Review and Evaluation of the Efficacy and Methodology of the Quality Education Model

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Contents

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Introduction

In this report, we offer a review and evaluation of the methodology and efficacy of the state of Oregon's Quality Education Model (QEM). The QEM is primarily a Professional Judgment Panel (PJP) approach to education cost modeling developed and used by the Quality Education Commission (QEC) to estimate the total statewide cost of providing an adequate education to meet the quality goals established by state law. The American Institutes for Research® (AIR®) has decades of experience in conducting PJP cost studies, including studies in California (Chambers et al., 2006; Levin et al., 2018), Delaware (Atchison et al., 2023), New Mexico (Chambers et al., 2008), New York (Chambers et al., 2004), and Ohio (Levin et al., forthcoming). Over this period, AIR has continued to develop and refine the methodological best practices of producing robust estimates for the adequate cost of education that are built on the professional expertise of educators. In applying this expertise to an assessment of the QEM, we answer the following four questions:

1. What are commonly accepted methods for estimating the cost of an adequate education, and what are the relative strengths and weaknesses of the PJP approach used in the QEM?

2. What are the best practices for conducting a PJP, and why are these practices important when determining the costs of an adequate education?

3. What methods and practices are used in the QEM to estimate adequate costs?

4. How can the methods employed in the QEM be modified or improved to better align with the best practices for conducting a PJP?

We answer these questions in the four sections below. First, we review the advantages and disadvantages of the PJP approach and compare this method with alternative costing-out approaches. Second, we leverage our experience in conducting PJP analysis to describe the best methodological practices for implementing the PJP approach. Third, we offer a history and summary of the QEM, and its methods, inputs, and assumptions. Finally, we provide a critical evaluation of the strengths and weaknesses of the QEM's methodology with suggestions for how the process and methods used to develop the QEM and its cost estimates might be improved.

Description of Data and Methods

Our analysis of the methods and best practices for conducting cost studies and the PJP methodology are based on published studies and reports by AIR (Atchison et al., 2023; Chambers et al., 2004; Chambers et al., 2006; Chambers et al., 2008; Chambers & Levin, 2009; Levin et al., 2018; Levin et al., forthcoming)). Our analysis of the QEM is based on several publicly available sources. These include the 14 QEC reports published between 1999 and 2024 and Appendices C and D of the 2024 QEC report (QEC, 2024). We also consulted Oregon Revised Statutes 327.497; 327.500; 327.502; and 327.506 (2024), which pertain to the establishment of the Quality Education Commission, the appointment and terms of its members, the state's quality education goals, and the reporting requirements for the QEM. Finally, based on knowledge gathered through these sources, we also spoke with the current QEC Chair and asked clarifying questions on the processes involved in the QEM.

Section 1. Techniques for Costing Out Adequate Education

This section provides an overview of costing-out techniques in education finance research, with a particular emphasis on the PJP approach, which is the primary method used to develop and maintain the QEM. We first summarize the aims of costing-out adequate education. We then define and detail the PJP approach. Finally, we compare the relative strengths and weaknesses of the PJP approach with other common costing-out techniques, such as the education cost-function and evidence-based approaches.

Costing Out an Adequate Education for All Students

Educational adequacy requires that all students should have equal opportunity to achieve a common set of outcomes at the same target level, regardless of their specific educational needs or learning circumstances, including where they attend school. Achieving performance targets requires appropriate educational resources. In turn, districts must have the funding to purchase those resources. Therefore, determining the cost of an adequate education for all students is essential for ensuring that K-12 school systems are funded appropriately.

The cost of educating students to a common level of outcomes varies across schools and districts based on the level of student needs or other contexts, known as *cost factors*. Cost factors are characteristics of students, schools, or districts that affect the level of spending required to achieve stated goals *and* are outside the control of local school and district administrators (Chambers & Levin, 2009). These can include levels of student need (e.g., experiencing economic disadvantage, having a disability, or being an English learner), as well as other district and school contexts such as degree of urbanicity, enrollment size, and staffing price levels determined by local labor markets.

The purpose of a cost study is to estimate the amount of funding required to provide an adequate education for all students, across all contexts, in a state. Determining the cost of an adequate education is both theoretically and methodologically complex, and when done to the highest standard involves two key components. First, the cost study should identify the total level of funding required to support an adequate education. Second, it should identify how the cost of meeting the target outcome varies according to student needs and other contextual factors.

There are two basic methodological approaches that are widely accepted by researchers as being valid for estimating the cost of an adequate education: (1) input-oriented approach and (2) the outcome-oriented approach. Below we compare the most rigorous input-oriented approach, the PJP, with the most rigorous outcome-oriented approach the cost function.

Input-Oriented Approaches

Input-oriented analyses attempt to identify the inputs or resources (i.e. ingredients) necessary for providing an adequate education and then determine the cost of those resources. This process is built on the ingredients method to cost analysis, later termed the resource cost modeling (RCM) approach that has been widely used to cost out educational interventions and programs (Chambers, 1999, 2001; Chambers & Hartman, 1981; Levin, 1983; Levin & McEwan, 2001; Levin et al., 2018). The RCM as applied to educational adequacy studies can be formally defined by three basic steps:

1. Identify the personnel and non-personnel resources necessary to implement educational programming that will allow all students the opportunity to achieve a common (adequate) set of outcomes at a minimal cost
2. Determine appropriate input prices for these resources
3. Combine the necessary resource quantities with their corresponding prices to calculate a total cost estimate (Cost = Resource Quantities × Price)

Input-oriented education cost studies apply this process to estimate the cost of an adequate education. There are two general input-oriented approaches used in education cost studies for identifying the resources in Step 1 of the RCM: the PJP approach, and the evidence-oriented approach. The following offers a summary of both approaches and explains why the PJP approach is more appropriate for estimating the cost of adequate education.

The Professional Judgment Panel Approach

PJP involves convening focus groups of expert educators to design programs and specify the resource quantities needed to implement school-level education programs that will achieve specific outcome goals at a minimum cost. Resource specifications include a broad array of personnel and non-personnel resources such as student-teacher ratios in each grade level,

numbers of full-time equivalent counselors, social workers and other pupil support staff in a school, and the amount of professional development funding in a school year. In cost studies conducted by AIR that use the PJP approach, expert panelists are encouraged to keep four guiding principles in mind when determining these resource quantities:

1. Goals: Will your program designs and resource specifications allow students to achieve the objectives in the goals statement?
2. Evidence: Is there evidence from research or panelists' professional experience that supports the program design and suggested resource quantities?
3. Efficient: Will your program designs and resource specifications achieve the goals at a minimum cost?
4. Realistic: Can your program designs and resource specifications realistically be implemented?

There are several key design components that we believe are especially important for operating a high-quality PJP. They are:

- defining outcome goals that reflect state priorities and leverage several perspectives on educational success,
- developing prototype schools that vary by levels of student need and district and school contexts that influence the cost of achieving the outcome goals,
- recruiting panelists with a variety of educational expertise who serve different roles (principals, teachers, specialists in serving specific student populations such as English learners or students with disabilities), and who represent the different district and school contexts that exist across a state,
- determining the types of resources that should be considered by panelists in developing educational program designs for a set of hypothetical schools that are representative of the range of student needs and school/district contexts across the state,
- facilitating panel discussions in which the hypothetical school program designs are developed and the resources necessary to implement these designs are specified,
- establishing prices for the goods and services specified by the panelists, and
- estimating how adequate costs vary according to levels and types of student need and school and district contexts, based on the calculated costs associated with the hypothetical school program designs.

When the steps above are implemented correctly, the PJP approach can generate valuable quantitative and qualitative information on the resources required for educational adequacy. First, there is quantitative information on how the cost of an adequate education varies according to levels of student need and other school and district characteristics. This information can be leveraged to estimate the cost of an adequate education for all schools and districts in a state. Second, there should be documentation of the rationale for the school program designs and corresponding resource specifications made by PJP panelists. These data can yield qualitative insights into the types of education programming and resources that expert panelists believe are the best practices for promoting student success. A unique advantage of the PJP approach is this combination of cost information (i.e., the cost of an adequate education and how cost varies according to student needs and school contexts) and documentation (i.e., how personnel and non-personnel resources should be deployed to maximize their efficacy). In Section 2 of this report, we will explore each of the key components listed in this section and outline the best practices for the PJP approach.

