

Constructing a Transparency Index for Education Policy Analysis

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1. Introduction

Democratic governance and accountability requires transparency of information, so that citizens can: (1) know how their tax dollars are being spent and (2) provide feedback to their elected representatives through voting, calls or letters to representatives, or involvement in community or lobbying organizations. The effective functioning of democratic government relies on citizens taking advantage of information, but a prerequisite to citizen use is the availability and quality of information itself (e.g., Hutchings, 2003; Kosack & Fung, 2014; Lindstedt & Naurin, 2010; Wehner & de Renzio, 2013; Woolley & Gardner, 2017). Although we recognize that research has found a lack of citizen participation even when information is available (e.g., Clinton & Grissom, 2015; Mitchell, 2011), a lack of participation or motivation does not nullify the statutory and constitutional requirements of a democratic government to make that information available.

The purpose of this paper is to empirically compare four statewide publicly funded voucher programs using a transparency index. Building on previous theory and empirical research, we define transparency in public governance as the availability of information related to publicly funded programs and policies (excluding personally identifiable data). Given the central role that information plays in democratic governance and education markets (Garn, 2001), we contend that transparency in voucher programs is essential not only to provide parents with information on choices but also to enable public and independent accountability organizations to provide evaluative information on these publicly funded programs (Carlson, Cowen, & Fleming, 2013). Transparency further allows voters and policymakers to make informed decisions about policy adjustment, continuation, expansion, or termination. There is documentation of transparency issues in publicly funded education programs both in the U.S.

and other nations (e.g., Hardin, 2016; Reinikka & Svensson, 2011; Shaoul, Stafford, & Stapleton, 2010), but there is not currently a systematic way to analyze transparency in education governance or management. In this paper we apply the concept of transparency in governance to U.S. publicly funded voucher programs. We have previously identified specific features of voucher policies and implementation practices that are relevant to transparency in this policy area (Stewart & Moon, 2016). This study builds on our previous findings and examines additional indicators of transparency that have been identified by the broader literature on transparency in governance.

Our study operates on two assumptions. First, we assume that a certain level of transparency is required for democratic accountability, in the sense of citizens' ability to monitor government and also to serve as a preventative constraint on potentially corrupt actions by public agents. Regarding this first assumption, we do not expect that higher measures of transparency will cause better student achievement or other outcomes. The second assumption is that transparency and completeness of information is necessary for the functioning of markets and the efficient and effective matching of demand for and supply of education. The ability of market functioning to cause increases in student achievement outcomes has yet to be established; thus, we do not expect positive educational outcomes due to increased transparency according to this assumption either. For this pilot version of our index, we are measuring transparency for its own sake and because it is a common expectation. Transparency is often coded into laws and other policies across the United States, but it has yet to be systematically measured regarding education governance.

2. Methods

Transparency has primarily been measured in global indexes focused on corruption, democracy, trust in government, and the global business market. However, considering the federalist structure of the United States, in which state governments control most public education policies, a transparency index would be applicable to compare state-specific transparency in education governance. Scholars have noted that country-level indexes are of limited usefulness, but few indexes have been created for regions within countries (de Araujo & Tejedro-Romero, 2016). The State Integrity 2015 index (Kusnetz, 2015) is a notable exception to this limitation.

An index focused at the comparative state level within one country can provide state legislators and other policymakers, as well as taxpayers and lobbyists, with a quick reference tool regarding both the overall level of transparency within their state as well as more detailed information on key components for targeted policy adjustments (Knack, Kugler, & Manning, 2003). Our index differs significantly from many global indexes in that we use qualitative coding and concept construction to create a particularly relevant and valid index (Arndt, 2008; Michener, 2015), though we also draw on well-established methods connecting theoretical constructs with measurable indicators (e.g., Knack et al., 2003). Harrison and Sayago (2014) provide additional guidance on scoring indicators and calculating index and category formulas.

2.1 Sample

In the first iteration of our transparency index, we use as sample cases the four states with statewide publicly funded voucher programs: Indiana, Louisiana, Ohio, and Wisconsin. Although transparency in education policy is a key factor in public education, the increasing expansion of private educational choice programs funded with public money (e.g., Burch & Smith, 2016) necessitates new strategies for monitoring transparency in policy implementation involving both

public and private actors. We limit our sample to statewide programs as the information and accountability interests of taxpayers differ for local versus statewide initiatives. As Hillman (2009) points out, voters' proximity to politicians (e.g., local versus state elections) influences the ability to gather information and hold elected officials accountable. Our index measures transparency at the same governance level across jurisdictions in order to provide valid comparisons.

2.2 Data

Studying transparency requires a focus on the availability of public data and documents. Open meetings laws, web-streamed and archived legislative sessions, and other multi-media or live access to information clearly all provide additional and significant aspects of transparency in contrast to just a few decades ago. However, because the publication and archiving of documents is common across all government jurisdictions and includes both current and historical data, we limit our data to documents. Thus, our data is limited in scope to publicly available documents on the following topics: state budgeting; the state legislative process, including fiscal analysis and appropriations; rulemaking and administrative codes; data collection requirements; audit requirements and findings; state agency reporting, including expenditures and academic data or outcomes; sanctions for noncompliance; and raw data. The majority of documents were collected from online state websites. When materials were not available online, we utilized informal and formal public records requests.

In this index and discussion, *report* refers only to public reporting. If data are required by law to be reported to a legislative committee or to a state agency, but not publicly posted, that requirement would be reflected in indicators referring to requirements to collect information. This distinction differentiates between data that is collected by a state agency—and thus

available via a public records request—and that which is made publicly available without any additional steps on the part of the citizen.

