

## Using the Evidence-Based Adequacy Model across Educational Contexts: Calibrating for Technical, Policy, and Leadership Influences

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**Abstract** This article reports on a rigorous approach developed for calibrating the Evidence-Based Adequacy Model to suit the Ontario K–12 public education context, and the actual calibrations made. The four-step calibration methodology draws from expert consultations and a review of the academic literature. Specific attention is given to the technical revisions and, importantly, the significant influence of policy (values) and leaders' decision-making on the calibration process. It also presents emerging implications for leaders and researchers who are considering calibrating the EBAM for use in their educational context. Calibrating the instrument was a necessary step before use in a jurisdiction outside of the United States, where the model was developed, and our team has been the first to outline a methodology and bring Canadian evidence to the discussion.

**Keywords** Adequacy; Resources; Education; Calibration; Leadership; Policy; Decision-making

### Introduction

The field of education has entered an exciting era, as researchers and policymakers “know more now than ever about effective resource use and can do a better job of taking advantage of that knowledge” (Adams, 2010, p. 24). To help the sector take

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advantage, scholars have been developing approaches to contextualize this knowledge, because what is known about the social world is often borrowed and does not necessarily “hold up across settings [and] over time” (Adam, 2010, p. 24; see also Fazekas, 2012). In the academic area of education finance, the review process for contextualizing this knowledge—which often takes the form of funding frameworks or models—can be quite formal; therefore, this article refers to this process as *calibration*. A great example of scholars calibrating knowledge on the effective use of resources for application across educational contexts is the Evidence-Based Adequacy Model (EBAM), a robust tool grounded in research evidence that was developed in the United States to generate adequate estimates of school resource levels (Odden & Piccus, 2014). The model has been widely applied in the United States, due to the efforts of researchers working in partnership with “policymakers . . . education leaders and practitioners [to] review, modify, and tailor [the model’s] core recommendations to the context of each state’s situation” (Odden, Piccus, & Goertz, 2010, p. 631). However, no team of scholars or policymakers has attempted to employ the EBAM outside of the United States—opening a space for researchers to develop a new calibration process that would allow stakeholders in other educational contexts to benefit from this knowledge. This article reports on the rigorous calibration process that was developed, as well as the calibrations made to the EBAM—specifically, the model’s recommendations for adequately resourcing schools—for use in the context of K–12 public education in Ontario, Canada.

This Canadian province, similar to so many other Organisation for Economic Co-operation and Development (OECD, 2017) educational jurisdictions, has stakeholders engaged in a long-standing debate over what constitutes adequate K–12 school resourcing (Keenan, 2017; Mackenzie, 2009; Office of the Auditor General of Ontario, 2017; People for Education, 2018; Queiser, 2017). This debate, now at a stalemate, has different sides presenting competing and/or conflicting evidence claims (i.e., performance indicators and professional expertise vs. local knowledge), resulting in status-quo resource allocation and use that helps perpetuate student achievement gaps. In addition, provincial education leaders are not systematically using research as a type of evidence to inform how they allocate and use resources, nor is research being used to inform public deliberations on the topic (Faubert, 2018, in press). For these reasons, the province could benefit from a research-based tool on school finance adequacy, such as the EBAM. Before Ontario can make use of the EBAM, however, researchers, policymakers, and education leaders will need to work together to examine and calibrate the instrument for application in their jurisdiction (Adams, 2010; Fazekas, 2012; Odden, Piccus, & Goetz, 2010).

This article’s intended contributions to the field of education finance and leadership/administration include: a) outlining a process for researchers, policymakers, and education leaders outside of the United States who are interested in calibrating the EBAM and potentially related models for use in their jurisdictions; b) highlighting both the technical revisions and the powerful influence of policy and leadership in calibrating the EBAM; and c) bringing Canadian evidence to the academic discussion on school finance adequacy and education policy funding, as most of the related research has been conducted in the United States.

This article describes the EBAM and briefly explains how this model came to be. Then it provides a brief overview of the Ontario K–12 education policy context and how it fits in the international conversation on school resource adequacy. It then outlines the framework and calibration process used here, and offers a detailed review of the calibrations made. This is followed by additional considerations connected to the factors shaping the calibration process, which are framed as implications for leaders and researchers working in non-American jurisdictions who are considering calibrating the EBAM or a similar evidence-based model. The article concludes with a brief summary.

### **What is the EBAM? How did it come to be? Why is it important?**

There are four approaches to estimating adequate resource levels in schools: a) the input or professional judgement approach, b) the successful district approach, c) the cost function approach, and d) the evidence-based approach (Odden & Picus, 2014). It is beyond the scope of this article to describe each, but suffice to say, each approach is grounded in specific evidence types, with the EBAM and its recommendations grounded (primarily) in research evidence.

Lawrence Odden and Allen Picus developed the EBAM in response to the long-standing debate about the adequacy and equity of school finance in the United States (Adams, 2010; Malen, Dayhoff, Egan, & Croninger, 2017; Odden & Picus, 2014). More specifically, the EBAM can be used to estimate the level of resources “required to deliver a comprehensive and high-quality instructional program within a school” (Odden & Picus, 2014, p. 76). Although the model can also be used to generate resource estimates for district offices, this article focuses only on the school-level recommendations. The model works by applying the EBAM recommendations “tailored to the exact enrolment and demographic data for each school” (Odden & Picus, 2014, p. 118). Because each school has specific needs, the model’s recommendations include guidance on how to adjust resource supports proportionately to reflect a school’s enrolment level, as well as other characteristics that research has suggested require higher levels of support. For example, schools having a higher percentage of students with disabilities, students who speak English as a second language, and students in the community who live in low-income households (Odden & Picus, 2014; Odden, Picus, & Goetz, 2010).

When compared with the other approaches, the EBAM stands out for three important reasons. First, scholars are increasingly regarding evidence-based models as superior when compared to the professional judgement approach—currently the most widely used—because resource estimates generated using this approach often read like “a wish list” (Costrell, Hanushek, & Loeb, 2008, p. 118) and are subject to political bias (Rebell, 2007).

Second, the model’s developers reviewed the latest research evidence and best practices in the United States context. Given that the vast majority of empirical research connected to the effective use of resources in education is conducted in the United States, the EBAM is the most comprehensive model of its type, globally speaking. A literature review confirmed that no other English speaking country has, at this time, the evidence base required to develop a “home-grown” model, again meet-

ing the same standard of evidence as the EBAM. This adds to the value—and necessity—of developing a process for calibrating, and later validating, this model for use in other jurisdictions.

