



Evaluating State School Finance Systems

An Introduction

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In most states, school funds are distributed via a statewide formula. The details of these formulas vary substantially from state to state, but they are designed, in theory, to accomplish two goals:

- Account for differences in the costs of achieving equal educational opportunity across schools, districts, and the children they serve (e.g., some districts serve larger shares of disadvantaged students than others).
- Account for differences in fiscal capacity, or the ability of local public school districts to pay for the cost of education (e.g., their ability to raise local revenue, mostly via property taxes).

Municipalities and school districts differ with respect to the populations they serve, which manifests itself in differential needs for educational programming and services to offer similar opportunities to students (the first bullet). In addition, they vary widely in terms of wealth, which means their capacity to raise revenues through property taxes also varies widely (the second bullet). Often, although not always, these two factors are linked. That is, districts having less local taxable wealth are also likely to have higher concentrations of child poverty in their schools, and child poverty is a determining factor of the cost of providing children with equal opportunity to achieve common outcome goals.

In recent years, researchers and prominent educational organizations have adopted a common understanding that state school finance systems should provide not merely the same but substantially more resources per pupil to districts serving greater shares of children in poverty.¹ School funding systems that systematically provide more resources (revenue) to districts with the highest poverty rates are considered to be relatively “progressive” (Figure 1).

Key Terms

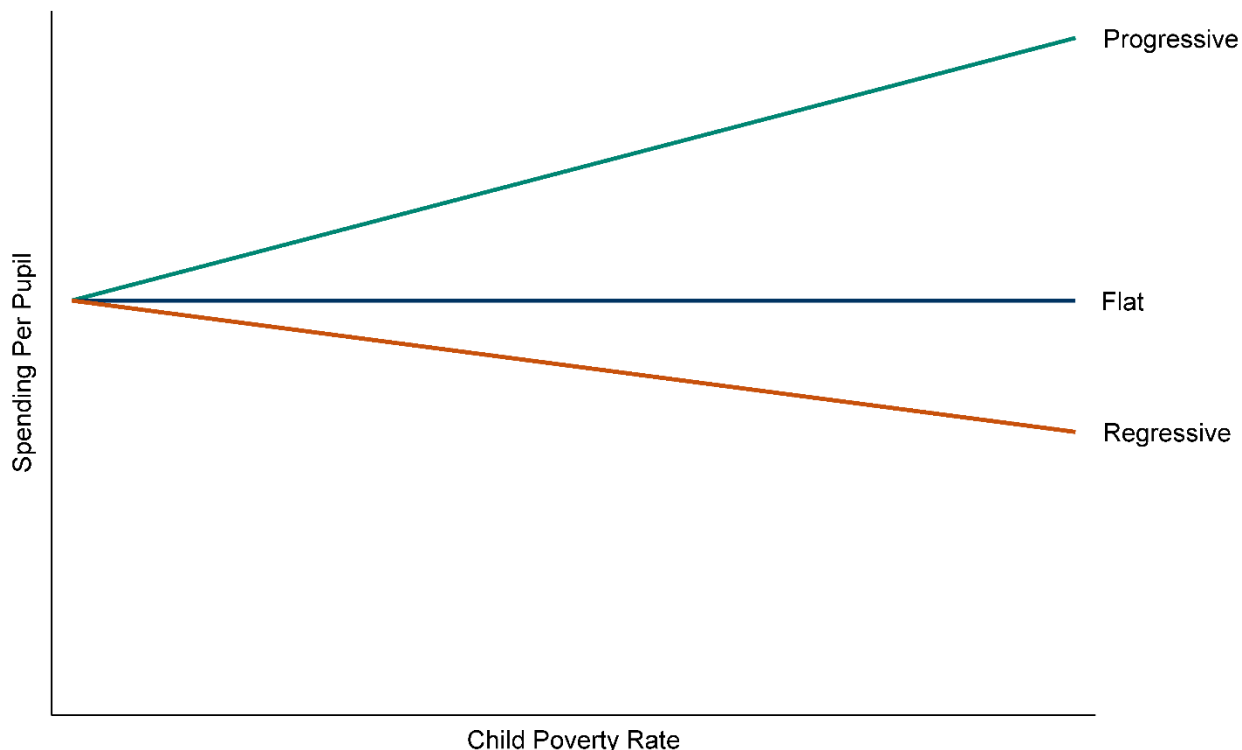
Progressive: An education funding system that provides more revenue to districts or schools with the highest needs (often operationalized as child poverty rates).

Regressive: An education funding system that provides less revenue to districts or schools with the highest needs (high child poverty rates).

