# A FRAMEWORK FOR CONCEPTUALIZING AND ANALYZING EQUITY AND ADEQUACY IN POSTSECONDARY FUNDING MODELS

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# INTRODUCTION

Funding disparities in higher education are a complex problem. There is no single way to measure a disparity, no single reason why disparities exist, and no simple solutions for addressing disparities. Because of this complexity, and because funding disparities have significant implications for educational outcomes, state policymakers and administrators need multiple tools in their toolbox. This framework is designed to be one such tool. It provides a structure to guide state policymakers and administrators through the process of understanding, identifying, and assessing disparities in funding for higher education. By providing both conceptual and methodological considerations, the aim is to inform conversations about addressing funding disparities, a critical component of efforts to improve outcomes for all students.

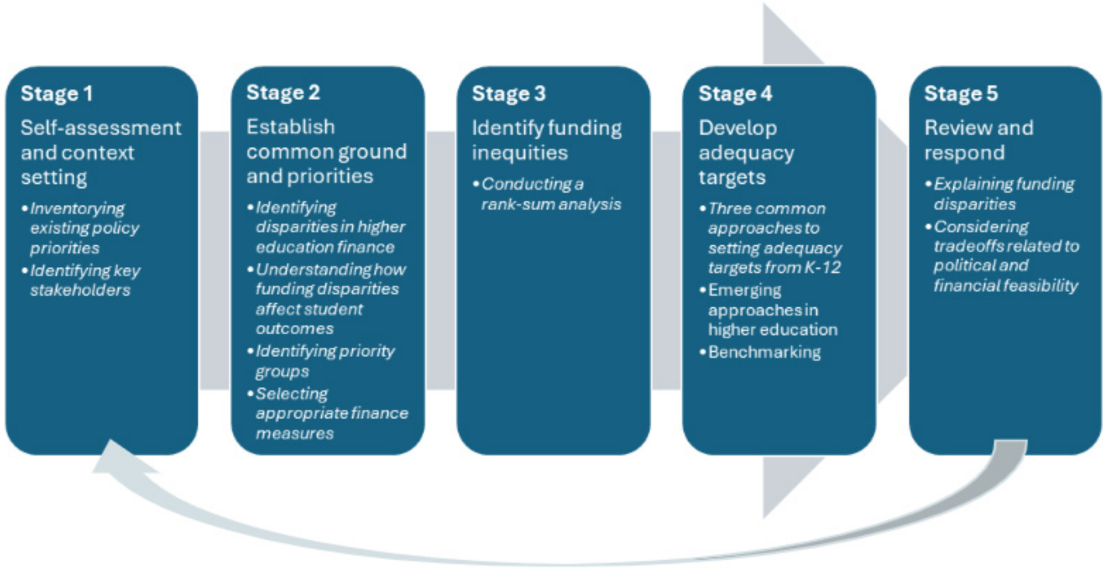
## *Framework overview and purpose*

The framework is organized into five stages. In combination, these stages guide policymakers and administrators through the process of defining and analyzing funding disparities across institutions and student groups to ultimately inform future resource allocation. Figure 1 describes activities in each stage of the framework.

The first two stages help state policymakers define key concepts including equity, adequacy, and priority populations and discuss how these concepts are interconnected. This provides a foundation for subsequent stages identifying disparities and documenting how financial resources vary across these groups. The framework concludes by offering suggestions for navigating the move towards more equitable funding models and adequate funding levels.

In some states, these conversations will be natural extensions of ongoing discussions. In other states, these conversations will be brand new. In both cases, the framework is designed to help state policymakers—no matter how engaged they have been in these conversations—identify common language, metrics, and concepts to help lead to productive conversations around funding disparities.

*Figure 1: Framework Overview*



## *Intended audience*

The framework is designed for state-level higher education policymakers and administrators. These individuals likely include administrators in the budget and finance offices of state higher education agencies, system offices, or associations. They may also be policy analysts and planners in state budget offices or staffers for legislative committees or elected officials. The framework is designed to help these individuals—referred to as "policymakers" throughout the framework—take a statewide view of higher education funding. We also recommend engaging stakeholders from across the higher education sector to include perspectives from those affected by funding disparities (see Stage 1).

## *How to use the framework*

Some states have a long history of adjusting funding models to account for disparities while other states are just beginning to explore disparities. The framework is designed to provide guidance from any starting point. The stages build upon one another, beginning with an assessment of the state's progress and priorities (Stage 1). These priorities guide the identification of priority populations and finance measures (Stage 2). These measures are then applied to an analysis that results in a list of institutions that need more resources (Stage 3). The next stage prompts the question "how much more?" through a discussion of costs and funding adequacy (Stage 4). Taking all this information into account, the final stage helps connect funding disparities back to policies and offers strategies for addressing disparities (Stage 5).

We recommend reviewing the full framework and then focusing efforts on the stages that best align with the state's goals. For example, if a state has already defined priority populations, policymakers might spend less time on that section in Stage 2. However, they might also find the framework offers a new way of thinking about these concepts. For transparency and accountability, we recommend policymakers document progress as they work through the framework, including responses to guiding questions, definitions, analytic findings, and any remaining questions or data needs for future assessment. Policymakers can also work through the stages as a cycle to monitor progress and promote continuous improvement.

Each stage includes (1) a narrative with key content and guiding questions motivating a particular discussion topic or analysis, and (2) a checklist for tracking and documenting progress. Some stages suggest conducting an analysis as an action item. The second half of this document includes technical guidance for conducting the analysis using the interactive **dashboard** that accompanies this report.

Before beginning, we recommend states consider the following questions:

- What are your goals for completing the framework?
- What do you aim to gain from the process?

## *Key concepts used in this framework*

Throughout this framework, we refer to key concepts using the following definitions. Some states may use different definitions based on existing policies or the consensus of stakeholders.[1] And we acknowledge some states face political pressure to avoid using terms like "equity" (see Stage 5). Regardless of the current political debates, the following terms and concepts have a long legal and academic history in education finance[2] and can be productive for improving higher education funding policies in the future.

**Funding Disparity.** Funding disparities occur when funding differences weigh disproportionately heavier on some institutions or student populations than on others. Disparities create advantages and disadvantages where the institution or student populations are more or less supported in reaching a specified goal. Disparities can be related to either inadequacy or inequity.

**Funding Equity.** Funding equity focuses on the state's *distribution* of resources by asking whether students and institutions with the greatest need receive the greatest resources. This is consistent with the concept of "vertical equity," which can promote effective use of limited resources.[3]

**Funding Adequacy.** Funding adequacy focuses on whether students or institutions receive a certain *level* of funding required to reach a specified outcome or goal. There is no universal level of funding "adequacy" all students or institutions should have; rather, adequacy varies depending on the goal, which is often a political decision.[4]

**Needs.** Needs are the requirements and conditions necessary to reach a specified outcome or goal. Needs vary across student groups and institutions depending on their starting points. Needs can include fiscal and non-fiscal resources.

**Priority Population.** A priority population is a student group or institution affected by disparities or that has certain needs. Equitable funding policies will direct more resources toward these groups.

**Funding Model.** The policies and systems directing state appropriations to institutions of higher education or their systems/district offices. We use this term broadly to examine how states distribute funds to institutions and the level of funding they provide. Models can be tied to institutional missions, student outcomes, and other state priorities.

## *Checklist: Introduction*

- ☐ Review the information on the scope and purpose of the framework. Discuss:
  - ☐ What are your goals for completing the framework?
  - ☐ What do you hope to gain from the process?
- ☐ Identify resources you will need to work through the framework.
- ☐ Chart a timeline and process for working through the framework.

Stage 1

# SELF-ASSESSMENT AND CONTEXT SETTING

Identifying clear policy goals, building stakeholder consensus, and maintaining transparency puts states in a stronger position to reduce funding disparities. This stage prompts policymakers to reflect on what groundwork stakeholders have already completed by focusing on two key areas of readiness. The first is an inventory of existing state policy priorities. This inventory focuses on any statewide goals or outcomes that could be affected by funding disparities. The second involves identifying key stakeholders whose perspectives and guidance can inform policymakers about the causes and consequences of funding disparities. These activities help policymakers chart a path forward, informed by those most affected.

## *Inventorying existing policy priorities*

"Reducing funding disparities" is a goal in and of itself. It is also a means through which states can more effectively achieve other goals such as attainment targets. Each state has its own unique policy goals that are shaped by political, economic, and historical contexts. These goals may be codified into formal documents or statutes, but they could also be informal or even unspoken.

For example, **Oregon** developed an equity lens document with shared definitions and goals "to ensure every learner is adequately prepared by educators focused on equity for meaningful contributions to society."[5] The document sets a baseline understanding of issues, such as recognizing "institutional and systemic barriers and discriminatory practices that have limited access for many students." Similarly, **West Virginia** statute tasks the Council for Community and Technical College Education to "provide an adequate level of education and general funding for institutions."[6] A related funding priority is to increase funding across institutions to be "comparable with their peers," in recognition of underfunding relative to national metrics.[7]

We recommend reviewing policies related to funding, higher education, and workforce development while considering the following guiding questions:

- Does your state currently have a statewide set of goals for higher education? If so, what are they? If not, what do you think they would be?
- Are there specific student populations or institutions your state has prioritized in its funding models? Outside of its funding models? (If not, Stage 2 offers suggestions for identifying student-level priority populations.)
- Does your state have any prior commitments to address disparities in funding or other types of disparities? If so, what strategies have been used?

## *Identifying key stakeholders*

Policymakers interested in reducing funding disparities will benefit from consulting a wide range of constituents in this process. Investigating disparities requires an exploratory mindset and a willingness to ask new questions, a process aided by engaging varied perspectives. Each state will have different stakeholder groups, and examples may include:

- Institutional leaders with finance and academic perspectives
- College access professionals supporting priority populations
- System leaders
- Advocacy groups

The following questions are intended to help identify stakeholder groups from a wide array of perspectives, including those who may challenge, support, or be indifferent to proposed changes. Stakeholder feedback can help policymakers anticipate the intended and unintended consequences of addressing funding disparities, particularly among institutions most affected by any proposed change.

- Historically, have any institutions in your state expressed concerns over funding disparities? If so, how have these concerns been handled?

- Whose voices, perspectives, and experiences were absent from past efforts to develop funding practices? How will they have meaningful participation in the process in the future?

- Are there any organizations or individuals whose expertise can help explain how the priority population is currently affected by funding disparities?

- How do you anticipate various stakeholders will engage, both supporting and critiquing, efforts to address funding disparities?

## *Summary*

This stage sets the groundwork. After discussing the guiding questions, policymakers should have an understanding of existing policy priorities and who should be involved in the process.

Policymakers should keep their state's existing priorities in mind as they proceed. In Stage 2, refer to these priorities to anchor the understanding of funding disparities—or identify how existing priorities need to change. Stage 5 revisits these priorities to contextualize how funding practices and policies may shape current disparities. If a state does not have existing priorities or would like to modify priorities, Stage 2 offers suggestions for identifying priority groups using data.

## *Checklist: Stage 1*

## *Self-assessment and context setting*

- ☐ Inventorying existing state policies related to funding, higher education, and workforce development. Discuss:
  - ☐ Does your state currently have a statewide set of goals for higher education? If so, what are they? If not, what do you think they would be?
  - ☐ Are there specific student populations or institutions your state has prioritized in its funding models? Outside of its funding models?
  - ☐ Does your state have any prior commitments to address disparities in funding or other types of disparities? If so, what strategies have been used?
- ☐ Identify key stakeholder groups who should be involved in framework discussions and processes for soliciting meaningful feedback. Discuss:
  - ☐ Historically, have any institutions in your state expressed concerns over funding disparities? If so, how have these concerns been handled?
  - ☐ Whose voices, perspectives, and experiences were absent from past efforts to develop funding practices? How will they have meaningful participation in the process in the future?
  - ☐ Are there any organizations or individuals whose expertise can help explain how the priority population is currently affected by funding disparities?
  - ☐ How do you anticipate various stakeholders will engage, both supporting and critiquing, efforts to address funding disparities?