The final reason concerns the opportunity to advance the equity agenda through school finance research. Education finance scholars often consider horizontal equity (i.e., treat all students the same) and vertical equity (i.e., treat students differently because some may need more supports than others to achieve educational aims [Odden & Picus, 2014; Young, Levin, & Wallin, 2014]). Odden and Picus (2014) have argued that “one major difference between equity and adequacy is that equity implies something about a relative difference, while adequacy implies something about an absolute level. [That is,] adequacy requires some link between inputs and outputs ... some level of spending that should be sufficient to produce some level of student achievement” (pp. 65–66). Without disagreeing with this notional distinction, the position of Betty Malen, Justin Dayhoff, Laura Egan, and Robert Croninger (2017), usefully advances the argument that a “more fulsome definition of equity ... [in school finance can be achieved if scholars] incorporate horizontal equity, vertical equity and adequacy” (p. 637).

### **The school resource debate in Ontario, Canada—and internationally**

Ontario is the most populous province in Canada, with a total population of 14,374,084, as of April 1, 2018, and comprising approximately 38.7 percent of Canada’s total population (Ontario Ministry of Finance, 2018). For constitutional reasons, authority over K-12 education in Canada resides at the provincial level (CMEC, 2018). In the case of Ontario, the province’s Ministry of Education defines K–12 education policy, including funding and curriculum, while 72 school districts manage the implementation of policy and oversee the delivery of education in 4,877 schools populated by 113,672 teachers and 7,352 school administrators and two million students,<sup>1</sup> or approximately 94 percent<sup>2</sup> of the province’s K–12 population.

Regarding funding and policy, Ontario’s K–12 public school districts receive the vast majority of their revenues through two mechanisms: a funding formula and the lesser known Education Programs—Other (EPO) (Rodrigues, 2018a). The province’s funding formula is data-driven but not systematically informed by empirical research, while EPO is used to pilot specific government initiatives based on policy priorities (Faubert, 2018, in press). Between these two mechanisms, all K–12 public education in the province is, effectively, 100 percent publicly funded. Resource decision-making in Ontario is largely the responsibility of leaders at the provincial (state) and district levels of educational governance. In June of 2018, the citizens of Ontario elected the leader of the province’s Progressive Conservative party as their new premier with a majority government, ousting the Liberal government that had been in office and directing education policy since 2003. The Conservative leader has promised to review education policies through the lens of a more traditional or ‘back to basics’ approach to education (Jones & Casey, 2018; Newhouse, 2018), denoting a shift in the values from the previous government’s inclusive focus (e.g., attention to Indigenous issues). Given that “the use and impacts of school funding formulas greatly depend on the characteristics of the policy environment they are embedded

in” (Fazekas, 2012, p. 12), this shift in values and policy changes will likely affect the funding formula and the revenues that school districts receive in the future. In 2018–2019, Ontario’s public school boards will receive approximately \$24.5 billion for the provision of education and \$246.9 million for EPO (Rodrigues, 2018).

A 2018 survey of Ontarians found that the majority of them have “confidence” in K–12 public schools and educational policy (Hart & Kempf, 2018). Despite this confidence and the multibillion-dollar annual public investment, sector stakeholders—including nongovernmental organizations, policy think tanks, the news media, and the Ontario Auditor General—have criticized the formula used to allocate funding because it provides inadequate levels of resources, which contributes to known gaps in student achievement outcomes and well-being (Keenen, 2017; Mackenzie, 2009; Office of the Auditor General of Ontario, 2017; Queiser, 2017). Moreover, stakeholders have argued that education leaders are inadequately committed to strategically using resources to close these longstanding gaps in student academic achievement—for example, for students who speak English as a second language or have special education needs (Ontario Ministry of Education, 2012)—which further contributes to education inequities (Keenan, 2017; Office of the Auditor General of Ontario, 2017). The combined outcome of this situation is that too many students are transitioning into adulthood without the knowledge and skills required to fully participate in the economy and society—a threat to the future prosperity of the student, province, and country. A model such as the EBAM could help Ontario by generating an alternative set of research-informed estimates of adequate school resource levels to shape the public debate and help leaders rethink their allocation and use of resources to close achievement gaps more effectively.

These debates over school resource adequacy are not unique to Ontario or the United States. When governments set standards for education, they effectively set an adequacy mandate and the resources they provide are, presumably, by some measure “adequate” to deliver education that enables students to meet those specific aims (Odden & Picus, 2014). Whenever goals are set for education, this invariably sets the stage for academic, policy, and public debate about what constitutes adequate levels of school funding to achieve them; these debates are also taking place in the rest of Canada (Carr-Stewart, Marshall, & Steeves, 2011; Henley & Young, 2008; Levin, 2008; Mwere, 2010) and internationally, including in the United Kingdom, Australia, and Norway (Atkinson, Lamont, Gulliver, White, & Kinder, 2005; Fazekas, 2012)—sometimes within the context of adequacy, sometimes not.

How are governments allocating funds to achieve their adequacy mandate? Many governments in OECD countries—and, increasingly, developing countries—use formulas to allocate resources to schools and school districts (Atkinson et al., 2005; Fazekas, 2012). Certainly no funding formula is perfect (Levin, 2008), but more can always be done to improve the methods used for resourcing education. For example, funding formulas (and other allocation mechanisms) typically draw from many data sources, but they are not necessarily informed by empirical research evidence. In a review of how their member countries resource education, the OECD (2017) concluded that research could play a greater role in improving resource allocation methods and the overall planning of education resources. To their credit, education finance

scholars and policymakers have been focusing their efforts over the past decade on developing and interrogating funding models to better incorporate research and deliver on this adequacy mandate (OECD, 2017). The OECD regards research on resource adequacy in the United States as a promising line of study (Fazekas, 2012), adding greater weight to the model's potential global utility and the imperative to develop a calibration process.

