county types increase tax revenues (*Tax Rev/Capita*, Fee *Rev/Capita*, *Property Taxes/Capita*) and payroll (*Payroll/Capita*) over the sample period. In contrast, there are three outcomes with different time-series changes across the *OPP* and *PMEPP* counties: per capita public welfare, per capita salary, and head count. Specifically, we find that while *OPP* counties significantly increase the *Welfare Exp/Capita* and *CAFR Welfare Exp/Capita*, the corresponding expenses are not statistically different for *PMEPP* counties before and after GASB 68. The data show a similar pattern for differences in headcount changes. We find that *OPP* counties increase full-time-equivalent employees using both the CB data (*Ln(FTE)*) and hand-collected data (*Ln(CAFR FTE)*), while the corresponding head counts for *PMEPP* counties are not statistically different before and after GASB 68.

Although *Payroll/Capita* provides evidence of a univariate increase in annual salary expenses for both county types, *Salary Exp/Capita* suggests a statistically significant increase only in *OPP* counties after GASB 68 (diff. = 0.063, p-value < 0.01) and a decrease in *PMEPP* counties (diff. = −0.03, p-value < 0.05). The differential univariate time series between the two variables could be driven by the measurement window, the individual samples, or the CB surveys' classification of payroll charges.[14] For comprehensiveness, we utilize both variables in our subsequent multivariate analysis.

We report a univariate difference-in-difference analysis for *PMEPP* and *OPP* counties before and after GASB 68 in column 7 of Table 3 Panel B. While we observe no statistically significant relative difference for our revenue outcomes, we find that after GASB 68, public welfare and salary expenses declined for *PMEPP* counties relative to *OPP* counties, indicating that *PMEPP*

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[14] *Payroll/Capita* is measured over the month of March, whereas *Salary Exp/Capita* is measured over the full fiscal year. The CB surveys also treat certain payroll expenditures, such as subsistence charges, differently.

counties did not increase their expenditures to the same extent as *OPP* counties. In other words, the data suggests that *PMEPP* counties generated savings relative to *OPP* counties by maintaining and not increasing their expenditures. Finally, relative to *OPP* counties, *PMEPP* counties exhibit lower headcount growth following GASB 68, and the difference is statistically significant when using our hand-collected employee count.

To better understand the time-series variation in *PMEPP* expenditures and employment, Fig. 1 plots the median annual public welfare per capita, salary expense per capita, payroll per capita, and natural log of employment separately for *PMEPP* counties (solid line, left y-axis) and *OPP* counties (dashed line, right y-axis) over the four-year sample period. For each of our outcomes of interest across all six panels, we observe roughly parallel time trends in the pre−GASB 68 regime. Beginning with Fig. 1 Panel A, welfare expenditures per capita trended downward in a similar fashion during the pre−GASB 68 window for both county types. However, following the legislation's implementation, the public welfare expenditure trends diverged: *PMEPP* counties continued their decline, whereas in 2016, *OPP* counties returned to 2013 public expenditure levels. Salary expenditures showed mixed variation depending on which CB data we utilized. Panel D of Fig. 1 shows how employment levels varied surrounding GASB 68's passage. Before GASB 68, employment levels appeared to increase at similar rates. However, following the standard's passage, employment growth for *PMEPP* counties slowed in 2015 and declined slightly in 2016, whereas *OPP* counties continued their upward trend. Our hand-collected variables in Panels E and F provide similar time-series variation as that observed in the CB data, wherein *OPP* counties increased public welfare expenditures and head count, but in *PMEPP* counties either these outcomes declined or the levels remained flat when comparing 2014 to 2016.

Collectively, our univariate results provide preliminary evidence that *PMEPP* counties are responding to GASB pension disclosure reform by reducing public welfare expenses and salary-related costs relative to *OPP* counties. Further, this comparative decline appears to be driven by *PMEPP* counties' maintenance of pre−GASB 68 expenditures while *OPP* counties continue to increase expenditures after GASB 68. In the next section, we analyze the economic consequences of GASB disclosure reform more rigorously using multivariate regressions.

5.2. Multivariate analyses

We conduct our multivariate analyses using both an unweighted and entropy-balanced sample approach. We begin with the entropy-balanced approach since it better controls for underlying differences between our sample's *PMEPP* and *OPP* counties. Our entropy-balanced results are presented in Table 4. In Panel A, we begin by investigating whether *PMEPP* counties modify their employee and public welfare expenses differently from *OPP* counties following GASB 68. To test our hypotheses, we focus on the interaction term *Post GASB 68 Ind. × PMEPP Ind.*, which captures the incremental effect of the new disclosure requirement. Column 1 shows that public welfare expenses declined for *PMEPP* counties relative to *OPP* counties following GASB 68 (coeff. = −0.008, p-value < 0.05). In economic terms, this coefficient indicates that there was a 6% relative decline in public welfare expenses per capita for *PMEPP* counties, suggesting economically meaningful effects.[15] Interpreting the *Post GASB 86 Ind.* and *Post GASB 86 Ind. × PMEPP Ind.* coefficients in tandem suggests that after GASB 68, *PMEPP* counties maintain their current spending levels, whereas *OPPs* continue to increase their expenditures.

The results in Table 4 also show a post−GASB 68 decline in payroll expenses and employment for *PMEPP* counties relative to *OPP* counties. Columns 2 and 3 provide statistically significant evidence that salary expenditures per capita declined for *PMEPP* counties. Summing the *Post* and *Post GASB 68 Ind. × PMEPP Ind.* coefficients in Column 2 suggests that *PMEPPs* appear to stabilize employment spending relative to *OPPs*. The average economic effects from the two alternative sources for employment data in Columns 2 and 3 represent an approximate 10% decline for *PMEPP* counties relative to *OPP* counties. Column 4 shows that *PMEPP* counties reduced head count by 1.9% relative to *OPP* counties. For the median county in our sample, this percentage represents a relative decline of 35 employees. Our cumulative results are consistent with our first hypothesis that GASB 68's disclosure reform led *PMEPP* counties' municipal managers to reduce spending relative to *OPP* counties.[16]

We explore the economic consequences of pension disclosure reform from a revenue-generating perspective. Panel B provides our entropy-balanced revenue results. We find no evidence that the coefficient on *Post GASB 68 Ind. × PMEPP Ind.*, the variable that captures financial statement disclosure's incremental effect, is significantly different from zero across each column. These results suggest that counties did not differentially change these revenue items following GASB 68's implementation, which is inconsistent with our second hypothesis.

We confirm that our conclusions are not sensitive to the use of entropy balancing by documenting similar results using unweighted samples in Panels C and D.[17] In Panel C, we observe a decrease in public welfare and employee-related expenses for *PMEPP* counties relative to *OPP* counties surrounding GASB 68's implementation. Panel D provides no evidence that revenue generation differs around GASB 68, as the coefficient on the interaction term *Post GASB 68 Ind. × PMEPP Ind.* is not statistically significant in Columns 1−4.

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[15] Calculated as follows: *[Post GASB 68 Ind. × PMEPP Ind.]* coefficient ÷ Average *Welfare Exp/Capita*.

[16] Our results in Table 4 Panel A are qualitatively similar when we deploy a continuous measure of *PMEPP* liabilities scaled by lagged full-time employment *(PMEPP NPL/FTE)* as treatment in lieu of our dichotomous variable *PMEPP Ind.*