The Evidence-Oriented Approach

Another input-oriented approach for identifying resources is the evidence-based (EB) approach. The EB approach involves two steps: (1) compiling published research studies on existing school interventions proven to be effective at producing specific outcomes, and (2) deriving the resources used and their associated costs in order to generate cost estimates for providing an adequate education. Studies are selected based on how promising the research findings are in terms of demonstrating their ability to produce specific educational outcomes of interest.

One issue with this approach is that the findings of any research study are contextual, with implementation of each intervention considered occurring in a particular school and district context (e.g., defined by the needs of students served, scale of operations of the school and district, geographic setting of the school) and at a given point in time. Therefore, the extent to which the amalgamated findings of these interventions—performed in multiple contexts and time periods—are generalizable to the current needs and interests of a different setting, is unknown. Accepting that the results of intervention studies involving student populations and school contexts that are dissimilar to those in the state of interest as appropriate for estimating adequate educational cost is highly questionable. We therefore prefer the PJP approach as the primary method for gathering the inputs upon and costs.

Outcome-Oriented Approaches

We now turn to describing the outcome-oriented approaches to adequate cost analysis, which rely on using school- or district-level data to evaluate the empirical relationship between aggregate per pupil spending and student outcomes. There are two primary techniques for using an outcome-oriented approach: (a) the cost function approach, or Education Cost Model,

and (b) the Successful Schools Method or Beating the Odds Approach. Below, we offer a summary of each approach and explain why the cost function approach is the most appropriate outcome-oriented method for estimating the cost of adequate education.

Cost Function Approach

The goal of the cost function approach is to estimate what must be spent to achieve desired outcomes for the factors that influence the costs of meeting a set of educational goals. Salient cost factors include the scale of operations measured as enrollment size (i.e., this recognizes the existence of diseconomies of scale in which per-pupil costs are higher for smaller schools or districts than for larger schools/districts), geographic variation in the price of resources, and the characteristics of the student populations served. Typically, low-income students, English language students (ELs), and students with disabilities (SWDs) are recognized as requiring additional resources to achieve educational success.[1]

In addition, rigorous cost functions account for the fact that there may be investments in outcomes that either are not measured or not included in the model. For example, having an exemplary basketball program may be something that a community values and is willing to invest in, but it may not affect the types of student outcomes included in the cost function. A thorough cost function attempts to account for these educational preferences, and therefore considers spending as a function of (a) measured outcomes; (b) characteristics of the educational setting (i.e., economies of scale, population density); (c) regional variation in the prices of inputs (e.g., teacher wages); (d) student population characteristics; and (e) factors affecting spending that are unrelated to outcomes.

The cost function uses these variables to predict how spending differs as cost factors vary (e.g., student needs, educational setting context, and price level of inputs) when outcomes are fixed to an adequate target outcome level and efficiency is set to an acceptable level (usually the efficiency level is set to the statewide average). These estimates can use data from every school or district in the state to capture myriad combinations of contexts, student needs, and spending. These cost estimates can then be applied to predict the amount of spending required for every school or district to achieve outcomes at an adequate level.

[1] In the Task 5 report of AIR's evaluation of school funding in Oregon, we use the cost function approach to estimate the cost of adequate education in Oregon (Brooks et al., 2025). In that report, we compare the cost estimates produced by our cost function to current actual funding in Oregon and to the input-oriented cost estimates produced by the QEM's PJP approach.

The Successful Schools Method and Beating the Odds Approach

The Successful Schools Method relies on researchers identifying schools that are considered to have adequate educational outcomes and then examining the level of spending and characteristics of these schools. These spending levels are then used to determine the cost of adequacy for schools and districts that are characteristically similar. The Beating the Odds Approach is a related strategy, wherein statistical techniques are used to identify schools performing better than expected when accounting for the funding the school receives and the demographic characteristics of the populations it serves.

Both of these approaches are inferior to the cost function, as what is considered "efficiency" of schools in the context of a Successful Schools or Beating the Odds approach may correlate with other factors outside of a school's control, such as the administrative costs associated with reporting requirements for federal or state programs that target high-need students. This is a fundamental and un-addressable shortcoming of the Successful Schools Method. Studies that rely on the Successful School Method will typically assert that the spending levels of a high-performing school with very few high-need students are indicative of the adequate level of resources that schools need to succeed. This effectively ignores the fact that some schools serve high rates of students with costly educational needs (e.g., EL or SWD) or have challenging cost structures (e.g., being a small, remote, and rural school). These high-cost schools cannot realistically be expected to produce equivalent student outcomes when provided the resources of a school without these types of cost factors.

While the Beating the Odds approach attempts to statistically control for school characteristics that may be associated with the efficiency measure, there is always concern that omitted variables may contribute to "efficiency" scores, which would introduce bias into the selection of schools used to determine adequate cost. In the cost function, cost estimates are based on every school in the state, not selected exemplars, which alleviates concern over selection bias. One additional issue with the Beating the Odds approach is that relatively few schools consistently "beat the odds" over time (Chambers & Levin, 2009). This is especially true when examining various subpopulations of students and multiple measurements of student outcomes, all of which are salient to understanding how resources should vary to meet the differing levels of student need across schools and districts.

Summary of Methods of Estimating the Cost of an Adequate Education

The PJP approach and the cost function approach are the two most appropriate primary methods for costing-out an adequate education. However, we note that the process of identifying resources for adequate education could benefit by combining elements of the approaches described above. For example, in AIR's PJP analyses, we provide panelists with evidence-based reviews, curated by external experts and the research team, on the best

available education literature describing effective programs and services for supporting students with varying needs. We encourage panelists to base their resource recommendations on evidence that includes academic research. Furthermore, we have also previously provided panelists with resource profiles (e.g., staffing ratios) of typical schools as well as those that have been identified as high performing. However, both the reviews and profiles are ultimately meant to inform the professional judgment process and are not themselves used to determine the cost of an adequate education.

Comparing the PJP and Cost Function Approaches

The PJP approach and the cost function approach are both useful for gaining insights into the levels and types of resources needed to provide an adequate education for all students. While both use different methodological techniques, each have unique strengths and weaknesses that allow the two approaches to complement each other. In Exhibit 1, we summarize their strengths and weaknesses and explore these in more depth below.

The strength of the PJP approach is that cost estimates rely on the expertise of teachers, administrators, and staff who are able to provide great detail surrounding how resources are best used to generate student outcomes. When panels are both numerous and representative of the educational contexts of interest, panelist expertise can offer detailed insights into the real-world needs of actual students and help to identify the specific types and quantities of resources that are required to promote student success.

Furthermore, the PJP approach can estimate costs based on meeting a wider variety of educational goals than the cost function. States may have goals for education, such as preparing citizens for democratic participation or improving students' character that are not readily quantifiable and thus cannot be included when creating estimates using large-data approaches, such as the cost function or successful school approaches. These broader goals may also not be widely studied in the academic literature, which also limits the utility of evidence-based approaches to take these goals into account. By contrast, expert panelists can consider the resources needed to attain these goals when creating cost estimates.

Whereas being able to accommodate a broader set of goals is a strength, the lack of an explicit empirical link between resources and outcomes is also a weakness of the PJP. With PJP, the link between resources and outcomes is hypothetical, relying on the professional opinion of expert educators to know and recommend the appropriate combinations of resources to achieve the state's educational goals. There is no guarantee that the planned programs, and associated collections of resources necessary to support them, represent the most efficient way to produce the desired student outcomes.

Exhibit 1. Summary of the Strengths and Weaknesses of Professional Judgment Panels and Cost Functions

	Professional judgment panels	Cost function
Strengths	• Can robustly estimate the cost of an adequate education. • Outcome targets can contain both readily measured and more abstract education goals. • Generates insights into how funds should be spent to achieve adequate outcomes.	• Can robustly estimate the cost of an adequate education. • Directly examines link between resources and outcomes using administrative data. • Estimates based on all schools and districts with available data in the state.
Weaknesses	• More accurate when some schools and districts are presently meeting outcomes goals. • Professional judgment makes a hypothetical link between resources and outcomes. • Limited to the number of education contexts evaluated by panels.	• More accurate when some schools and districts are presently meeting outcomes goals. • Outcomes limited to those that are readily measured and present in administrative data. • Limited ability to understand how funding is used to support educational programming.