### Framework and sources informing the calibration process

The framework centres on six concepts: *policy*, *decision-making*, *adequacy*, *school finance adequacy*, *resources*, and *calibration*. Policy is the “authoritative allocation of values” (Lingard, 2013, p. 114, 128) that “mobilises the distribution of capitals ... of various kinds across the education system” (p. 118), while decision-making is defined as an ongoing process (Lingard, 2013) of leaders exercising control. Odden and Picus (2014) drew on William Clune's (1994) articulation of adequacy “as being adequate for some purpose, typically student achievement” (p. 377), to describe school finance adequacy as “providing a level of resources to schools that will enable ... all, or almost all students ... to meet their state's performance standards in the longer term” (Odden, Picus, & Goetz, 2010, p. 630). For the purposes of this article, resources refers to funding and personnel (Ontario Ministry of Education, 2014). Calibration refers to a formal process of review and revision to the EBAM's recommendations to suit the education policy context of an educational jurisdiction; this articulation differs from how the model's developer have used this term, which is to calibrate a jurisdiction's current funding model relative to the EBAM recommendations (Odden & Picus, 2015; Odden, Picus, & Goetz, 2006, 2014). The study's six concepts, similar to the EBAM itself, are grounded in structural-functionalist sociological assumptions that acknowledge the authority of the government to define student performance standards for an education system (Guthrie, Springer, Rolle, & Houck, 2007).

In developing a process for rigorously calibrating the EBAM for use in Ontario, the model's developers were consulted and the academic literature was reviewed. The remainder of this section summarizes the insights gained from both the experts and the literature.

### Expert opinion

We contacted the model's developers, Dr. Arthur Odden and Dr. Lawrence Picus, regarding their perspective on the model's external validity. They noted that although the model is grounded in United States-based research, they did not “think it outlandish applying the model to Canada, and Ontario” (Dr. Allan Odden, Personal Communication, August 17, 2015). They were not aware of a researcher applying the model outside of the United States and offered no specific case to draw methodological precedence. Their recommendation for developing a calibration methodology was to use the latest iteration of the model (Odden & Picus, 2014) and to review each element of the model with Ontario education funding experts to see which adaptations were necessary to accommodate the provincial context.

## Scholarly literature

We first searched for literature specific to adapting the EBAM in the American context, and then expanded to other evidence-based frameworks applied in different social contexts. This review uncovered a number of sources published by the model's developers and other scholars who have applied the EBAM across the United States (Odden & Picus, 2015; Odden, Picus, & Goetz, 2006; 2014; Picus & Oden, 2009; Picus, Odden, Goetz, & Aportela, 2012). Given that the model is grounded in American research, no discussion of validity concerns for applying the recommendations across states were uncovered, although other considerations did emerge. For example, Michael Rebell (2007) conducted a review of adequacy studies and concluded that “the choice of an outcome standard dramatically affects the ultimate recommendation [of a model and] ... the expenditure level needed to close the adequacy gap” (p. 1326). Odden, Picus, and Goetz (2010) seemed to acknowledge this point, noting that the degree to which a jurisdiction will observe gains in student performance—the result of providing adequate levels of school resources—will depend on the specific education goals set by government. In addition, they acknowledged that the model itself will be applied differently across educational jurisdiction to suit contextual differences, and recommended setting up review panels that can provide professional guidance on the application of the model's recommendations (Picus & Odden, 2009). Regarding review panels, Rebell (2007) acknowledged the value of the “client” voice, but cautioned against clients who sometimes want to change the model's methodology partway through its application because of cost concerns. Concerning expenditure data, Odden, Picus, & Goetz (2010) recommend using either a national average salary or state average salary for teachers and other personnel.

A wider literature review uncovered several additional factors that could influence the ways an evidence-based model is adapted to social contexts, including differences in cultures and values at both national and local levels, fiscal and political contexts, knowledge or information gaps, and leadership. Specifically, culture-based differences at the national level can make “efforts to inject the same resource allocation mechanisms to different national systems ... questionable” (Liefner, Schätzl, & Schöder, 2004, p. 36). It is similarly well documented in the literature that evidence-based frameworks can conflict with local cultural norms and values (Anderson-Smith, Foxworth Adimu, & Phillips Martinez, 2016), limiting their take-up and effectiveness. Fiscally, all societies have limited resources and must work within the constraints therein (OECD, 2017); politically, education stakeholders often present leaders with demands for more resources, not less (Levin, 2008). Both the fiscal and political factors are connected, given that the reality of scarce resources necessarily leads to competition among stakeholders for “their” share (Malen et al., 2017), and political leaders are called upon to make decisions that can reconcile these constraints. Unfortunately, leaders often have incomplete knowledge, evidence, or information available to help inform their application of evidence-based models in their specific social context and instead rely on their own assumptions to help fill the gaps (Malen et al., 2017). This situation can be problematic if leaders, in the face of insufficient information, aim at “the bottom threshold” (Malen et al., 2017, p. 633) to avoid difficult discussions or

spending beyond the budget envelope, effectively maintaining the status quo. These combined factors stress the point that leaders' decision-making is a significant factor that can either enhance or minimize a model's chance of being implemented in a manner that upholds its intended aims (Malen et al., 2017).

### **A method for calibrating the EBAM for use in non-American contexts**

After the consultation and literature review, a four-step method was developed. Methodological details for each stage of the calibration process are outlined below.

#### ***Review the empirical literature***

First, a review was conducted of the empirical literature (in comparator English speaking countries, excluding the United States) to determine if the recommendations related to each component of the model applied beyond the United States and were relevant to the Ontario K–12 education context. The literature review was limited to research conducted in Canada, the United Kingdom, Australia, and New Zealand, and to research using randomized controlled trials, meta-analyses, or other statistical procedures<sup>3</sup>the same standard for evidence used to develop the model's "strongest programmatic recommendations" (Odden, Picus, & Goetz, 2010, p. 630).<sup>3</sup> Excluding research conducted in the United States meant that very little literature employed these research designs and methodologies. Of the most relevant articles—published in Australia (nine), New Zealand (two), and Ireland (one)—none offered specific information to challenge the recommendations of the model.

#### ***Interview Ontario K–12 funding experts***

The second step involved conducting interviews with five Ontario K–12 funding model experts/leaders—four business superintendents from school boards of varying sizes (small, medium, large, and very large, based on enrolment)—and one system leader to introduce varied perspectives from the board and provincial levels of governance when assessing the applicability of the model's recommendations.