2.3 Method

Our index differs from other transparency indexes in type of data source and rating method. As described above, the narrower focus on education governance among U.S. states impacts the specificity of sources used. We designed our index using a combination of two normative constructions of government transparency and related public policy issues: (1) state-level constitutional and/or legislative statements of intent; and (2) theory and evidence from the literature on democracy, political responsiveness, and federalism in the U.S. context. Every indicator rating in our index is verified by an official policy document (e.g., statute, administrative rule) or by implementation evidence (e.g., published reports, documents and clarifications available through public records request, listserv communications from state agencies).

We constructed our transparency index in three stages, building on established global transparency index methodologies and then adapting our indicators to the U.S. context. We first analyzed our data by three major categories: quantity of information published, quality of information published (e.g., comprehensiveness, readability), and the information infrastructure of each state (e.g., digital/online versus paper dissemination). In the second stage, we used the results of the initial analysis to create a new set of categories aligned with the particular transparency needs of stakeholders of voucher programs, including state policymakers, local taxpayers/voters, and parents. These categories are pre-implementation appropriation and budgeting (“Budget”); post-implementation fiscal information (“Expenditures”); independent

financial audits (“Audits”); and academic quality, including state approval/accreditation and accountability (“Academics”).

Each category contains a set of indicators (see Appendix A for the complete list). In order to standardize ratings, each indicator is designed to have a binary score, 0 for “no” and 1 for “yes” (with the exception of the final indicator, *FOIRespFull*, which is the ratio of public records documents received to the documents requested; scores for this indicator fall between 0-1). In the third stage, we refined the indicators of each category to ensure that: (1) each indicator measured different observations; (2) each indicator was meaningful in a practical context (that is, a taxpayer or policymaker would find the information meaningful for their respective decision making); and (3) indicators reflected common practices in the U.S. state jurisdictional context.

All indicators included in the index represent aspects of transparency that, according to common U.S. federal and state constitutional language, should be required for programs operated by the government. This normative approach to index design (Decancq & Lugo, 2013) reflects both the stated importance of transparency in democratically created state laws and constitutions as well as the theoretical basis of transparency as developed in the literature on American politics and democracy (e.g., Brown, 1996; Lukensmeyer, 2013). In our normative index design, a perfectly transparent state would have evidence of every indicator weighted above zero (see discussion of weights of zero in section 2.4).

During the third stage, we also added a fifth category with four indicators relating to public records requests. These indicators are included in the aggregate ratings but are not presented as their own category, as almost every state scored full points on each indicator; at this point, the category is not conceptually interesting, although in the next iteration of the index we will broaden the focus of this accessibility category (see section 4.2 on future work).

2.4 Weighting

The methodological literature on weighting index indicators is not definitive (Decancq & Lugo, 2013). However, it does provide some direction on how to construct a weighting scheme that balances multiple dimensions of transparency. We primarily use the *equal or arbitrary* approach: 69 of the total 80 indicators are not weighted (or, in other words, these indicators each have a weight of 1) and we refer to these as *standard* indicators. For the remaining 11 indicators, according to theoretical justifications, a weight of 1 appeared to be influencing the index too much or not enough. We applied three different adjustments to these indicators to reflect their policy importance. First, a weight of “0” effectively makes that a *bonus* indicator, the absence of which does not count against a state but evidence of which demonstrates an extra level of effort towards transparency. One example of a bonus indicator is the requirement of a “Fraud Risk Assessment” for all schools participating in Wisconsin’s voucher program. We view this requirement as a useful practice, but not a common one; therefore, states that do not require it should not be penalized.

The second variation was to change a four-part measure from having the weight of four indicators to the weight of one, making each part contribute one-quarter of a full indicator’s value; we call this type of indicator a *partial* indicator. This adjustment was only applied once, to the set of four indicators related to collecting and reporting data on students’ continued enrollment in a participating school from year to year.¹ These measures provide important information to stakeholders about parents’ and students’ ongoing satisfaction with their school

¹ The four indicators are: “Rate of student retention by school year to year is required to be collected by department”; “Rate of student retention by school year to year is collected by department”; “Rate of student retention by school year to year is required to be reported”; “Rate of student retention by school year to year is reported.” *Retention* in this indicator refers to the school’s ability to attract continuous student enrollment year to year, not students’ being retained in grade.

experience, but we only wanted the continued enrollment indicator to count equally relative to the standard indicator value. Assigning the four dimensions of data collection and reporting one-quarter of the standard indicator weight met this need.

Finally, there were several indicators which had higher policy importance, as indicated by three sources: state-level statements on transparency and public accountability; federal statements on transparency and public accountability; and the literature on indexes for transparency and public accountability, in terms of best practices. These were weighted *double*. All weights are arbitrary in a statistical sense but reflect a normative approach, wherein we adjusted their value in order to reflect the importance of indicators relative to each other. In the terminology of Decancq and Lugo (2013), this priority scheme utilized *expert opinion*. Appendix B includes the full list of indicators, each indicator's weighting, and the rating of each indicator for each case (Appendix B available upon request).

Each category has a slightly different number of indicators (ranging from 17-20); we calculated the aggregate state scores using two different methods in order to compare the difference between approaches. First, we calculated a simple average score across all indicators in a state; second, we calculated the average of each category and then averaged those to create the state aggregate score. The second method effectively changes the weights of indicators within categories, but has the benefit of scoring the importance of each category equally. Ultimately, we contend that the individual categories are more important for policymakers than the aggregate scores, as each category and the indicators within each category provide more specific and actionable information. We do provide both sets of results here (see section 4).

We also analyzed the total and category aggregate scores using two methods: (1) a simple ratio of total scored points divided by possible points; and (2) difference from the mean, as a

comparative analysis. We believe that the first method is the most useful since the index is built around an ideal case based on the sociopolitical expectations of U.S. citizens and their representative state governments. That said, the distance from the mean does allow one to consider what may have been found using existing practices as the “normative” basis instead of our ideal case.