Stage 2

# ESTABLISH COMMON GROUND AND PRIORITIES

A funding disparity is a value judgment that can only be determined relative to the state's goals, priorities, and contexts. There is no single definition of a disparity and no single way to measure a disparity. However, through conversations and consensus-building, policymakers can arrive at definitions and measures that work best for their own contexts. This second stage helps state policymakers develop a shared definition of funding disparities and establish priorities for future policy development. Some terms will be more familiar than others, and policymakers can modify these definitions to meet their specific needs (see our definitions in the Introduction).

## *Section A: Identifying disparities in higher education finance*

There are two main types of disparities in higher education finance. The first centers around the concept of equity and the second on adequacy. Equity focuses on the distribution of funds and is useful for determining whether greater resources are allocated to institutions with greater needs. Adequacy focuses on funding levels and is useful for determining whether an institution has enough resources to reach a specified outcome or goal. These two concepts are distinct from one another where "adequacy" establishes the minimal amount of funding an institution should be spending to reach a specified goal while "equity" assesses whether institutions and students with the greatest need are prioritized in a funding model.

While these concepts are distinct, they are most effective when used in combination. Equity prompts the question "which student groups or institutions have greater needs?" while adequacy asks, "how much funding is necessary for addressing those needs?" Need is relative to the specified policy goal and varies across institutions. For example, a state may have an attainment goal where each institution should have a graduation rate of at least 75%. Institutions that are further from that goal can be thought of as having greater need and thus, should be prioritized in resource allocation decisions. This would be an example of equity-based funding, where institutions with greater needs get greater resources.[8] Next, the state can estimate how much additional funding each institution would need to reach the graduation goal. This would be an example of adequacy-based funding, in which each institution's current funding levels would be compared to adequate funding levels.

Effective funding models will view equity and adequacy together. Suppose a state distributed its funding to institutions based entirely on need. This would be an equity-based approach to funding but would not necessarily be adequate. Adequacy requires institutions to have enough money to reach specified goals and outcomes, but adequacy without equity may leave gaps unaddressed. For example, funding could be enough to achieve an overall attainment goal, but large outcome gaps may persist across student groups. Alternatively, each institution may be funded to an adequacy "floor," but large inequities above the floor may result in concerning differences in student opportunities.[9] Approaches to identifying equity-based and adequacy-based funding disparities are described in more detail in Stages 3 and 4.

Importantly, funding *inequities* are different from *inequalities*. It is likely that total expenditures differ—or are *unequal*—at each institution in the state. Some institutions spend more than others, some spend less. There may be good reasons for funding differences, like enrollment size or mission. Measuring these differences is a straightforward and objective exercise of comparing means and ranges to see how much variation exists on a given finance measure. A funding *difference* is a value-neutral concept—it simply tells us how far apart institutions are from one another. Differences could be evidence of equity or inequity, depending on what is motivating the differences and how the differences affect student groups. **To identify an inequity, policymakers need to identify whether differences create disproportionate burdens for certain institutions or student populations.** To begin exploring funding differences and disparities, consider:

- How similar or different are financial resources across institutions within the state? What characteristics of the institution or student body relate to those differences? Use the **dashboard** to help answer this question (see Technical Guidance).

- Do differences disproportionately fall on certain institutions or student populations? Are there institutions whose resource levels do not align with their needs?

## *Section B: Understanding how funding disparities affect student outcomes*

Over the past decade, there has been a growing consensus that "money matters" in higher education. When institutions have greater financial resources, they tend to have stronger student outcomes.[10] At the same time, there is growing evidence that institutions with the least resources tend to serve disproportionately high shares of underrepresented students.[11] This creates a conundrum where efforts to improve outcomes—particularly among underrepresented students—are likely to require additional financial resources but it is unclear "how much" is needed or "how best" to allocate scarce funds to meet these needs.

By answering the following questions, policymakers can reflect on this conundrum and identify how and why they believe addressing funding disparities will improve outcomes. Keep the state's goals for higher education (identified in Stage 1) in mind while answering these questions.

- How would you describe the relationship between each institution's financial resources and outcomes in your state? Use the **dashboard** to help answer this question (see Technical Guidance).

- What, if any, financial barriers prevent institutions from achieving stronger student outcomes? Are some institutions more affected by these barriers than others?

- How do you believe funding disparities affect the priority population(s) identified in Stage 1? What are the consequences of these funding disparities?

## *Section C: Identifying priority populations*

States often identify certain groups of students who have historically been underserved in higher education or who face particular challenges in meeting state goals—in other words, groups with greater needs. These groups should be prioritized in funding models to ensure the institutions they attend have adequate resources to achieve the state's goals for higher education. Prioritizing a particular group need not come at the expense of other groups whose needs are met. Rather, by growing total funding for higher education, state policies can get closer to meeting everyone's needs.

Many students will fall into multiple groups and need may vary within these combinations of identities. Commonly identified student-level priority populations include:

- Students of color or students from specific racial identities
- First-generation students
- Students from low-income backgrounds
- Military veterans
- Students with disabilities
- Adult learners
- Rural students
- Native students
- Immigrant, Deferred Action for Childhood Arrivals (DACA), and undocumented students
- Justice-impacted students
- Parenting or caregiving students
- LGBTQ+ students
- Transfer students
- Credential or non-degree seeking students
- Students in high-demand programs

In addition to the above list, states may also prioritize institutions based on their enrollment population, mission, or other characteristics related to need. Examples include:

- Historically Black Colleges and Universities
- Minority Serving Institutions (see federal Higher Education Act Title III designations)
- Geographically rural and rural-serving institutions
- Two-year community and technical colleges
- Broad-access colleges
- Small colleges

All states will have different histories, contexts, and political sensitivities towards choosing priority groups. For example, **Colorado** prioritizes students who have historically had lower enrollment rates, stating, "it is critical that the rate of postsecondary participation by low-income Coloradans and minorities, who are currently underrepresented, be increased at Colorado's institutions of higher education."[12] The state's performance-based funding formula includes a premium for enrolling these populations.

Some states may have already developed consensus or have momentum around identifying priority populations (identified in Stage 1), while others may not. Regardless of prior efforts, the following questions will help policymakers reflect on why a particular group is a priority and whether there are opportunities to identify new priority populations.

- Are there any particular student groups or institutions that most closely align with the policy priorities identified in Stage 1?
- Are there measurable gaps in access or outcomes for any group(s) of students or institutions? How well-documented are these in your state? Use the **dashboard** to help answer this question (See Technical Guidance).
- Do any institutions have historic or unique missions of serving large shares of underrepresented students or other priority populations?
- Based on your state's demographic trends, do you anticipate any group not identified above will become a priority in the future?

## *Section D: Selecting appropriate finance measures*

This section offers considerations for measuring "financial resources." The list below includes commonly used measures for policymakers to consider when identifying funding disparities. For example, a state may be interested in evaluating whether disparities exist across various sources of revenue. A focus on revenues is useful for understanding how state dollars are distributed and how reliant institutions are on public funding, which is useful for policy. However, revenue measures do not identify if the resources are enough to cover the costs. Revenue from specific sources will not show the totality of resources institutions have. Focusing on expenditures will give policymakers a clearer picture of how much institutions spend delivering education regardless of how those expenses are subsidized. A focus on expenditures can then prompt conversations about the state's role in subsidizing these expenses.

The measures below can be calculated using Integrated Postsecondary Education Data System (IPEDS) data—the limitations of which are discussed in the Technical Guidance. We do not recommend using every single measure listed; rather, choose one or two primary measures that are most relevant and appropriate for the given context. Commonly used measures include:

- **Revenue measures**
  - State and local appropriations
  - Net tuition revenue
  - Total operating revenue
- **Expenditure measures**
  - Total operating expenditures
  - Instructional expenditures
  - Education and related (E&R) expenditures
- **Ratio measures**[13]
  - Instruction : Net tuition
  - E&R : State appropriations
  - Net tuition : State appropriations

These resource measures are often calculated on a per-student basis to allow for comparisons across institutions of different sizes. Per full-time equivalent (FTE) is a recommended per-student measure when institutions incur more costs at the credit-level, such as faculty or classroom time. Per headcount is more appropriate where costs are fairly consistent regardless of a student's enrollment intensity, such as advising or support services. Headcount may be particularly relevant at two-year colleges which serve more part-time students. Part-time students often have special circumstances and may require greater support, resulting in greater cost to the institution.

To identify which resource measure to use, consider the following questions:

- Are there any particular finance measures that make the most sense to use in your state? Which ones and why?
- Are there well-documented trends for these measures? What historical context is helpful for thinking about these trends?
- Are there other datasets or finance measures your state would find useful for extending this exercise?
- Do different finance measures reveal different trends? What policies, enrollment patterns, or needs could be driving those differences? Use the **dashboard** to help answer this question (See Technical Guidance).

Once policymakers determine their preferred finance measure(s), they can use the dashboard to see the magnitude of differences in resources across institutions (see Technical Guidance). The main purpose of this exploration is to identify the finance measure(s) that will then be used in the subsequent stages to determine whether and where disparities exist.

## *Summary*

This stage helps policymakers define key concepts and measures for identifying funding disparities. By discussing the guiding questions, policymakers should have greater insights into priority populations and "who" is most affected by funding disparities. Policymakers should also pinpoint the finance measure(s) of greatest interest. This exercise helps determine what disparities exist, for whom, and with what consequences.

These defined priorities will inform the analysis in Stage 3, which results in a list of institutions with the greatest need given their resource levels, enrollment of priority populations, and student outcomes.

## *Checklist: Stage 2*

## *Establish common ground and priorities*

### *Section A: Identifying disparities in higher education finance*

- ☐ Review the types of funding disparities and definitions of related concepts (see Introduction). Build a common understanding of the concepts among stakeholders.
- ☐ Identify if there is a particular type of disparity of greatest concern in your state.
- ☐ Use the "Funding & Enrollment" tab on the **dashboard** to explore the relationship between institutional resources and enrollment. Discuss:
    - ☐ How similar or different are financial resources across institutions within the state? What characteristics of the institution or student body relate to those differences? Use the **dashboard** to help answer this question (see Technical Guidance).
    - ☐ Do differences disproportionately fall on certain institutions or student populations? Are there institutions whose resource levels do not align with their needs?

### *Section B: Understanding how funding disparities affect student outcomes*

- ☐ Review the information on how money matters for student outcomes. Discuss:
    - ☐ What, if any, financial barriers prevent institutions from achieving stronger student outcomes? Are some institutions more affected by these barriers than others?
    - ☐ How do funding disparities affect the priority population(s) identified in Stage 1? What are the consequences of these funding disparities?
- ☐ Use the "Funding & Graduation" tab on the **dashboard** to explore the relationship between institutional resources, enrollment, and outcomes. Discuss:
    - ☐ How would you describe the relationship between each institution's financial resources and outcomes in your state?