#### ***Compare notions of "student performance standards"***

In the EBAM, governments must provide adequate resource levels to support and enable "high performance standards" (Odden & Picus, 2014). The EBAM's of high performance standards was compared (Odden & Picus, 2014) with Ontario's, drawing primarily from the Ontario Ministry of Education's (2018a) strategic vision document, *Achieving Excellence: A Renewed Vision for Education in Ontario*.

#### ***Review the model, element by element, with a district research partner review panel***

The final step involved reviewing the model with a panel composed of members from the pilot school board and research team. At the calibration stage of the study, the panel included the school board's business superintendent and senior data expert, both of whom worked with the research team to provide input into the calibration of the model; the panel will be expanded to include the director of education, other superintendents, and trustees as the project moves from calibration to full application

of the model. Specifically, the business superintendent was asked to provide guidance on calibrating the EBAM recommendations and the data analyst asked to check if the key assumptions of the model also apply in Ontario.

## The Ontario-calibrated EBAM

This section reports on the calibrations the team made to the EBAM's elements to suit the Ontario K–12 public education policy context. The calibrations are organized below into three categories of revisions: technical, policy (values), and leaders' decision-making.

### **Technical calibrations**

#### **Ontario-specific variables for student demographic and school community characteristics**

The model requires specific student demographic and school enrolment data and, thankfully, the pilot school board regularly reports on a wide range of variables. To determine the number of students with special learning needs, the student demographic variable *students with special needs (excluding gifted)* was used; for English Language Learners (ELL), the variable *arrived in Canada in the last five years* was used, because this is the baseline the Ontario government uses for providing funding support for ELL. As an indicator for struggling students due to poverty in the school community, the EBAM developers used a percentage of students who are eligible for free and reduced-priced lunch, a variable comparable at the national level in the United States but not in Canada (Odden & Picus, 2014). A number of variables were available to serve as an indicator for struggling students due to poverty (e.g., the percentage of *families receiving social assistance* and *lone-parent families* in the school community), but here the percentage of families in the community with *family income below low-income measure* was used, as this variable will provide the most conservative estimate of students living in low-income households.

#### **Expenditure data**

The review panel recommended using the expenditure data that the school board reports back to the Ministry each year for accountability purposes, because these expenditure data account for all district revenue sources. Given that salaries for school personnel differ across school districts, the panel also advised the use of board-specific expenditure averages (e.g., the average cost of elementary teacher and secondary teachers' salaries and benefits) when generating expenditure estimates. The school board will provide both of these data sets because they are not publicly available at the level of detail required to generate the estimates.

### **Calibrating for policy (values)**

#### **Adapting elements (recommendations) to suit context**

Most of the model's elements fit with the Ontario education policy context, with only a small number of exceptions. For example, Ontario does not provide funding for school nurses, so this element needed to be removed. Also, Ontario's K–12 public school system does not provide preschool services—these are instead delivered

through a combination of social services—so the recommendation specific to pre-school was removed. The resource recommendation for substitute teachers was revised because the advisory panel believed the model’s recommendation to “add an additional five percent of teachers for the sum of all teacher positions” (Odden & Picus, 2014, p. 104) would fall far short of the actual substitute resources needed, opting instead to use the actual personnel and costs incurred by the school board. In addition, the panel opted to keep the 1:15 staff-to-student ratio for summer school, but use actual numbers for students who enroll in summer school instead of the model’s estimate, which is the number of students “struggling to meet academic requirements[:] 50 percent of all adjusted free and reduced-price lunch students in all grades K-12” (Odden & Picus, 2014, p. 96). The review panel believed that using actual summer school enrolment numbers would generate more accurate estimates. Drawing from the interviews, board superintendents also wanted to add elements to the model, such as adding additional resources for newly arrived refugees and students who identify as Indigenous, both of which are policy priorities in the Ontario context (although this could change with the new government). These revisions to the model, however, fell outside of the scope of the calibration exercise, constituting an expansion exercise, but they may be incorporated into future iterations of the Ontario EBAM—something more fully attended to in the discussion section. Based on the professional judgement of the advisory panel, however, add a school-level element was added for expenditure on materials such as photocopier paper, office materials, other supplies (i.e., actual costs incurred by the school board).

Comparing the EBAM’s notion of “student performance standards” with Ontario’s Odden and Picus (2014b) reviewed “state standards based reform, the Common Core Standards, and court mandates for school finance adequacy” and concluded that they are “focused on a similar goal” (p. 64) of effectively “educating students to or above the state’s proficiency standards ... [in the] reading, math and science curriculum[s] ... that in most states are geared to college and career-ready standards” (p. 76). In Ontario, the mission of the education system is to help “develop the knowledge, skills and characteristics [of students] that will lead them to become personally successful, economically productive and actively engaged citizens” (Ontario Ministry of Education, 2018a, p. XX), which implies preparing students for careers and postsecondary education after graduation. To achieve this mission, the Ontario government has also set student performance standards in literacy and numeracy—equivalent to a “B” grade—and improving high school graduation rates (Ontario Ministry of Education, 2018a). Comparing the benchmarks revealed that both had a focus on ensuring that all students succeed academically in the areas of literacy and numeracy, measured through annual assessment, and improved graduation rates and access to postsecondary education.

### **Interrogating the model’s assumptions (grounded in research) and ideological approaches**

Drawing from school board-specific data, the data expert confirmed that the key assumptions of the model—for example, that students who have special education needs, live in poverty, are ELL, or are both ELL and living in poverty are at a higher

risk of lower academic achievement outcomes than students who are not—also holds for students enrolled in the school board. This “check” did not result in any calibrations to the model but did lend support to the external validity of its assumptions (i.e., its applicability in the Canadian context and, possibly, international ones) despite social differences.

Goals for education are necessarily grounded in an ideological approach to education, or more than one approach. Both the EBAM and Ontario have a set of goals for education that focus on individual students as economically productive citizens and support targeting individual student needs, especially additional supports for the academic success of students who are considered to be at risk. These goals reflect an approach to education that is grounded in values consistent with the liberal tradition of political philosophical thought: the goals respond to overall and individual student needs as well the market and society as a whole (Gutek, 2013). The EBAM, grounded in the US context, has arguably adopted a more neoliberal focus with its priority emphasis on career readiness, while Ontario’s approach is more reform-liberal oriented, with its emphasis on well-being and citizenship in addition to employment (Gutek, 2013).