3. Theory and equations

3.1 Theoretical rationale for categories and indicators

Each category and its indicators have a theoretical rationale for inclusion in the index (see Appendix A for full list of indicators and their justifications). As Stiglitz, Sen, and Fitoussi (2009) point out, the lack of justification for “normative implications” is a weakness of many composite indexes, a weakness that we aim to prevent by relying on existing literature and regional policy expectations.

3.1.1. The Budget category is based on the assumption that information about planned allocations and expenditures for a program is necessary for taxpayers and legislators to have before implementation, so that they can provide feedback and make suggested changes or amendments to budgeted amounts before budgets are passed or approved (see Rios, Bastida, & Benito, 2016, for a discussion of the importance of legislative oversight on budget transparency). Although the “budget cycle” refers to budget preparation, approval and appropriation, implementation of programs (spending), and financial audit (Reddick, 2008), our budget category focuses only on the first two stages of this cycle. After approval, the budget must be available in order to hold the program accountable to planned expenditures (Hillman, 2009). As McKinney (2004) points out, public budgets are legal as well as financial documents, which

provides a legal basis for accountability. In our index, the approved, published budget must include some information regarding the program of focus. However, state-level budgets do not always include a level of detail that includes breaking out the specific educational program of focus. Because of this budget aggregation (see Anderson & Harbridge, 2010, for a discussion of the contested definitions of incremental fiscal changes and aggregation in budgets, and Breunig & Koski, 2009, for a discussion of the determinants of changes among budget categories), we also include an indicator requiring the publication of the agency-level budget for education (Smith & Jensen, 2017).

At the state budget level, we include indicators regarding the revenue source for the program of focus as well as the type of appropriation. Revenue source for voucher allocations has been the topic of legal challenges in some states (e.g., *Louisiana Federation of Teachers v. State of Louisiana*, 2013; *Meredith v. Pence*, 2013; O'Connor, 2015), and therefore this information must be transparent to taxpayers. As well, appropriation type indicates whether there is a cap on spending or whether other funds can be used in the event that the program requires more than the budgeted amount. McCann (2016) describes the ways in which variations within appropriation types can influence the balance of power among the legislature and executive agencies; though his article focuses on the federal level, the issues are applicable to states as well. This indicator informs taxpayers whether the budgeted amount is the maximum amount expendable or simply an estimate for the program's expenses.

In addition to legal state budget documents, we include the publication of legislative and/or fiscal analyses of budget provisions. Fiscal analyses can assist legislators and taxpayers in understanding the impact of a given budget provision and help provide justification for budgeted items (Goodman, 2008). We also include an bonus indicator if the state specifically publishes the

procedures and timeline of the budget process; this kind of explanatory publication can increase transparency of the budget process by informing taxpayers where to look for proposed budgets and when the budgets will be discussed and voted on (Miller, 2012). However, the explanatory publication is considered an optional indicator as all of the information in it should be available in statute.

The final indicator in this category is the collection of annual budgets from participating private schools. The indicator does not require publication of the budgets, but collection of them by the state education agency should define them as public records under common freedom of information laws and thus they would be available to taxpayers by request.

3.1.2. The Expenditure category has 20 indicators, including publication of overall expenditures for the program of focus, collection and publication of disbursements to each participating school; and validation of attendance/enrollment reported by schools. Although expenditures are often subsumed within the literature on budgets (e.g., Wehner & DeRenzo, 2013), we differentiate these two categories primarily by the timeframe in which they occur: budget processes refer to plans for expenditures or estimations that occur before spending (e.g., Reddick, 2008), whereas expenditures refer to reporting what is actually spent. Gavazza and Lizzeri (2009) discuss the different implications for transparency of revenues versus those of expenditures. The relationship between political accountability (via reelection) and the public's spending preferences are discussed in Mortenson (2009). Plummer, Hutchison, and Patton (2007) analyze several reporting issues in financial statements required by the federal Government Accounting Standards Board (GASB), although this analysis focused primarily on more specific reporting measures than overall expenditures.

3.1.3. The Audit category has 19 indicators, including a required independent audit of participating schools, under- and over-payments to schools are required to be corrected, and participating schools must meet minimum standard accounting practices. The Audit category also includes two indicators related to sanctions for noncompliance in any area, not just financial. Although the literature has examined whether auditors can be truly independent, operating within a political and business environment (e.g., Gramling, Jenkins, & Taylor, 2010; Loehlein, 2017; Warren, 2012), economic analysis has found auditing to increase efficiency in the use of public resources “by reducing nonproductive use of tax dollars” (Saito & McIntosh, 2010). We also do not attempt to judge the relative quality of audits or audit activities, although the literature recognizes a wide range of audit quality (e.g., DeFond, & Zhang, 2014). The indicators in the audit category were chosen based on common practices in financial auditing (McKinney, 2004).

Recent evidence from internal and external audit investigations into schools operating outside of the traditional public system (e.g., Morello, 2014; Ohio Auditor of State, 2015; Postal, Kassab, & Martin, 2017) provides additional corroboration that the indicators in this category are a minimum that should be required to ensure transparency within publicly funded school choice programs.

3.1.4. The fourth category, Academics, includes indicators related to academic quality and performance, which are relevant to transparency in terms of providing policymakers, citizens, and parents/consumers with information on which to base future decisions (James, 2011). This category has 20 indicators, including accreditation and/or state approval requirements for participating schools, a required minimum number of instructional hours, and state test scores for participating students are collected and reported at the state level.