### *Section C: Identifying priority populations*

- ☐ Review information on identifying priority populations. Discuss:
    - ☐ Are there any particular student groups or institutions that most closely align with the policy priorities identified in Stage 1?
    - ☐ Do any institutions have historic or unique missions of serving large shares of underrepresented students or other priority populations?
    - ☐ Based on your state's demographic trends, do you anticipate any group not identified above will become a priority in the future?

- ☐ Use the "Outcomes by Population" tab on the **dashboard** to explore student outcomes across institutions. Discuss:
  - ☐ Are there measurable gaps in access or outcomes for any group(s) of students or institutions? How well are these documented in your state?
  - ☐ Document the priority population(s) you will use in Stage 3's equity funding analysis. Document how and why this decision was made.

*Section D: Selecting appropriate finance measures*

- ☐ Review the information on commonly used finance measures.
- ☐ Use the "Finance Measures" tab on the **dashboard** to explore how resources are distributed across institutions and how the distribution varies across the four finance measures provided. Discuss:
  - ☐ Are there any particular finance measures that make the most sense to use in your state? Which ones and why?
  - ☐ Are there well-documented trends for these measures? What historical context is helpful for thinking about these trends?
  - ☐ Are there other datasets or finance measures your state would find useful for extending this exercise?
  - ☐ Do different finance measures reveal different trends? What policies, enrollment patterns, or needs could be driving those differences?
- ☐ Document the finance measure(s) you will use in Stage 3's funding equity analysis. Document how and why this decision was made.

Stage 3

# IDENTIFYING FUNDING INEQUITIES

There is no single way to measure whether funds are distributed equitably. Rather, through multiple measures and by contextualizing the data, policymakers can identify which institutions have the greatest funding needs. One way is to look at the distribution of resources, priority population enrollment, and outcomes, as prompted in Stage 2. However, it can be difficult to make sense of so much different information to identify which institutions have the greatest need.

To make sense of this complexity, this stage introduces a new approach called the "rank-sum analysis." The rank-sum is a composite measure that takes into account how an institution ranks on multiple need factors in relation to a comparison group. The rank-sum analysis results in a list of *focus institutions*. Focus institutions have the least resources, serve large shares of priority populations, and have the greatest need for additional resources to support students. Policymakers can then address inequities by prioritizing these institutions in their funding models.

Inequities should be assessed before identifying adequate funding levels. Adequacy requires a goal, prompting the question, "how much resources do institutions need to reach the specified goal?" (see Stage 4). We recommend this adequacy goal be motivated by equitable outcomes. This stage helps identify patterns of inequities for the purpose of setting equity-based goals.

## *Conducting a rank-sum analysis*

Rankings can be useful for advocacy because they are easy to understand. They can prompt action because no one wants to be at the bottom. For example, in the most recent budget request for the Universities of Wisconsin, President Rothman cited that **Wisconsin**'s public funding for four-year colleges ranks 43rd in the nation while advocating for increasing funding "up to the middle."[14] However, in some contexts, ranks may create unnecessary competition between institutions, so we recommend considering the political implications when choosing a comparison group.

A rank for a single measure like funding levels is a good starting point. However, funding levels are only one indicator of need. What if an institution has average funding but a low graduation rate for Pell students? How can policymakers make sense of multiple indicators of need? We propose the rank-sum as a solution. The rank-sum is a single metric that accounts for multiple need-factors at an institution.

## *Step 1: Rank each institution for each need factor*

To conduct a rank-sum analysis, first calculate the rank of each institution for each variable of interest or need factor. Suggested variables include resource measures, priority population enrollment, and priority population outcomes. There are two important considerations for ranking institutions: (a) constructing a comparison group, and (b) grouping the rankings into bins.

For comparison groups, ranks can be calculated relative to all institutions, or they can be calculated within groups, such as by sector, mission, size, or selectivity. For example, a state's regional public universities could be ranked against themselves, all public institutions in the U.S., or other regional public universities in the U.S. We recommend ranking within sectors, allowing for comparison within similar institutional settings.

When ranking institutions, we also recommend grouping institutions by quantiles rather than an ordered ranking. Quantile ranking involves binning institutions into a set number of ordered groups, or quantiles, where each group has about the same number of institutions. This approach offers states two primary benefits. First, it helps minimize the amount of "negativity bias"[15]—or additional scrutiny for those at the bottom—that often comes with rankings. Second, by clustering multiple institutions together there can be opportunities for common understanding, identification of patterns, and opportunities for shared learning across all group members. The number of groups could range from percentiles (100 groups) to quartiles (four groups), detailed in Table 1. The more groups within the analysis, the easier it will be to distinguish the relative priority of institutions at the end. Therefore, we suggest starting with deciles (10 groups) for within-state comparisons and percentiles (100 groups) for national comparisons. All ranks identify where an institution falls in a particular distribution, telling us the percentage of institutions that fall above the selected institution on a given measure. For example, an institution in the 30th percentile of expenditures means 30% of institutions spend less than that institution, whereas 70% spend more.

*Table 1: Grouping institutions into quantiles*

| Rank | Number of groups | Use case |
|---|---|---|
| Percentile | 100 | National analyses in which there are several hundred institutions included in the ranking |
| Decile | 10 | States with large public systems that want to compare their institutions to neighboring states or regions |
| Quintile | 5 | States with relatively few institutions or those not needing to get too granular |
| Quartile | 4 | States with relatively few institutions or those not needing to get too granular |

Ranks should order institutions where those with the greatest need have the lowest rank. For example, institutions spending the least should also be ranked the lowest. Institutions with the highest Pell enrollment should be ranked the lowest.

## Step 2: Calculate and interpret the rank-sum

After calculating ranks for each variable of interest, calculate the sum of each institution's ranks across each variable. We call this total the "rank-sum." Institutions with a lower rank-sum are higher priority for additional funding. They receive less resources, enroll more priority students, and/or have lower student outcomes. The rank-sum value is designed to quickly sort institutions at the lowest and highest ends of their respective distributions. The process is illustrated in the Technical Guidance for this stage.

This process can be modified to meet state goals. Whereas our examples use IPEDS data to rank institutions, policymakers can use other datasets like their own internal data or the College Scorecard to explore alternative measures unavailable in IPEDS. We have selected three equity-related institutional characteristics as an example: resources, priority population enrollment, and priority population outcomes. However, policymakers could choose different equity-related characteristics to fit their goals. Policymakers could also choose more than three characteristics, such as multiple priority populations. In the current example, each of the factors are weighted equally in the rank-sum, but factors could be weighted relative to state goals.

This rank-sum analysis can be a good starting point for identifying where the funding could be most needed. The rank-sum analysis does not tell policymakers what to do or how to do it; rather, the results create a more holistic picture of which institutions are likely affected the most by funding disparities. Policymakers can use this information to guide their funding distribution strategies by prioritizing institutions with the greatest needs.

## *Summary*

Upon completing this stage, policymakers will have identified focus institutions with the greatest needs on key metrics. The rank-sum analysis provides a simple and measurable way to identify these focus institutions. Additionally, policymakers can use this exercise to frame and inform policy strategies by centering the following question: *Are institutions with greater need receiving the most financial support?* If not, two questions follow: *How much more do focus institutions need to reach the same desired outcome as other institutions?* And *how do resources need to be distributed to make this happen?* Stages 4 and 5 address these questions in turn.

## *Checklist: Stage 3*

## *Identifying funding inequities*

- ☐ Use the "Focus Institutions" tab on the **dashboard** to calculate the rank-sum and produce a list of priority institutions (see Technical Guidance).
    - ☐ Optional: If your state team prefers to include priority populations, finance measures, outcomes, or data sources not included in the dashboard, replicate the rank-sum analysis using your own sources.
- ☐ Compare the distribution of resources and the list of priority institutions. Discuss:
    - ☐ Are institutions with greater need receiving the most financial support? Identify if there is a particular type of disparity of greatest concern in your state.

Stage 4

# DEVELOP ADEQUACY TARGETS

While Stage 3 focused on the *distribution* of resources, Stage 4 focuses on the *level* of resources—or how much money each institution has relative to what they need—and the concept of "adequacy." Adequacy is not simply making the pie bigger so everyone gets more resources. Rather, adequacy is goal-oriented, where funding is directly connected to attaining certain goals. If an institution has inadequate levels of funding, then it will likely have suboptimal outcomes, and vice versa. An institution with suboptimal outcomes may need additional resources to improve those outcomes. This stage helps policymakers consider methods for assessing whether institutions have enough money to improve their outcomes and how much more money would be necessary to see improvements.

In theory, providing institutions with "adequate" levels of resources will help the state achieve certain objectives while also reducing funding disparities between institutions. In practice, defining adequacy targets is no straightforward task. This is because there is no consensus on how to measure adequacy in higher education funding and, even if there were, policymakers are likely to run into budgetary and political constraints that limit their actions. Nevertheless, establishing adequacy targets can be helpful for policymakers to determine whether they are moving in a direction that will improve outcomes while reducing funding disparities.

## *Three common approaches to setting adequacy targets from K-12*

There is no single or best way to go about establishing adequacy targets. In the K-12 sector, there are four main approaches including cost-function, professional judgement, evidence-based, and successful schools and districts.[16] Each approach uses a different method for estimating need and cost, and there are trade-offs and limitations to consider in each (see **Table 2**). Adequacy studies, or "costing out" approaches, have been used to litigate and monitor school finance for decades.[17] These approaches are not necessarily mutually exclusive, and some states have employed multiple approaches, in combination or at different points of time.[18] In this section, we describe each of these approaches, excluding the successful schools and districts approach which is less common and most closely resembles benchmarking.

We include a discussion of these approaches because policy conversations about resource adequacy in higher education often follow conversations about K-12 adequacy. Researchers have drawn on methods from K-12 to study adequacy in higher education, and there are remaining questions about how to translate the concepts and approaches.[19] With increased familiarity with approaches used in K-12, policymakers can be more aware of where these ideas may be coming from and explore how different approaches may or may not be applicable to their state context.

As such, this discussion should not be interpreted as endorsements or guidance. Rather, this section is aimed at "consumer awareness," highlighting some of the strengths and weaknesses associated with the different approaches. If state policymakers are interested in setting adequacy targets using methods from K-12, they should bear three caveats in mind. First, while there may be some promising similarities between K-12 and higher education, there are significant differences that make it difficult, if not impossible, to adopt these concepts wholesale.[20] For example, institutions of higher education need to account for mission-centric activities that may not be directly related to student outcomes. Institutions of higher education also have a different revenue structure, including tuition, and cost-sharing strategies to consider. Second, there is a long and contentious history around "how" and "how well" adequacy studies in K-12 are conducted. Researchers have questioned whether adequacy studies are unbiased and reliable, often finding these studies fail to meet scientific standards.[21] And third, there are many methods for determining "how much" money institutions need to operate. There is no consensus that the methods described in this section are the best or most appropriate technique to use.