[17] Since the coefficients on the control variables for the entropy-balanced models are not directly comparable to the regression coefficients reported in existing studies, we report the results for linear coefficients based on (unweighted) OLS estimation in Panels C and D.
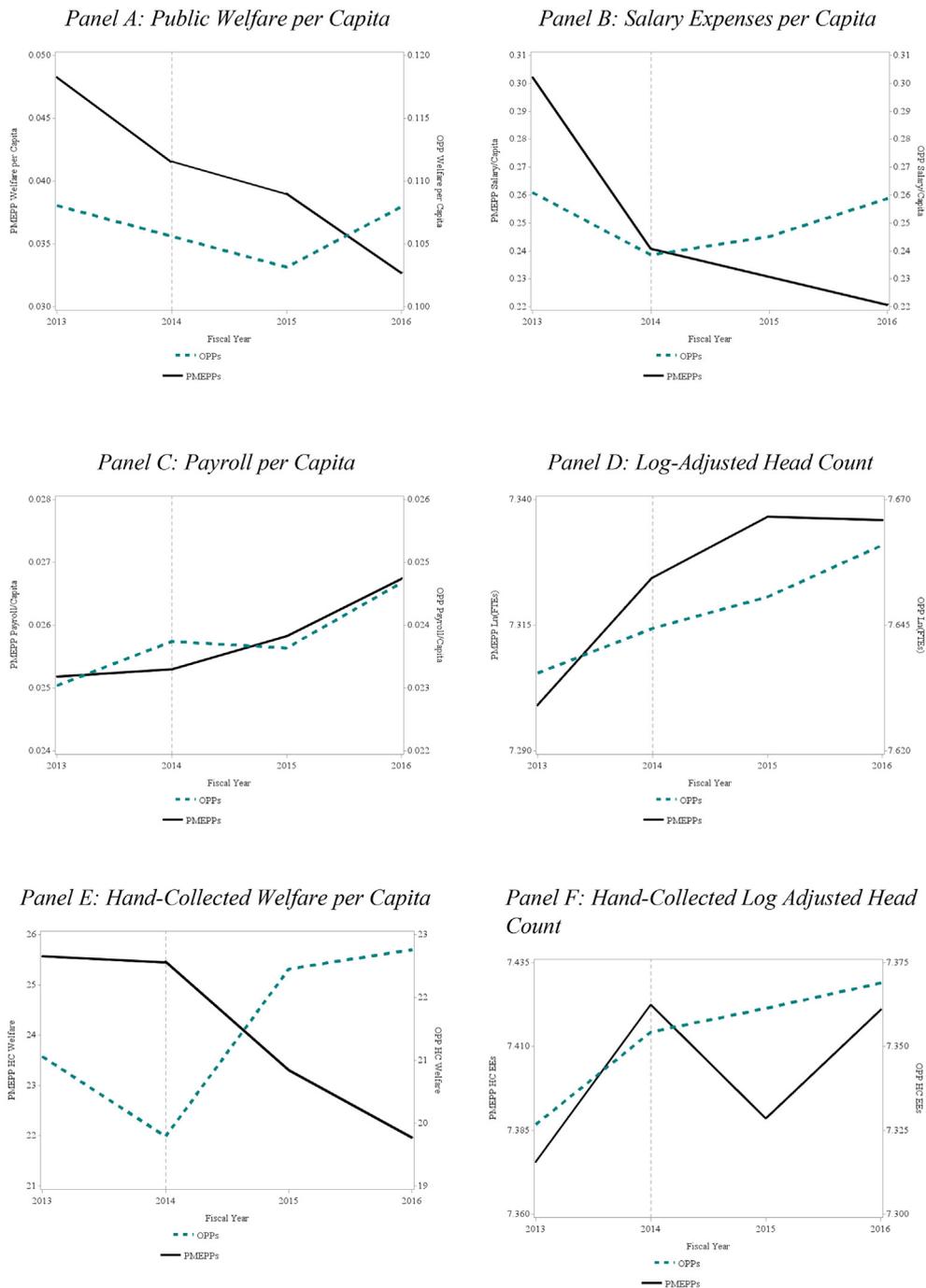
Panel A: Public Welfare per Capita

Panel B: Salary Expenses per Capita

Panel C: Payroll per Capita

Panel D: Log-Adjusted Head Count

Panel E: Hand-Collected Welfare per Capita

Panel F: Hand-Collected Log Adjusted Head Count

Fig. 1. Time-Series Variation in Expenditure and Head Count Outcomes by Plan Type. This figure provides descriptive evidence of the median expenditure per capita and log-adjusted head count by *PMEPP* counties (solid line, left y-axis) and *OPP* counties (dashed-line, right y-axis) over our sample period. Panel A examines variation in public welfare per capita; Panel B examines variation in salary expenses per capita; Panel C examines variation in payroll per capita; and Panel D examines variation in natural log-adjusted head count. Panel E examines variation in hand-collected public welfare expenses, and Panel F examines variation in hand-collected natural log-adjusted head count. For each panel, years on the x-axis reports the county's fiscal year. The vertical dashed line partitions our sample by pre− and post−GASB 68 years (i.e., 2013 and 2014 are pre−GASB 68, and 2015 and 2016 are post−GASB 68). Refer to Appendix A for detailed variable descriptions.

Table 4

The effect of GASB 68 on county revenues and expenses.

Panel A: Entropy-Balanced Weighted OLS Regressions, County Expenditures, and Employment Outcomes

	(1)	(2)	(3)	(4)
	Welfare Exp/Capita	Salary Exp/Capita	Payroll/Capita	Ln(FTE)
Post GASB 68 Ind.	0.006*	0.075***	0.000	0.008
	(1.97)	(4.67)	(1.18)	(1.31)
Post GASB 68 Ind. × PMEPP Ind	−0.008**	−0.077***	−0.001***	−0.019***
	(−2.30)	(−3.98)	(−2.80)	(−2.79)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.980	0.862	0.995	0.998
Observations	1536	1412	1700	1700

Panel B: Entropy-Balanced Weighted OLS Regressions, County Revenue Outcomes

	(1)	(2)	(3)	(4)
	Tax Rev/Capita	Fee Rev/Capita	Misc. Rev/Capita	Property Taxes/Capita
Post GASB 68 Ind.	0.003	0.005	−0.001	0.006**
	(0.54)	(0.84)	(−0.35)	(2.29)
Post GASB 68 Ind. × PMEPP Ind.	0.010	0.003	0.004	−0.001
	(1.35)	(0.39)	(1.07)	(−0.35)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.985	0.950	0.807	0.989
Observations	1700	1694	1699	1700

Panel C: Unweighted OLS Regressions, County Expenditures, and Employment Outcomes

	(1)	(2)	(3)	(4)
	Welfare Exp/Capita	Salary Exp/Capita	Payroll/Capita	Ln(FTE)
Post GASB 68 Ind.	0.008***	0.108***	0.001*	0.002
	(3.24)	(5.49)	(1.81)	(0.43)
Post GASB 68 Ind. × PMEPP Ind.	−0.010***	−0.099***	−0.001***	−0.011*
	(−3.56)	(−4.41)	(−2.95)	(−1.91)
Ln(Population)	0.016	1.927**	−0.015	0.505***
	(0.21)	(1.98)	(−1.46)	(2.85)
Ln(Estabs)	−0.097	−0.047	0.015**	0.285**
	(−1.21)	(−0.06)	(2.04)	(2.00)
Ln(PI/Capita)	0.073***	−0.715**	0.007**	0.058
	(2.66)	(−1.97)	(2.00)	(0.83)
Unemp. Rate	0.002	−0.002	−0.000	0.004
	(1.63)	(−0.21)	(−0.63)	(1.51)
Density	−0.000	−0.003***	0.000	0.000
	(−0.53)	(−5.05)	(1.10)	(0.65)
Contributions	0.000	0.000	0.000**	0.000
	(0.67)	(0.28)	(2.01)	(1.17)
NPL/FTE	0.000*	−0.000	−0.000	−0.000
	(1.69)	(−0.66)	(−0.63)	(−0.85)
Intercept?	Yes	Yes	Yes	Yes
Adj. R-squared	0.983	0.853	0.995	0.998
Observations	1536	1412	1700	1700

Panel D: Unweighted OLS Regressions, County Revenues

	(1)	(2)	(3)	(4)
	Tax Rev/Capita	Fee Rev/Capita	Misc. Rev/Capita	Property Taxes/Capita
Post GASB 68 Ind	0.010**	0.004	0.002	0.006**
	(2.16)	(0.60)	(0.69)	(2.54)
Post GASB 68 Ind. × PMEPP Ind.	0.000	−0.002	0.000	−0.003
	(0.05)	(−0.26)	(0.16)	(−0.98)
Ln(Population)	0.186	0.006	−0.013	0.144
	(0.67)	(0.02)	(−0.09)	(1.06)
Ln(Estabs)	−0.118	0.004	−0.017	−0.131
	(−0.67)	(0.01)	(−0.21)	(−1.32)
Ln(PI/Capita)	0.133**	0.009	0.003	0.038
	(2.27)	(0.09)	(0.08)	(1.06)

Table 4 (*continued*)

Panel D: Unweighted OLS Regressions, County Revenues

	(1)	(2)	(3)	(4)
	Tax Rev/Capita	Fee Rev/Capita	Misc. Rev/Capita	Property Taxes/Capita
Unemp. Rate	−0.006**	−0.005	0.002	−0.003***
	(−2.48)	(−1.06)	(1.52)	(−2.63)
Density	0.000	0.000*	−0.000	0.000*
	(0.35)	(1.75)	(−0.40)	(1.84)
Contributions	0.000	0.000	0.000	0.000
	(1.63)	(1.01)	(0.65)	(1.25)
NPL/FTE	0.000	−0.000	0.000**	0.000
	(0.90)	(−0.55)	(2.20)	(1.52)
Intercept?	Yes	Yes	Yes	Yes
Adj. R-squared	0.987	0.939	0.805	0.991
Observations	1700	1694	1699	1700