Additionally, it is impossible for PJPs to examine the full spectrum of possible educational contexts and the process is relatively burdensome and time-consuming for both the expert educators on the panels and researchers. The number of different hypothetical schools that can be examined during a PJP convening is necessarily limited. In turn, the student needs and contexts for which costs are estimated are limited by the number of hypothetical schools presented to panels.

The cost function approach has the advantage of using actual data for all available schools and districts in a state, thus allowing cost estimates to be derived using real-world variation in needs and contexts in every educational setting. However, cost function analysis also has meaningful shortcomings relative to the PJP approach: cost functions can only predict outcomes that are readily quantifiable (e.g., test scores or graduation rates) and cannot estimate the costs required to achieve more abstract aims (e.g., developing a sense of democratic citizenship). Further, cost function analysis offers limited insights into the types of programs and resource configurations needed to actualize adequate student outcomes.

Finally, all costing-out approaches are most useful when there are schools and districts currently meeting the educational goals of the state. For example, it would be more difficult for panelists in a PJP to estimate the resources required for an adequate education if they have no reference points for schools that are adequately resourced. Likewise, cost functions can more accurately project the cost of an adequate education when the target outcomes levels exist in actual data.

Section 2. Defining Best Practices for the PJP Approach

As noted in Section 1, there are six key components that we believe are essential for generating high-quality cost estimates of an adequate education using the PJP approach. They are:

- defining outcome goals,
- developing prototype schools,
- recruiting panelists for the PJP,
- determining the types of resources to be considered by PJP panelists,
- establishing prices for the goods and services specified by the PJP panelists, and
- estimating how adequate costs vary according to levels and types of student need, and school and district contexts.

In this section, we elaborate on each of these key components and offer recommended best practices for conducting a high-quality PJP study. These are used to generate recommendations in Section 4 for how the QEM methodology may be improved.

Defining Goals

To understand the costs of an adequate education, it is essential for the PJPs to have a collection of the outcome goals (targets) for students in the state. In studies conducted by AIR, these have traditionally been formalized in a *goals statement*. Panelists design educational programs that will meet the outcome targets in the goals statement and specify the resources necessary to implement these programs at a minimum cost. A key strength of the PJP approach is its ability to accommodate an expansive view of outcome targets, including goals that are not easily quantified. Effective PJPs leverage this opportunity to define adequacy targets using multifaceted aims, which might include student well-being, academic and postsecondary success, and democratic citizenship. In addition, goals might include access to specific subject areas as is often described in state content standards. In Exhibit 2, we summarize the best practices for defining goals for PJP, and detail these points below.

Exhibit 2. Summary of Best Practices to Define Goals

Three defining goals for PJP analyses		
1. Set adequacy goals based on the published aims, content standards, priorities of the state, or public and stakeholder values.	2. Leverage multiple goals, including more aims that are broader than only quantifiable academic achievement (e.g., career readiness, preparation for an evolving world).	3. Balance the breadth of goals selected with not overwhelming panelists with too many aims.

A recommended starting point for determining appropriate outcome targets is to examine state plans and learning standards. For example, Oregon Revised Statute (ORS) 329.015 (2023) states:

> "The Legislative Assembly believes that the goals of kindergarten through grade 12 education are:
>
> a. To equip students with the academic and career skills and information necessary to pursue the future of their choice through a program of rigorous academic preparation and career readiness;
>
> b. To provide an environment that motivates students to pursue serious scholarship and to have experience in applying knowledge and skills and demonstrating achievement;
>
> c. To provide students with the skills necessary to pursue learning throughout their lives in an ever-changing world; and
>
> d. To prepare students for successful transitions to the next phase of their educational development."

These aims, while broad, would make for useful outcome targets for a PJP in Oregon. Furthermore, ORS 350.014 (2023) defines the "mission of education beyond high school" to be that, by 2025, no less than 40% of adults earn at least a bachelor's degree, 40% earn an associate's degree or a postsecondary credential, and the remaining 20% or so earn a high school diploma or equivalent. While this aim is focused on higher education, it implies that an adequate educational opportunity as defined in Oregon includes a Grades K–12 school system that allows students to succeed in postsecondary studies.

Other strategic plans offer more measurable goals for the PJP. For example, Oregon's *Consolidated State Plan Under the Every Student Succeeds Act* (ESSA) enumerates annual outcome targets for the state in each school year from the 2014–15 to 2025–26 school year (Oregon Department of Education [ODE], 2023). These include 80% proficiency rates on math and English language arts standardized testing, 90% 4-year graduation rates, and 90% of English

learners achieving English language proficiency in the 2025–26 school year. Oregon also includes chronic absenteeism rates as an accountability measure in its ESSA plan, although no formal target levels are defined. These measures are potentially useful outcome goals when costing-out an adequate education.[2]

Finally, the goals of the PJP need to be aligned with the academic standards of the state. ODE publishes academic content standards to define what students should learn and what instructional supports and curricular differentiation should be available to all students (ODE, n.d.). Keeping such content standards in mind when developing adequate educational programming is essential.

Setting the goals that the PJPs use as their objective in developing school program designs and specifying necessary resources is a balance between selecting ambitious outcomes that (1) accurately reflect a robust conceptualization of educational adequacy and (2) are focused enough so panelists can reasonably be expected to keep these aims in mind when completing their work. With too few outcomes, the cost estimates may not capture a meaningful conception of an adequate education. With too many outcomes, some important aspects of adequacy may not be fully considered.

Developing Prototype Schools

The next stage of the PJP process is to develop prototype schools, which are vignettes of hypothetical schools with defined characteristics and levels of student need. Panelists develop program designs that will provide an adequate education for students (i.e., one that will meet the outcomes defined in the goals statement) and determine the level of resources needed to, at a minimum cost, support their program designs in each hypothetical school. Through the development of multiple prototype schools in the PJP process, researchers can estimate the cost of providing an adequate education across schools with different characteristics and needs.

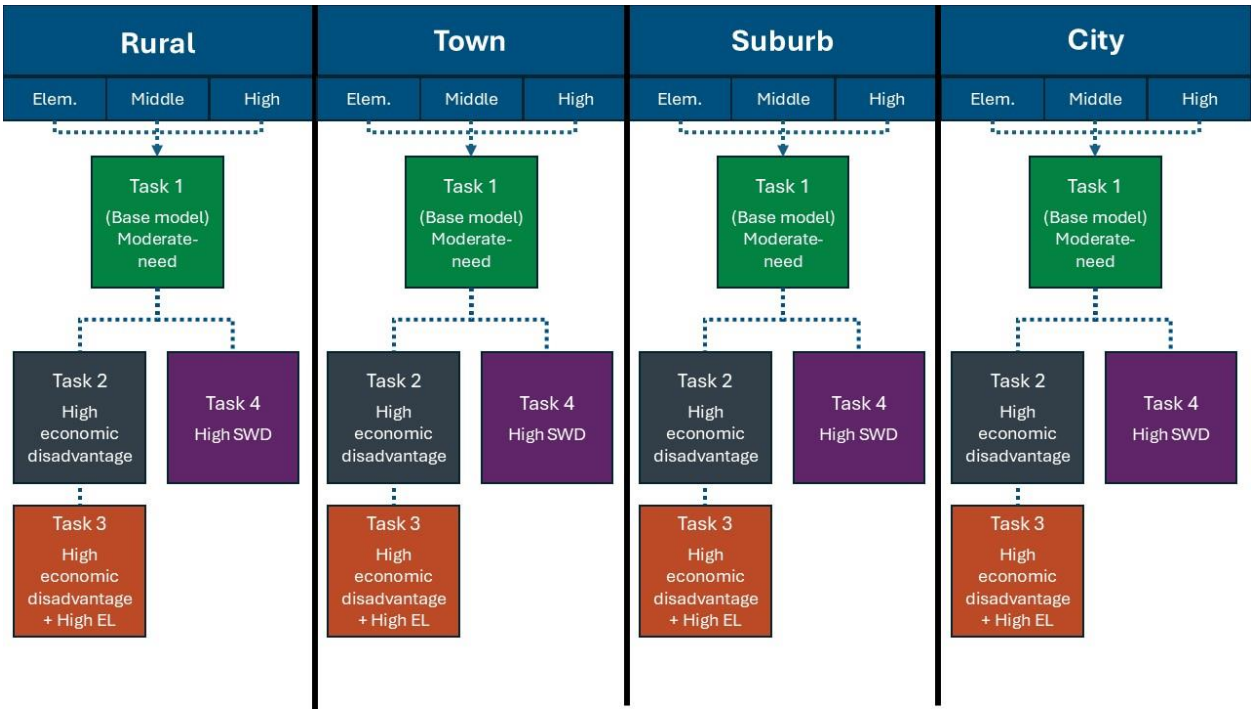
Exhibit 3 offers a hypothetical example of how a PJP analysis may structure panels to generate cost estimates for schools with varying needs and characteristics. In this example, panels are differentiated by locale (urban, suburban, small towns, and rural). This will generate data on how the cost of adequacy, per pupil, may differ across educational contexts. Next, each panel is presented with three sets of tasks, one for each schooling level (i.e., elementary, middle, and