### *Cost-function*

The cost-function approach uses an economics-based statistical analysis. The analysis uses a formula to identify how costs vary across schools or districts due to differences in inputs (e.g., expenditures on personnel or programs), outputs (e.g., performance), district characteristics (e.g., size or location), student characteristics (e.g., demographics or preparation), and efficiency.[22] This formula predicts how much each variable contributes to differences in expenditures. Analysts typically use historical expenditure data to establish relationships and then estimate costs for different districts to achieve a certain outcome based on their characteristics.[23]

The cost-function approach requires robust and accurate data, which allows analysts to account for many different factors that affect cost simultaneously. However, based on limitations identified in K-12 reporting and our assessment, the results should be interpreted with caution. In particular, the cost-function identifies relationships but is not a causal model. While the results may identify which schools should be spending more, it does not necessarily identify effective strategies and can be detached from practice. While many favor data-driven methodologies for their objectivity, building the model is subject to political and technical decisions (e.g. which relations to look for, which data and functional form to use), and these complexities can reduce transparency.[24]

### *Professional judgement*

The professional judgment approach uses expertise from teachers, administrators, staff, and other professionals to determine adequate funding levels. Analysts implementing this approach typically convene these experts on a "professional judgment panel." During a series of facilitated meetings, panelists identify the appropriate inputs—the number of instructors, technological requirements, programs for students, etc.—that schools need to meet state standards.[25] The panel's recommendations are then translated into dollar amounts, with estimates adjusted for schools with different needs.[26]

This approach values the expert opinions of practitioners on specific inputs necessary to improve outcomes. It requires a deep understanding of teaching, learning, and administration. Researchers who have assessed the professional judgment approach in K-12 contexts found facilitation to be critical.[27] Practitioner responses will reflect the types of questions they are asked, and responses will be subjective. Some experts may be working from a singular experience, without perspective on the full state context. Others may have difficulty providing accurate estimates if most schools are very far from reaching the outcome goal.[28]

### *Evidence-based*

The evidence-based approach uses academic research studies to determine effective programs, interventions, and practices found to improve student outcomes.[29] Analysts identify the array of educational goods and services schools need to meet state goals within a "prototypical" school. After determining the costs of these goods and services, analysts can compare actual spending against what would be deemed adequate.[30]

At its best, research can quantify program effectiveness (e.g., the average increase in graduation rates) and can identify which students the programs are most effective for, aiding in the reliability of the cost of adequacy assessment. However, research may not address the specific outcomes policymakers are interested in, studies may have inconsistent results, and estimates need to be updated as new research becomes available. Additionally, research often occurs in a specific setting that may not be generalizable to or practical for other contexts. Studies that do find effective practices do not always discuss the cost of the program or assess how to effectively implement the program.[31]

*Table 2: Summary of approaches K-12 analysts take to measure funding "adequacy"*

| Model | Strengths | Weaknesses |
|---|---|---|
| **Cost-function** | • Uses existing data<br>• Methods are established | • Difficult to interpret<br>• Data quality concerns<br>• Little guidance for practice<br>• Results subjective to formula design |
| **Professional judgement** | • Expert opinions can be valuable to policymakers<br>• Results are easily articulated | • Cost estimates may be overestimated<br>• Subjective to human biases<br>• Emphasizes practice over research evidence |
| **Evidence-based** | • Based on real-world educational practice and effects<br>• Uses educational expertise | • Findings may not be easily generalizable<br>• Available research may be limited, outdated, or contradictory |

## *Emerging approaches to adequacy in higher education*

Policymakers are interested in identifying adequacy targets for higher education. However, their only frame of reference might be adequacy studies from K-12 education, which may not map neatly to higher education contexts.[32] The field of higher education is still developing an understanding of what an adequacy study might entail. In this section, we highlight efforts in three states conducted in recent years, including Texas, Virginia, and Illinois. Each state took a different approach to conceptualizing "adequacy" and, as a result, developed different adequacy studies in their states. Nevertheless, we see some commonalities and best practices emerging from these examples, namely that adequacy studies are done in collaboration with key stakeholders and done with an eye toward equity by paying attention to the specific needs of priority groups of students and institutions. The examples highlighted below demonstrate there is no single or best approach to conducting an adequacy study; rather, states have a range of strategies, options, and techniques available to align with their goals.

### *Illinois*

The Illinois Commission on Equitable Public University Funding's analysis of funding adequacy was prompted by a legislative charge to recommend "data-driven criteria" to "adequately, equitably, and stably fund public universities."[33] The Commission was also motivated by evidence of inequalities in attainment across geography, race and ethnicity, and income. The Commission developed a framework for adequacy to establish an "adequacy target" for each institution. The target represents the minimum funding each institution needs for instruction, student services, mission, and operations and maintenance. The target is adjusted for student-level equity and institutional costs. The projected targets and adjustments were informed by findings from academic research on the relationship between resources and outcomes, and on the cost of effective programs—a process most aligned with K-12's evidence-based approach to adequacy. Notably, Illinois has a history of implementing adequacy funding models in K-12,[34] and the Commission drew on lessons from Illinois' K-12 Evidence-Based Formula.

The analysis then creates a "resource profile" of each institution's existing funding and calculates the gap between available resources and the target. The Commission, with technical support from HCM Strategists, ultimately estimated a $1.4 billion adequacy gap statewide, where individual institutions are funded between 39.3% and 91.8% of their adequacy targets.[35] The Commission's report spurred the introduction of The Adequate and Equitable Funding Formula for Public Universities Bill, designed to make Illinois public higher education more affordable and narrow equity gaps.[36]

### *Virginia*

The Virginia Cost and Funding Need Study Report was conducted in response to a legislative request to recommend methods for determining costs and strategies for allocating state dollars to Virginia's public institutions, among other goals.[37] The State Council of Higher Education for Virginia (SCHEV) worked with the National Center for Higher Education Management Systems (NCHEMS) on the study. NCHEMS has developed an "Institutional Funding Adequacy Framework," which identifies different types of costs in order to help policymakers understand how institutional costs are linked to state funding requirements.[38]

Applying this framework in Virginia, nine cost categories are identified, ranging from "frugal foundation funding" to student characteristics to capacity building. Some costs are fixed, others are variable, and others can be tied to specific incentives related to state goals. As such, a different parameter is suggested to calculate the cost of each category, using different methods such as benchmarking, regression analysis, and effective practices.[39] The framework was used to estimate the costs of higher education in Virginia. In addition to the cost analysis, the report includes a review of efficiency and effectiveness, survey of state funding policies, peer group benchmarking, and discussion of cost-sharing. Following these efforts, SCHEV aims to use the findings to inform funding recommendations made to the legislature.[40]

*Texas*

Researchers conducted a cost analysis in Texas because policymakers aimed to understand what funding levels would provide an "affordable and accessible pathway to a postsecondary certificate or degree" at community colleges.[41] The analysis used regression methodology to identify the relationship between institutional characteristics and outcomes including student success and total spending. First, they identified which characteristics of the student body were associated with earning fewer success points, a measure of need. Second, they identified if institutions with greater need had higher spending, a measure of equity. Third, they conducted a cost-function analysis, predicting what spending level would be necessary to get colleges up to the average success level, given the college's characteristics. This resulted in weights which translate into how much more it costs to achieve average success levels in different college contexts. For example, the study finds it costs about three times as much for a first-generation student attending a small community college to achieve the same outcome as a continuing-generation student at a large college.

Following this analysis, Texas transformed their funding formula into a two-tiered model for community colleges including base and performance models. The base model intends to meet adequate funding for instruction and operations through weights for students with greater needs and disciplines with higher costs.[42] This work was conducted by the federal Institute of Education Science's Regional Educational Laboratory Southwest. The researchers leading the project have conducted adequacy studies in K-12, and their work in Texas is closely aligned with the cost-function approach.

## *Benchmarking as a starting point for exploring funding levels*

A full-scale adequacy or cost analysis will not be feasible in every state interested in conducting one. Benchmarking may be a more feasible alternative. Benchmarking is the process of comparing institutional resource levels against one another. To be clear, benchmarking is *not* a measure of adequacy in a strict sense because it does not connect the resource level to a specific goal. There is no guarantee that funding an institution at the benchmark level will be enough to improve outcomes.

However, benchmarking against a carefully selected comparison group can provide insight as to whether institutional resources are in the expected range. Benchmarks can be set at a specific level, such as wanting to be funded as well as a peer institution, or at a relative level, such as the state average or middle rank. Benchmarks are appealing because they are intuitive to understand and do not require a complex formula or process to calculate. Benchmarks can be a useful starting point for discussions about adequacy or demonstrate the need for an adequacy analysis. The technical guidance for Stage 4 demonstrates how to use the dashboard for benchmarking.

## *Summary*

Policymakers are increasingly interested in identifying funding adequacy in higher education. To add context to this issue, this stage discusses three common approaches from K-12, three recent examples from higher education, and benchmarking as a less-technical entry point. Any approach to analyzing funding adequacy will have strengths and weaknesses. Often adequacy or cost studies are a starting point for political conversations about funding models and state appropriation levels, so the way the study conceptualizes adequacy is just as important as the target dollar amount it produces. An adequacy study will not be appropriate for every state's goals. This stage is intended to help policymakers be informed about different approaches to adequacy studies and begin considering techniques that align with their priorities.

Throughout the framework thus far, policymakers have developed priorities, identified disparities in the funding distribution, and considered inadequacy in the funding levels. The next stage helps make this information actionable. In Stage 5, policymakers will assess how their policies may be contributing to inequities and inequalities, as well as explore strategies to reduce these disparities.

## *Checklist: Stage 4*

## *Develop adequacy targets*

- ☐ Review the information on approaches to setting adequacy targets from K–12 and examples from higher education.
- ☐ Consider if an adequacy study is appropriate for your state's goals.
- ☐ Explore funding levels through benchmarking using the **dashboard** (see Technical Guidance).

Stage 5

# REVIEW AND RESPOND

By engaging with the previous stages, policymakers will have developed an understanding of equity and adequacy in relation to higher education funding. Stage 3 helps policymakers identify which institutions in their state have the greatest need in light of state goals. Stage 4 helps policymakers weigh the tradeoffs of different methods for identifying how much more funding those institutions need. Now, Stage 5 prompts policymakers to examine specific policies and contexts that might be driving funding disparities.

## *Explaining funding disparities*

What drives funding disparities? Disparities are a function of both the amount of revenue institutions receive and the way resources are distributed across institutions. The exact cause will vary in every state. The following questions prompts policymakers to explore how funding models—and the processes that go into building these models—may be driving disparities.

- **Does your state's funding model explicitly address disparities? Could the funding model unintentionally contribute to disparities?**

  Identifying where funding models do—and do not—address inequities and inadequacies is a first step toward evaluating their effectiveness and explaining how they affect student outcomes. When reviewing findings from the analysis outlined in prior stages of this framework, consider what patterns reflect the intention of funding models. If there are unintended patterns in the funding levels or distributions, consider what aspects of the funding models might be contributing to them. As the funding model changes over time to address disparities, revisit this framework and the analysis for assessing progress and maintaining accountability.

  In some states, funding distributions may be based on "how they've always been" or may reflect the relative political power of each institution. For policymakers looking to revise their funding model, there is no one-size-fits-all solution. Often, it is difficult to make comprehensive changes to funding policies that would dramatically change the distribution of resources. Incremental change or applications to new resources are at least a starting point that can be built upon over time.

  Funding models can reduce *inequities* in several different ways. For example, states can use weights for certain priority populations in enrollment-based funding formulas. Similarly, states could use special purpose funding to boost resources to institutions with greater needs. Funding models can address *inadequacies* by setting specific funding levels needed to achieve specified goals or to overcome historical underfunding to specific institutions like HBCUs.

  In states with existing policies addressing disparities, the next logical question is whether the policies are working. Policymakers might ask if they have the correct weight or if the funding levels are enough—particularly if the state has not seen the anticipated results in student outcomes. Though advising on these questions is beyond the scope of this framework, considering these questions and reviewing data trends will help identify areas for improvement.

- **Who is involved in building your state's funding model?**

  When answering this question, also think of who is not involved in the process but should be. In some cases, funding disparities can result from who was—or was not—involved in policy conversations. Policymakers can have listening sessions to solicit feedback or reactions to any proposed change to a funding model. Or policymakers can convene working groups or coalitions aimed at having public and transparent conversations about funding models. Regardless of a state's specific context, consider which institutions are most likely to be affected by any changes to the funding model. Also, consider how to get institutional support or feedback for any potential changes that could occur. Stakeholders most affected by any funding model reform will have the most to say, so preparing for their input and engagement is key to addressing disparities.