Table 4 reports the regression results of the differential changes in revenue and expenses pre− and post−GASB 68 based on whether or not the county predominately participated in a *PMEPP*. Panels A and C (B and D) report the county-level differential welfare, salary, payroll, and full-time employment (revenues) before and after GASB 68. *PMEPP Ind.* is an indicator variable equal to 1 if a county participates in *PMEPP*s and these plans constitute a majority of the county's net pension obligations for fiscal years ending June 30, 2015, to May 31, 2016, and 0 otherwise. The dependent variables of each regression are reported in the column headers. *Post-GASB 68 Ind.* is an indicator variable equal to 1 for fiscal years greater than or equal to June 30, 2015, and 0 otherwise. Panels A and B report the results for weighted OLS regressions where we both control for and entropy balance (on *PMEPP Ind.*) using the following variables: *GASB 68 Ind.*, *Ln(Population)*, *Ln(Estabs)*, *Ln(PI/Capita)*, *Unemp. Rate*, *Density*, *Pension Contributions*, and *NPL/FTE* at the first and second moments. Panels C and D report results for unweighted traditional OLS regressions. We include county-level fixed effects in each panel and cluster standard errors at the county level. ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. Refer to Appendix A for detailed variable descriptions.

Lastly, we use several hand-collected measures to supplement our main results. Baber and Gore (2008) have cited occasional inaccuracies in the CB data, so we use hand-collected data from the CAFRs to mitigate concerns that our results might be influenced by such issues. In particular, we collect public welfare expenditures from the Changes in Fund Balances for Governmental Funds statement in the CAFR and scale this measure by the county's population estimate (*CAFR Welfare Exp/ Capita*) and the natural log of 1 + full-time employees reported in the Full-Time Equivalent Government Employees by Function statement (*Ln(CAFR FTE)*).[18] An advantage to these data is that the county expenditures are derived from the same financial statements we used to extract the pension plan information. The disadvantage is that each county reports this information differently, and it is not consistently reported across all states, resulting in a smaller sample. Table 5 presents our results from the hand-collected CAFR information using entropy balancing (columns 1 and 2) and OLS (columns 3 and 4). Across all columns, our hand-collected outcome tests are consistent with our main results. The newly disclosing counties reduce expenditures and head count relative to the previously disclosing counties.

Collectively, our analyses indicate that counties responded to new disclosure requirements by cutting expenditures (i.e., H1) and not adjusting revenues (i.e., H2). There are three notable aspects of our results. First, our finding is consistent with the notion that expenditures are easier to manage than revenues (i.e., tax increases). Prior studies have documented the disproportionate adjustment of expenditures in response to public sector budgeting issues (e.g., Costello et al., 2017; Kido et al., 2012), indicating that our results are likely to be in response to fiscal concerns rather than simply the passage of time. Second, we find that the fiscal response can be interpreted as maintaining pre−GASB 68 expenditures and head count, as opposed to cutting either of these outcomes. This is consistent not only with prior studies, but also with the recent response of many organizations to the COVID-19 crisis where head counts and salaries were frozen. Third, we find consistent results across different data sources and using different empirical specifications. This suggests that our conclusions are unlikely to be driven by idiosyncrasies across data sources or research design choices.

6. Field research and cross-sectional analyses

6.1. Overview

To provide context for our main result, we met with GASB directors, representatives from each of the three CRAs, and governmental financial reporting consultants. We also reviewed the comment letters submitted as part of GASB 68's enactment process and transcripts of GASB public hearings. Collectively, our field research indicates that GASB 68 was viewed as costly by some counties, particularly those that were unaware of the future cash flow requirements associated with their pension plan. These counties incorrectly believed that their only pension plan obligation was the annual contribution and that

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[18] Counties do not report salary expenses in aggregate in one financial statement line item on a CAFR. Therefore, we were unable to hand-collect this information and instead relied on our CB outcomes.

Table 5
Alternative measures of county outcomes.

	EB	EB	OLS	OLS
	(1)	(2)	(3)	(4)
	CAFR Welfare Exp/Capita	Ln(CAFR FTE)	CAFR Welfare Exp/Capita	Ln(CAFR FTE)
Post GASB 68 Ind.	1.490	0.006	4.752*	0.003
	(0.92)	(1.09)	(1.71)	(0.64)
Post GASB 68 Ind. × PMEPP Ind.	−4.663**	−0.016**	−7.286**	−0.016***
	(−2.49)	(−2.19)	(−2.32)	(−2.64)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.994	0.999	0.985	0.999
Observations	897	1187	897	1187

Table 5 reports the effect of GASB 68 using alternative measures of hand-collected county-level expenses. In columns (1) and (3), we utilize CAFR Welfare Exp/Capita as the dependent variable. In columns (2) and (4), we utilize Ln(CAFR FTE) as the dependent variable. *PMEPP Ind.* is an indicator variable equal to 1 if a county participates in *PMEPP*s and these plans constitute a majority of the county's net pension obligations for fiscal years ending June 30, 2015, to May 31, 2016, and 0 otherwise. *Post-GASB 68 Ind.* is an indicator variable equal to 1 for fiscal years greater than or equal to June 30, 2015, and 0 otherwise. Columns (1) and (2) report the results for weighted OLS regressions where we both control for and entropy balance (on *PMEPP Ind.*) using the following variables: *GASB 68 Ind.*, *Ln(Population)*, *Ln(Estabs)*, *Ln(PI/Capita)*, *Unemp. Rate, Density, Pension Contributions*, and *NPL/FTE* at the first and second moments. Columns (3) and (4) report the results for unweighted traditional OLS regressions including our standard control set as reported in Table 4. We include county-level fixed effects and cluster standard errors at the county level. ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. Refer to Appendix A for detailed variable descriptions.

they bore no responsibility for any pension deficit. Our field research revealed that this belief was pervasive and that GASB 68's implementation brought to light its inaccuracy.[19]

In this section, we conduct a series of tests to examine whether this mistaken belief contributes to our empirical findings and to determine the role that different constituents played in driving the response to GASB 68. These tests proceed as follows. First, we ensure that our conclusions are unaffected by possible changes in pension contributions or the actuarial assumptions used in the valuation process. We conduct this analysis to mitigate concern that factors other than GASB 68 are driving our results. Second, to explore the role of external monitoring, we examine whether counties' responses vary based on their debt market presence. Debt market constituents include investors, regulators and rating agencies, and to a lesser extent local residents. Third, as a means of assessing learning by county managers, we study whether the counties most likely to be unaware of their share of existing pension deficits and corresponding future cash flow requirements respond more strongly to GASB 68 (see, e.g., Shroff, 2017). Lastly, we conduct a parallel trends analysis to establish whether our main result is due to actions at the time of GASB 68's implementation, as opposed to earlier or later periods. As we discuss more fully below, this timing allows us to infer whether the response to GASB 68 stemmed from internal or external pressure.

6.2. Pension economics

We start this analysis by examining whether there is a differential increase in pension contributions in the post−GASB 68 period for *PMEPP* counties. We use Eq. (1) with pension contributions (i.e., the actual contributions made by the county to its *PMEPP* and *OPP* plan in each fiscal year, scaled by the county population estimate) as the outcome variable (instead of using it as an independent variable).[20] The results in Table 6 Panel A show that the coefficient on the *Post GASB 68 Ind.* × *PMEPP Ind.* interaction term is insignificant, indicating that there is no discernable increase in pension contributions by *PMEPP* counties relative to *OPP* counties after GASB 68. This finding is consistent with our field research, which reflected that the sponsoring entity (typically the state) set the pension contribution rates.

Next, we examine whether our results are affected by measurement differences resulting from GASB 67, the pension accounting standard that became effective in 2014 (i.e., one year earlier than GASB 68). GASB 67 standardized the actuarial valuation and discount rate methodologies that governments were required to use in accounting for pension obligations. Although these reforms affected both *OPP* and *PMEPP* counties, it may be that the implementation disproportionately impacted one group. If this is the case, then GASB 67's accounting changes could potentially contribute to our results. Ex ante, we do not expect these accounting changes to be material. According to the expert practitioners we consulted, the most important regulatory change in both GASB 67 and 68 was the reclassification of shared pension obligations from the state level to the local level. This view is also expressed in the comment letters on the accounting changes. Of the 651 comment

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[19] Both the CRAs and the GASB unequivocally refuted the belief that counties with shared plans were not responsible for the pension deficit. The GASB stated, "Who else is going to pay for the liability? It is not the state nor the plan, it is the employer's [i.e., the county's] participants. It might take some time, but it is your [the county's] liability."