[2] The examples provided here are taken from published government documents; other sources of information may also generate useful guidelines for determining educational goals (e.g., surveys of educational stakeholders, engagement with the public, etc.).

high). This ensures that the PJP cost estimates also account for the different programmatic needs of students as they progress through Grades K–12. Finally, for each schooling level, panelists complete four tasks to estimate costs in hypothetical schools that vary with respect to student needs:

- **Task 1 – Moderate needs school:** A prototype school in which rates of student need (i.e., SWD, EL, and economically disadvantaged) and total enrollment are set close to the average *for schools for given urbanicity- and school-level categories in the state*.
- **Task 2 – High-economic disadvantage school:** A prototype school with a high level of economic disadvantage (e.g. the 90th percentile or average of the top quartile of the statewide distribution for given urbanicity- and school-level categories), *with all other characteristics held at Task 1 levels.*
- **Task 3 – High-economic disadvantage and high EL school:** A prototype school in which both economic disadvantage and EL rates are high, *holding all other values at Task 1 levels.* Task 3 is linked to Task 2 to provide realistic depictions of student need, as students that are EL also tend to experience economic disadvantage at high rates in many settings.
- **Task 4 – High SWD school:** A prototype school where the SWD rate is set to the 90th percentile of the statewide distribution for given urbanicity- and school-level categories, *holding all other values at Task 1 levels*.

Exhibit 3. Outlining a Set of Hypothetical Schools for PJPs to Develop Prototypes



Under the scenario outlined in Exhibit 3, a total of 48 prototype schools would be developed by each PJP that describe the adequate programs and resources for hypothetical schools defined by specific levels of enrollment and economic disadvantage, EL, and SWD rates for each of the four locale categories, three schooling levels, and four tasks. That is, each prototype would be developed to reflect programs for actual ranges of student needs according to locale and schooling level. For example, if the 90th percentiles of the distributions of economic disadvantage and EL within each locale and schooling level were used to define the hypothetical High economic disadvantage/High EL school, we would expect these rates might differ dramatically between rural versus urban districts in Oregon. Developing the definitions of hypothetical school that are tailored to each context of interest, using actual data, ensures that the resource and cost estimates produced by the PJP are based on realistic scenarios.

By having panelists complete these tasks by locale and schooling level categories, the PJP analyses outlined in Exhibit 3 will produce data on the cost of an adequate education for a school with moderate levels of need (Task 1) and be able to estimate how these costs differ as the level of student needs characteristics vary across locale and schooling level. These data are essential for providing quantitative estimates on school- and district-level adequate costs based on actual student need data in the state. Using a variety of school prototypes also yields valuable qualitative insights into the types and quantities of additional resources that are needed to adequately educate students with specific learning needs or in varying contexts. In Exhibit 4, we summarize the best practices for developing prototype schools.

Exhibit 4. Summary of Best Practices for Developing Prototype Schools

Three best practices for developing prototype schools in PJP analyses		
1. Generate multiple hypothetical schools to create variation in the cost factors of interest, including school characteristics and levels of student needs (i.e., SWD, EL, economic disadvantage).	2. Define levels of student need and enrollment that define each hypothetical school using real-world data that pertains to the school characteristics of interest so that each PJP exercise is realistic.	3. Balance variation in student needs and school or district contexts of interest with not overwhelming panelists with too many prototypes.

Recruiting Panelists and Building Panels

The third stage of the PJP process that we highlight is the recruitment of expert panelists. The most essential components of recruitment are:

1. generating panels that represent the educational settings of interest for a given set of prototypes,
2. including panelists with diverse perspectives, positions, and experience in schools and districts,

3. including panelists who are familiar with the learning and resource needs of each student population and grade levels of interest, and
4. running multiple panels who independently develop prototypes for the same set of hypothetical schools.

Several of these goals are related to how the hypothetical schools to which PJPs respond are defined. For example, the hypothetical set of schools outlined in Exhibit 3 is stratified according to locale. Thus, to follow the first goal of building panels, it is necessary for the panelists who participate in estimating the cost of adequately educating students in a given locale type (e.g., rural schools) to have experience working in that locale type. This helps to ensure that panelists are developing programs and specifying resources for schools in the context that they are accustomed to.

Likewise, it is best for PJP panels to include members with representative and diverse sets of experiences. These include experiences in a variety of roles in a school, such as a mix of district or school administrators, general education teachers, English learner and special education teachers, instructional support (librarians, media technology coordinators), and pupil support staff involved in student well-being (e.g., counselors, educational psychologists, social workers, and community liaisons).

Panels should also include panelists with experience across all the grade levels and types of student needs present in the hypothetical schools. For example, if all panelists have experience only in elementary schools, they will be limited in their collective understanding of how costs vary in middle and high schools. Similarly, if all panelists are from areas with low EL enrollment but are presented with a hypothetical school with high EL enrollment, they will be less able to accurately assess the needs of this student population.

Finally, it is best practice to have multiple panels to increase the sample size used to estimate the cost of an adequate education. For example, the example set of hypothetical schools presented in Exhibit 3 requires at least four panels, each of which drawing on the experiences of educators from schools within each of the locale categories: rural, town, suburb, and city. This provides the level of expertise needed to arrive at robust cost estimates while also limiting the time burden on any one panel. However, ideally two or more panels would be created for each of these locale categories. This would allow for additional perspective on the cost estimates produced by the PJP study. This additional information would limit the risk that costs may be inaccurate from an outlier panel that developed extraordinarily rich or lean program designs and corresponding resource specifications.

PJP work is time-intensive, which can make it difficult to recruit educators to fill the diverse set of roles that must be filled. The perspectives and expertise of each panelist necessarily inform

the program design and resource specifications they provide. As noted above, while not every panelist needs to have experience in every aspect of the prototype schools, if the panel lacks the knowledge necessary to develop a comprehensive program design for each of the hypothetical schools, it is likely that the cost estimates that they produce will not satisfactorily estimate the cost of an adequate education. This undermines the accuracy and usefulness of the analysis. A diversity of roles and representativeness of the hypothetical schools of interest is therefore essential when developing PJP panels.

Exhibit 5. Summary of Best Practices for Building the PJP Panels

Four best practices for building panels for PJP analyses			
1. Ensure panelists represent the educational setting (locale) of interest in the hypothetical schools.	2. Recruit panelists who have a variety of experiences across their roles as educators.	3. Include panelists who are familiar with the resource needs of each student population and grade levels of interest.	4. Run multiple panels to generate variation in cost estimates, even across the same hypothetical schools for which prototypes are being developed.

Determining the Types and Quantities of Resources to Specify

Determining the types and quantities of resources is a foundational step in PJP analysis. The first part of this process requires that the researchers are comprehensive in making programmatic decisions and specifying the types and quantities of personnel and non-personnel resources deemed necessary to provide an adequate education. Doing this correctly is critical, as any important or costly programmatic components that are not included at this stage will be missing from the resource specifications and subsequent cost estimates. This can lead to an underestimation of total costs and undermine the value of the PJP.

In Exhibit 6, we outline the major programmatic components that AIR presents to panelists in its PJP analyses. Each component includes several types of individual resources that might be considered. While the list in the exhibit offers examples of the types of core positions to consider during PJP analyses, these are not meant to be exhaustive. The complete list of the exact types of resources made available must be developed within the context of the state educational system to align with the typical job titles and positions that currently exist. Moreover, the research team should necessarily be flexible in accommodating into the prototypes the addition of new types of staff or other resources that panelists feel are important.

Also important to note is that the lists of resources specified by the panels need to vary according to school level. For example, in elementary school, the number of FTE teachers may be broken out by grade level, while in middle and high schools where courses are most often departmentalized it may be more appropriate to specify FTE teachers according to subject matter. Again, the types of resource decisions presented to panelists should mirror how the state structures its schools.