The literature on accreditation at the P-12 level is sparse, though some scholars suggest it could be a potentially promising yet underutilized accountability tool (Rothstein, Jacobsen, & Wilder, 2008). A more recent publication confirms that nearly ten years later, accreditation is still widely required but not well understood (Oldham, 2018). Despite the dearth of research, three out of four of our cases require accreditation for participating schools, which indicates that in practice it appears to be useful for some purpose. Winterbottom and Piasta's (2015) analysis of the accreditation and outcomes in pre-kindergarten childcare suggests that accreditation does not impact academic performance. Further research in K-12 schools is needed to understand more fully whether and how accreditation does or does not encourage academic quality in participating schools.

Differential requirements for newly participating or newly operating schools is somewhat justified by the literature on new school implementation, particular in the charter sector (e.g., Carruthers, 2012; Loveless & Kelly, 2012; Ross, Pinder, & Coles-White, 2015), although this literature primarily focuses on academic outcomes related to a variety of input variables. The minimum instructional hours indicator is supported by research linking instructional time to academic outcomes (e.g., Gromada & Shewbridge, 2016; Jez & Wassmer, 2015; Rivkin & Schiman, 2015). We have considered including a teacher qualification indicator, but currently are undecided as to how to design this variable. As we expand the index to non-private education programming, we will continue to develop this indicator.

Academic outcomes such as test scores can inform both parents' demand for schools (Ford, 2016; Glazerman & Dotter, 2017; Holbein, 2016) as well as the more common focus on public accountability of school performance. However, in order to provide comparable academic outcome information, participating schools must administer the same test(s) as other schools in

the case. Thus, whether state standardized testing is required at participating schools is an indicator in this category. The impact of test results, and whether they are shared publicly, have a strong research base. Witte, Wolf, Cowen, Carlson, and Fleming (2014) find that the implementation of a testing and reporting component in the Milwaukee voucher program increased academic outcomes. Barrows, Henderson, Peterson, and West (2016) examine the effect of performance information on communities' perspectives on their local schools, finding that this information did correct to some extent local communities' inflated beliefs about the quality of own schools compared to others. In addition to test results, academic quality outcomes in terms of timely grade progression and/or graduation (depending on the grade bands within the school) are important indicators (e.g., Glennie, Bonneau, Vandellen, & Dodge, 2012). While we view the reporting of such rate(s) as important, it should be noted that the quality of reporting and rate calculation should also be assessed (e.g., Domina, Ghosh-Dastidar, & Tienda, 2010).

One issue that is more prevalent in voucher programs than in public schools is minimum reporting size for standardized test results. Some states produce a multiple-measure accountability rating that can provide some performance information beyond test results that may not be reliable due to a small sample size. Marsh, Bush-Mecenas, and Hough (2017) and Ehren and Hatch (2013) discuss the use of multiple-measure accountability systems in two different U.S. state contexts. It should be noted that for voucher programs, test results and/or accountability ratings are currently only used for information purposes (e.g., Andrabi, Das, & Khwaja, 2017); there are no sanctions for low performance in any of these cases.

There are two additional indicators that relate specifically to school characteristics that may signal aspects of quality to parents as they choose schools. These include retention rate (meaning the school's ability to attract continuous student enrollment year to year) and parent

satisfaction information. Parent satisfaction has been addressed in the literature (e.g., Kisida & Wolf, 2015), but the role of initial expectations on satisfaction level make this indicator somewhat less useful (Jacobsen, Snyder, & Saultz, 2015).

3.1.5. The fifth category, Accessibility, is still being developed. Currently we have four indicators, all related to public records policies and implementation at state agencies (e.g., Hazell & Worthy, 2010). In the next phase of the project, we will be adding indicators related to a few additional dimensions of this category. These dimensions include the method of publication (online versus paper copies only; e.g., Alcaide Muñoz, Rodriguez Bolivar, & Lopez Hernandez, 2017), the navigability and accessibility of state websites to laypeople (e.g., Murillo, 2015; Norris, 2001; Thornton & Thornton, 2013), and options available for informal data requests (e.g., Van Dunk, 2001). Fagan and Fagan (2001) note challenges to accessibility even when statutes and other documents are available online; this category will measure how easily accessible the contents of the other categories are.

3.2 Equations

We calculated category and total aggregate ratings in four ways. In the first calculation (Equation 3.1), we multiply each indicator rating by its weight, then find the average. Equation 3.1 thus counts each indicator equally (unless they are weighted with a theoretical purpose), regardless of their category. The four accessibility indicators are included in Equation 3.1. The second calculation (Equation 3.2) calculates *category* averages of all indicator ratings multiplied by their weights. We present the category averages separately (see section 4), and we also find the average of the category averages, which thus more heavily weights indicators in categories with relatively fewer indicators, but weights category averages equally. The four accessibility indicators are not included in Equation 3.2, as they do not represent a fully developed category

yet. The results of the first two equations represent the ratio of indicators in each case and/or category that have evidence compared to the possible total. The third calculation (Equation 3.3) compares each case to the mean of all cases; we show these results by category and in the aggregate. Finally, Equation 3.4 shows the difference in the aggregate (total and by categories) of weighting versus not weighting.