[20] We deploy an empirical specification with total (i.e., PMEPP and OPP) contributions as the dependent variable because it allows us to potentially observe a *relative* change in contributions for *PMEPP*s versus *OPP*s. Removing OPP contributions would restrict our ability to use our control observations (OPP counties) and force us to identify differences in pension contributions with only time-series variation.

Table 6

Analysis of pension economics.

Panel A: Pension Contributions

	(1)
	Contributions
Post GASB 68 Ind.	−3.1089
	(−1.13)
Post GASB 68 Ind. × PMEPP Ind.	1.2979
	(0.51)
Intercept?	Yes
Controls?	Yes
Adj. R-squared	0.833
Observations	1700

Panel B: Effect of GASB 67 Measurement Adjustments

	(1)	(2)	(3)	(4)
	Welfare Exp/Capita	Salary Exp/Capita	Payroll/Capita	Ln(FTE)
Post GASB 68 Ind.	0.005*	0.056***	0.000	0.009
	(1.74)	(4.27)	(0.89)	(1.43)
Post GASB 68 Ind. × PMEPP Ind.	−0.008**	−0.066***	−0.001**	−0.020***
	(−2.11)	(−3.91)	(−2.39)	(−2.81)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.979	0.869	0.994	0.998
Observations	1369	1236	1518	1518

Table 6 examines whether there was an immediate increase in pension costs following GASB 68. Panel A reports the regression results of the differential changes in pension contributions pre− and post−GASB 68 based on whether the county predominately participated in a PMEPP. Contributions are the actual contributions made by the county from its PMEPPs and OPPs in each fiscal year scaled by the county population estimate. Panel B examines whether our main results are consistent when we exclude counties that changed their actuarial valuation methodology in response to GASB 67. PMEPP Ind. is an indicator variable equal to 1 if a county participates in PMEPPs and these plans constitute a majority of the county's net pension obligations for fiscal years ending June 30, 2015, to May 31, 2016, and 0 otherwise. The dependent variables of each regression are reported in the column headers. Post-GASB 68 Ind. is an indicator variable equal to 1 for fiscal years greater than or equal to June 30, 2015, and 0 otherwise. We report the results for weighted OLS regressions where we both control for and entropy balance (on PMEPP Ind.) using the following variables: GASB 68 Ind., Ln(Population), Ln(Estabs), Ln(PI/Capita), Unemp. Rate, Density, and NPL/FTE at the first and second moments. In Panel B, we also include Pension Contributions as a control variable. We include county-level fixed effects and cluster standard errors at the county level. ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. Refer to Appendix A for detailed variable descriptions.

letters addressing GASB 67 and 68, the PMEPP changes were the most widely referenced; 367 strongly opposed the accounting for PMEPP liabilities on local governments' financial statements. While comment letters also registered complaints on issues aside from the cost-sharing multiple employer plan, these were substantially less debated.[21]

To support our expectation that GASB 67's changes do not affect our conclusions, we hand-collect information from each county's pension disclosures to isolate the standard's effects. GASB 67 introduced two major changes—the requirement that the discount rate be based on a blended rate that incorporates zero coupon state general obligation bonds for underfunded plans and the requirement that the entry age normal (EAN) actuarial cost method be used for actuarial valuation purposes.[22] Anecdotal evidence also suggests that the new discount rate methodology exerted minimal effect on pension plan economics (Weinberg and Norcross, 2017). This sentiment was confirmed by CRAs and the GASB in our discussions with them, which explained that the blended discount rate requirement could be avoided through relatively simple legislative action, and was validated in our sample, in which only 14 counties adopted a blended discount rate. This finding is consistent with state-level data, where only one state (New Jersey) implemented a blended discount rate at the time GASB 67 became effective. We dropped these observations and reestimated Eq. (1). Our conclusions are unchanged (untabulated).

The change in actuarial cost method to EAN was more prevalent. Based on our hand-collection, we find that 10% of our observations switched to EAN (generally from Projected Unit Credit). However, we observe no evidence that PMEPP counties differentially changed their actuarial approach for EAN relative to OPP counties.[23] In Table 6 Panel B, we replicate Eq. (1) and

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[21] The public hearing forums yielded a similar takeaway: the changes in financial reporting for shared pension plans under GASB 67 and 68 were frequently discussed by practitioners and credit rating analysts.

[22] The EAN cost method approach allocates the actuarial present value of the projected benefits of everyone included in an actuarial valuation on a level basis over the earnings or service of the individual between entry age and assumed exit age. See Trowbridge (1952) for more information.

[23] We also ran a logit where the dependent variable is an indicator that identifies counties that switch to EAN and the sample consists of all county observations in 2014 and standard errors clustered by state. The independent variable of interest is PMEPP Ind. and we include our control variables from Eq. (1). We find no evidence that PMEPP Ind. is statistically significantly different from zero.

exclude counties that switched their actuarial cost method. We find evidence consistent with our main results in Table 4, where we observe a comparative decline in public welfare expenses, payroll expenses, and head count for *PMEPP* counties relative to *OPP* counties following GASB 68's passage. These results suggest that changes in actuarial cost method do not explain our findings, which is reassuring since the change in cost method generally has a modest effect on pension valuations (e.g., Naughton et al., 2015).

In summary, anecdotal evidence, discussions with both the GASB and CRAs, and our empirical evidence support our conjecture that county reduction in public welfare expenses, payroll expenses, and head count appear to be driven by new regulations on disclosure of shared pension liabilities rather than by changes introduced by GASB 67. In addition, we find no evidence that there were any differential changes in pension contributions for *PMEPPs* versus *OPPs* immediately following the passage of GASB 68.[24] Collectively, these analyses indicate that short-term pension economics are unlikely to influence our conclusions.

6.3. Municipal debt market

Next, we explore whether the effects we document are associated with the county's integration with the municipal debt market. Specifically, we are interested in examining whether governments' reduction of other expenditures was driven by a desire to improve the appearance of their financial statements to minimize potential impact on credit ratings. Prior studies of corporate issuers have shown that credit ratings are influenced by the information provided in financial statements (e.g., Basu and Naughton, 2020). However, in our field interviews, CRAs contended that this was unlikely. Specifically, they noted that their monitoring of shared pension liabilities did not change during the window immediately surrounding GASB 68's implementation and that shared pension liabilities are treated similarly to debt for credit rating purposes.[25] However, GASB 68 provided more accessible information to financial statement users who did not have direct access to the shared pension obligations at a local level.[26] Coupled with counties' future debt service requirements, this broadened knowledge base may serve as external pressure and induce local governments with higher financial statement leverage to exercise increased fiscal prudence. In Table 7, we test this prediction by using the total debt per capita for each county over our sample period to proxy for the county's reliance on debt financing. We then trifurcate our sample observations based on their tercile rank of debt per capita in the sample distribution. We run separate regressions for the subset of observations in the top (bottom) tercile in the odd (even) columns.[27] To the extent that total debt influences the county's response to GASB financial statement disclosure, we expect the coefficient on the *Post GASB 68 Ind.* × *PMEPP Ind.* interaction term to be more negative and statistically significant in the top tercile.

The results in Table 7 provide weak evidence that debt market reliance influences the county response to GASB 68. The coefficients in the high debt specifications are consistently significant, while those in the low debt specifications are either insignificant or of lower magnitude. While these results suggest that the observed effects of GASB 68 are more concentrated in the high issuance group, there is no statistical difference between our high and low issuance counties. Thus, we fail to provide statistical evidence reflecting a change in external monitoring, consistent with the CRAs' assertion that monitoring did not differentially change for *PMEPPs* following the implementation of GASB 68.

6.4. Managerial learning

Our next set of analyses focuses on the disclosure aspect of GASB 68 to provide evidence on the possible role of managerial learning derived from the standard's reporting provisions. We implement these tests by focusing on the subsample of *PMEPP* counties and by using measures that are likely to be correlated with the new information acquired through GASB 68's implementation. Specifically, we restrict our sample to those counties that contributed to a PMEPP in Fiscal YE 2015. We use four separate variables to proxy for managerial learning. The first variable is *Pure PMEPP Ind.*, an indicator variable equal to 1 when a county has only a *PMEPP* with a net pension liability in 2015 and equal to 0 when the county provides both *PMEPP* and *OPP* plans, or only a *PMEPP* with a net pension asset in 2015. Our rationale for this variable is that the counties with only *PMEPP* liabilities are going to be less aware of (more surprised by) the existence (revelation) of county-specific pension obligations before (after) GASB 68. Our second managerial awareness measure, *PMEPP Multiple*, captures the magnitude of the

Table 7

Cross-sectional variation of debt per capita.

