



## THE DISTRIBUTION OF HIGHLY QUALIFIED, EXPERIENCED TEACHERS: CHALLENGES AND OPPORTUNITIES

August 2009

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Current provisions of the Elementary and Secondary Education Act call for states to identify districts that have an inequitable distribution of highly qualified, experienced teachers and to develop approaches to address these inequities. This TQ Research & Policy Brief examines the issue and offers policy responses that can be used to improve teacher distribution.

# CONTENTS

	Page
Introduction . . . . .	1
Research on the Equitable Distribution of Teachers . . . . .	2
Research on Teacher Distribution . . . . .	2
Research on Factors That Affect Teacher Distribution . . . . .	4
Policy Responses . . . . .	9
Policies Relating to Financial Incentives . . . . .	10
Policies Relating to Working Conditions . . . . .	12
Policies Relating to Mentoring and Induction Programs . . . . .	12
Policies Relating to Hiring and Transfer . . . . .	13
Policies Relating to Resource Allocation . . . . .	14
Comparison of Cost-Effectiveness of Various Incentives and Policies . . . . .	14
Identifying Schools and Districts in Need of Targeted Assistance for Improving Teacher Distribution . . . . .	16
Differences Across States . . . . .	16
Data Needed to Determine Equitable Distribution by Poverty and Minority Status . . . . .	17
State Strategies Currently Being Used to Improve Teacher Distribution . . . . .	17
California . . . . .	17
Georgia . . . . .	19
Ohio . . . . .	19
Continuing Efforts . . . . .	20
Conclusion . . . . .	21
Recommendations . . . . .	21
Further Thoughts . . . . .	22
References . . . . .	23

## INTRODUCTION

States have been working on strategies to address the equitable distribution of teachers for a number of years. The Elementary and Secondary Education Act (ESEA), as reauthorized by the No Child Left Behind (NCLB) Act of 2001, specifically calls for states to identify and address the inequitable distribution of highly qualified, experienced teachers. Title I, Part A, Section 1111(b)(8)(C) of ESEA requires that states “ensure that poor and minority children are not taught at higher rates than other children by inexperienced, unqualified, or out-of-field teachers.” In addition, the federal government has emphasized the importance of equitable teacher distribution by making funds available through the American Recovery and Reinvestment Act (ARRA) of 2009, with the requirement that states make progress on key education reforms, including the equitable distribution of qualified teachers (U.S. Department of Education, 2009).

Meeting the current provisions of ESEA’s highly qualified teacher (HQT) requirements (i.e., that all core academic subjects<sup>1</sup> must be taught by highly qualified teachers) has been the primary focus of states’ efforts to meet federal teacher quality requirements, and states have made considerable progress in ensuring that all teachers are highly qualified. Now states are turning their attention to the equity plan requirement, which specifically recognizes that even if all teachers are highly qualified, states must remain vigilant about how novice and out-of-field teachers are distributed across schools and districts. (ESEA largely defines highly qualified teachers as those with subject-matter training; the equitable distribution section aims to ensure that inexperienced, unqualified, or out-of-field teachers are not overly represented in poor and minority schools.)

The research studies summarized in this brief use various measures of teacher quality, including selectivity of undergraduate college, teacher scores on standardized exams, and value-added measures of student outcomes as well as experience and subject-matter knowledge. Lankford, Loeb, and Wykoff (2002) specifically examine the correlations among a number of school-level teacher quality measures and find relatively high correlations, indicating that schools that rank relatively low on one measure rank relatively low on other measures as well. In this brief, the term *teacher quality* is used to refer broadly to these measures.

As a result of ESEA requirements, states already have developed plans to improve the distribution of teachers and are beginning to implement those plans. The State Fiscal Stabilization Fund (SFSF) provides additional resources to support districts in their efforts; however, the process of developing and implementing the plans has been challenging for many states and districts. The challenge stems primarily from the lack of key information, including the following:

- A research base that informs efforts to improve teacher distribution
- Data that accurately identify districts and schools needing assistance in attracting and retaining highly qualified, experienced teachers
- Models and descriptions of how states and districts are addressing inequitable distribution

It also is important to note that the distribution of highly qualified teachers is a challenge for schools—not just districts. Although some variation in teacher quality is due to differences across *districts* (e.g., high-need districts typically have lower quality teachers than other districts), it is becoming clear that just as much,

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<sup>1</sup>According to the current provisions of ESEA, core academic subjects are as follows: English, reading or language arts, mathematics, science, foreign languages, civics and government, economics, art, history, and geography.

if not more, of the variation is due to differences across *schools* (e.g., within districts, high-need schools have lower quality teachers than other schools). See, for example, Clotfelter, Ladd, Vigdor, and Wheeler (2007); Goldhaber, Choi, and Cramer (2007); Peske and Haycock (2006); Presley, White, and Gong (2005); Rubenstein, Schwartz, and Stiefel (2006).