4. Results, Discussion, and Future Work

4.1 Results

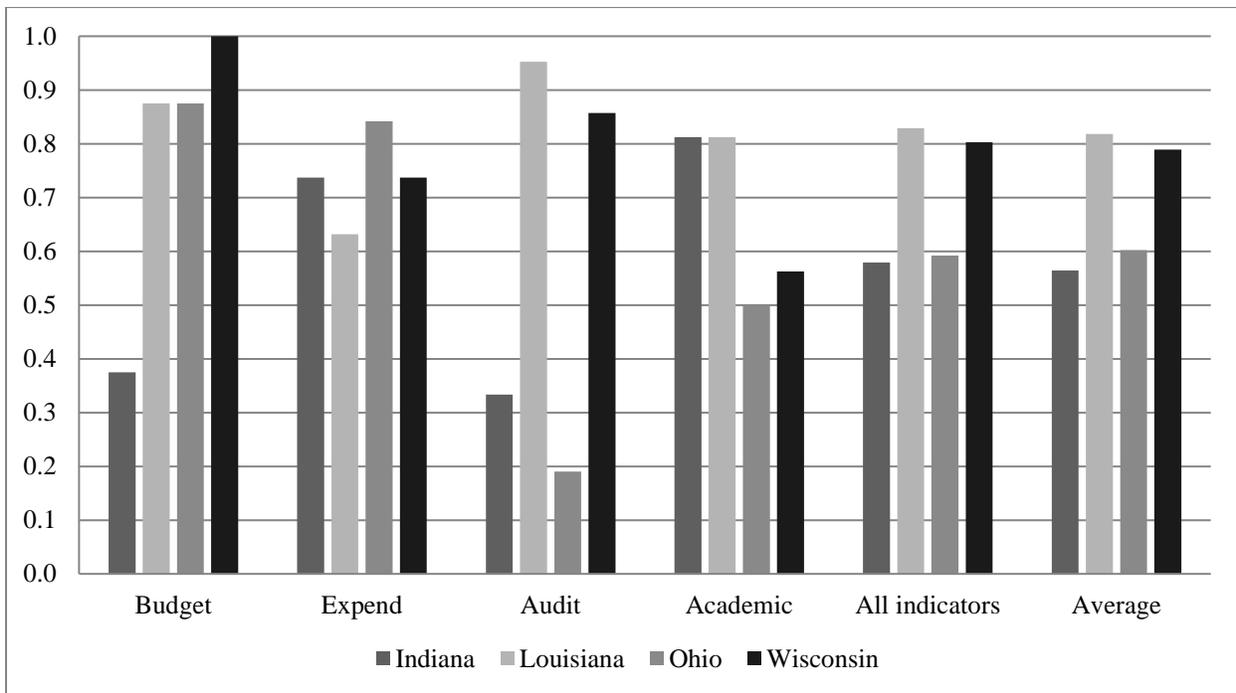
In the total aggregate (Equation 3.1), Louisiana (0.83) and Wisconsin (0.80) rate the highest, with Ohio coming in at 0.59 and Indiana coming in at 0.58 (see Table 4.1 and Figure 4.1). In the total aggregate, the mean score was 0.70, and differences from the mean ranged from a high of 0.13 (Louisiana) to a low of -0.12 (Indiana). Examining each case by category is quite useful; although Ohio has the lowest rating overall, they have the highest score in reporting actual expenditures (0.84). Ohio’s low aggregate rating is heavily influenced by the lack of a required audit (0.11) and the lack of required or practiced academic reporting (0.50). Indiana’s low aggregate rating is due to the lack of an audit (0.18) as well as lower scores in the category of budgeting (0.38). Wisconsin scores the only perfect rating in a category, scoring a 1.0 in budgeting.

Table 4.1 Results of Equations 3.1 and 3.2

	Budget	Expend.	Audit	Acad.	Average of all indicators (Eq. 3.1)	Average of categories (Eq. 3.2)
Indiana	0.3750	0.7368	0.3333	0.8125	0.58	0.564419

Louisiana	0.8750	0.6316	0.9524	0.8125	0.83	0.817865
Ohio	0.8750	0.8421	0.1905	0.5000	0.59	0.601895
Wisconsin	1.0000	0.7368	0.8571	0.5625	0.80	0.789121
All cases (average of indicators)	.781	.737	.583	.672	.701	.701

Figure 4.1 Results of Equations 3.1 and 3.2



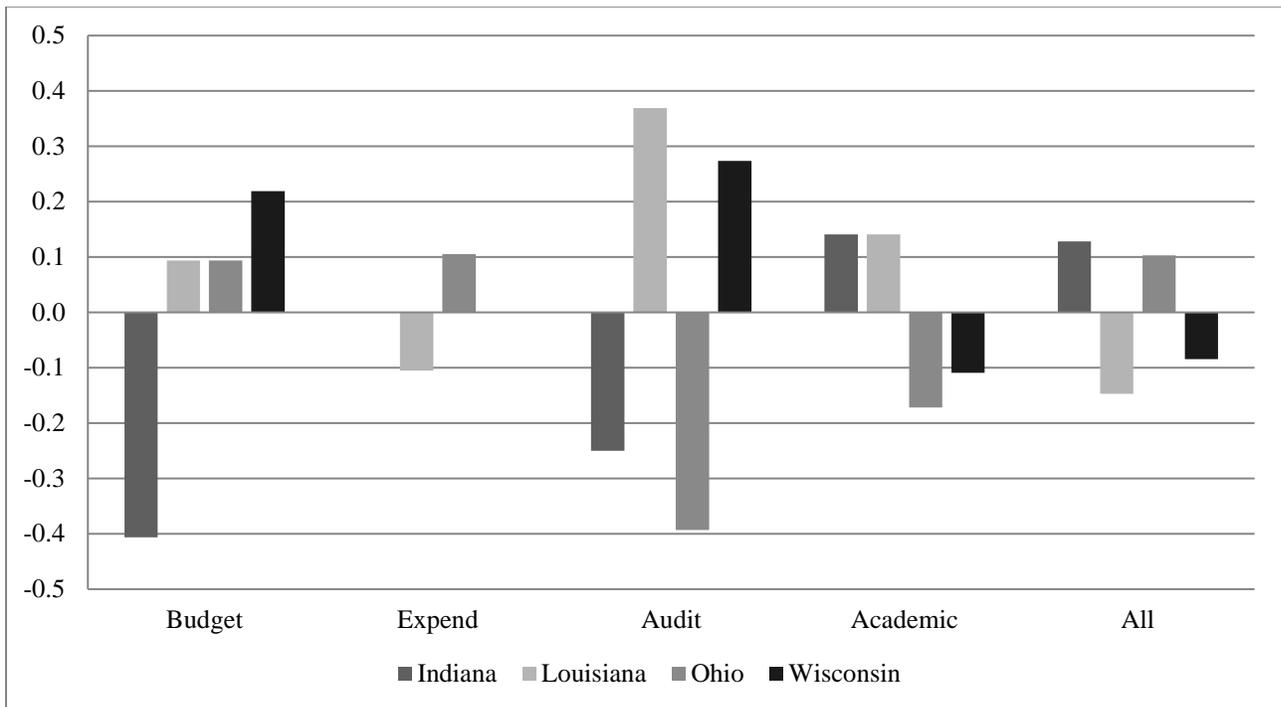
Distance from the mean calculations provide another way of looking at the differences among cases. Instead of comparing each case to the possible total scores, these calculations compare each case to the mean of all cases. Results by category reveal that for Expenditures and Academics, no case is more than .2 from the mean. The Audit category, and to a lesser extent the Budget category, have more extreme variations, with differences of .3 to .4 (above and/or below zero) in some cases. In the aggregate, the differences are also small, which demonstrates the need