	Top Tercile	Bottom Tercile	Top Tercile	Bottom Tercile	Top Tercile	Bottom Tercile	Top Tercile	Bottom Tercile
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Welfare Exp/Capita	Welfare Exp/Capita	Salary Exp/Capita	Salary Exp/Capita	Payroll/Capita	Payroll/Capita	Ln(FTE)	Ln(FTE)
Post GASB 68 Ind.	0.0105***	0.0112**	0.1617***	0.0494**	0.0001	0.0002	0.0099	−0.0043
	(2.63)	(2.20)	(3.59)	(2.60)	(0.27)	(1.15)	(1.25)	(−0.54)
Post GASB 68 Ind. × PMEPP Ind.	−0.0100**	−0.0080	−0.1385**	−0.0593**	−0.0009*	−0.0006**	−0.0250**	−0.0039
	(−2.25)	(−1.41)	(−2.53)	(−2.43)	(−1.83)	(−2.06)	(−2.56)	(−0.40)
Intercept?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.986	0.975	0.877	0.685	0.997	0.988	0.999	0.995
Observations	487	463	463	415	545	528	545	528

Table 7 examines the cross-sectional variation in GASB 68's effect on *PMEPP* county expenses. We partition our sample by debt per capita. We define debt per capita using the county's tercile of short- and long-term debt outstanding less cash and securities reserved for future debt payments per capita. This variable captures all county bonds but excludes leases and unfunded pension obligations. Odd columns report the results using our sample's top tercile debt per capita, whereas even columns report the results using our sample's bottom tercile debt per capita. *PMEPP Ind.* is an indicator variable equal to 1 if a county participates in *PMEPP*s and these plans constitute a majority of the county's net pension obligations for fiscal years ending June 30, 2015, to May 31, 2016, and 0 otherwise. The dependent variables of each regression are reported in each column header. *Post-GASB 68 Ind.* is an indicator variable equal to 1 for fiscal years greater than or equal to June 30, 2015, and 0 otherwise. We report the results for weighted OLS regressions where we both control for and entropy balance (on *PMEPP Ind.*) using the following variables: *GASB 68 Ind.*, *Ln(Population)*, *Ln(Estabs)*, *Ln(PI/Capita)*, *Unemp. Rate*, *Density*, *Pension Contributions*, and *NPL/FTE* at the first and second moments. We include county-level fixed effects and cluster standard errors at the county level. ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. Refer to Appendix A for detailed variable descriptions.

county's *PMEPP* pension obligation relative to its *PMEPP* contribution (in Fiscal YE 2015).[28] Here, we expect that managers of counties with a larger *PMEPP Multiple* were more surprised by future pension commitments (relative to ongoing pension obligations) and that they learned more from the new information acquired through GASB 68's disclosure requirements. Our third managerial awareness measure, *Pension Text*, captures the number of occurrences of the word "pension" in a county's financial report prior to GASB 68's passage. Our expectation is that counties with fewer occurrences within the *PMEPP* sample were likely less aware of their long-term pension obligations. Our last measure is an indicator that takes the value of 1 for counties that were not recipients of a Governmental Finance Officers Association (GFOA) award for financial reporting. Counties that did not receive this award are assumed to have lower-quality financial reporting (e.g., Baber and Gore, 2008; Basu et al., 2022), and thus we expect them to be (ex ante) less aware of existing unfunded pension liabilities attributable to their respective local governments.

In Table 8, we report our results from the within-*PMEPP* analysis where we rerun Eq. (1) on the *PMEPP*-only sample while replacing *PMEPP Ind.* with *Pure PMEPP Ind.*, *PMEPP Multiple*, *Ln(Pension Text) Inv.*, or *No Award Ind.*[29] We continue to include our control variables from Eq. (1) and county-level fixed effects. Panel A of Table 8 shows that approximately two-thirds of our *PMEPP* sample has a *PMEPP*-only net pension liability (NPL); the average *PMEPP* obligation to contribution is a 7x multiple; the average *PMEPP* financial report mentions the word "pension" 25 times; and approximately 40% of local governments did not win an award from the GFOA.

We start our within-*PMEPP* empirical analysis in Panel B of Table 8. Column 1 of Panel B shows that counties with Pure *PMEPP*s reduced welfare expenses relative to counties with *PMEPP*s and *OPP*s following GASB 68 (coeff. $= -0.009$, p-value < 0.05). We find similar evidence that salary and payroll costs declined for Pure *PMEPP* counties relative to counties with both *PMEPP*s and *OPP*s following GASB 68, as indicated in columns 2 and 3 of Panel B. In column 4, where the dependent variable is *Ln(FTE)*, the coefficient on our interaction of interest (*Post GASB 68 Ind.* × *Pure PMEPP Ind.*) is also negative but not statistically significant at conventional levels. Moving to Panel C, we use the *PMEPP* contribution multiple as an alternative measure of managerial learning. Again, county managers who report a higher pension obligation relative to their annual pension contribution may learn more from GASB 68's disclosure requirements. As in Panel B, we observe that counties with higher *PMEPP*-to-contribution multiples have higher reductions in welfare-, salary-, and payroll-related expenses in response to GASB 68.

In Panel D, we measure ex ante managerial awareness using proxies based on pre−GASB 68 disclosures. Here, we suggest that counties' awareness of their pension obligations is related to the scope of their pre−GASB 68 pension disclosures. Since our empirical tests control for *Pension Contributions* and *NPL/FTE* (and include county-level fixed effects), we expect that the coefficient of interest will primarily capture the effect of disclosure, although we acknowledge that disclosure choices and the economic importance of the pension plan cannot be fully separated. Our results suggest that *PMEPP* counties with less frequently discussed pension-related information were more likely to reduce welfare and personnel-related expenses. This finding is consistent with the notion that managerial learning (which occurs for counties with fewer pre−GASB 68 disclosures) generated a greater fiscal response to GASB 68's disclosure-related provisions.

In Panel E, we also examine whether there was a differential response based on the quality of the county's financial statements. We identified higher-quality financial statements by hand-collecting information on which counties received a GFOA Certificate of Achievement for Excellence in Financial Reporting.[30] Consistent with our other analyses, we find that counties with lower financial reporting quality reduced welfare and salary expenses more, consistent with their being less aware of (more surprised by) the pension liabilities revealed by GASB 68.

Collectively, these results provide insight into the counties that most increased fiscal austerity following GASB 68. Specifically, counties with shared pension plans that had larger pension obligation "surprises" (measured in various ways) and county managers with a lower likelihood of significant pension reporting experience (measured by prior disclosure) were more likely to increase fiscal prudence following GASB 68's passage. While the specifications using *Pure MEPP* and *PMEPP Multiple* tests could capture increases in either internal or external learning from constituents regarding shared pension liabilities, *Pension Text* and *No Award Ind.* more directly relate to managers' awareness and/or ability, and, as such, are more likely to reflect only internal learning. This evidence, combined with our field discussions and cross-sectional analyses, suggests that managerial learning likely played a role in influencing fiscal policy at the local government level.

6.5. Parallel trends

Lastly, we conduct additional analyses to more precisely identify whether our main result is due to actions at the time of GASB 68's implementation, as opposed to earlier or later periods. These tests serve two purposes. First, an increase in fiscal

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[28] Scaling by pre−GASB 68 contributions produces similar results.

[29] For expositional purposes, we transform Pension Text by taking the natural log and multiplying by −1 such that the inferences are similar to our other PMEPP variables in that Ln(Pension Text) Inv. is decreasing in ex ante managerial awareness.

[30] The GFOA established the Certificate of Achievement for Excellence in Financial Reporting Program in 1945 to encourage and assist state and local governments to go beyond the minimum requirements of generally accepted accounting principles to prepare comprehensive annual financial reports that exhibit the spirit of transparency and full disclosure and then to recognize individual governments that succeed in achieving that goal. The program's goal is not to assess the financial health of participating governments but rather to ensure that users of their financial statements have the information they need to do so themselves. See https://www.gfoa.org/coa-award for more information.

Table 8

Cross-sectional analysis.