- **Are there any capacity constraints or administrative burdens holding institutions back from receiving funding?**

  This question stems from the "chicken and egg" problem some states face, particularly those using performance-based funding models. When funds are allocated based on a particular outcome (e.g., number of credentials awarded) but an institution does not have adequate resources to build their capacity to achieve such outcomes, then this could exacerbate funding disparities. Similarly, if states want to provide special purpose funds to institutions but require a cumbersome application, these administrative burdens can deter the least-resourced institutions from applying. Asking institutional leaders about their capacity constraints or barriers to participating in state funding processes can inform administrative fixes or capacity considerations that should go into any funding model redesign.

  While this framework focuses largely on state funding, consider how the totality of institutional resources may also contribute to disparities. Some campuses have an extensive capacity for generating revenue, be it through tuition, philanthropy, local funding, or research. Some states design funding to balance out these differences in fiscal capacity, particularly in the case of local funding for community colleges.

## *Considering tradeoffs related to political and financial feasibility*

- **How will different stakeholders react to these conversations?**

  Considering stakeholder motivations can help policymakers anticipate the kind of questions, concerns, and opportunities they may face when engaging with this framework and the conversations it sparks. Reference Stage 3 to identify which institutions stand to gain the most/least. There will probably be a group of stakeholders that benefit from these conversations, either because it helps expose disparities or because it helps get them more resources. To ensure meaningful change, build policies that hold both the institution and state accountable for equity goals.

There will probably be a group of stakeholders threatened by these ideas who will work to maintain the status quo. These stakeholders likely have benefitted most from the disparate funding distribution and would like to limit how much change occurs. To address these concerns, policies can offer a degree of stability, such as base funding with "hold harmless" provisions, ensuring funding levels will not decline. However, these policies must be employed carefully so as to not perpetuate historical disparities. Strategies for building coalitions with these groups include being transparent and pairing equity with adequacy to emphasize getting everyone more resources.

- **How will stakeholders navigate political contexts when the word "equity" is a non-starter or faces legal challenges?**

States operating under diversity, equity, and inclusion (DEI) bans and other political hot button topics may find it difficult to get support for these efforts, so making the value proposition will be key. Research shows a high public return on investment for higher education.[43] Investing in colleges with the greatest need should pay off both for students and the state.

There will likely be some stakeholders who do not agree on the nature of the problem at hand or disagree on the solution. Stages 1 and 2 are designed to help anticipate these challenges and clarify key concepts/trends. In challenging political environments, discussions of "equity" may need to be reframed so semantics do not prevent progress. Some policymakers have found "needs-based" or "gap-closing" to be useful terms. Consider using a definition instead of a term or seeing what terms have been well received in sectors outside of higher education.

Following the Supreme Court's 2023 decision in *Students for Fair Admissions v. Harvard* and the Trump Administration's subsequent Dear Colleague Letter,[44] policymakers may be under political pressure to review any race-conscious policy, even if they are not affected by the ruling.[45] While using race-related data and policies is the best way to reduce racial disparities, some policymakers will likely use "race-evasive" language due to their political circumstances.[46] In other states, policymakers may focus on building coalitions and monitoring resources to prepare for when action is more feasible. Regardless of the state's strategy, taking a long view of the state's history, context, and political priorities will be central to any productive conversation around improving outcomes for all students now and into the future.

- **What if your state does not have enough resources to adequately fund higher education?**

Even if a state identifies a specific number for adequate funding, it may not be feasible for a state to fully fund higher education at that level. For example, Colorado faces limits on governmental revenue, affecting appropriations for public services including higher education.[47] The Illinois Commission on Equitable Public University Funding suggests an allocation formula where new funding prioritizes institutions furthest away from adequate funding.[48] This is a promising strategy rooted in the idea of getting the most resources to those with the greatest need.

Financial aid targeted to priority population students can be another mechanism for getting additional resources to institutions with greater need and may be more politically palatable and secure than additional institutional funding in some contexts.

## *Summary*

A commitment to reducing disparities is a commitment to equal access to high quality educational opportunities. When funding disparities exist within or across institutions, it means some students have access to a college that can better support their learning and completion goals while others do not. Too often, this disadvantages the very students who have traditionally been under-represented in higher education.

Funding disparities also make it more difficult for states to achieve broader educational and workforce goals, including increasing attainment and meeting labor market demands. When states prioritize students and institutions with the greatest needs, there is good evidence it pays off in the long run. To help states connect these dots and to assess their own funding systems, this framework can help policymakers ask critical questions about why funding is distributed the way it is and how to make meaningful changes.

This section helps policymakers move to action by exploring tradeoffs, addressing feasibility concerns, and identifying policies that could serve as a model for equitable and/or adequate funding. The goal for this framework is not to identify what policymakers should do but to offer considerations for future conversations about incorporating equity and adequacy into postsecondary funding models.

This framework's main goal is to help state policymakers navigate difficult conversations about funding levels, funding models, and how funds are distributed in their state. Specifically, we hope it helps policymakers develop common ground and have productive conversations around funding disparities and what to do about them. There is no single or best solution for all states, and this framework is not designed to prescribe any solutions. Instead, it offers strategies which states can use to conduct their own assessment, evaluate their own policies, and develop strategies that work best given their needs and contexts. We encourage policymakers to periodically revisit the framework to monitor progress and promote continuous improvement.

## *Checklist: Stage 5*

## *Review and respond*

- ☐ Review the trends identified in Stages 1–4 related to funding distributions, funding levels, and outcomes for priority populations. Consider what type of disparities are of greatest concern to your state. Discuss how these disparities may result from existing funding policies and priorities.
- ☐ Discuss the following questions to further explore how policies can result in funding disparities:
    - ☐ Does your state's funding model explicitly address disparities? Could the funding model unintentionally contribute to disparities?
    - ☐ Who is involved in building your state's funding model?
    - ☐ Are there any capacity constraints or administrative burdens holding institutions back from receiving funding?
- ☐ Discuss the following questions to explore tradeoffs related to political and financial feasibility of incorporating equity and adequacy into new policies:
    - ☐ How will different stakeholders react to these conversations?
    - ☐ How will stakeholders navigate political contexts when the word "equity" is a non-starter or faces legal challenges?
    - ☐ What if your state does not have enough resources to adequately fund higher education?
- ☐ Document your next steps. As your state implements new policies, reemploy methods for assessing funding levels and distributions to see that they trend in the expected direction.

# TECHNICAL GUIDE

Throughout this framework, we have suggested different types of analysis to identify funding disparities. This technical guide offers direction for conducting these analyses, including considerations for data, methods, measures, and interpreting the results. This guide also demonstrates how to conduct the analyses using an interactive **dashboard** which accompanies this framework.

Each tab in the dashboard corresponds with a stage in the framework and can help policymakers answer guiding questions. The dashboard is pre-populated with institution-level data and allows users to customize the analysis by selecting different measures of financial resources, priority populations, outcome measures, and comparison groups. For policymakers that prefer to use a different data source or measures, the dashboard can serve as a model to replicate. The content in this technical guide builds upon itself and is best reviewed sequentially.

## *Using IPEDS data:*

The dashboard is pre-populated with data from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS). IPEDS is a useful data source for financial analysis. It is publicly available, fairly comprehensive, and most state agencies and institutions are already familiar with the data. However, there are notable limitations to using IPEDS for this analysis. First, student counts and outcome data only include students enrolled in credit-bearing courses, underestimating per-student resources at institutions serving a large portion of non-credit students including workforce and basic education.[49] Additionally, non-degree seeking students are not included in outcomes data. Second, IPEDS does not collect comprehensive data on every priority population which may be of interest to a state. The data on race does not identify the races of multiracial students, making it difficult to disaggregate.[50] Third, some multi-campus institutions report to IPEDS in aggregate, limiting the ability to identify.[51] Fourth, data on local funding is incomplete, making it difficult to consider the totality of resources available to an institution, particularly community colleges.

## *Guidance for Stage 2*

### *Stage 2, Section A:*
### *How similar or different are financial resources across institutions within the state?*

A good starting point for understanding financial disparities is to identify how resources are distributed across institutions with a state if there are any characteristics of the institution or student body that relate to those differences. In an *equal* distribution of resources, we would expect each institution to have about the same resources per student. In an *equity-based* funding distribution, we would expect to see institutions with greater need receive more resources. Need can be identified as serving more students from priority populations who have not yet reached a specific outcome goal.

To visualize this relationship, use the "Funding & Enrollment" tab in the **dashboard**, which shows a scatter plot correlating financial resources and enrollment. Using the menu on the right side of the dashboard, users can customize the measures depicted in the dashboard. Options for "resource type" include either state appropriations or education & related (E&R) expenditures. Resources can be measured per full-time equivalent (FTE) or per headcount by selecting a "per student type." The scatter plot can depict data for all students or particular priority populations including students receiving Pell, students of different racial identities, and adult students. Considerations for selecting resource measures and priority populations are discussed in guidance for Sections C and D below. The dashboard allows users to compare institutions within the same state, regional compact, or across the nation. It also allows users to select different sectors to help make comparisons across more similar institutions.

If users are interested in a different resource measure, priority population, or comparison groups, the figures can serve as an example to be replicated using their preferred measures or data. All figures use Integrated Postsecondary Education Data System (IPEDS) data from 2023.

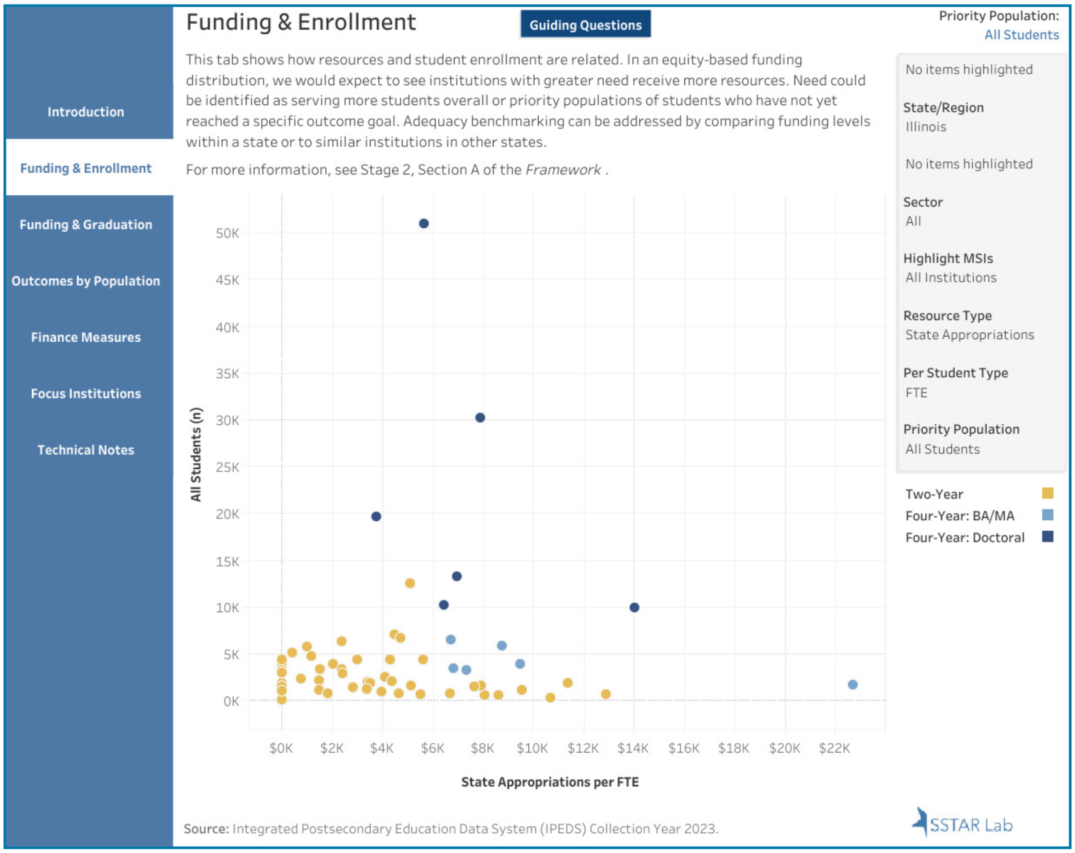
### *Example:*

Over the past several years, **Illinois** has made efforts to revise their funding model to have greater attention to equity and adequacy.[52] Part of this process included assessing which institutions are furthest from being adequately funded to reach the state's equity goals. Illinois's equity goals included supporting enrollment and completion for all students, as well as improving access and success for underrepresented and underserved students. Throughout the technical guidance in this framework, we use Illinois as an example of how to work through the dashboard so our results can be in conversation with prior work in Illinois.