to break out results by category; major differences within categories tend to even out in the aggregate, since each case has its own areas of strengths and weaknesses.

Table 4.2 Results of Equation 3.3: Distance from mean ratings

	Budget	Expend	Audit	Academic	All indicators
Indiana	0.4063	0.0000	0.3382	-0.1406	0.128
Louisiana	-0.0938	0.1053	-0.4265	-0.1406	-0.147
Ohio	-0.0938	-0.1053	0.3971	0.1719	0.103
Wisconsin	-0.2188	0.0000	-0.3088	0.1094	-0.084

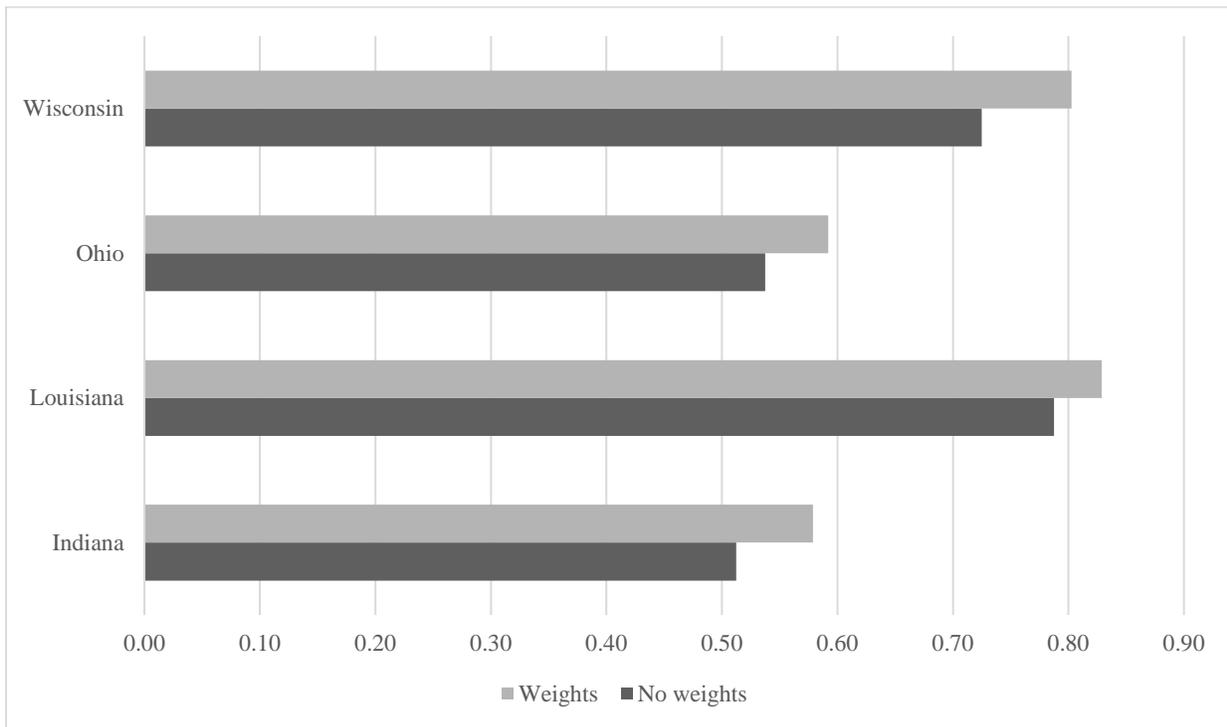
Figure 4.2. Equation 3.3: Distance from mean ratings



Since there are many methods of weighting indicators in indexes, at this early stage we wanted to present the different results with weighted and unweighted indicators in order to show

the impact of using weights. The use of weights increases each case’s aggregate score, though with only four cases, the impact of weighting does not change any case’s relative position in the index. As more cases are added, weighting is likely to become more influential and we will be adjusting weights if needed.

Figure 4.3. Equation 3.4: Comparison of weights versus no weights



4.2 Discussion and Future Work

A transparency index comparing state-level policies within the U.S. can be useful for policymakers and taxpayers by comparing both aggregated and disaggregated data on transparency. The indexing method we devised can translate complex archival information into an easily accessible and comparable set of actionable indicators. Although this index is in an early stage, the comparative findings for voucher programs can still be useful to policymakers

and citizen advocates for transparency. The index highlights not only categories and individual indicators in which states are lacking in transparency but also offers comparative cases in which states earn high transparency ratings. The specificity of the ratings and the evidence-based scoring method provides states with comparative models for how to improve their information systems to encourage a more open, transparent, and accountable government.