¹ These educational organizations include The Education Trust (<https://edtrust.org/>), the Urban Institute (<https://www.urban.org/>), and the School Finance Indicators Database (<https://schoolfinancedata.org/>).

Conversely, those systems that tend to provide fewer resources to districts with the highest poverty rates are considered to be relatively “regressive.” Given that money matters for educational outcomes, maintaining a progressive distribution of resources is an important step toward ensuring that an equal educational opportunity is provided to students.

Figure 1. Visual Representation of Progressive and Regressive Funding Patterns



Note: The y axis is labeled as spending per pupil. Progressiveness can also be measured using revenue per pupil.

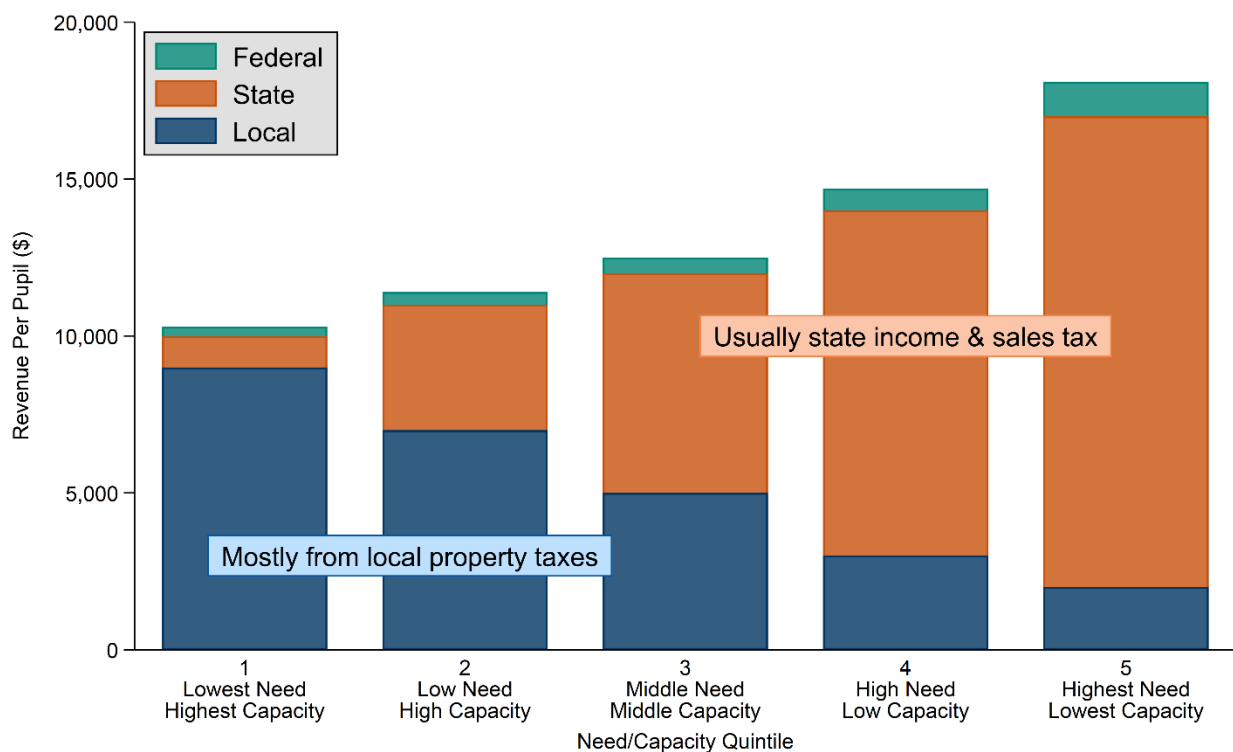
In keeping with the near consensus regarding school finance and equal educational opportunity, a hypothetical progressive state school finance system might resemble the model in Figure 2. In this model, the finance formula funds districts based on student needs and equalizes revenue across districts according to wealth through a foundation aid formula. Foundation aid formulas are used in some fashion by the majority of states (Jackson, Johnson, & Persico, 2014; Verstegen, 2011). In a foundation aid formula, the state sets the minimum (foundation) amount of state and local revenue that each district will get and also sets the minimum local effort (tax rate) for school districts. Each district raises a varying amount of local revenue based on the minimum local effort, and the state supplies the difference in revenue between the foundation amount and the local revenue raised.