There are some resources which may be important to include in the total cost of an adequate education that are too difficult or otherwise inappropriate for PJP panelists to cost-out. These can include costs such as (a) centralized district administration and services provided by the district to schools (e.g., itinerant district staff who provide special education services to individual schools); (b) substitute days; (c) food services; (d) transportation; and (e) facilities, maintenance, and operations. In such cases, the research team must first consider which to include in the cost estimates. For instance, in some states transportation or food services may be supported by funding sources and mechanisms that are separate from those used for core school instruction. Next, the research team must use secondary data sources to develop accurate estimates for the pertinent costs and add these to the school-level cost estimates based on the PJP resource specifications. The goal is to arrive at comprehensive cost estimates which can be used to inform district-level funding allocations that support the provision of an adequate education for all students in a district. This should necessarily consider both centralized district-level as well as school-level operations. Further, the process should reflect the best practices for establishing prices for resources highlighted later in this section.

This stage of PJP analysis also includes panelists specifying the quantities of resources needed to support the program developed for each school prototype. While detailed instructions on how to facilitate a PJP panel are beyond the scope of this report, we emphasize the importance of facilitating the PJP effectively. In studies conducted by AIR, this requires at least one lead facilitator and one supporting staff member for each panel. Moreover, completing the initial draft of the full set of school prototypes takes no less than three days and requires follow up to fill in gaps and finalize the program designs and resource specifications.

Exhibit 6. Example Essential Programmatic Components for PJP Analysis

Component	Description
Programs, staff, and services	
Core instruction	How many FTE teachers are needed to implement core instruction? In elementary school this may be broken out by grade level for core instruction and supplemented by additional subject matter specialists (e.g., arts, physical education, music). At the middle and high school levels, this may be specified by subject (e.g., math, English, history, science, foreign languages, health), and for Career and Technical Education. In all school levels, educational assistants, academic coaches, curriculum specialists, and remedial specialists may be needed.
Special education and English language (EL) specialists	How many FTE teachers and staff are needed who provide general special education, specialized services, speech/language pathology, occupational therapy, physical therapy, or specialized learning needs of EL students?
Instructional and pupil support	How many FTE staff are needed for pupil supports: guidance counselors, school psychologists, social workers, school nurses, librarians/media specialists, technology consultants, family/community liaisons, and services coordinators?
Non-personnel expenditures and professional development	What are the total or per pupil costs for: books; instructional technology/supplies; general supplies for classrooms, pupil supports, and administrators; extracurricular materials; contracted services; professional development; and professional travel and dues?
Athletic programs	In higher grade levels, what are the stipends or salary required for: athletic directors or other athletic administrators; coaches; student transportation for events; and contracted services, supplies, and equipment?
Extended-day and extended-year instructional programs and extracurriculars	What share of students should attend extended-day or -year instructional programs (e.g., general education, special education) or participate in other afterschool curricular activities? How many days a year and hours per day are these offered? What is the target pupil–teacher ratio for these programs? Are assistants or administrators needed to support these programs? Are stipends above or instead of hourly compensation rates required? What is the cost of supplies, materials, and equipment per pupil in these programs?
School administration and maintenance/operations staff	How many FTE principals, assistant principals, professional administrative staff, and clerical office staff are required? Are school-level maintenance and operations or custodial staff necessary?
School structure	
School year length and contract time	How many instructional and non-instructional days per year should teachers, administrators, and staff be contracted for? How many hours should each be contracted for in a week?
Teacher experience	What should be the distribution of novice, mid-career and veteran teachers?

The first step when facilitating PJP panels is to have panelists develop detailed *program design documents* for each hypothetical school. These program design documents should have detailed descriptions of the programs and supports in the schools and serve to describe how resources will be used to fulfill the educational needs of students in each school. The descriptions generated in this process yield valuable qualitative insights into the types of resources needed to provide an adequate education that can be used to develop recommendations for best practices for serving various types of student population.

The second step of facilitating the PJP is to have panelists define the number of FTEs required to fill each position and the dollar values in total, per-pupil, per FTE position terms of the necessary non-personnel resources (e.g., professional development, books, materials) defined in the school prototype program designs. It is important that facilitators build consensus among panelists but simultaneously draw out competing views or differing perspectives that may inform cost estimates. This process can present challenges that are more easily addressed through advance preparation on the part of the study team and anticipation of panelist questions and concerns. One form of preparation is to define base assumptions for approaching the development of school prototypes, making clear what is and is not included in the adequate cost estimates. In Exhibit 7, we include an example list of assumptions regarding costs that may be presented to panelists.

Exhibit 7. Example Assumptions for PJP Resource Specification

Example assumptions
1. All FTE work specifications must be made in 0.5 or whole integer increments to ensure staffing levels are realistic.
2. Assume that the program being designed is for an existing school that has basic supplies, equipment, and textbooks that are typical of the state's schools.
3. Assume that the school has access to sufficient resources to devote non-personnel spending to student activities and athletics that are typical of the state's schools.
4. Assume necessary facilities already exist. Estimating funding for new facility development and improvements are outside the scope of this panel and therefore not part of the PJP tasks.
5. Centralized facilities maintenance and operations are considered a district expense, and do not need to be accounted for by the PJP panelists.
6. Centralized district administration costs will be addressed separately by the research team and do not need to be costed by the panel.
7. Home-to-school and school-to-home transportation services will be addressed separately by the research team and do not need to be costed by the panel.

Determining the types and quantities of resources is crucial in PJP analysis to ensure accurate cost estimates. This involves establishing programmatic decisions and resources, tailoring the resources to reflect the realistic school structures of each prototype, and considering both personnel and non-personnel costs. Effective preparation and facilitation are essential to build consensus among panelists and address multiple perspectives. By following the recommendations outlined in this section, and summarized in Exhibit 8, a PJP can provide reliable and comprehensive estimates for the cost of an adequate education.

Exhibit 8. Summary of Best Practices for Determining the Types and Quantities of Resources

Four best practices for determining resource specifications in PJP analyses			
1. Compile an exhaustive list of relevant resources that must be considered when determining the cost of an adequate education.	2. Define the list of resources for which panels will specify quantities and differentiate these lists to accurately reflect different schooling levels represented by the hypothetical school tasks.	3. Define the list of centralized resources for which the study team will estimate costs and document resources that are outside of the scope of the analysis.	4. Present panelists with concise assumptions about costs and resources to facilitate more efficient discussions.

Establishing Prices for Goods and Service

Identifying prices for goods and services is a critical step in translating the resources specified by a PJP into estimated costs. The best practices summarized in Exhibit 9 are therefore essential. First, the study team should assume that all prototype schools face statewide average price levels for all goods and services, meaning there is no need to adjust the prices observed by the panelists for any regional differences.[3] With this in mind, the guiding principle for this component of PJP analysis is to identify prices that are realistic and ideally based on real-world price data from the state where the PJP is conducted.

Whenever possible, prices should be derived from school and district financial records within the state of the PJP study. For example, defining the compensation rate (price) of an FTE teacher using statewide average teacher salaries and benefit rates is more likely to yield accurate and relevant cost estimates than using national salary data. This principle also applies to other personnel and non-personnel goods and services. For this reason, it is best to use job

[3] In the final component of a PJP, discussed below, costs derived from prototype schools are used to estimate actual costs for schools and districts statewide. At this point, regional price differences should be accounted for.

titles present in state salary records when presenting positions to PJP panelists for resource specification.

When state data is unavailable, national sources may be appropriate. In such cases, it is recommended to adjust national prices to reflect state-level prices. In education, the most appropriate regional price adjustment for salaries and wages is the Comparable Wage Index for Teachers (CWIFT), an index published by the federal Institute of Education Sciences. This index measures the relative wage levels of individuals outside of education as a proxy for the relative costs of salaries in each state.[4] For nonwage prices, other indices, such as the Regional Price Parity Index published by the U.S. Bureau of Economic Analysis (2024), are more appropriate.[5]

The prices identified in this stage can be multiplied by the resource specifications generated by the panelists to estimate costs for each prototype school. These costs, if reported in total dollars, are then divided by the total enrollment in the prototype school to make per-pupil cost estimates that are comparable across the prototypes.

Exhibit 9. Summary of Best Practices for Establishing Prices in PJP Analysis

Three best practices for establishing prices		
1. Whenever possible, use average prices within the state being studied.	2. Structure resource specifications to facilitate cost identification (e.g., use job titles and roles that align with available salary and benefits data).	3. When only national prices are available, adjust these prices to reflect costs in the state of analysis using vetted regional cost indices.

