Leveraging Teacher Supply and Demand Data to Address Staffing Challenges

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Teacher staffing challenges are complex.

News stories often describe teacher shortages in sweeping terms, warning that the "teacher shortage in America has hit crisis levels" (Natanson, 2022) and that nationwide "there aren't enough teachers" (Ward, 2022). The reality is more complex. Schools face greater staffing challenges in specific subject areas (e.g., special education), locations (e.g., rural areas), and communities (e.g., low-income schools) (Bruno, 2025). This matters because teachers play such a pivotal role in student success.

To design effective teacher policies, states need answers to fundamental questions about teacher supply and demand.

- Who's entering the teacher pipeline?
- Who gets hired and where?
- How effective are they and do they stay in the profession?
- What subjects and schools have the greatest staffing challenges?
- How effective are policy interventions to address staffing challenges?

But too often, traditional data systems don't provide the information states need.

Few states collect data on the early stages of the teacher pipeline, such as when people express interest in teaching or enter preparation programs. This means that education leaders can miss early warning signs about supply problems, such as too few candidates preparing to teach STEM subjects (Goldhaber et al., 2015) or lose opportunities to expand these pipelines before it's too late to intervene.

And while state longitudinal data systems (SLDS) track current school staffing well, they struggle to capture teacher demand. Data on new hires reflects the hiring schools were *able to do*, not necessarily the hiring they *wanted to do*. Too often, data on the demand for teachers is indirect or outdated.

New approaches to measuring teacher supply and demand data can help fill these gaps.

States can build data systems that more accurately measure the future supply of teachers by following prospective teachers across key transitions: from high school into postsecondary education, through teacher preparation and clinical practice, into program completion and licensure, and finally to classroom employment. This requires individual-level records and unique identifiers to follow aspiring teachers across the teacher pipeline.

Education leaders can also gain better insights into demand by examining job postings directly—and when possible, teacher applicant data. Researchers have shown that modern web-scraping techniques make it feasible to gather job posting data from individual district websites at relatively low cost. Some states are also collecting posting information (and sometimes applicant data) through statewide job boards.

Better data systems won't solve staffing challenges—but they make targeted solutions possible.

States need more than technical expertise to improve labor market data. They also need policy frameworks that provide vision, authority, and incentives; organizational structures that coordinate responsibility and reduce transaction costs; investments in multiple types of capacity; and outreach efforts that build relationships to drive adoption. These organizational foundations are just as important—if not more so—as technical solutions for leveraging new data to understand and improve the teacher workforce.

Go Deeper

Abbott, C., DeArmond, M., Goldhaber, D., & Putman, H. (2025). Leveraging State Data to Better Understand Current and Future Teacher Supply. CALDER Research Brief No. 40-1025.

DeArmond, M., Goldhaber, D., & Strunk, K. (2025). Leveraging Job Posting Data to Better Understand the Demand for Teachers. CALDER Research Brief No. 41-1025.

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Goldhaber, D., Krieg, J., Brown, N., & Theobald, R. (2015). Refueling the STEM and special education teacher pipelines. *Phi Delta Kappan, 97*(4), 56–62.

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