The figure shows five different bars, ranging (left to right) from the lowest need (i.e., lowest poverty) districts to those with the highest need (i.e., highest poverty) levels. The height of each bar (measured on the vertical axis) represents average per-pupil revenue across the districts within a given need category. The height of the bars slopes upward from left to right, indicating that higher need (i.e., higher poverty)

districts receive more total revenue than do lower poverty districts. In other words, in this idealized model, total state and local funding is progressive and would be well positioned to promote a more equal educational opportunity to students.

The colors within each bar represent the sources of funding: blue represents local tax revenue (mostly from property taxes); orange represents state funding (derived predominantly from state income and sales tax revenue in most states); and the small sliver of green at the top represents federal funding. In the model, the local share of the bar (in blue) is far larger in lower poverty districts, whereas the orange portion dominates in higher poverty (i.e., need) districts. This is because higher poverty districts, in which property values are lower and residents are less able to afford high property tax rates, cannot raise as much local tax revenue compared to more affluent districts with lower poverty. The hypothetical progressive formula in Figure 2 compensates for this disparity by allocating more state revenue to higher poverty districts, which need that revenue to meet the challenges of the student populations they serve.

Figure 2. Hypothetical Progressive Foundation Aid Formula



Notes: The share of revenue contributed by the state increases as local revenue capacity decreases. The target state and local spending level is based on student need and geographic cost adjustments.

Figure 2 also shows how federal aid, which is targeted according to student need, tends to allocate resources in a progressive manner (the green segments of the columns become larger with need/poverty). However, federal aid constitutes less than 10% of total K–12 revenue for U.S. public schools. Therefore, federal revenue is not enough to substantially change the progressivity of educational revenue distribution within states.

Although this hypothetical model is how state formulas that promote equal educational opportunity are supposed to work, political and economic realities often compromise the degree to which state school finance systems look like this in practice.

- In many states, total state aid (the orange area) is insufficient to fully offset the differences in revenues raised locally, even if disparities in these local revenues are not particularly large. This leads to a funding distribution that is flat (the total revenue bars are roughly equal in length across poverty groups) or even regressive (the bars slope downward from left to right—higher poverty districts receive less than their more affluent counterparts).
- In some cases, the lowest poverty districts in a given state have so much additional local capacity that they are able to raise enormous amounts of local revenue (even while levying lower local taxes than their higher poverty counterpart districts). This too can result in flat or regressive funding distributions.
- Through a variety of political compromises in the adoption of state aid formulas, states often distribute significant sums of aid “outside the formula” to lower poverty districts, aid that often exacerbates rather than mitigates disparities (Baker & Corcoran, 2012).

These differences between how state funding formulas are supposed to work and how they actually work are why we see relatively few state school finance systems that closely resemble Figure 2 and why the U.S. average distribution of state and local revenues tends to be “flat,” at best, with respect to poverty and need across districts (Baker, Di Carlo, & Weber, 2020).

Evaluating State School Finance Systems

Financial inputs to schooling (revenues from local, state, and federal sources) are expended on *real resources* required for the provision of schooling: human resources (teachers, leaders, and support staff), material resources (materials, supplies, and equipment), capital stock (buildings, grounds, and buses), and expenses associated with maintaining and operating buildings and vehicles (fuel and utilities). Ultimately, the goal is to provide children throughout the state with equal opportunity to achieve some set of common outcome goals. Furthermore, it is preferable that the types and desired levels of outcomes be chosen to meet state’s education goals. A subsequent brief—*Setting Outcome Goals and Standards*—provides a more detailed discussion of how states have used available outcome measures to define adequacy standards.

Often, the most consistently available measures of outcomes are from standardized assessments of student achievement or measures of educational attainment such as graduation. Presumably, these intermediate outcome measures are predictive of long-term outcomes, such as adulthood employment and earnings. That is:

Financial Inputs → Real Resources → Intermediate Outcomes → Long-Term Outcomes

State school finance systems should be evaluated in terms of the provision of financial inputs, real resources such as teachers and instructional programs and services, and with respect to student outcomes. Here, we discuss specifically the evaluation of financial inputs.

Two assumptions guide such analyses:

1. Equal educational opportunity requires providing different types and intensities of programs, services, and real resources such that all children, regardless of their backgrounds, have equal opportunity to achieve common outcome goals—however high or low those goals.
2. Educational adequacy goes beyond equality of opportunity by establishing a minimum threshold for levels of outcomes that students should achieve to satisfy the state’s educational goals. Adequacy requires providing sufficient resources across children and settings such that all children have the opportunity not only to achieve equal outcomes but also to achieve a level of outcomes that is deemed adequate—often defined as college and career readiness.