Applying PJP Cost Estimates to Generate Adequate Cost Estimates for Actual Schools and Districts

To this point, we have described the best practices for planning, developing, and implementing the PJP approach to produce cost estimates for each prototype school. In this section, we outline the best practices for translating the costs generated for prototype schools into estimates of the cost of providing an adequate education for all actual schools and districts in

[4] The CWIFT data and documentation is available at https://nces.ed.gov/programs/edge/economic/teacherwage.
[5] The Regional Price Parity Index data and documentation is available at https://www.bea.gov/data/prices-inflation/regional-price-parities-state-and-metro-area.

the state. The best practices for this process are summarized in Exhibit 10.[6] This work involves three primary stages:

1. Using prototype-school-level cost estimates to estimate the average variation in costs based on levels of student need and school and district characteristics.
2. Predicting school-level adequate costs for all schools in the state based on administrative data on actual school characteristics and student needs.
3. Aggregating school-level costs to the district level, adding expenses that were excluded from the PJP resource specification process, and adjusting district-level costs by regional cost factors.

The research team can use the costs calculated from the PJP panelists to create a dataset that includes the per-pupil cost estimates and the and the student and school characteristics for each prototype school. These data can then be used in a regression analysis using the following general formula:

$$\textit{Adequate Cost Per Pupil} = f(\textit{Student Needs Characteristics, School Characteristics, District Characteristics})$$

In this formula, the dependent variable is the estimate of adequate cost per pupil derived from the prototype schools, and the independent variables are the defined values for student need, school characteristics, and district characteristics specified for the prototypes. The regression results will show how adequate cost varies with the various needs and characteristics according to the costs derived from the prototype program designs and resource specifications developed by the panels. For example, the estimated regression will measure how much more a school must spend per pupil as the rate of student economic disadvantage increases.

This regression model can be used in combination with administrative data on actual levels of student need, school characteristics, and district characteristics to generate predictions of the adequate costs per pupil for every school in the state. Since education funding is typically distributed from districts to schools, it is best practice to aggregate school-level adequate costs to the district level. This can be done by multiplying each school-level cost projection by school

[6] While it is beyond the scope of this work to detail the exact statistical methods and modeling assumptions that are involved in this process, we recommend referencing prior AIR PJP analysis for additional details on the statistical analyses involved in these steps. This is not meant to imply that this stage of analysis is either a black box or especially complex. At its core, the most difficult step of PJP analysis is conducting a high-quality panel that yield accurate estimates of the cost of an adequate education. The analyses outlined for this component are doable on any commonly used program for statistical analysis or even MS Excel.

enrollment, which generates total costs for each school, aggregating total costs to the district level, and then dividing these district-level total costs by total district enrollment.

Because the aggregated district-level cost estimates generated from prototype schools omit centralized district expenditures or other estimates that are too complex to estimate in the PJP process, the predicted per-pupil costs for actual districts will underestimate the true total cost of an adequate education. To address this, existing fiscal data on district-level per pupil expenditures for items such as district administration, facilities and maintenance, food service, and transportation should be added to the district-level per pupil estimates of adequate costs.

Finally, costs for educational goods and services vary across geographical regions, even within the same state. The best practice for identifying prices is to use statewide averages when available, so the cost estimates produced for each district will reflect statewide average regional pricing. Therefore, we recommend applying an adjustment based on regional cost factors (such as the CWIFT) to ensure that cost estimates reflect differences in costs across geographic areas within Oregon.

Following these steps will produce district-level per pupil adequate cost estimates for all districts in a state. Costs can then be aggregated to the state level by multiplying per pupil costs in each district by total enrollment in each district and aggregating these across all districts in the state.

Developing district-level cost estimates based on the findings of the PJP analysis is essential for translating the school-level resource specifications developed by the panelists into actionable evidence on the cost of an adequate education. These district-level estimates can be used to assess where differences between projected adequate per-pupil costs and actual expenditures per pupil exist and generate estimates of the statewide funding needed to meet adequacy targets.

Exhibit 10. Summary of Best Practices for Estimating Adequate Costs for Actual Schools and Districts

Three best practices for estimating adequate costs for actual schools and districts		
1. Use cost estimates from PJP prototype schools to estimate how adequate cost varies with respect to student need and school/district characteristics.	2. Use the estimates of cost variation and administrative data on student needs and school/district characteristics to predict adequate school-level costs for all schools in state.	3. Aggregate school-level cost estimates to the district level, add district-level costs not addressed by the PJPs, and apply regional cost adjustments.

Summary of Section 2

Overall, there are many methodological considerations that are essential for implementing a PJP that produces valid estimates of the cost of an adequate education. This section highlighted the best practices for six key components of the PJP process. In the next section, we summarize the current practices used to develop and maintain the QEM across these same six components. We will then conclude by offering a series of recommendations on how the QEC may improve the methodology used by the QEM to estimate the cost of providing an adequate education in Oregon.

Section 3. The QEC and QEM

In this section we provide a brief overview of the QEC and their mandate, as well as an in-depth summary of the QEM as it pertains to the key components of the PJP process outlined in Sections 1 and 2. This discussion is then used to frame our policy recommendations in Section 4.

Summary of the QEC and Prior Reports

The Oregon Quality Education Commission (QEC) was established in 1999 (and formally codified in 2001) to "define the costs sufficient to meet the established quality goals for kindergarten through grade 12 public education" (ORS 327.497). The commission consists of 11 members appointed by the governor of Oregon, with no more than five members being current employees of a public school district at the time of their appointment. Members serve four-year terms but may be reappointed and replaced at the governor's discretion. Each appointed commissioner is also subject to senate confirmation.

To estimate the costs for Oregon to meet its quality goals, the QEC defines the best practices that lead to high student performance and calculates the costs of implementing these practices. The QEC then uses these cost estimates to determine the total cost of an adequate education across Oregon. Every two years, the commission delivers a report to the Governor and Oregon Legislature, identifying the current practices and their costs (known as the Current Service Level) and the best practices and their costs (as defined by the QEM). The estimation of costs and delivery of reports are supported by staff from the Oregon Department of Education (ODE), who assist with research, data collection, and analysis.

Since 1999, there have been 14 reports published by the QEC. Each report has detailed the cost of fully implementing the level of spending necessary to adequately educate students in Oregon. However, the legislature has never appropriated funds at the level recommended by

the QEC. For the 2025-27 biennium, the QEC projects that an additional 20% of funding in the State School Fund would be sufficient to meet their projected statewide cost for an adequate education, equivalent to $2.252 billion in additional funding for education in the two-year budget period.

Summary of the Methods of the QEM

Fundamental to the cost projections produced by the QEC is the QEM. The QEM is an input-oriented cost model for educational adequacy that primarily relies on the professional judgment of the 11 QEC commissioners. Commissioners use multiple methods of data collection to inform their professional judgment, including reviews of research literature, surveys of education stakeholders throughout Oregon, and statistical analyses of current resource allocation patterns. The data collected by the QEC are supplemental to the commissioners' professional judgment and do not directly determine resource specifications, meaning the QEM is primarily a PJP approach to cost estimation. Therefore, our summary of QEM methods and our recommendations in Section 4 focus specifically on the PJP practices of the QEM.

As a PJP model, the QEM uses very few outcome goals and hypothetical schools for which prototypes are developed. For example, the only goal the QEM targets in its cost estimation is for Oregon to reach a 90% 4-year graduation rate. While this goal is included in Oregon's ESSA plan, it is still notable that this is the only goal used, despite the quality education goals defined for the QEC in ORS 327.506 being more expansive (ODE, 2023).

Likewise, there are only three prototype schools in the QEM used to drive cost projections, which are differentiated by schooling level (elementary, middle, and high). This means that the cost estimates produced by the QEM vary according to schooling level, but do not generate estimates for how costs may vary across other important cost factors, such as levels of student need (i.e., SWD, EL, or economic disadvantage) or school or district characteristics (e.g., locale). Furthermore, the 2024 QEC report notes that these prototype schools were developed in 1999 using enrollment sizes that reflected the best practices identified in research literature at that time, and not on current data on average school sizes in Oregon.