We are currently working on an interactive visualization for this index with drill-down options to the level of specific ratings for each indicator in each case and references to the evidence used to arrive at that rating. Future work is planned to add other publicly funded P-12 education options within and among states, including charters and traditional public schools. As we add more cases, we also expect to further revise the categories, indicators, and/or weights in order to respond to the normative expectations of these schooling options as established within state laws and constitutions. Specific areas of focus in terms of indicators include contracting (Burch & Smith, 2016) and other moves toward privatization in traditional public districts (Cucchiara, Gold, & Simon, 2011). Next steps also include adding indicators that measure the accessibility and navigability of the information addressed in the main categories.

Appendix A: Indicators, Rating Criteria, and Indicator Justification

Indicator Name	Category	Criteria for Rating	Justification
BudgProcess	Budget	The state publishes a guide to the budget process.	Taxpayers should be able to easily find and understand the budgeting process.
ProposedRR	Budget	Proposed budget bills are required to be published.	
ProposedBudgDR	Budget	Proposed budget bills are published, including at minimum a line item for the program of focus.	Taxpayers should be able to view draft budgets and provide feedback to policymakers during the process.
EnactBudgRR	Budget	States are required to publish enacted budgets.	Taxpayers should know how much money the government is planning to spend on programming.
EnactBudgDR	Budget	States publish enacted budgets, including at minimum a line item for the program of focus.	
StateLegARC	Budget	States are required to conduct analyses of budget legislation.	Both taxpayers and policymakers should have an awareness of what potential fiscal effects the program will have on other budget items, etc. Policymakers should be taking this kind of analysis into account when they decide whether to approve a program or a yearly budget.
StateLegADC	Budget	States conduct analyses of budget legislation (but not necessarily publish them), including evidence of voucher program analysis.	
StateLegARR	Budget	States are required to publish analyses of budget legislation.	
StateLegADR	Budget	States publish analyses of budget legislation, including evidence of voucher program analysis.	

DOEBudgRC	Budget	State education agency is required to create its own agency budget (proposed or final).	Since departments of education are almost always the administrator of voucher programs, taxpayers and policymakers both need to know how program funds fit into the department's larger budget.
DOEBudgDC	Budget	State education agency creates its own agency budget, including at minimum a line item for the program of focus.	
DOEBudgRR	Budget	State education agency is required to publicly report its own agency budget	
DOEBudgDR	Budget	State education agency publicly reports its own agency budget, including at minimum a line item for the program of focus.	
SchBudgRC	Budget	State education agency is required to collect budget information from participating schools	Schools should be accountable on some level for whether they are spending program revenues according to program rules; budget information also lets state agents know whether the school has an acceptable method of budgeting, etc. (less formal than an audit, or could be included in an audit).
SchBudgDC	Budget	State education agency collects budget information from participating schools	
RevSourDR	Budget	Revenue source for program of focus is reported	Revenue source tells taxpayers where the funding is coming from, whether it is the same pot of money as other programs, etc.
ApprTypDR	Budget	Appropriation type for program of focus is reported.	Type of appropriation tells taxpayers whether there is a cap on spending, how additional money will be transferred if needed, or whether the budgeted amount is only an estimate, and the program can receive as many funds as needed to fulfill its responsibilities.

ExpdOvRC	Expend	Overall expenditures for program of focus are required to be collected.	Taxpayers and policymakers need to know how much money is spent on publicly funded programs.
ExpdOvDC	Expend	Overall expenditures for program of focus are collected.	
ExpdOvRR	Expend	Overall expenditures for program of focus are required to be reported.	
ExpdOvDR	Expend	Overall expenditures for program of focus are reported.	
ExpdSchRC	Expend	Expenditures by school or recipient are required to be collected.	Taxpayers and policymakers need to know how much money is going to individual schools; in addition, amounts need to be checked against enrollment.
ExpdSchDC	Expend	Expenditures by school or recipient are collected.	
ExpdSchRR	Expend	Expenditures by school or recipient are required to be reported.	
ExpdSchDR	Expend	Expenditures by school or recipient are reported.	
ExpdLEARC	Expend	Expenditures OR enrollment by LEA of legal settlement are required to be collected.	Taxpayers, especially in states the use partial local funding for schools, need to know how many students legally residing in their district are participating in voucher programs, as it affects their local district.
ExpdLEADC	Expend	Expenditures OR enrollment by LEA of legal settlement are collected.	
ExpdLEARR	Expend	Expenditures OR enrollment by LEA of legal settlement are required to be reported	
ExpdLEADR	Expend	Expenditures OR enrollment by LEA of legal settlement are reported.	

ExptActDR	Expend	Expected versus actual expenditures are reported in a direct comparison.	Although expected spending and actual spending may be published separately, releasing this information together allows taxpayers and policymakers to easily compare whether the program spent more or less than it expected to. If it spent more, that is an issue that needs to be addressed in future budgets and possibly through investigation of policy design.
EnrollSchRC	Expend	Enrollment by school is required to be collected.	School enrollment is necessary in order to understand amounts disbursed to schools.
EnrollSchDC	Expend	Enrollment by school is collected	
EnrollSchRR	Expend	Enrollment by school is required to be reported.	
EnrollSchDR	Expend	Enrollment by school is reported.	
AttOneRC	Expend	At least one attendance count per year is required to be collected by state.	
AttOneDC	Expend	At least one attendance count per year is collected by state.	One attendance count per year would be a minimum level of enrollment data, but does not account for mobility before or after the count date.
AttValid	Expend	Attendance is validated (by auditor or other)	For school-reported data that is related to financial disbursements, this data needs to be independently validated due to its financial significance.