This finding suggests that equity policies should be focused on high-need schools. The situation poses additional challenges because state policies traditionally have targeted incentive programs at districts rather than schools, and district policies may need to differentiate among schools within the district. State policies focused on high-need schools rather than districts also are more likely to address the needs of rural areas, where small numbers of schools may make district-level distribution policies irrelevant.

This brief does the following:

- Discusses what the research says about improving the distribution of highly qualified, experienced teachers.
- Presents policy responses to equitable distribution challenges and reviews their relative cost-effectiveness.
- Suggests ways for states to use data to identify districts and schools in need of targeted assistance for attracting and retaining highly qualified teachers, and highlights the data that states and districts should be collecting and analyzing to assess the effectiveness of new programs for improving teacher distribution.
- Describes strategies currently being used by states to improve teacher distribution.



## RESEARCH ON THE EQUITABLE DISTRIBUTION OF TEACHERS

### RESEARCH ON TEACHER DISTRIBUTION

A considerable body of research has shown that poor and minority students are more likely to be taught by teachers who are not as well qualified as teachers in more affluent areas with fewer minority students. In general, teachers in high-poverty, high-minority schools are more likely to be less experienced, less educated, teaching on emergency permits or waivers, and teaching subjects for which they are not qualified (Carroll, Reichardt, & Guarino, 2000; Darling-Hammond, 2002; Goe, 2002; Hanushek, Kain, & Rivkin, 2004a; Ingersoll, 2002; Lankford et al., 2002; Marvel, Lyter, Peltola, Strizek, & Morton, 2007; Peske & Haycock, 2006; Scafidi, Sjoquist, & Stinebrickner, 2007; Useem & Farley, 2004).

These inequities are problematic because high-poverty, high-minority schools are more likely both to employ higher percentages of inexperienced, less qualified teachers (e.g., teaching on waivers) and to have lower student achievement (Esch et al., 2005; Goe, 2002). Of course, debate exists about the causal relationship between some of these teacher characteristics and student achievement. For example, certainly not all novice teachers are less capable than their more experienced peers; in fact, some research suggests that teacher experience beyond the first few years does not consistently predict student achievement (Betts, Zau, & Rice, 2003; Carr, 2006; Harbison & Hanushek, 1992; Monk, 1994; Tennessee Department of Education, 2007). However, research on teacher experience has shown that teachers tend to improve in their ability to contribute to student achievement growth during their first five years of teaching (Cavalluzzo, 2004; Clotfelter, Ladd, & Vigdor, 2006; Hanushek, Kain, O'Brien, & Rivkin, 2005; Rice, 2003). Thus,

closing the achievement gaps depends in part on ensuring that low-performing schools have equal access to highly qualified, experienced teachers.

The literature on teacher distribution shows a fairly consistent trend that the lowest quality teachers are more likely to be found in schools with higher concentrations of high-need students. Numerous studies explore this trend by analyzing teacher distribution within districts (Iatarola & Stiefel, 2003; Owen, 1972; Peske & Haycock, 2006; Summers & Wolfe, 1976) and across all schools within a state (Betts, Rueben, & Danenberg, 2000; Clotfelter, Ladd, & Vigdor, 2005; DeAngelis, Presley, & White, 2005; Lankford et al., 2002). Each of these studies shows that schools with higher proportions of low-income, minority, and/or low-performing students are more likely to have higher proportions of lower quality teachers.

In addition, studies comparing the variance of teachers between regions, between districts within regions, and between schools within districts found that for every measure of teacher quality, the variance between schools within districts is larger than any other variance (DeAngelis et al., 2005; Lankford et al., 2002). Ginsburg, Moskowitz, and Rosenthal (1981) used data from New York and found smaller disparities within districts than between districts; however, they used much coarser measures of teacher quality (i.e., median teacher education and experience) and data from 1976–77, prior to many reforms of the state’s school finance system.

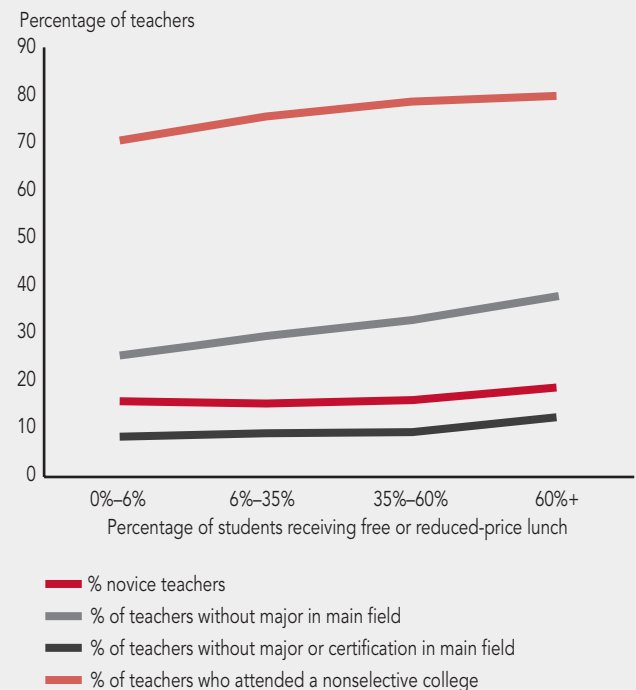
These trends are present at the national level as well. The Schools and Staffing Survey (SASS), a national sample of schools and teachers with data collected in 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04, can be used to examine the distribution of some teacher characteristics. SASS surveys teachers, principals, schools, and districts. It covers public, private, and Bureau of Indian Affairs (tribal) schools. For each wave of data collection, a Teacher Follow-Up Survey (TFS) was conducted the following year. Each TFS