The limitations of the number of goals used when determining resource levels and the small number of prototype schools used were recognized by the QEC in their 2024 report (p. 59). The commissioners suggested that in future iterations of the QEM analysis they may need to expand both the number and types of goals, as well as the number of prototype schools. We agree with these points and will explore them in greater detail in Section 4.

The QEM uses only one set of panelists when specifying resources for the prototype schools, which is composed of the 11 QEC commissioners. Because this is the only panel, and the QEC members are appointed by the governor and confirmed by the Oregon State Senate, it would be incumbent on the governor and Senate to ensure that the panel includes participants with a variety of perspectives and experiences representing the various contexts in which K-12 education is delivered across the state.

In terms of the identification and specification of resources, the QEM includes hundreds of inputs across many different aspects of each prototype school, including salary data; instructional staff and instructional support staff; extended school year programs; non-personnel costs associated with books, materials, and technology; and operational and district costs. For the 2022 report, the QEC undertook a significant reassessment of resource assumptions that had been in place in the QEM for some time. Resource specifications were modified to add additional nurses, counselors, summer school programs, EL student supports, classroom supplies, professional development, student and teacher computers, librarians, media center assistants, substitute teachers, family resource centers, and physical education and music teachers. It also reduced class sizes in elementary schools from 23–24 to 20 students. The QEC noted its rationale for most of these updates and often included citations to external research supporting these changes.

These changes are commendable as they demonstrate that the PJP practices of the QEM are responsive to evolving education contexts and needs. However, the updated assumptions made in the 2022 report also significantly increased the estimated cost of adequate education in Oregon by approximately $2 billion compared to the figure provided in the 2020 report. Having now made these substantial updates, it is possible that more incremental updating of all assumptions in the QEM may generate greater stability in cost estimates going forward. However, in the 2024 report, no additional resource types were added to the QEM, and no resource specifications were modified via professional judgment.

The QEC determines the prices of the resources specified in the QEM using data provided by ODE. In our review of Appendix C of the 2024 QEC report, all prices listed appear to be calculated based on actual data from Oregon, suggesting that the cost estimates are built on prevailing state prices.

Finally, the current QEM produces a single cost estimate for the adequate cost of education for all students in Oregon, based on the calculated costs per pupil in each schooling-level specific prototype multiplied by the number of students in Oregon belonging to each schooling level. This total funding amount is then reduced by the amount of actual or projected funding from

sources other than the State School Fund (SSF), which is Oregon's primary school funding model. The resulting measure is the estimated total funding amount needed in the SSF to meet the cost of an adequate education statewide. This amount is then compared to actual and projected legislative SSF appropriations for the upcoming funding biennium. The QEC then reports a funding gap between the SSF cost estimates and actual funding levels, which, as noted above, is estimated at $2.252 billion for the 2025–2027 biennium.

Importantly, the lack of variation in student needs in school prototypes prevents further detailing of how estimates of adequate costs may differ across districts with varying levels of need, or how the size of gaps between QEM estimates and the Current Service Level in each district may vary according to certain types of student need. These insights would be valuable for better assessing the equity of Oregon's school funding, a stated priority for best practice in the 2024 QEC report (p. 72).[7]

Summary of Section 3

The QEC has the challenging responsibility of estimating the cost of an adequate education for students in Oregon. As highlighted in Section 1, even if executed perfectly, any individual approach to costing-out education necessarily has meaningful limitations. The QEM is based on a PJP approach and as noted in Section 2, there are myriad best practices for conducting this type of analysis. Many best practices are time- and resource-demanding. In some instances, best practices cannot be fully met or implemented due to study constraints. Based on our review of the QEM methodology described in this section, we have identified several aspects of the QEM that do not align with PJP best practices that we believe can and should be addressed. In the next section, we outline our recommendations for how the QEC can improve the QEM to enable a more accurate analysis of the cost of an adequate education for all students in Oregon.

Section 4. Evaluating the Strengths and Weaknesses of the QEM

Based on our identification of the best practices in PJP analysis and summary of the QEM, Exhibit 11 offers a series of assessment ratings of how the QEM is currently performing, as well as recommendations for how the QEM methodology could be improved.

[7] Indeed, the ability to distribute funding across districts in an equitable manner has been stressed in the school finance literature as a key desirable property of funding mechanisms (Chambers & Levin, 2009).

Regarding outcome goals, we recommend that the QEM integrate a more robust set of adequacy goals beyond just the attainment of a statewide 90% graduation rate. While this is an admirable goal, it does not fully reflect the broader aims of education or the goals and priorities of Oregon's public education system.

For the construction of prototype schools, we recommend that the QEM substantially expand the number of prototypes to better reflect the variation in key student needs in Oregon. Currently, the QEM only differentiates by schooling level, using average values of student need across the state. This approach limits the quantitative and qualitative insights into how adequate costs vary with student needs. We recommend developing prototype schools that vary according to levels of student needs (i.e., SWD, EL, economic disadvantage) and school and district characteristics such as locale. While too many prototype schools may be burdensome, there are too few now, and a balance through iteration is likely the best approach.

In terms of panel recruitment, we recommend greatly expanding the number of panels. The QEC might consider recruiting approximately 20 experts in various educational roles from districts and schools in each of the four locales (urban, suburban, town and rural) and dividing them into two distinct panels for each locale type. These panels should include teachers, administrators, staff, and other stakeholders who are representative of the school or district characteristics and educational contexts in Oregon. The panels of experts can then better estimate the types and quantities of resources needed across the state to provide all students with an adequate education.

We also find that the QEC is generally effective in determining the types and quantities of resources needed and assigning prices using data specific to Oregon, which is made evident by the recent addition of Appendix C to QEC reporting. We encourage the QEC to continue to develop the presentation and transparency of this document, including directly reporting the actual salary and benefit rates for every staffing position included in the analysis, following a similar format to the “3. Salary History” tab in Appendix C.

The 2022 QEC report updated the types of resources and assumptions being made in the QEM. While this updating is an essential practice, it also resulted in a sudden and substantial increase in the estimated adequate cost. A smoother integration of continual updates to resource types and assumptions that reflect shifting changes, priorities, and trends in the services offered by schools in Oregon will increase the stability of cost estimates over time, an important goal. Likewise, we note that the 2024 QEC report mentions that cost estimates do not include the costs of a 180-day school year, expanded Career and Technical Education programs, and gifted and talented services. This decision may be in part due to the narrow scope of the QEM target outcome goal, and it is within the discretion of panelists to exclude programmatic components

that they determine are not required to provide an adequate education. However, we recommend that these and other components that may be of interest to the QEC be presented to future PJP panels as resource options and choices. Future panels may similarly conclude that these are not required to meet the QEM education goal but should nonetheless be allowed to consider them.

Furthermore, if our recommendations are followed and the number of panels engaged in the PJP process increases, the QEC may need to rethink how assumptions and resource specifications are presented in the QEM to allow for greater input from participants less familiar with the QEM process. For example, instead of asserting assumptions about student-to-teacher ratios for a school or grade range, participants should be able to specify the number of teachers by grade or subject for each prototype school. These expanded choices may create more opportunities for valuable discussion leading to more precise and efficient resource specifications.

In combination with the PJP, the QEC engages in several other forms of data collection and analysis: research reviews, best practices surveys, and statistical analysis. We believe that all three are beneficial aspects of the QEM process but encourage that these measures only be used to bolster the professional judgment of the panelists and not be used for asserting resource levels that could otherwise be appropriately estimated by PJP panelists. For example, the best practices survey and research literature reviews can be used to identify resources that may need to be added to the QEM. However, neither should be used to assert specific resource specifications onto the QEM. Likewise, statistical analysis can be useful for identifying information on current resource and staffing levels across the state of Oregon, but it should only be used to identify types of resource to include in the models or to provide panelists with some baseline understanding of current resource specifications.[8] Ultimately, it should be the expert panelists who determine the best practices for achieving Oregon's education goals through their resource specifications and deliberations. Other methods may supplement and facilitate this process, but they should not subsume it.

Last, we recommend leveraging the additional information produced by increasing the number of hypothetical schools and subsequent prototypes to estimate how costs per pupil vary with levels of student needs or other district characteristics. These insights can inform Oregon's school funding formula by indicating how much additional funding per pupil is needed to

[8] The one exception to this is our recommendation that secondary data analysis be used to develop per-pupil cost estimates for resources that are too complex or otherwise inappropriate for panels to specify (e.g., centralized district administrative overhead, transportation, facilities and maintenance, and food service).

adequately support higher-need students or schools operating in different contexts such as rural areas. The analyses, as outlined in our recommendations, will also yield district-level adequate cost estimates, which would allow the QEC to identify which districts are underfunded and whether these districts share any common attributes in terms of student need or other characteristics.