### ***Calibrating for leaders’ decision-making***

#### **Leaders’ values when making calibrations**

The business superintendent from the pilot board expressed a concern about the model’s American origins: because the model was grounded in research and developed by scholars in the American context, the superintendent felt this could limit support from internal and external education stakeholders for both the calibration and use of the model. Another superintendent echoed this sentiment and cautioned that the model may be associated with perceived “US education aims and values” that are not connected to the EBAM itself:

If these are the goals and I get my funding based on this because this is what the evidence says, then I should be able to perform well on these goals. If I don’t perform well, what happens? Do you penalize me as a school board, because obviously here at [school district] we’ve done something wrong with our funding, or we’ve put our resources in the wrong place?

This quotation reflects a common concern of Canadian scholars and practitioners about this work: if the EBAM is applied, then will failing to meet state-set goals result in sanctions to schools and school boards, as was the case with the *No Child Left Behind Act* of 2001 in the United States (Deming & Figlio, 2016). These concerns are grounded in the view that using the EBAM in Ontario will move the school system away from “Canadian education aims and values”<sup>4</sup> toward what are perceived to be American education aims and values. This leadership consideration did not result in specific revisions to the model, but instead led to a rich discussion between members of the review panel on the aims and values embedded in the model, the aims and values of the Ontario K–12 public education system, if and how the EBAM could help advance these aims and uphold these values, and the importance of leaders keeping these considerations in the foreground when making calibrations.

## Discussion and implications

The academic literature pointed to technical-, policy- (values-), and leadership-based decision-making as three broad categories of factors that can greatly impact the calibration process; these same factors were also significant in calibrating the EBAM to the Ontario context. This section discusses some additional considerations connected to each of these categories, and frames these considerations as implications for leaders and researchers who are considering calibrating the EBAM, or a similar evidence-based model, for use in their jurisdiction.

### *Technical*

#### Data quality

The model's estimates are only as good as the data inputs. In the pilot board, experts noted that the ELL information is sometimes unreliable. Districts are not always 100 percent certain of the real population/demographic makeup of schools, and census information does not provide specifications for each school/district neighbourhood and it can be somewhat dated (Faubert, 2018, in press). Despite these data shortcomings, members of the review panel concluded that the available data could be used to generate quality estimates. Similarly, other jurisdictions considering the EBAM should explore whether their jurisdiction collects data at a level of quality that is appropriate for generating estimates for resource levels and the associated costs.

#### Defining and measuring adequacy

Odden, Picus, and Goetz (2010) noted that “some analysts are uncomfortable with the term adequacy itself [and] question whether estimating the costs of adequacy can be done with current knowledge and technologies” (pp. 629–630). Experts in Ontario raised a similar concern: what constitutes adequate or inadequate will vary between educational contexts—or even within the same jurisdiction—at different points in time. This makes it difficult to claim that a certain level of inputs (e.g., resources) will lead to specific performance standards, not to mention the less-tangible outputs, such as quality education or improved well-being. The ways in which outcomes are measured in education, such as achievement in literacy/numeracy or high school graduation rates, are regularly contested on technical (methodological) and political (ideological) grounds, and measuring adequacy is no exception. These challenges and frequent contestations are not good reasons to avoid measuring outcomes; however, they do underscore the importance of clearly articulating and making public how measures are defined. This team has formally defined adequacy, and its approach to measuring adequacy, and the purpose and value for Ontario, are open to debate and recommend that other jurisdictions be open to the same.

#### Validating and updating the model

For leaders and researchers, it will still be important to assess the tool post-calibration to validate that the recommendations will work in the applied context. In the next phase of the study, the team plans to investigate whether there is a relationship between the estimated resource gaps and province-wide student achievement data to demonstrate the validity of the model's resource recommendations and estimates. In

addition, the model's developers recommend ongoing monitoring and updates to the EBAM (Odden & Picus, 2014). They specifically recommend recalibrating funding systems every five years (Odden & Picus, 2015). Updating the EBAM's elements with the latest research within the same amount of time seems reasonable, and accordingly this team plans to follow this timeline.

### ***Policy (values)***

#### **Policy/regulatory restrictions for the allocation existing funds**

System- and district-level education leaders were clear that the Ministry's allocation and school boards' local resource decision-making are both highly constrained by the political and regulatory promises that take precedence. These commitments consume between 85–95 percent of the revenue that boards receive, with the remaining 5–15 percent flexible for allocation and use according to the district's discretion (Faubert, 2018, in press). Such regulatory restrictions are not unique to Ontario, as Odden, Picus, and Goetz (2010) noted that “the flexibility a district retains in distributing staff and funds to school sites [is] a state policy issue” (p. 638). The fact that existing regulations exist in Ontario does not diminish the value of EBAM estimates because they present an alternative set of numbers to inform resource deliberations: policymakers, education leaders, and researchers around the world may also find the EBAM useful for this purpose.

#### **Policy aims not reflected in the EBAM**

Ontario leaders wanted to add elements to better reflect the province's policy mandate, including additional resource supports for the integration of student refugees and for students who identify as Indigenous. Adding new elements to the model would require a robust review of the research evidence that meets the same standard of evidence used by the model's developers and is specific to resourcing the learning needs of these student groups, followed by a strong case for the inclusion of these elements in the EBAM framework. The model's developers did just that for each element of the existing framework in their published literature, so the scope of work to add these elements is outside the calibration process. The EBAM is not a fixed model, however, which means Ontario, and other jurisdictions, could consider adding such elements to the model if there is sufficient research evidence that meets the standards set by the model's developers (Odden & Picus, 2014).

#### **Realizing school resource adequacy depends on a stable strategic vision or policy for education**

In democratic countries where elections take place every three to five years, there is the possibility of significant policy shifts concurrent with government turnover; this is important, given that the model's timeline for changing achievement outcomes is four to six years. In the Ontario case, the newly elected government will release new strategic vision and policy documents, guided by different values, which may set a different direction for the province—potentially impacting the calibration and to validate the model's recommendations and future analyses. The research team plans to reassess student performance standards as they are articulated in the new strategic

policy documents, but it is anticipated that the core goals of high achievement in literacy and numeracy, improved graduation rates, and job readiness will remain the same in light of the new government's "back-to-basics" vision for education. In short, governments that can frequently change set educational goals in democratic countries, which means that leaders and researchers need pay attention to significant changes in policy goals and how these changes could impact the calibration and, ultimately, the application of the EBAM and its resource estimates.