It is increasingly well understood that (a) it costs more to reach a given level of achievement on a set of outcomes in some settings than others, and with some children than others; and (b) it costs more to attain higher achievement levels across a broader range of outcomes than to attain lower levels on a narrower set of outcomes. Evaluating state school finance systems often addresses whether resources are differentially distributed according to need and whether resource levels are adequate for meeting educational goals.

Model-Based Evaluation of System Progressiveness

Given the principles laid out previously, evaluating equity must go beyond simply calculating the existing variation in school or district resource levels (revenue or spending per pupil) or determining whether spending is higher or lower in communities with more or less taxable wealth (fiscal neutrality). More thorough approaches are required for distinguishing between variation in financial inputs that promotes equal opportunity (equity advancing) and variation that is random, unexplainable, or derived from differences in local wealth (equity eroding).

A starting point for evaluating equity of financial inputs, whether between schools within a district or between districts within a state, is regression modeling of inputs with respect to the factors that should explain variation in costs and student need. This type of model shows whether financial inputs are strongly associated with determinants of costs and need, relative to wealth or unexplained factors. Although child poverty is often used to proxy student need, the standard model of student need has evolved over time to account for multiple factors. These factors include (a) the share of children from families in poverty, (b) the share of children with disabilities, (c) the share of English language learners, (d) the distribution of children by grade range, (e) the size of the school district, and (f) population density.²

Three questions guide model-based evaluations of state school finance equity:

1. Do financial inputs to schooling vary predictably as a function of differences in student needs or other structural and geographic cost factors (e.g., district size and population density)?

² The final two factors on this list are not necessary for evaluating spending variation across schools within large, population dense districts.

2. Do differences in financial inputs vary in the appropriate direction? That is, do districts with more children in poverty have more, rather than fewer, resources per student? Do very small districts or those in sparsely populated areas have more resources per student to account for the fact they operate on a small scale or in remote areas, both of which drive up the costs of providing educational services?
3. Are the variations in financial inputs in line with expectations regarding needs and costs? In other words, are the differences of sufficient magnitude to address expected differences in costs?

Of primary interest is whether and to what extent schools and districts serving needier student populations have access to more financial inputs per student than their less needy peers, after controlling for the other factors that influence costs. That is, is the system progressive with respect to child poverty, and is that progressiveness *systematic* (observed across the entire range of student need)? Notably, most state school finance systems are not noticeably progressive in magnitude, and even fewer are systematically progressive.

Although the model described above provides a clear measure of progressivity, it falls short of evaluating equal opportunity or adequacy. Without incorporating measures of student outcomes into the model, there is no way to determine (a) whether the degree of progressiveness (the additional resources provided to districts with higher poverty rates) is enough to provide equal education opportunity to achieve any given level of outcome or (b) whether the overall level of funding in lower or higher poverty settings is sufficient to achieve an adequate level of outcomes.

Evaluating Adequacy

Addressing adequacy requires that we decide on a desired level of outcomes and that we are able to estimate the levels of spending associated with achieving these outcomes across children and settings. That is, we must first establish some “adequacy targets” for spending for each district (or school) and then compare current spending levels to these targets. Guiding questions for adequacy analyses are the following:

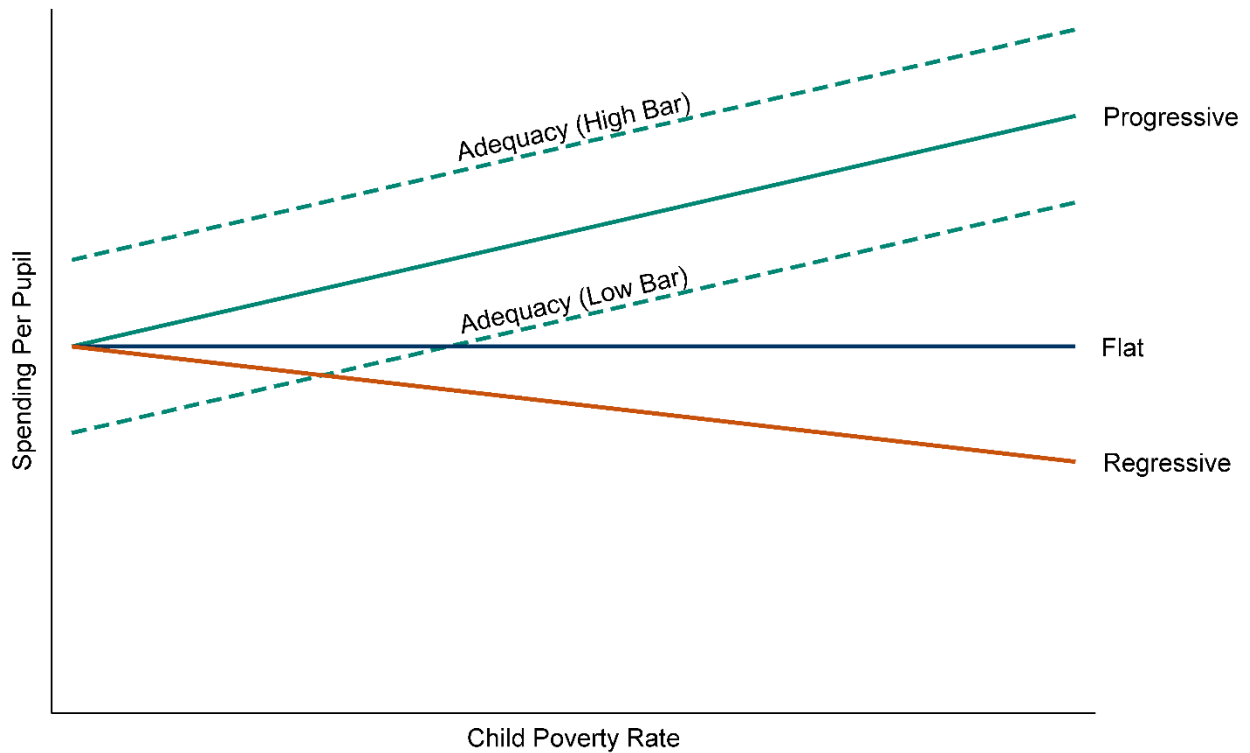
1. What outcomes are associated with current spending levels across districts and children, and do these outcomes (in terms of both the types of outcomes measured and the levels achieved) align with educational goals and achieve desired performance levels?
2. If desired (adequate) performance levels are higher than current levels of outcomes or if a broader array of outcomes should be used to inform adequacy, how do current spending levels compare with estimated costs of achieving sufficiently higher and broader outcomes?

Figure 3 adds adequacy benchmarks (shown as dashed lines) to Figure 1. It may be that the adequacy bar is higher and steeper than actual spending variation per pupil (e.g., the higher bar for adequacy relative to the flat spending distribution depicted in Figure 3); in this case, all districts require additional spending to meet the minimum adequacy benchmark, with higher need districts requiring more additional funding than lower need districts. However, it is often the case, especially in northeastern states where average spending levels tend to be relatively high, that spending levels in low-poverty settings exceed spending levels needed for achieving adequate outcomes but that spending levels in high-poverty

settings still fall short. This is shown by the flat and regressive spending patterns in Figure 3. At low poverty levels, spending exceeds the lower bar for adequacy. But because the adequate spending level increases with poverty and the flat and regressive spending patterns do not, spending in higher poverty districts does not meet the adequacy target.

The progressivity model, described in the previous section, can be used only to measure the *existing* distribution of spending or resources across districts with respect to student needs or other structural or geographic differences; it is not sufficient to generate adequacy benchmarks, which show the level of resources needed to meet a target level of achievement. By including student outcomes as a predictor of spending within the progressivity model, it becomes a cost function (or cost model). The cost model can be used to estimate spending at a constant desired outcome level across all districts while retaining each district’s observed level of other cost factors. In this way, the cost model identifies what the distribution of spending *should be* for all districts to achieve a common desired level of outcomes, while also accounting for differences across districts in student needs and other structural and geographic differences.³

Figure 3. Visual Representation of Adequacy



³ Our brief on *Costing Out an Adequate Education* discusses the various approaches to measuring adequacy, in addition to the cost model.

Summary

To summarize, an equitable education finance system must account for differences in student need and fiscal capacity across districts. A unified model-based approach can be used to characterize the extent to which state school finance systems are progressive with respect to their distribution of financial inputs, providing more resources toward districts with greater student needs. This model-based approach to progressivity specifically sorts out variations in revenue and spending across settings that are a function of differences in student needs or other geographic or structural cost factors (equity promoting variation) versus variations that are either random or based on local wealth and capacity (equity eroding variation). Further, this approach can map out the extent to which a state school finance system addresses different major cost factors and, specifically, whether the system is progressive with respect to child poverty concentrations. The progressivity model cannot, however, tell us whether the system provides funding that is high enough and progressive enough to achieve a state's desired outcome goals that are used to define educational adequacy. Estimates derived from cost models or other approaches to assessing adequacy are required for making these determinations. We turn to the cost modeling approach in the next brief, *Using Cost Modeling to Inform Education Funding Formulas*.

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