First, dashboard users can explore the relationship between resources and overall enrollment on the second tab titled "Funding & Enrollment," by selecting Illinois as the state, state appropriations as the resource type, FTE as the per student type, and all students as the priority population. The resulting scatter plot, Figure 2, shows enrollment counts on the vertical axis and state appropriations per FTE on the horizontal axis. Public four-year colleges are shown in blue and public two-year colleges in yellow.

Most four-year colleges (in blue) have about the same amount of funding per FTE student, but there are outliers. Most two-year colleges (in yellow) receive less funding per FTE than four-year colleges, and there is greater variance in funding across institutions, though there are some colleges appearing to receive $0 which highlights a likely data error. At this point, users should discuss differences in resource levels within the state and what might be causing funding differences. Users can also explore funding levels compared to other states by selecting all U.S. states and highlighting Illinois. This can spark a discussion about benchmarking Illinois funding levels against other institutions.

*Figure 2: State appropriations per FTE by student enrollment in Illinois*




Next, users can explore how resources are distributed in relation to enrollment of priority student populations, one measure of institutional need. In an *equal* distribution, institutions would be clustered around a resource level. In an *equitable* distribution, we would expect more resources to be flowing to institutions serving more students from the priority population. If large disparities exist, we expect to see the burden of fewer resources disproportionately felt by particular institutions or student groups. When assessing need, Illinois identified low-income students as a priority, evidenced by an overall gap in graduation rates for Pell and non-Pell students. Figure 3 shows the same scatter plot as Figure 2, with Pell selected as the priority population. The vertical axis is now percent Pell enrollment at each institution.

*Figure 3: State appropriations by Pell enrollment in Illinois*

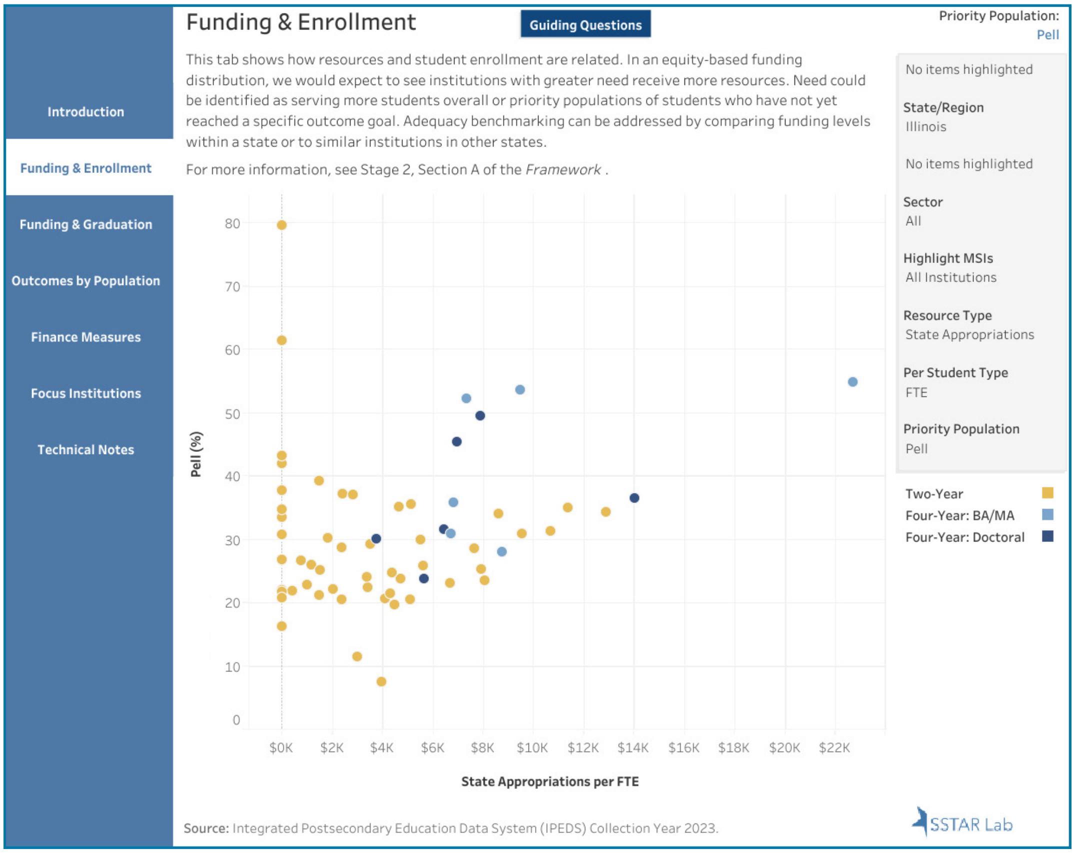



Figure 3 shows a very modest positive trend for four-year colleges (in blue), where institutions enrolling greater shares of Pell students tend to be the most resourced institutions, as expected from an equitable distribution. The trend for community colleges (in yellow) is less distinct, with most institutions enrolling between 20% and 40% Pell students, yet featuring a wide range of funding levels. Upon seeing these trends, users should discuss if resource levels align with need or if funding differences are falling disproportionately upon certain institutions or student populations.

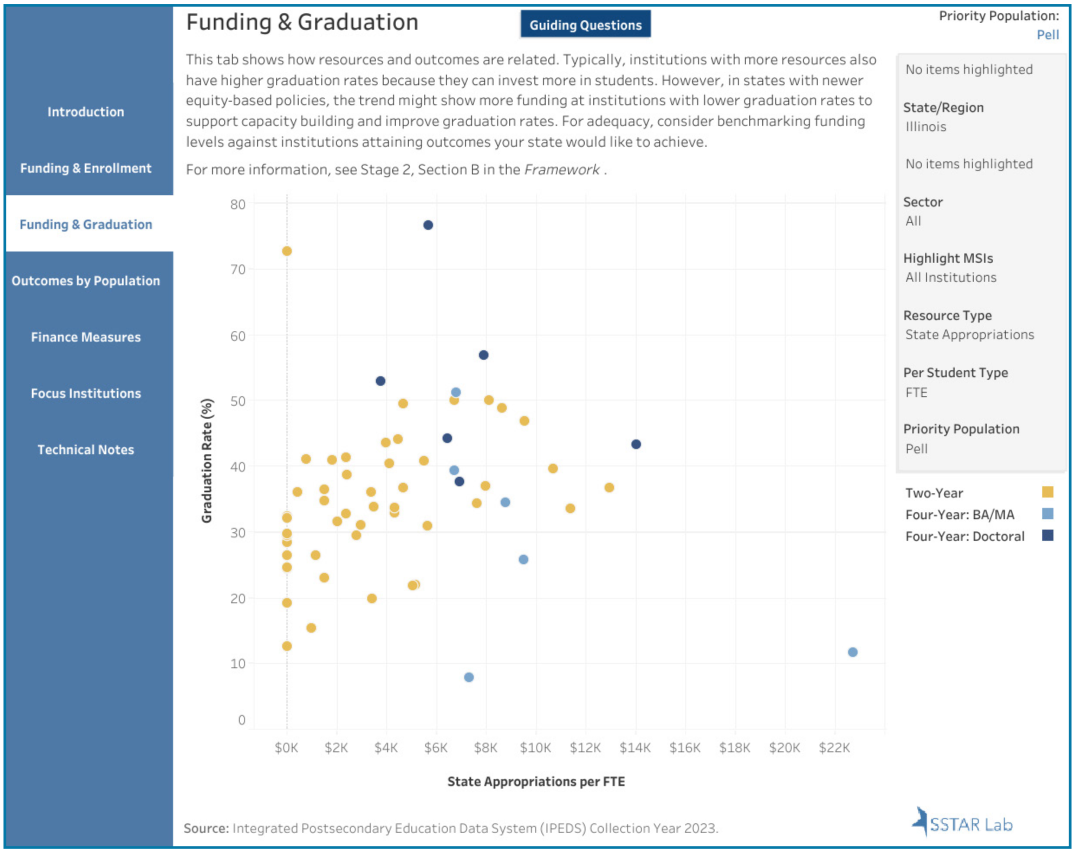
## *Stage 2, Section B:*
### *What is the relationship between financial resources and student outcomes?*

The third tab of the dashboard, "Funding & Graduation," features scatter plots correlating financial resources and student graduation. Graduation rate is measured as graduation within 150% of normal time (i.e. three years for two-year colleges and six years for four-year colleges) for full-time, first-time degree/certificate-seeking undergraduates who complete at their original institution. We use this measure because it is the only graduation metric IPEDS includes that is disaggregated by race and ethnicity. Typically, institutions with more resources also have higher graduation rates because they can invest more in students. However, in states with newer equity-based policies, the trend might show more funding at institutions that need to build their capacity to improve graduation rates. Again, users can select resource measures and priority populations or use the figure as a model to replicate using preferred data.

## *Example:*

Building on the example in the prior section, Figure 4 shows Pell graduation rates and state appropriations per FTE in Illinois. Among community colleges, there is a modest positive trend where colleges with more resources have higher graduation rates. For four-year colleges, the trend is less clear. Some well-funded institutions have concerningly low graduation rates for Pell students. Users should discuss if the funding patterns are intentional and if funding levels create barriers to student achievement for particular student groups. By benchmarking against funding levels at similar institutions with high graduation rates across the nation, users can consider if funding levels are enough to achieve graduation outcome goals.