### **The types of evidence that inform policy are politically (ideologically) contingent**

Not all political parties are equally receptive to models grounded in research-based evidence. For example, in the case of Ontario, it is unclear if this new government will preserve the previous government's commitment to "develop and implement policies, programs, and practices that are evidence-based, research-informed, and connected to provincial education goals" (Ontario Ministry of Education, 2018c),<sup>5</sup> which will potentially impact political interest in the uptake of the EBAM in the province; this is also true for stakeholders at the local level. For example, one business superintendent expressed an interest in bringing more research evidence to board-level discussions around budgets, but was uncertain how receptive the public would be to research evidence guiding resource decision-making, alluding to Tina Anderson-Smith, Tanisa Foxworth Adimu, and Amanda Phillips Martinez's (2016) comments about such evidence conflicting with local norms and values. Before introducing the EBAM, scholars and leaders should consider how open their political leaders and local education stakeholders are to recommendations grounded in research evidence, which could inform resource decision-making.

### **An approach to education that is consistent with the tenets of liberal political**

The model has the greatest chance of being successfully implemented by leaders and received positively by education stakeholders in jurisdictions where the vision for and aims of education align with the liberal tradition of political philosophical thought. Canada's education values, broadly speaking, reflect these values, as Canada education ministers have agreed that schools should aim to achieve the goals set by their government and help individuals attain their own growth opportunities and aspirations (CMEC, 2008, 2017). Ontario's goals are strongly connected to academic outcomes with a focus on postsecondary education and career readiness, as are the EBAM's. However, this review found that Ontario's policies also place explicit emphasis on well-being. Even though the EBAM does include supports for well-being (e.g., guidance counsellors), recent research conducted in Ontario found that as the school system shifts programs and services for well-being from a reactive to a preventative focus, it requires additional supports in the form of personnel and funding (Pollock, Faubert, Hauseman, & Baker, 2017). This means that the EBAM's estimate could fall short of achieving Ontario's "preventative" goal for student well-being. However, our team does not see this as a shortcoming of EBAM, nor evidence that the model's aims are incompatible with Ontario education values. Rather, our team believes this opens a future line of inquiry to further tailor the model to the Ontario context, along with additional supports for refugees and students who identify as Indigenous.

It is beyond the scope of this article to comment on the ideological traditions and orientations of education systems in other countries, but leaders are advised to consider their system's ideological tradition and orientation because implementing the EBAM recommendations in a jurisdiction with strongly conflicting values could result in calibrations (e.g., removal of supports) that detract from the aims of the model, which could limit its effectiveness and increase stakeholder resistance.

## **Leadership**

### **How the model can support leaders' work and system aims**

As noted earlier, when the research team looked to members of the review panel to provide input into the calibration process, they were confronted with having to make recommendations at the calibration stage that will impact the model's effectiveness and future application. Our team believes that Ontario leaders made recommendations that suited the policy (values) context and upheld the aims of the model. Presenting a clear case for how the model can support leaders' work and system goals was essential for them to make decisions that upheld the overall aims of the model—in other words, to provide all students with the opportunity to succeed during the calibration process. Four arguments were most likely attain buy-in from Ontario leaders: a) the EBAM offers one rigorous measure of adequacy to compare resource allocations with achievement outcomes at the district and school levels (Odden, Picus, & Goetz, 2010); b) it provides education leaders with direction for adequate staffing levels based on research evidence where currently no direction exists—notably the paraprofessionals who support at-risk students and board-level administration (Faubert, 2018, in press); c) it helps leaders use resources more effectively by recommending new ways of allocating and using resources to close gaps in student achievement; which d) ultimately supports Ontario's future workforce and society by developing students as highly skilled workers and citizens in civic society.

### **Attaining the EBAM's school finance adequacy is no panacea**

Education finance researchers have noted that some school districts spend more than what is recommended by the EBAM, and yet do not show the anticipated gains in student achievement. This finding is unsurprising, given that education finance scholars concluded long ago that although resource levels matter, leaders must also pay attention to how resources are used if school systems hope to benefit from them and achieve equity aims (Grubb & Allen, 2011; Odden & Picus, 2011; Odden, Piccus, & Goetz, 2010). Moreover, even if the EBAM is calibrated (and applied) following rigorous standards, there can always be a case made for resource inadequacy: some stakeholders may reject decision-making grounded in research evidence, others may simply want more resources (Levin, 2008). In other words, resourcing schools at adequate levels does not address the equally important consideration of how resources are used to achieve equity in terms of student outcomes, nor is the model the singular antidote to the longstanding debate on adequate school resourcing.

### **Calibrating the message is as important as calibrating the model**

Policymakers, education leaders, and researchers who are considering the EBAM for

use in their jurisdiction should consider whether stakeholders in their own system will have concerns similar to those raised by Ontario leaders. Calibrating the EBAM “pitch” (i.e., how the model will help to advance educational aims and uphold values) is as important as calibrating the model itself. Ingo Liefner, Ludwig Schätzl, and Thomas Schöder (2004) noted that poor efforts to raise awareness among stakeholders can lead to political resistance and indicated that providing accurate information to stakeholders can combat the outright rejection of the model.

## Conclusion

This article reports on the rigorous approach the team developed for calibrating the EBAM to suit the Ontario K–12 public education context, as well as the actual calibrations made. A four-step method for calibration that draws from consultations with experts and academic sources is outlined. This article brings specific detail to the technical calibrations and the significant influence of policy (values) and leaders’ decision-making on the process. It also discusses the emerging implications for leaders and researchers who are considering calibrating the EBAM for use in educational contexts outside of the United States.

Currently, research evidence is not being used systematically to inform leaders’ allocation and use of resources or public deliberations on adequate school resourcing in Ontario (Faubert, 2018, in press), or in many other OECD educational jurisdictions (OECD, 2017), resulting in status-quo resourcing that perpetuates student achievement gaps. Although no funding model is perfect (Levin, 2008) and the EBAM has its limitations, the model can provide much-needed research-based insight to inform both. Calibrating the instrument is the first step, and this article outlines the first methodology for calibrating the EBAM for use outside the United States, and bringing Canadian evidence to the discussion.