Panel A: Within PMEPP Sample Descriptive Statistics

Label	N	Q1	Mean	Median	Q3	σ
Pure PMEPP Ind.	1120	0.00	0.66	1.00	1.00	0.48
PMEPP Multiple	1120	0.74	6.72	7.14	9.63	7.05
Pension Text	1084	7.50	25.00	16.00	29.00	28.72
Ln(Pension Text) Inv.	1084	−3.40	−2.82	−2.83	−2.14	0.93
No Award Ind.	1120	0.00	0.39	0.00	1.00	0.49

Panel B: Pure vs. Mixed PMEPP Difference-in-Difference

	(1)	(2)	(3)	(4)
	Welfare Exp/Capita	Salary Exp/Capita	Payroll/Capita	Ln(FTE)
Post GASB 68 Ind.	0.008***	0.173***	0.001*	0.004
	(2.63)	(4.32)	(1.70)	(0.45)
Post GASB 68 Ind. × Pure PMEPP Ind.	−0.009**	−0.139***	−0.001*	−0.005
	(−2.52)	(−3.36)	(−1.83)	(−0.74)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.975	0.841	0.994	0.998
Observations	999	877	1120	1120

Panel C: PMEPP to Contribution Multiple Difference-in-Difference

	(1)	(2)	(3)	(4)
	Welfare Exp/Capita	Salary Exp/Capita	Payroll/Capita	Ln(FTE)
Post GASB 68 Ind.	0.0047**	0.1496***	0.0008*	0.0028
	(2.01)	(4.90)	(1.73)	(0.41)
Post GASB 68 Ind. × PMEPP Multiple	−0.0004**	−0.0112***	−0.0001**	−0.0004
	(−2.07)	(−4.35)	(−2.09)	(−0.89)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.975	0.844	0.994	0.998
Observations	999	877	1120	1120

Panel D: Textual Analysis

	(1)	(2)	(3)	(4)
	Welfare Exp/Capita	Salary Exp/Capita	Payroll/Capita	Ln(FTE)
Post GASB 68 Ind.	−0.0049	−0.0244	−0.0010*	−0.0007
	(−1.29)	(−0.45)	(−1.77)	(−0.08)
Post GASB 68 Ind. × Ln(Pension Text) Inv.	−0.0025*	−0.0327*	−0.0005**	−0.0005
	(−1.86)	(−1.78)	(−2.36)	(−0.17)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.975	0.834	0.994	0.998
Observations	969	855	1084	1084

Panel E: GFOA Awards

	(1)	(2)	(3)	(4)
	Welfare Exp/Capita	Salary Exp/Capita	Payroll/Capita	Ln(FTE)
Post GASB 68 Ind.	0.004*	0.104***	0.001**	0.004
	(1.72)	(3.22)	(2.53)	(0.59)
Post GASB 68 Ind. × No Award Ind.	−0.006*	−0.056*	−0.001***	−0.008
	(−1.69)	(−1.77)	(−3.70)	(−1.09)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.975	0.836	0.994	0.998
Observations	999	877	1120	1120

In Table 8, we restrict that sample only to those counties that contributed to a *PMEPP* plan in 2015. Panel A provides descriptive statistics related to our *PMEPP*-only sample. In Panel B, *Pure PMEPP Ind.* is an indicator variable equal to 1 when a county only has a *PMEPP* with a net pension liability in 2015, and equal to 0 when the county provides both *PMEPP* and *OPP* plans, or only a *PMEPP* with a net pension asset in 2015. In Panel C, *PMEPP Multiple* is a continuous measure of a county's *PMEPP* pension obligation scaled by its *PMEPP* contribution in 2015. In Panel D, *Pension Text* is the number of times the word "pension" is in a county's financial report prior to the passage of GASB 68. We log-adjust (1+*Pension Text*) and multiply by −1 (*Ln(Pension Text) Inv.*), such that the variable is decreasing in pre−GASB 68 *PMEPP* awareness. The sample in Panel D is slightly smaller because our empirical strategy requires that the word

"pension" occurs at least once in the county's annual report. In Panel E, *No Award Ind.* is an indicator variable equal to 1 when a county was not awarded a Certificate of Achievement for Excellence in Financial Reporting by the GFOA in 2014 (the year prior to GASB 68's implementation), and 0 otherwise. The dependent variables of each regression are reported in the column headers for Panels B–D. *Post-GASB 68 Ind.* is an indicator variable equal to 1 for fiscal years greater than or equal to June 30, 2015, and 0 otherwise. We control for the following variables: *GASB 68 Ind.*, *Ln(Population)*, *Ln(Estabs)*, *Ln(PI/Capita)*, *Unemp. Rate*, *Density*, *Pension Contributions*, and *NPL/FTE*. We include county-level fixed effects and cluster standard errors at the county level. ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. Refer to Appendix A for detailed variable descriptions.

Table 9
Parallel trends analysis.

Panel A: Parallel Trends before GASB 68

	(1)	(2)	(3)	(4)
	Welfare Exp/Capita	Payroll/Capita	Salary Exp/Capita	Ln(FTE)
Year 2014 Ind.	−0.003	0.000	−0.025	−0.014**
	(−0.97)	(0.62)	(−0.67)	(−2.12)
Year 2014 Ind. × PMEPP Ind.	−0.004*	0.000	0.052**	0.002
	(−1.76)	(0.01)	(2.40)	(0.26)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.986	0.995	0.876	0.997
Observations	748	828	642	828

Panel B: Parallel Trends Years +1 and −1

	(1)	(2)	(3)	(4)
	Welfare Exp/Capita	Payroll/Capita	Salary Exp/Capita	Ln(FTE)
Post GASB 68 Ind.	0.006**	−0.000	−0.020	0.007
	(2.19)	(−0.60)	(−0.65)	(1.28)
Post GASB 68 Ind. × PMEPP Ind	−0.007***	−0.000*	−0.055***	−0.008*
	(−2.89)	(−1.66)	(−2.74)	(−1.79)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.993	0.996	0.868	0.999
Observations	764	848	692	848

Panel C: Parallel Trends after GASB 68

	(1)	(2)	(3)	(4)
	Welfare Exp/Capita	Payroll/Capita	Salary Exp/Capita	Ln(FTE)
Year 2016 Ind.	0.007*	0.001***	0.048*	0.005
	(1.89)	(3.59)	(1.82)	(0.78)
Year 2016 Ind. × PMEPP Ind.	−0.004	−0.000	−0.057**	−0.005
	(−1.45)	(−1.35)	(−2.37)	(−1.16)
Intercept?	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes
Adj. R-squared	0.989	0.998	0.938	0.999
Observations	756	848	656	848

Table 9 examines parallel trends on *PMEPP* county expenses surrounding GASB 68's effective dates. In Panel A (B) {C}, we restrict our sample to fiscal years ending June 30, 2013, to May 31, 2015 (June 30, 2014, to May 31, 2016) {June 30, 2015, to May 31, 2017}. *PMEPP Ind.* is an indicator variable equal to 1 if a county participates in *PMEPP*s and these plans constitute a majority of the county's net pension obligations for fiscal years ending June 30, 2015, to May 31, 2016, and 0 otherwise. Year 2014 *Ind.* (*Post GASB 68 Ind.*) {*Year 2016 Ind.*} is an indicator variable equal to 1 for fiscal years greater than or equal to June 30, 2014 (June 30, 2015) {June 30, 2016}, and 0 otherwise. We report the results using OLS regressions for the following variables: *Ln(Population)*, *Ln(Estabs)*, *Ln(PI/Capita)*, *Unemp. Rate*, *Density*, *Pension Contributions*, and *NPL/FTE*. We include county-level fixed effects and cluster standard errors at the county level. ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. Refer to Appendix A for detailed variable descriptions.

austerity that occurs immediately following the implementation of GASB 68 provides additional evidence that the effects we document are a consequence of the standard rather than of time trends or preexisting regulations. Second, an immediate response also suggests that the channel through which fiscal prudence increases occurs simultaneously with managers' preparation of the disclosures required by GASB 68. In contrast, a lagged response is more reflective of pressure from external stakeholders, as they would need to view the GASB 68–compliant audited financial statements before advocating for any related changes.[31]

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[31] Given the restrictions on this sample size, we conduct this analysis using (unweighted) OLS instead of entropy balancing.