*Figure 4: State appropriations by Pell graduation rates in Illinois*



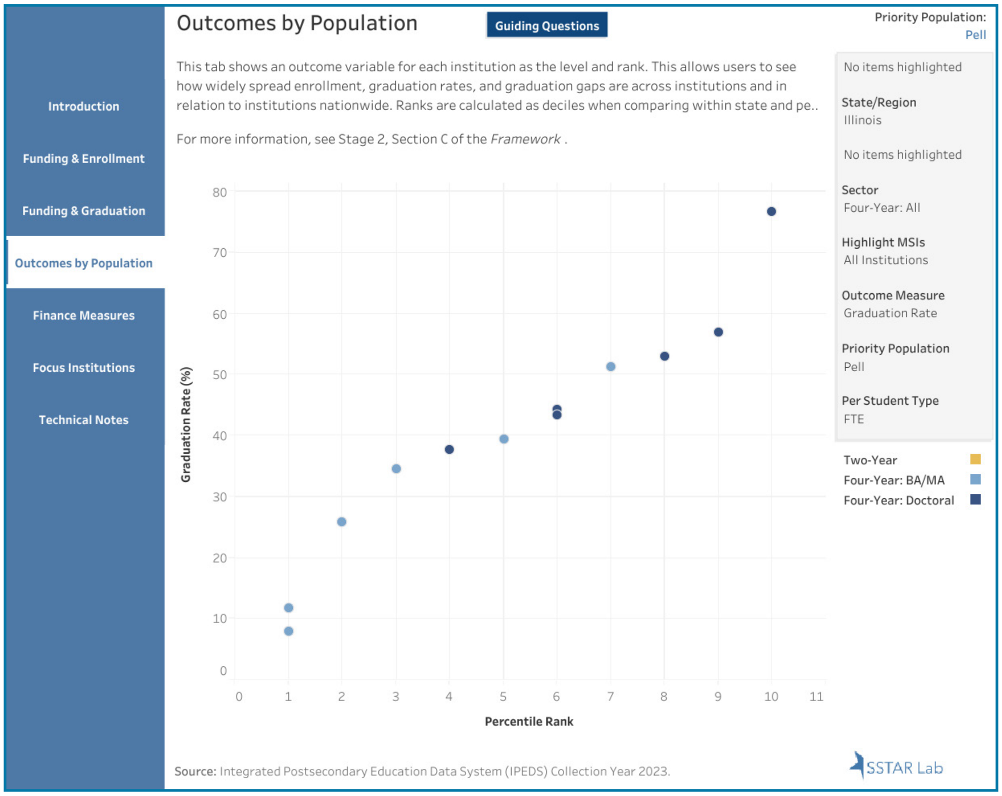
## *Stage 2, Section C:*
## *Are there measurable gaps in access or outcomes for any group(s) of students or institutions?*

The fourth tab in the **dashboard**, "Outcomes by Population," shows the outcomes for different priority groups, which can help users identify priority populations. Outcomes are shown as the level (e.g. percent graduating) and rank (e.g. quantile). This allows users to see how widely spread enrollment, graduation rates, and graduation gaps are across institutions. It also shows the rank of each institution. Ranks are calculated as deciles when comparing within state and percentiles when comparing nationally (see Stage 3 for more information on ranking). We use graduation as the outcome example throughout this framework but recognize each state may have a different goal or definition of student success and this analysis could be replicated with alternate outcome measures.

### *Example:*

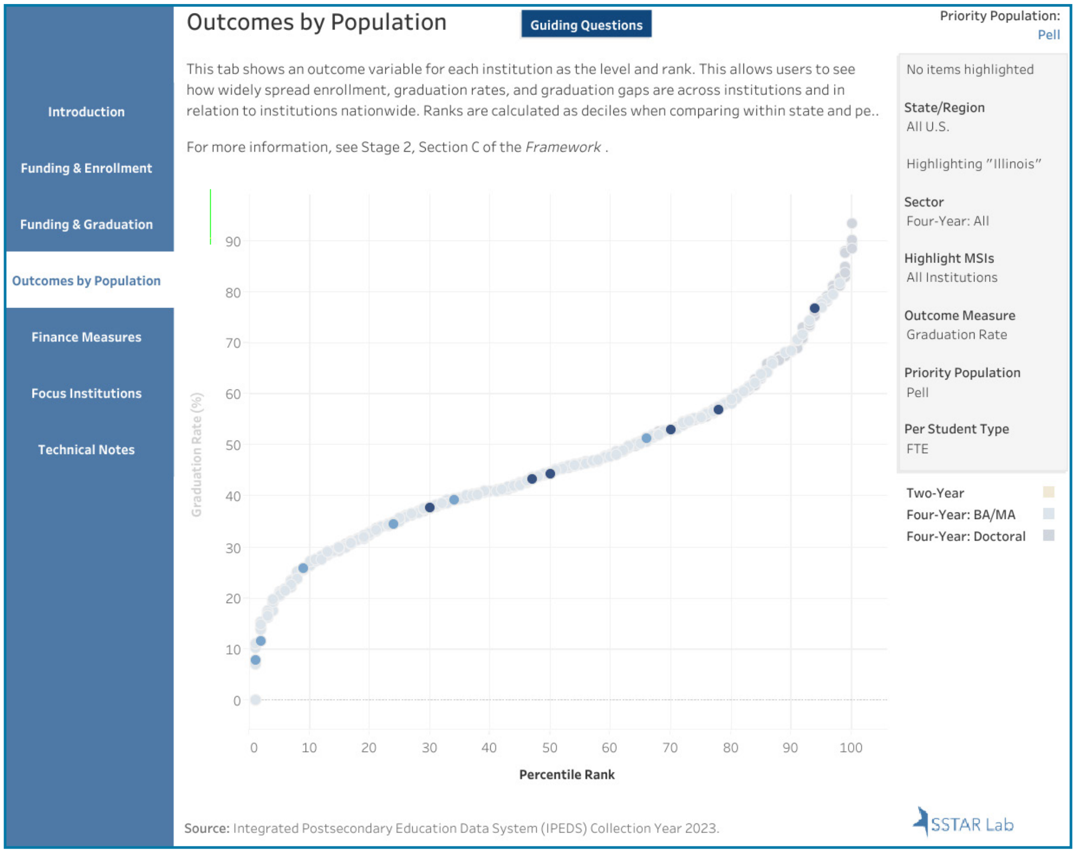
Figure 5 continues the example of Pell students in Illinois, this time focusing on four-year colleges for simplicity. In some contexts, it will make sense to look at two- and four-year sectors combined and in others, each sector separately. Figure 5 shows decile ranks (10 groups) and the Pell graduation rate for each four-year college. In Illinois, the Pell student graduation rate ranges widely from under 10% to nearly 80%. Most institutions have rates below 50%. With this data, users can consider if these outcomes align with state priorities, if there are additional populations of students who need support, and how funding might be contributing to gaps.

*Figure 5: Pell graduation rate rank in Illinois*



For more context, the **dashboard** can also compare Illinois institutions (shown in dark blue in Figure 6) to four-year colleges nationwide (shown in light blue in Figure 6) by selecting all U.S. states with Illinois as the highlight state. Figure 6 shows Illinois institutions are located throughout the distribution of all four-year colleges across the nation. For national comparisons, the dashboard uses percentiles (100 groups).

*Figure 6: Pell graduation rate ranks nationwide with Illinois highlighted*




Next, the dashboard allows users to look at which institutions have the greatest graduation rank gap—the difference between Pell grad rates and grad rates for all students at the college by changing the outcome measure. After comparing these distributions across different priority populations, users can identify if there are certain populations that have greater needs at specific institutions as well as statewide.

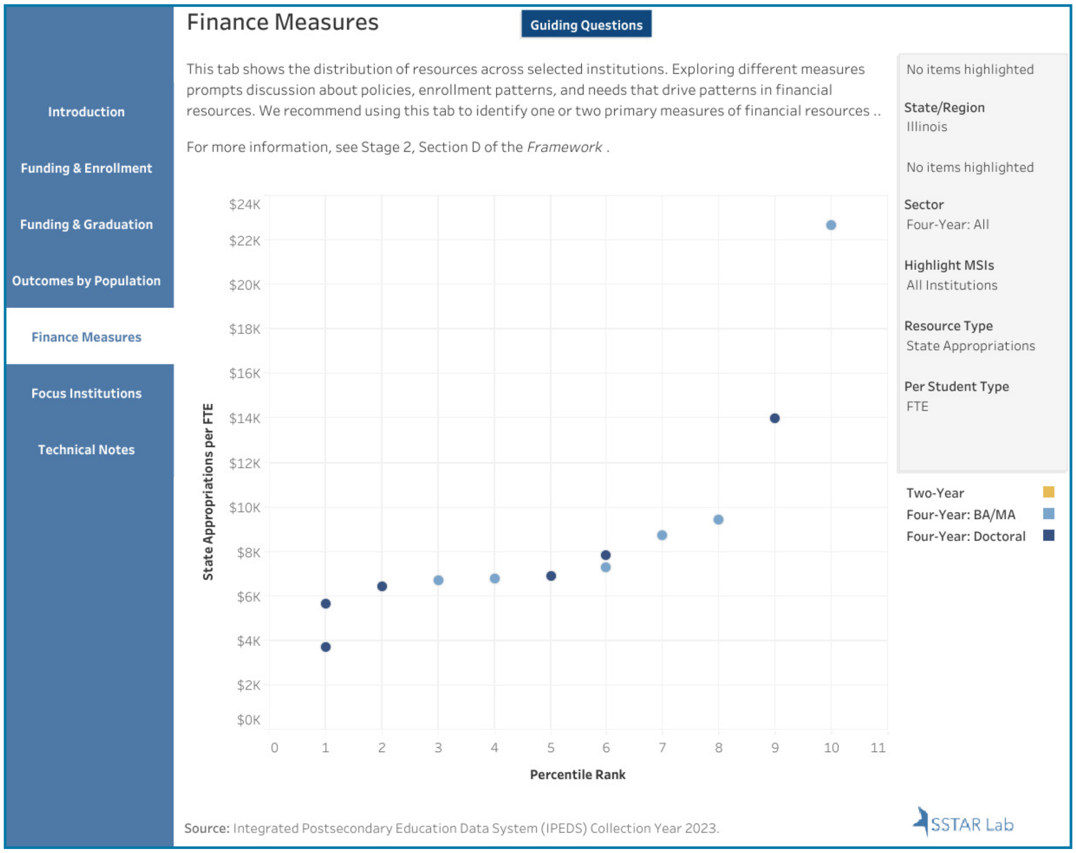
## *Stage 2, Section D:*
## *Do different finance measures reveal different trends?*

The fifth tab in the **dashboard**, titled "Finance Measures," shows the distribution of resources across selected institutions, prompting users to select an appropriate finance measure for the analysis. The dashboard shows resources as state appropriations or E&R expenditures, measured per FTE or headcount. Exploring different measures prompts discussion about policies and enrollment patterns that drive patterns in financial resources. If a state has other resource measures to explore, this figure can be recreated using state data.