## Notes

1. 2016–2017 academic year (Ontario Ministry of Education, 2018b)
2. 2014–2015 academic year (Van Pelt & Macleod, 2017)
3. The model’s developers also used research on best practices, peer-reviewed articles on schools that have demonstrated significant improvements, and recommendations from professional associations (Odden & Picus, 2014; Odden, Picus, & Goetz, 2010). These sources were omitted from the review for two reasons. First, they would have made the scope of this review unmanageable, given the range of countries, literatures, topics, and possible methodologies. Second, these evidence sources do not support the model’s strongest recommendations.
4. The Ontario government does not have a history of cutting education funding to school/districts for not meeting student performance standards; however, some non-governmental organizations in Ontario do publicly report on school-level performance.
5. Under the previous government, this commitment had not been fully extended to discussions around funding allocations or the use of resources by leaders at the system or district levels of governance (Faubert, 2018, in press).

## References

- Adams, J.E., Jr. (2010). Smart money and America’s schools. In J.E. Adams Jr. (Ed.), *Smart money: Using educational resources to accomplish ambitious learning goals* (pp. 1–26). Cambridge, MA: Harvard Education Press.

- Anderson-Smith, T., Foxworth Adimu, T., & Phillips Martinez, A. (2016). Selecting, adapting and implementing evidence-based interventions in rural settings: An analysis of 70 community examples. *Journal of Health Care for the Poor and Underserved*, 27(4), 181–193.
- Atkinson, M., Lamont, E., Gulliver C., White, R., & Kinder, K. (2005). *School funding: A review of existing models in European and OECD countries*. Slough, UK: National Foundation for Educational Research. Retrieved December 2, 2018, from <https://www.nfer.ac.uk/publications/ESF01/ESF01.pdf>.
- Faubert, B. (In press). Transparent resource management: Implications for leadership and democracy in education. *International Journal of Educational Management*.
- Carr-Stewart, S., Marshall, J., & Steeves, L. (2011). Inequity of education financial resources: A case study of First Nations school funding compared to provincial school funding in Saskatchewan. *McGill Journal of Education*, 46(3), 363–377.
- Clune, W. (1994). The shift from equity to adequacy in school finance. *Educational Policy*, 8(4), 376–394.
- Costrell, R., Hanushek, E., & Loeb, S. (2008). What do cost functions tell us about the cost of an adequate education? *Peabody Journal of Education*, 83(2), 198–223.
- Council of Ministers of Education, Canada. (2008). *Learn Canada 2020: Joint declaration provincial and territorial ministers of education*. Retrieved December 2, 2018, from <http://www.cmec.ca/Publications/Lists/Publications/Attachments/187/CMEC-2020-DECLARATION.en.pdf>.
- Council of Ministers of Education, Canada. (2017). *What does CMEC do? CMEC's current priorities*. Retrieved December 2, 2018, from [https://www.cmec.ca/11/About\\_Us.html](https://www.cmec.ca/11/About_Us.html).
- Council of Ministers of Education, Canada. (2018). *Responsibility for education*. Retrieved December 2, 2018, from <https://www.cmec.ca/299/Education-in-Canada-An-Overview/index.html>.
- Deming, D., & Figlio, D. (2016). Accountability in US education: Applying lessons from K–12 perspective to higher education. *The Journal of Economic Perspectives*, 30(3), 33–55.
- Fazekas, M. (2012). *School funding formulas: Review of main characteristics and impacts* (OECD Education Working Paper No. 74). Paris, FR: OECD Publishing.
- Grubb, N., & Allen, R. (2011). Rethinking school funding, resources, incentives and outcomes. *Journal of Educational Change*, 12(1), 121–130.
- Gutek, G.L. (2013). *Philosophical, ideological, and theoretical perspectives on education* (2nd ed.). Boston, MA: Pearson.
- Guthrie, J., Springer, M., Rolle, R.A., & Houck, E. (2007). *Modern education finance and policy*. Boston, MA: Peabody College Education Leadership Series, Allyn and Bacon.
- Hart, D., & Kempf, A. (2018). *Public attitudes toward education in Ontario 2018: The 20th OISE Survey of Educational Issues, 40 years of the OISE Surveys*. Toronto, ON: University of Toronto, Ontario Institute for Studies in Education. Retrieved December 2, 2018, from [https://www.oise.utoronto.ca/oise/News/2018/2018\\_OISE\\_Survey\\_of\\_Educational\\_Issues.html](https://www.oise.utoronto.ca/oise/News/2018/2018_OISE_Survey_of_Educational_Issues.html).
- Henley, D., & Young, J. (2008). School boards and education finance in Manitoba: The politics of equity, access and local autonomy. *Canadian Journal of Educational Administration and Policy*, 72, 1–25.
- Jones, A., & Casey, L. (2018, May 8). Doug Ford vows to replace sex-ed, math curricula, tie university funds to free speech if elected. *Global News*. Retrieved December 2, 2018, from <https://globalnews.ca/news/4194296/ontario-election-doug-ford-education-promises/>.
- Keenan, E. (2017, January 16). TDSB should be ashamed of how it balances budget—School board defends practice of diverting money that it's given specifically to serve the needs of disadvantaged students. *The Toronto Star*. Retrieved December 2, 2018, from <https://www.thestar.com/news/gta/2017/01/16/tdsb-should-be-ashamed-of-how-it-balances-budget-keenan.html>.
- Levin, B. (2008). Fix the flawed funding formula! *The Phi Delta Kappan*, 89(9), 697–698.
- Liefner, I., Schätzl, L., & Schöder, T. (2004). Reforms in German higher education: Implementing and adapting Anglo-American organizational and management structures at German universities. *Higher Education Policy*, 17(1), 23–38.