We conduct difference-in-differences analyses using three distinct samples: (1) the two pre—GASB 68 years, (2) the two years immediately surrounding GASB 68, and (3) the two post—GASB 68 years. The goal of these analyses is to examine whether the fiscal adjustments we document are concentrated in the GASB 68—effective year rather than the year prior or year after. Therefore, in the first sample, we compare the differential fiscal adjustments in the period two years before GASB 68 was effective with the period one year before GASB 68 was effective. We implement this test by creating a Year 2014 *Ind.* variable that takes the value of 0 for the two years prior and 1 for the one year prior to GASB 68. Similarly, the second sample compares the differential fiscal adjustment in the year before GASB 68 to the year it was effective, and the third sample compares the year GASB 68 was effective with the subsequent year. We implement this last test by creating another dummy variable, Year 2016 *Ind.*, which takes the value of 0 for the GASB 68—effective year and 1 for the subsequent year.

Our results from this analysis are presented in Table 9. We find that the two pre—GASB 68 years test in Panel A has a weakly significant coefficient in Column 1, but the remaining columns are either insignificant or significant with the opposite sign, providing little evidence of the existence of a strong pre-trend. This further substantiates that our results are unlikely to be driven by actuarial changes promulgated by GASB 67, which was implemented in fiscal year 2014. Similarly, the two post—GASB 68 years test in Panel C have one significant coefficient in column 3, but the coefficients in the remaining columns are negative and insignificant. When compared with Panel B's pre- and post-comparison, which uses only one year of pre- and post-data, the effects we document are strongest around the time of GASB 68's implementation. As such, this analysis supports our conclusion that preexisting or subsequent time-series patterns of expenses and employment cannot alternatively explain our results.

6.6. Summary of results

Overall, our tests do not allow us to identify a unique mechanism that led to the documented changes in expenditures for *PMEPP* counties. However, our results collectively suggest that managerial learning likely played the most prominent role. From a timing perspective, the changes we document occurred at the same time that GASB 68 statements were prepared, suggesting that managers incorporated the new information as part of the planning process rather than awaiting the actions of external constituents. In addition, the fiscal importance of the new information (i.e., the size of the unfunded pension liability relative to contribution requirements) and the likelihood that the new disclosure requirements represented new information (e.g., because of the quality of pre-GASB 68 financial systems) seemed to accentuate the fiscal response to the standard. While external pressure could be affected by the economic size of the newly disclosed unfunded pension obligation, it is unclear how external monitoring would be affected by the quality of internal financial reporting systems. While we do not identify any changes in pension contributions, untabulated results suggest that there was an increase in precautionary cash holdings in the counties where we expected the effects of managerial learning to be greatest. These findings suggest that the differential response to GASB 68 by municipalities with shared pension plans is most likely driven by their increased awareness of future pension contributions.

7. Conclusion

The 90,000 state and local governments in the United States provide all citizens with essential and critical services, such as public education, police and fire protection, and implementation and maintenance of local infrastructure like sewers, roads, and public transit. Collectively, they spend roughly one quarter of all public money, with most resources allocated to education, health, and social service programs. Yet, despite the substantial economic importance of the governmental sector, we know relatively little about how GASB financial statements influence the provision of resources. This study contributes to the literature by examining how economic choices are concretely shaped by financial statement disclosure.

Our analyses indicate that counties that did not previously disclose their unfunded pension obligations responded by reducing public welfare spending, payroll expenses, and head count relative to those counties that were already subject to GASB pension disclosure requirements. These findings suggest that mandatory disclosure in the public sector can influence local-level managerial decision-making. Our collective evidence is most consistent with the argument that GASB 68 better informed counties about the future cash flow requirements of their pension plans. More specifically, we find that GASB 68 changed how newly disclosing counties saw their pension arrangements: while a pre—GASB 68 county considered its pension arrangement a bill (i.e., the county only has to make an annual pension contribution and is not responsible for any pension deficit), after GASB 68 it considered it a liability (i.e., the county is ultimately responsible for funding the pension deficit and the current year contribution reflects only a fraction of what is ultimately owed).

Our evidence on GASB 68's real effects is especially pertinent to policymakers, given GASB's recent focus on improving governmental financial reports through the provision of information that aids decision-makers and facilitates assessment of governmental accountability (GASB 2018).[32] We leave it to future researchers to examine how the spending cuts we identify affect the county's future performance and whether the imposed cuts represented the optimal long-term fiscal response.

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[32] A report on the GASB's preliminary views can be found here: https://www.gasb.org/jsp/GASB/Document_C/DocumentPage?cid=1176171382412&acceptedDisclaimer=true.

Appendix A

Variable Descriptions

Variable	Description (Source)
Pension Plan Variables:	
PMEPP Ind.	An indicator variable equal to 1 if a county participates in a cost-sharing multi-employer pension plan (*PMEPP*) and this plan constitutes a majority of the county's net pension obligations for fiscal years ending June 30, 2015, to May 31, 2016 (Fiscal YE 2015), and 0 otherwise (EMMA, county websites).
Modifying Variables:	
Post GASB 68 Ind.	An indicator variable equal to 1 for fiscal years greater than or equal to June 30, 2015, and 0 otherwise.
Year 2014 Ind.	An indicator variable equal to 1 for fiscal years greater than or equal to June 30, 2014, and 0 otherwise.
Year 2016 Ind.	An indicator variable equal to 1 for fiscal years greater than or equal to June 30, 2016, and 0 otherwise.
Debt Tercile	A count variable capturing a county's tercile of short- and long-term debt outstanding, less cash and securities reserved for future debt payments per capita (Census Bureau, Annual Survey of State and Local Government Finances: Categories: 44T, 49U, 64V, W01, Census Bureau County Population Totals). This variable captures all county bonds but excludes leases and unfunded pension obligations.
Outcome Variables:	
Tax Rev/Capita	The tax revenues in thousands of dollars collected by the county in the fiscal year scaled by the county population estimate (Census Bureau, Annual Survey of State and Local Government Finances: Categories: T01, T09-T16, T19-T22, T24, T25, T27-T29, T40, T41, T50, T51, T53, T99, Census Bureau County Population Totals).
Fee Rev/Capita	The charge revenues (e.g., utility fees, liquor license fees, insurance fees) in thousands of dollars collected by the county in the fiscal year scaled by the county population estimate (Census Bureau, Annual Survey of State and Local Government Finances: Categories: A01, A03, A09, A10, A12, A16, A18, A36, A44, A45, A50, A59, A60, A61, A80, A81, A87, A89, A90}, Census Bureau County Population Totals).
Misc. Rev/Capita	A county's miscellaneous revenues (e.g., property sales, rents, royalties, donations, etc.) in thousands of dollars collected by the county in the fiscal year scaled by the county population estimate (Census Bureau, Annual Survey of State and Local Government Finances: Categories: U01, U11, U20, U30, U40, U41, U50, and U99; Census Bureau County Population Totals).
Property Taxes/Capita	The property tax revenues in thousands of dollars collected by the county in the fiscal year scaled by the county population estimate (Census Bureau, Annual Survey of State and Local Government Finances: Category T01, Census Bureau County Population Totals).
Salary Exp/Capita	Salary and wage expenses in thousands of dollars incurred by the county in the fiscal year scaled by the county population estimate. This includes gross amounts paid for compensation prior to deductions for taxes withheld, pension contributions, subsistence charges, or other purposes (Census Bureau, Annual Survey of State and Local Government Finances: Category Z00, Census Bureau County Population Totals).
Welfare Exp/Capita	Welfare expenses in thousands of dollars incurred by the county scaled in the fiscal year by the county population estimate (Census Bureau, Annual Survey of State and Local Government Finances: Categories: J67-J68, E74-E75, E77, F77, G77, E79, F79, and G79, Census Bureau County Population Totals).
Ln(FTE)	The natural log of 1 + the number of full-time-equivalent employees working at the county measured as of the March 12 pay period of each fiscal year (Census Bureau, ASPEP).
Payroll/Capita	Payroll amounts represent gross payrolls in thousands of dollars for the one-month period of March (31 days). The gross payroll includes all salaries, wages, fees, commissions, bonuses, or awards paid to employees during the pay period that includes the date of March 12. Payroll amounts reported for a period other than one month are converted to represent an amount for the month of March. All payroll figures are represented in current whole dollars and have not been adjusted for inflation (Census Bureau, ASPEP). Gross payroll includes all compensation (e.g., salaries, wages, fees, commissions), amounts withheld for taxes, and employee retirement contributions, but excludes lump sum payments, the value of living quarters, and subsistence allowances.
CAFR Welfare Exp/Capita	Welfare expenses reported in a county's CAFR scaled by the county population estimate (EMMA, county websites, Census Bureau County Population Totals).
Ln(CAFR FTE)	The natural log of 1 + employees reported in a county's CAFR (EMMA, county websites).
Control Variables:	
Ln(Population)	The natural log of the estimated county population as of June 30 of each county fiscal year (Census Bureau County Population Totals).
Ln(Estabs)	The natural log of the lagged number of business establishments as of December 31 of each county fiscal year (Census Bureau, County Business Patterns).
Ln(PI/Capita)	The natural log of county income per capita for a county measured as of July 1 of each county fiscal year (Bureau of Economic Analysis, CAINC1).
Unemp. Rate	The average unemployment rate in percentage terms for a county measured as of December 31 of each county fiscal year (Bureau of Labor Statistics, Local Area Unemployment).
Density	The county population estimate scaled by the area in square miles of land as of June 30 each county year (Census Bureau County Population Totals, 2010 Census Bureau Survey on Square Footage).
Pension Contributions	The actual pension contributions made by the county from its *PMEPP*s and *OPP*s in each fiscal year scaled by the county population estimate (EMMA, county websites, Census Bureau ASPEP file).
NPL/FTE	The county's net pension liability from its *PMEPP*s and *OPP*s for each fiscal year scaled by full-time-equivalent employees as of March 12 in the prior fiscal year (EMMA, county websites, Census Bureau Annual Survey of Public Employment and Payroll (ASPEP)). We use the 2015 net pension liability for fiscal years 2013 and 2014 for *PMEPP*s, given that the county-specific *PMEPP* is not reported in the CAFRs before GASB 68.