IIndAudRC	Audit	Independent audit is required to be conducted.	Collection and reporting of audits for organizations receiving public funds lets the public know that their taxes are being used according to program requirements only. (McKinney, 2004)
IIndAudDC	Audit	Independent audit is conducted and results are submitted to department.	
IIndAudRR	Audit	Independent audit is required to be reported.	
IIndAudDR	Audit	Independent audit is reported.	
RevExpdRC	Audit	Participating schools' revenue versus expenditures AND/OR budget versus actual is required to be collected by state agency	DoEs and/or auditors should be able to review and potentially investigate any school-level financial operations.
RevExpdDC	Audit	Participating schools' revenue versus expenditures AND/OR budget versus actual is collected by state agency	
IASupDocRC	Audit	Supporting documentation for audit is required to be collected	Supporting documentation to validate the data provided by schools is necessary in order to prevent fraud
IASupDocDC	Audit	Supporting documentation for audit is collected (at least by auditor).	
IAProcedures	Audit	Independent audit procedures are reported.	A description is necessary in order for comparison against standard, accepted procedures in the field.

OverUndRC	Audit	Over and under payments are required to be collected	Even if over/under-payments are required to be corrected within an appropriate timeframe (or automatically corrected by deductions from future disbursements), publishing the amounts themselves offers taxpayers a sense of whether there are frequent or major discrepancies in accounting at certain schools.
OverUndDC	Audit	Over and under payments are collected	
OverUndRR	Audit	Over and under payments are required to be reported	
OverUndDR	Audit	Over and under payments are reported	
ResolveNC	Audit	All noncompliance including overpayments must be corrected	Even if a list of over/underpayments is not published, this indicator tells taxpayers that the state is required to correct any problems immediately.
Sanctions	Audit	Sanctions exist for noncompliant schools.	Without enforcement mechanisms for schools that break the rules, the administrative requirements are empty.
Investigate	Audit	State has authority to investigate any suspected noncompliance.	The oversight agency must have the ability to investigate any of the requirements for voucher schools.
Enforcement	Audit	Evidence of enforcement for noncompliant (e.g., removal from approved list, etc.)	Even if the agency has the authority to enforce compliance, they may or may not have the capacity or interest in doing so. This indicator demonstrates that the agency has taken some kind of action related to compliance.
FraudRisk	Audit	Fraud risk assessment is completed for each school.	Preventative measure to ensure that participating schools are not at risk of established predictors of fraud.

AcctPract	Audit	Minimum accounting standard practices are required at school level	Schools need to be meeting minimum accounting standards so that their records can be examined and audited when necessary.
StateApprv	Academic	State approval of schools required	State-specific requirements for participation in the program indicate that the state has a specific interest in the quality of the participating schools
Accredit	Academic	Accreditation of schools required	Requiring schools to be accredited offers an additional layer of quality, but since accreditation requirements differ by accrediting agency, it is a less relevant requirement for state taxpayer interests.
NewQual	Academic	Additional requirements for newly operating and/or newly participating schools	Requiring new(er) schools to meet additional or probationary requirements reflects a state's recognition that new organizations can often have difficulty in the start-up phase and may need additional oversight during this period.
InstHours	Academic	Instructional hour requirements from state (minimum)	Similar to public schools, taxpayers should know how many hours of instruction are being received by students in the program.

RetRateRC	Academic	Rate of student retention by school year to year is required to be collected by department.	Schools that can attract returning students from year to year indicate a certain level of satisfaction and continued demand.
RetRateDC	Academic	Rate of student retention by school year to year is collected by department.	
RetRateRR	Academic	Rate of student retention by school year to year is required to be reported.	
RetRateDR	Academic	Rate of student retention by school year to year is reported.	
ParentSatis	Academic	Parent satisfaction data is collected and reported	Parent satisfaction rates are theoretically aligned with school choice policies.
ProgRateRC	Academic	Progress/graduation rate data is required to be collected.	When students progress through grade levels in a timely fashion and graduate from a school, it should indicate that the school is successfully educating students.
ProgRateDC	Academic	Progress/graduation rate data is collected.	
ProgRateRR	Academic	Progress/grad rate data is required to be reported.	
ProgRateDR	Academic	Progress/grad rate data is reported.	
AcctRatRR	Academic	Accountability rating system exists in the state and method is public.	A rating system can help translate multiple indicators of quality into a more user-friendly score for the parent or taxpayer. We do not evaluate the quality of the ratings but only whether there is one).
AcctRatDR	Academic	Accountability ratings are published for each school.	

TestReqd	Academic	State testing is required for participating students.	Testing on the state standardized test is required in order to compare outcomes for participating and non-participating students.
TestRptRC	Academic	State test scores for participating students are required to be collected by state.	Publishing test scores at some level (by school or by other category) allows for a basic comparison of program outcomes.
TestRptDC	Academic	State test scores for participating students are collected by state.	
TestRptRR	Academic	State test scores for participating students are required to be reported (in nonidentifiable way).	
TestRptDR	Academic	State test scores for participating students are reported in nonidentifiable way	
FOIAllDocs	Public records	Public records law includes all non-student-identifiable documents created, collected, or kept by state agencies	Public records should include anything involving the use of public funds.
FOIProcess	Public records	The process for records requests is easy to find and clearly described.	Public records' requests should be easy for the public to understand and conduct.
FOIRespTime	Public records	State responds within the time period required by law	Public records' requests should be available to the public in a timely fashion.
FOIRespFull	Public records	State responds with full disclosure of requested records; rating is ratio of returned records to requested records.	Public records' requests should be fulfilled in the manner required by law.

Appendix B. Indicator ratings and weights

Available upon request

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