- Lingard, B. (2013). The impact of research on education policy in an era of evidence-based policy. *Critical Studies in Education*, 54(2), 113–131.
- Mackenzie, H. (2009). *No time for complacency: Education funding reality check*. Ontario, ON: Canadian Centre for Policy Alternatives. Retrieved December 2, 2018, from [https://www.policyalternatives.ca/sites/default/files/uploads/publications/reports/docs/Education%20Funding%20Formula%20Review\\_0.pdf](https://www.policyalternatives.ca/sites/default/files/uploads/publications/reports/docs/Education%20Funding%20Formula%20Review_0.pdf).
- Malen, B., Dayhoff, J., Egan, L., & Croninger, R.G. (2017). The challenges of advancing fiscal equity in a resource-constrained context. *Educational Policy*, 31(5), 615–642.
- Mwere, B. (2010). *Equity and adequacy in the financing of public education in Canada: Issues and concerns*. Ottawa, ON: Library and Archives of Canada.
- Newhouse, D. (2018, July 17). Why is Doug Ford silent on Indigenous—especially education—issues? *Globe and Mail*. Retrieved December 2, 2018, from <https://www.theglobeandmail.com/opinion/article-why-is-doug-ford-silent-on-indigenous-especially-education-issues/>.
- Odden, A., & Picus, L. (2014). *School finance: A policy perspective* (5th ed.). New York, NY: McGraw Hill.
- Odden, A., & Picus, L.O. (2015). *2015 Wyoming recalibration report*. Picus Odden & Associates. Retrieved December 2, 2018, from <http://picusodden.com/2015-wyoming-recalibration-report/>.
- Odden, A., Picus, L.O., & Goetz, M. (2006). *Recalibrating the Arkansas school funding structure*. Picus Odden & Associates. Retrieved December 2, 2018, from <http://picusodden.com/state-studies/>.
- Odden, A.R., Picus, L.O., & Goetz, M.E. (2010). A 50-state strategy to achieve school finance adequacy. *Educational Policy*, 24(4), 628–654. Retrieved December 2, 2018, from <https://doi.org/10.1177/0895904809335107>.
- Odden, A., Picus, L.O., & Goetz, M. (2014). *Recalibrating North Dakota's per student number for the school foundation program*. Picus Odden & Associates. Retrieved December 2, 2018, from <http://picusodden.com/wp-content/uploads/2014/06/ND-Picus-Odden-Associates-Recalibration-Report-June-4-20141.pdf>.
- Office of the Auditor General of Ontario. (2017). *School boards' management of financial and human resources* (Chapter 3, Section 3.12). Retrieved December 2, 2018, from [http://www.auditor.on.ca/en/content/annualreports/arreports/en17/v1\\_312en17.pdf](http://www.auditor.on.ca/en/content/annualreports/arreports/en17/v1_312en17.pdf).
- Ontario Ministry of Education. (2012). *Closing the achievement gap: Advice from expert Ontario Principals*. Retrieved December 2, 2018, from <http://www.edu.gov.on.ca/eng/policyfunding/leadership/pdfs/ClosingTheGap.pdf>.
- Ontario Ministry of Education. (2014). *Exploring five core leadership capacities—Aligning resources with priorities: Focusing on what matters most* (Ideas into Action, Bulletin No. 6). Retrieved December 2, 2018, from <http://www.edu.gov.on.ca/eng/policyfunding/leadership/IdeasIntoActionBulletin6.pdf>.
- Ontario Ministry of Education. (2017). *Ontario's education equity action plan*. Retrieved December 2, 2018, from [http://www.edu.gov.on.ca/eng/about/education\\_equity\\_plan\\_en.pdf](http://www.edu.gov.on.ca/eng/about/education_equity_plan_en.pdf).
- Ontario Ministry of Education. (2018a). *About the Ministry—Achieving excellence: A renewed vision for education in Ontario*. Retrieved December 2, 2018, from <http://edu.gov.on.ca/eng/about/renewedVision.pdf>.
- Ontario Ministry of Education. (2018b). *Education facts, 2016-2017 (preliminary)*. Retrieved December 2, 2018, from <http://www.edu.gov.on.ca/eng/educationFacts.html>.
- Ontario Ministry of Education. (2018c). *Research in education*. Retrieved December 2, 2018, from <http://www.edu.gov.on.ca/eng/research/>.
- Ontario Ministry of Finance. (2018). *Demographic quarterly: Highlights of first quarter 2018*. Retrieved December 2, 2018, from <https://www.fin.gov.on.ca/en/economy/demographics/quarterly/dhiq1.html>.
- Organisation for Economic Cooperation and Development. (2017). *The funding of school education: Connecting resources and learning*. Retrieved December 2, 2018, from <http://www.oecd.org/publications/the-funding-of-school-education-9789264276147-en.htm>.

- People for Education. (2018). *2018 Annual report on schools: The new basics*. Retrieved December 2, 2018, from <https://peopleforeducation.ca/>.
- Picus, L., & Odden, A. (2009). *Review and analysis of Ohio's evidence-based model*. Picus Odden & Associates. Retrieved December 2, 2018, from <http://picusodden.com/wp-content/uploads/2013/09/Ohio-EB-Report-Final.pdf>.
- Picus, L.O., Odden, A., Goetz, M., & Aportela, A. (2012). *Estimating the cost of an adequate education for Texas school districts using the evidence-based approach*. North Hollywood, CA: Lawrence O. Picus and Associates.
- Pollock, K., Faubert, B., Hauseman, C., & Bakker, P. (2017). *Ontario's suspension and expulsion program evaluation: Final report*. Toronto, ON: Ontario Ministry of Education.
- Queiser, S. (2017). *Missing opportunities: How budget policies continue to leave behind low-income students*. Toronto, ON: Social Planning Toronto. Retrieved December 2, 2018, from [https://d3n8a8pro7vhm.cloudfront.net/socialplanningtoronto/pages/542/attachments/original/1484226232/LOG\\_report-final-web.pdf?1484226232](https://d3n8a8pro7vhm.cloudfront.net/socialplanningtoronto/pages/542/attachments/original/1484226232/LOG_report-final-web.pdf?1484226232).
- Rebell, M. (2007). Professional Rigor, public engagement and judicial review: A proposal for enhancing the validity of education adequacy studies. *Teachers College Record*, 109(6), 1303–1373.
- Rodrigues, B. (2018). *Update: Education funding for 2018–19* [Memorandum 2018 B14] and *2018-19 School Year Education Programs – Other (EPO Funding)* [Memorandum 2018 B07]. Retrieved December 2, 2018, from <http://www.edu.gov.on.ca/eng/policyfunding/funding.html>.
- Van Pelt, D., & Macleod, A. (2017). *Increasing share of students attending independent schools in Ontario*. Retrieved December 2, 2018, from <https://www.fraserinstitute.org/article/increasing-share-of-students-attending-independent-schools-in-ontario>.
- Young, J., Levin, B., & Wallin, D. (2014). Resources for Education. In *Understanding Canadian schools: An introduction to educational administration* (5th ed.). Retrieved December 2, 2018, from <http://homepage.usask.ca/~dcw130/chapterfive5.html>.