(*continued*)

Variable	Description (Source)
Managerial Learning Variables:	
Pure PMEPP Ind.	An indicator variable equal to 1 when a county has only a *PMEPP* with a net pension liability in 2015, and equal to zero when the county provides both *PMEPP* and *OPP* plans, or only a *PMEPP* with a net pension asset in 2015.
PMEPP Multiple	A continuous measure of a county's *PMEPP* pension obligation scaled by its *PMEPP* contribution in 2015.
Pension Text	The number of times that the word "pension" occurs in a county's financial report prior to the passage of GASB 68.
No Award Ind.	An indicator variable equal to 1 when a county was not awarded a Certificate of Achievement for Excellence in Financial Reporting by the Government Finance Officers Association in 2014 (the year prior to GASB 68's implementation) and 0 otherwise.

Appendix B

Summary of GASB 67 and 68 Changes

Under GASB 25/27	Under GASB 67/68
Pension obligation disclosure requirements:	
GASB 25:	GASB 67 (effective for fiscal years beginning after June 15, 2013):
Governments are required to disclose the difference between the actuarial value of assets and the actuarial accrued liability, known as the unfunded actuarial liability, as supplemental information in both the schedule of funding progress and financial statement notes.	Significant assumptions used in calculating the net pension liability must be disclosed in the financial statement notes.
GASB 27:	GASB 68 (effective for fiscal years beginning after June 15, 2014):
For governments participating in cost-sharing plans (i.e., *PMEPPs*), employers are exempted from disclosing their share of the pension liability. For all other pension plans (i.e., *OPPs*), employers must disclose pension funding information in the financial statement notes and in the schedule of funding progress.	All governments need to report their funding status as supplemental information in the schedule of funding progress and the financial statement notes and must recognize the net pension liability on the statement of net position. Governments need to report sensitivity analyses in the financial statement notes showing how pension obligations change as assumptions change.
Asset measurement:	
GASB 25:	GASB 67:
Pension plan assets are an actuarial value of assets, which permits actuaries to "smooth" market fluctuations in asset returns by using multiyear average (usually five years) of market values.	Pension plan assets' value can no longer be "smoothed." Instead, plans need to report assets based on the actual value, or market value, of assets.
	GASB 68:
	Permits to defer (i.e., "smooth") the recognition of the difference between the return expected on plan assets and the actual return over a five-year period.
Liability measurement and recognition:	
GASB 25:	GASB 67:
Governments are permitted to value plan liabilities using a discount rate based on the expected return on plan assets.	Discount rates are applied using a "blended rate." The funded portion of the pension liability can be discounted at the expected return on plan assets. Unfunded pension liabilities should be discounted at a lower municipal bond rate. Actuaries can apply discretion in projecting the portion of pension liabilities that remain unfunded over the life of the plan.[33]
GASB 27:	GASB 68:
Governments report the annual required contribution (ARC) to the pension plan or plans as the "net pension expense" and the difference between the ARC and the actual contribution as the "net pension liability." The ARC consists of the normal cost for pension benefits earned in the current year and the amortization associated with any unfunded liability over the past 30 years. Financial statement recognition is required only when a municipality contributes less than its ARC.	All governments are required to report the net pension liability on the statement of net position based on the total pension liability minus the fair value of plan assets.

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[33] The use of a blended rate did not change the discount rate assumption for more than 90% of state-defined benefit plans and produced only modest changes for those states that lowered their discount rate to comply with the new standard. For a more complete discussion, see https://www.mercatus.org/publications/urban-economics/gasb-67-and-gasb-68-what-new-accounting-standards-mean-public-pension.

Appendix C1. County participates in a state-administered cost-sharing multiple-employer defined benefit pension plan: Cumberland County, Maine

Pre-GASB 68.

COUNTY OF CUMBERLAND, MAINE

NOTES TO FINANCIAL STATEMENTS
DECEMBER 31, 2014

NOTE 11 - PENSION PLAN (CONTINUED)

The County's status as a participating local district requires that the County continues to fund the plan on an actuarially sound basis for liabilities of any currently active, inactive vested, or retired participants. The County's participating employees are eligible for normal retirement upon attaining age 60 and early retirement after completing 25 or more years of service. Participants are fully vested after 10 years of service.

B. Funding Policy

Employees are required to contribute 7.0% of their annual salary to the system. The County contributes the remaining amounts necessary to fund the system, using the actuarial basis specified by statute. The current rate is 8.9% of annual covered payroll. The contribution requirements of the County are established by and may be amended by the State Legislature. As of June 30, 2014, the date of the last actuarial valuation, the plan was 85% funded.

C. Annual Pension Cost

For 2014, the County's annual pension cost was $1,121,966. The annual pension cost was determined as part of the June 30, 2014 actuarial valuations using the entry age actuarial cost method. For determining plan cost, assets are valued at "actuarial value". The actuarial value recognized the assumed rate of investment return, plus one-third of the difference between the actual rate and the assumed rate. The amortization method used is the level of percentage of payroll. The County's actual contribution was $1,121,966.

D. Three-Year Trend Information

Fiscal Year Ending	Annual Pension Cost (APC)	Percentage of APC Contributed	Net Pension Obligation
12/31/2012	$ 684,037	100.00%	-
12/31/2013	909,864	100.00%	-
12/31/2014	1,121,966	100.00%	-

Post-GASB 68.

SCHEDULE 2

COUNTY OF CUMBERLAND, MAINE

SCHEDULE OF THE PROPORTIONATE SHARE OF THE NET PENSION LIABILITY
LAST TEN FISCAL YEARS*

	2016	2015	2014
PLD Plan:			
Proportion of the net pension liability	3.05%	2.99%	2.90%
Proportionate share of the net pension liability	$ 16,198,653	$ 9,552,348	$ 4,468,538
Covered-employee payroll	$ 16,074,022	$ 15,224,871	$ 14,948,983
Proportionate share of the net pension liability as a percentage of its covered-employee payroll	100.78%	62.74%	29.89%
Plan fiduciary net position as a percentage of the total pension liability	81.61%	88.30%	94.10%

* The amounts presented for each fiscal year were determined as of June 30,
and are for those years for which information is available.

Appendix C2. Single-employer defined benefit pension plan: Kent County, Delaware

Pre-GASB 68.

Notes to the Financial Statements, June 30, 2014   Kent County, Delaware

NOTE K – PENSION AND POST RETIREE FUNDS – CONTINUED

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liaility (AAL) -Frozen Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b-a) / c]
1/1/2014 $	29,724,579 $	36,658,153 $	6,933,574	81.1% $	13,470,257	51.47%

Post-GASB 68.

Notes to the Financial Statements, June 30, 2016   Kent County, Delaware

NOTE K – PENSION AND POST RETIREE FUNDS - CONTINUED

6. Net Pension Liability

The County's net pension liability is measured, and the total pension liability used to calculate the net pension liability is determined by the actuarial valuation as of January 1, 2016. The net pension liability is $13,045,353, measured as the difference between the total pension liability of $46,186,132 and the fiduciary net position of $33,140,779.

Acknowledgments

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