### *Example:*

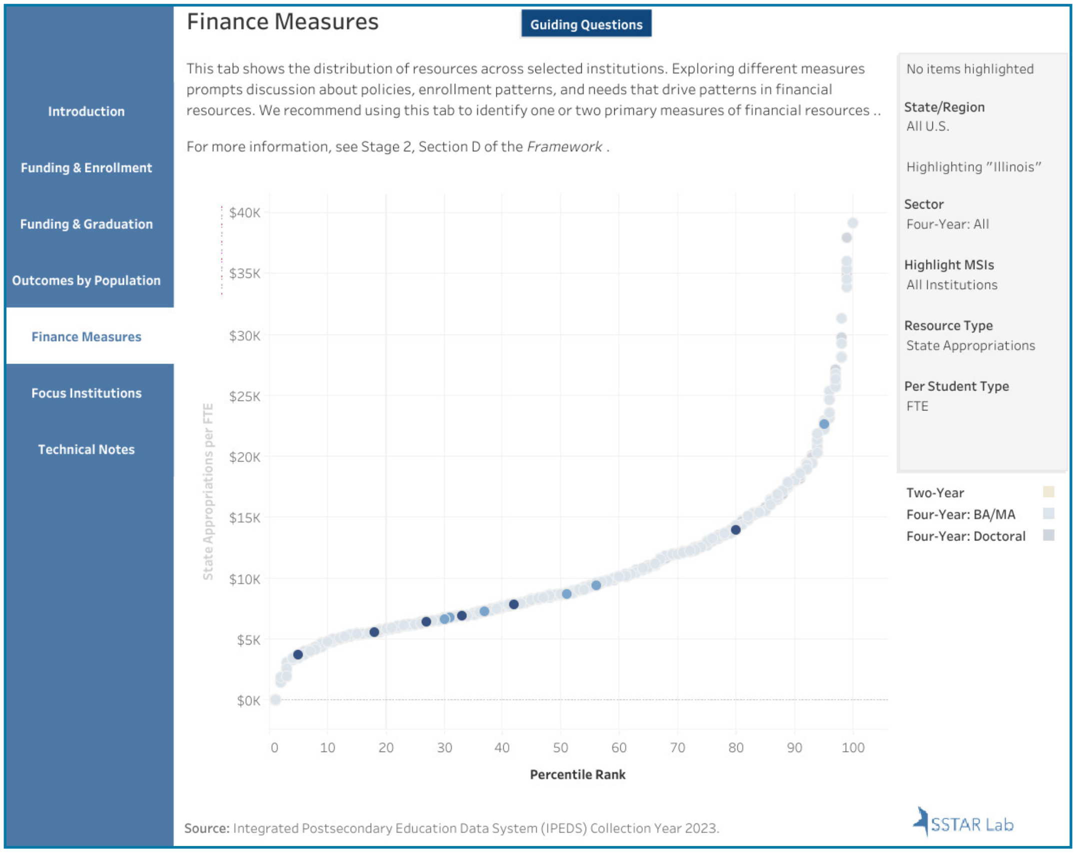
Figure 7 shows state appropriations per FTE across public, four-year colleges in Illinois. Most institutions receive between $6,000 to $8,000 in state funding per FTE. Two institutions receive substantially more. There may be good reasons for variation in funding, reasons that reflect institutional need. This figure can prompt discussion about equality versus equity and what would be need-based drivers of inequality.

*Figure 7: State appropriations per FTE ranks in Illinois*



Users can then explore their state in the national context. Selecting all U.S. states and highlighting Illinois shows most Illinois institutions are in the bottom half of all public four-year colleges, as seen in Figure 8. This can prompt a conversation about adequacy benchmarking. It can also lead to a discussion about which institutions are most likely to have similar needs and would therefore be the best comparison group. For example, perhaps the state research institutions should be compared to other research institutions and regional comprehensives against other regional comprehensives.

*Figure 8: State appropriations per FTE ranks with Illinois highlighted*



# Guidance for Stage 3

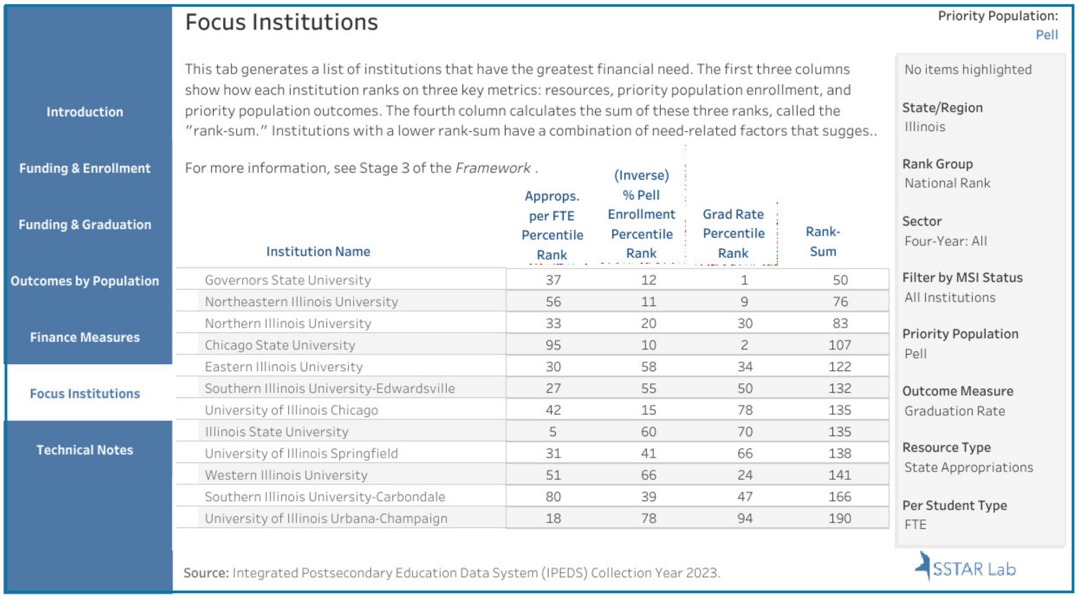
## Conducting a rank-sum analysis

The sixth tab of the **dashboard**, "Focus Institutions," generates a list of institutions that have greater need for financial resources. The first three columns show how each institution ranks on key metrics, including resource measures, priority population enrollment, and priority population outcome (select graduation rate or graduation gap). Ranks can be calculated in relation to all institutions in the nation or within a particular state. The fourth column calculates the sum of these three ranks, called the "rank-sum." Institutions with a lower rank-sum likely have greater need for additional resources. While the dashboard only allows the rank-sum to be based on three ranks, users can replicate this method using different metrics, additional metrics, or weighted metrics. As a default, the dashboard shows decile ranks when the rank level is state and percentile when the rank level is national.

### *Example:*

Figure 9 shows ranks for three selected measures of Illinois public four-year colleges: appropriations per FTE, Pell enrollment, and Pell graduation. The percentile ranks are calculated relative to four-year colleges nationwide and listed in the first three columns.

*Figure 9: Rank-sum analysis for Illinois*




Focus Institutions

This tab generates a list of institutions that have the greatest financial need. The first three columns show how each institution ranks on three key metrics: resources, priority population enrollment, and priority population outcomes. The fourth column calculates the sum of these three ranks, called the "rank-sum." Institutions with a lower rank-sum have a combination of need-related factors that sugges..

For more information, see Stage 3 of the *Framework* .

| Institution Name | Approps. per FTE Percentile Rank | (Inverse) % Pell Enrollment Percentile Rank | Grad Rate Percentile Rank | Rank-Sum |
|---|---|---|---|---|
| Governors State University | 37 | 12 | 1 | 50 |
| Northeastern Illinois University | 56 | 11 | 9 | 76 |
| Northern Illinois University | 33 | 20 | 30 | 83 |
| Chicago State University | 95 | 10 | 2 | 107 |
| Eastern Illinois University | 30 | 58 | 34 | 122 |
| Southern Illinois University-Edwardsville | 27 | 55 | 50 | 132 |
| University of Illinois Chicago | 42 | 15 | 78 | 135 |
| Illinois State University | 5 | 60 | 70 | 135 |
| University of Illinois Springfield | 31 | 41 | 66 | 138 |
| Western Illinois University | 51 | 66 | 24 | 141 |
| Southern Illinois University-Carbondale | 80 | 39 | 47 | 166 |
| University of Illinois Urbana-Champaign | 18 | 78 | 94 | 190 |

**Source:** Integrated Postsecondary Education Data System (IPEDS) Collection Year 2023.

The rank-sum shows which institutions are priority for having some combination of low appropriations, high enrollment of the priority population, and low graduation rate for the priority population. For example, Governors State University and Northeastern Illinois University are ranked in the middle for funding, serve a high proportion of Pell students, and rank very low for Pell graduation rates. Using the rank-sum, these institutions appear as top priority. Lower priority institutions include well-resourced institutions like Southern Illinois University-Carbondale and institutions with high Pell graduation rates like University of Illinois Urbana-Champaign.

Notably, these results map back to the Illinois Commission on Equitable Public University Funding fairly well—particularly among the highest and lowest ranks. The Commission's work is informed by additional variables and analysis not included in this rank-sum example, including additional priority populations and different measures of financial need. Nonetheless, the rank-sum could provide helpful insights in contexts where it is not feasible to conduct as extensive an analysis as the Commission's work.

Policymakers can explore the dashboard to see how the ranks change for different resource measures, outcome measures, and priority populations, then identify which institutions have consistently low rank-sums.

## Guidance for Stage 4

### Exploring funding levels through benchmarking

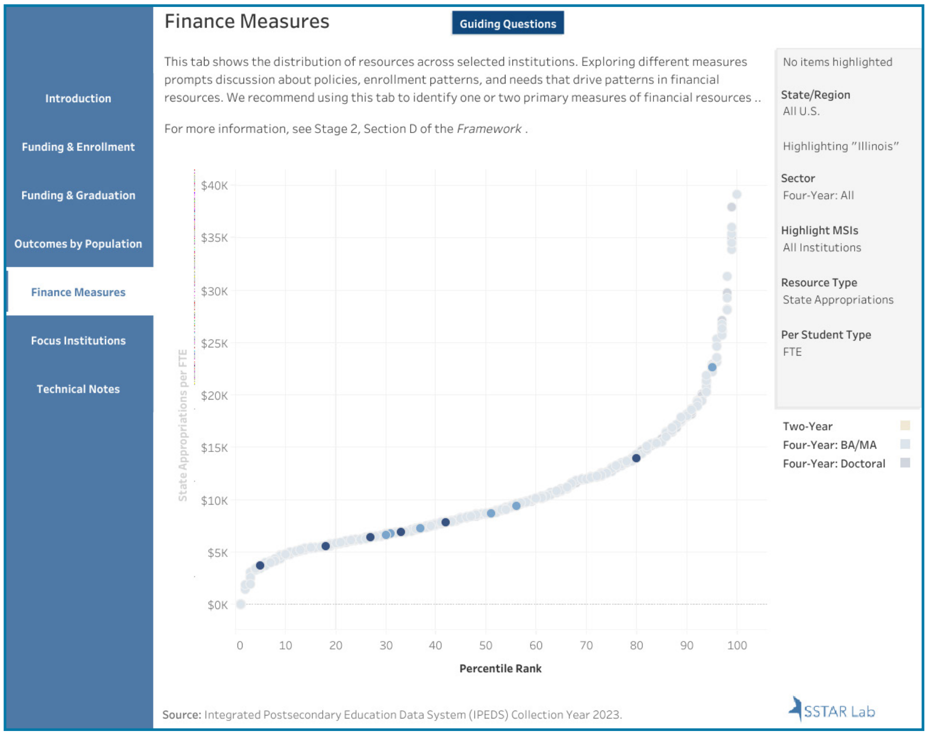
The fifth tab of the **dashboard**, "Finance Measures," is a good place to start for benchmarking. The figure shows institutions ranked by their institutional resources. The ranks are calculated so each rank group has about the same number of institutions. Therefore, the 50th percentile rank shows about where the median institution is located on the distribution. The median could be a useful benchmark for policymakers interested in bringing their institutional resources "up to the middle." The "middle" could be a national comparison or within state or regional compact.

Policymakers could also benchmark in relation to an outcome by exploring the "Funding & Graduation" tab. This view is useful in states with a specific graduation rate goal. Users can see the level of resources at institutions that are meeting the desired outcome.

### Example:

Figure 10 shows the "Finance Measures" tab for Illinois four-year colleges. Institutions falling below the median (50th percentile rank) of state appropriations per FTE could be initial evidence of underfunding. However, the median does not necessarily represent "enough," or adequate funding. This is particularly true if most institutions in the comparison group are also underfunded. This figure can start a conversation about how much more institutions need to get up to a desired funding level.

*Figure 10: State appropriations per FTE ranks with Illinois highlighted*



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