Conclusion

In this report, we have outlined the current QEM methodology and offered recommendations for aligning the QEM with PJP best practices. The PJP approach to estimating the cost of an adequate education is a valid and useful tool in education finance. High-quality implementation of a PJP requires many methodological considerations and decisions. Furthermore, following the best practices as we have defined them is both a resource-intensive and iterative process. PJP practices should be continually refined and improved to be responsive to the setting in which they are conducted; to do it will require that the QEC be given access to the resources, data, and expertise necessary to implement their analyses to the highest standard.

Importantly, our findings do not invalidate the current QEM estimates. Fundamental errors in PJP occur when important resources are omitted, or inaccurate pricing data are used; neither is a concern with the current QEM methodology. The greatest misalignment between the QEM and PJP best practices is in aspects that impact the utility of the information produced. For example, current QEM cost estimates target only a single goal of 90% graduation rates. Expanding the goals to include a broader conceptualization of adequacy would make the cost estimates more meaningful and relevant to policy. Furthermore, introducing additional prototype schools that vary by characteristics and needs will generate data on how costs vary in these settings. This would enable QEC to report more in-depth findings related to equity, such as the gaps in actual spending and adequate costs that exist for school districts in Oregon, based on the levels of student need and other characteristics in each district.

Finally, in the AIR Task 5 report on Oregon's school funding system, we estimate the cost of an adequate education for all students using a cost function approach and compare our estimates of adequate costs to those generated by the QEM. As noted in this report, the cost function has unique advantages and disadvantages relative to the PJP approach used to develop the QEM. We believe that both PJP and cost function estimates are valuable and can be used conjointly to garner in-depth insights into the costs of an adequate education. If the QEC receives the support necessary to implement the PJP best practices outlined in this report, then we believe that the QEM and our cost function estimates would be valuable complementary tools for identifying the cost of an adequate education in Oregon.

Exhibit 11. Summary of Our Recommendations for Improving the Methodology of the QEM

Best practices	Does QEM follow best practices?	Recommendations
Defining goals		
Set goals based on published aims and public values	—	The QEC uses a published goal of the state (90% graduation rates), yet many other goals are not considered, including those defined for the QEC in ORS 327.506. We recommend a review of other goals, including those mentioned in Section 2 of this report.
Leverage multiple goals	X	The QEC currently uses only one goal. We recommend adopting multiple additional measures of student outcomes based on the broader aims and values of the Oregon Grades K–12 public education system.
Balance having a variety of goals with not overwhelming panelists	X	Many additional goals can be adopted before significantly overwhelming panelists.
Developing prototype schools		
Generate numerous prototypes	X	Currently, the QEC differentiates prototypes only by schooling level. We recommend significantly increasing the number of prototype schools according to school characteristics (such as locale, enrollment size, or method of instructional delivery), and by incidence of different student needs (such as EL, SWD, or economic disadvantage).
Generate realistic prototypes	—	If the number of prototype schools increases, it is essential that they be generated to be realistic, meaning they use actual data for enrollment counts and levels of student need for schools with similar characteristics (e.g., locale). Prototypes with higher or lower rates of a given student need should likewise be calculated on actual data for high and low levels of student need in schools with similar characteristics. Currently, the QEC prototypes use enrollment sizes based on research estimates that are more than 25 years old. Using current data on elementary, middle, and high schools in Oregon would yield more realistic cost estimates. Student needs are considered in the QEM, but these are affixed to statewide averages and therefore lack the meaningful variation required to speak to the differential cost of meeting the needs of these student populations.
Balance the number of prototypes with not overwhelming the panelists	—	Many additional goals may be adopted before serious concern for overwhelming panelists is likely.

Note. "✓" indicates the QEM fully meets the best practice for PJP; "—" indicates the QEM partially meet the best practices for PJP; "X" indicates the QEM does not currently meet the best practice for PJP.

Best practices	Does QEM follow best practices?	Recommendations
Recruiting panelists		
Recruit panelists who reflect the setting of the prototype	—	Currently, QEC members represent a diverse set of experiences both inside and outside of the Grades K–12 education system in Oregon. As the number of prototype schools increases, we recommend that the QEC recruit panels of active educators who reflect the setting of the prototype school (e.g., recruit panelists only from rural schools and districts to serve on a panel developing prototypes for rural schools). Each panel should be composed of approximately 10 educators.
Ensure myriad roles in schools are represented	—	As the specificity of prototype schools increases with respect to locale and student needs, we recommend engaging larger numbers of panels and panelists in the QEM process. Each panel should be representative of a variety of roles and experiences, including instructors and instructional specialists, administrators, and school business officials.
Include panelists who are familiar with the grade levels and student needs of interest	—	All panels should develop programs and specify resources across multiple hypothetical schools that vary by schooling level and student needs. Therefore, each panel should include members who have direct experience serving the key characteristics of the hypothetical schools for which they are developing prototypes.
Run multiple panels to generate cost variation	X	Currently, the QEC is the only panel used to specify costs, which does not produce variation in estimates. It is recommended that multiple panels would estimate costs for the same prototype schools to generate variation in cost estimates.
Identifying resources		
Compile an exhaustive list of resources	—	The QEC clearly documents myriad resources in the QEM. The QEM also includes several methods for identifying other resources to consider, such as the best practices survey, reviews of academic research, and quantitative analyses of resource spending in Oregon. However, as noted in the 2024 QEC report, QEM projections currently omit consideration of the costs of a 180-day school year, expanded Career and Technical Education programs, and gifted and talented services. While the QEC has the discretion to omit inputs not deemed necessary for achieving adequacy in its own deliberations, we recommend that these and other potential resources be presented to future PJP panels as resource options. These programmatic components may be of greater interest as the number of goals used in the QEM process expand. Future panels should be presented with these options and then determine whether or not an adequate education requires these programmatic components.

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Best practices	Does QEM follow best practices?	Recommendations
Define resources that panelists will specify, and differentiate by schooling level	—	Currently, the QEC designs the QEM and also specifies resources. The QEM is effective at documenting the resources that are specified and differentiating these by school level. However, we recommend involving many more panelists in the resource specification work who have no role in identifying the resources in the QEM. As this expansion occurs, it is important that the QEC allows all appropriate resources to be specified by panelists, rather than asserting costs via the best practices survey, external research, or quantitative analyses of spending in Oregon. These sources may inform discussions, although panelists should make their decisions using professional judgment.
Define resources that the study team will specify and determine costs for	—	For items that may be too complex for panelists or are irrelevant to school prototypes (e.g., food service, district overhead, transportation, facilities and maintenance), the QEC should set costs at fixed levels based on actual spending per pupil in Oregon.
Present panelists with assumptions about costs and resources	✓	The QEM provides clear documentation of current resource assumptions. However, as more panelists are involved, these assumptions should be explicitly communicated to all participants.
Establishing prices		
Use statewide average prices whenever possible	✓	The QEM currently uses available data from ODE for prices when possible. We recommend this practice continue whenever possible.
When using national prices, adjust these to state-level costs	✓	The only instances of national prices identified in the QEM are for growth rates in computer and textbook costs. Because these are rates, regional adjustment is not needed.
Structure resource types to facilitate accurate cost identification	✓	The staffing roles included in QEM specifications align with job titles that currently exist in Oregon Public Schools. If the number of specified resources expands, this practice should be continued.
Generating Cost Estimates		
Estimate average variation in costs based on student needs and school characteristics	—	The QEM currently estimates cost variation across school levels. However, we recommend greatly expanding the types of variation considered to include more school and district contexts and levels of student need. This will produce detailed estimates of how costs vary across these settings.
Predict actual cost levels for each school in the state	X	We recommend that the QEC adopt the approach outlined in Section 2 of this report for translating cost estimates for prototype schools into actual school-level cost projections.
Aggregate school-level costs to the district level, add centralized district costs, and apply regional cost adjustments	X	We recommend that the QEC adopt the approach outlined in Section 2 of this report for estimating the cost of adequate education at the district level for all districts in Oregon. This will allow for a more detailed assessment of the gaps between current funding and adequate costs in the state, and whether districts with larger gaps share common characteristics, such as urbanicity or higher levels of certain types of student need.

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