surveyed all teachers who had left their jobs at the end of the previous year, plus a sample of teachers who stayed.

Although the measures of teacher quality are fairly limited, SASS provides data on teacher experience, certification, and academic preparation. Using SASS data, researchers have found disparities in teacher experience and the selectivity of teachers’ undergraduate colleges between high- and low-poverty schools (Lippman, Burns, & McArthur, 1996; Wayne, 2002).

Figure 1 shows, by school poverty level, the distribution of novice teachers, teachers without a major in their main field of assignment, teachers without either a major or certification in their main field of assignment, and teachers from nonselective colleges.

**Figure 1. Distribution of Teacher Experience and Preparation, by School Poverty Level**



Source: National Center for Education Statistics (2001b)

Note: Selectivity of college is based on *Barron's* top three selectivity categories (very competitive, highly competitive, and most competitive); see *Barron's Educational Series* (2008). The authors thank Randall Reback, Ph.D., of Barnard College, Columbia University, for providing these data.



Consistent with the state-level studies, lower quality teachers are more likely to be found in schools with the highest percentages of students in poverty, as measured by percentage of students eligible for the federal free or reduced-price lunch program. Unfortunately, although SASS is the best source of national data on teachers, it reveals almost nothing about the distribution of teachers across schools within districts. Instead, SASS is most useful for establishing general trends in the distribution of teacher quality nationally.

## RESEARCH ON FACTORS THAT AFFECT TEACHER DISTRIBUTION

Although the research is in general agreement about what the distribution of teacher quality looks like, it is somewhat more difficult to pinpoint the reasons why the distribution looks the way it does. Understanding the factors that drive teacher distribution is crucial if policymakers want to craft effective programs to change that distribution. Although the observed inequities are a result of a dynamic process of hiring, mobility, and attrition within the teacher labor market, there are many aspects of this process—some amenable to policy influence and others less so.

These factors are categorized into three groups: teacher preferences, institutional policies and constraints, and school and community preferences. Research on the latter two explanations is fairly limited. Much more is known about the role of teacher preferences and how they impact where teachers choose to teach.

### TEACHER PREFERENCES

**Which Schools Do Teachers Leave?** Teachers make choices about the schools and districts in which they want to teach, and these choices can affect the distribution of teachers in different ways. One effect occurs when turnover is higher in high-need schools; that is, more teachers leave high-need schools for other districts or jobs, leaving these schools with more vacancies to fill (often with newer, less qualified teachers).

The bulk of the research on teacher attrition and mobility focuses on teachers leaving a district (for comprehensive reviews, see Allen, 2005; Guarino, Santibañez, & Daley, 2006). These district-level studies generally are in agreement that teachers are more likely to leave districts that have the following: higher concentrations of poor, minority, and/or low-performing students; lower salaries; and less favorable working conditions (e.g., less administrative or mentor support, less autonomy). Evidence shows that these patterns hold at the school level (Feng, 2006; Hanushek, Kain, & Rivkin, 2004b; Ingersoll, 2001; Lankford et al., 2002; Luallen, 2006; Scafidi et al., 2007; Shen, 1997). Similar to the research on interdistrict mobility, these school-level studies generally find that compared to teachers who stay, teachers who move to different schools are more likely to have started in schools with higher levels of poor, minority, and/or low-performing students.

**Data Needed.** There are relatively few school-level studies relating to teacher attrition and mobility because the teacher data available in most states do not allow researchers to identify the school assignment of teachers. To the extent that the data follow teachers over time, they typically identify only movement from one district to another. As states and districts adopt new policies to equalize the distribution of teachers, it is imperative that they also collect data that will allow them to evaluate the effectiveness of their efforts, including tracking teachers to specific schools and tracking transfers within districts.

**Where Do Teachers Go?** Most studies of teacher attrition or mobility compare the characteristics of the schools or districts out of which teachers transfer to the schools or districts in which teachers stay. Those studies indicate that teacher turnover is greater in higher poverty schools than in lower poverty schools. However, such turnover would not necessarily worsen the distribution of teacher

quality if, for example, high-quality teachers simply moved to other high-need schools. To make that claim, more evidence is needed about the schools to which teachers move as well as the schools they leave. Lack of longitudinal teacher data makes such analysis rare, but Lankford et al. (2002) and Hanushek et al. (2004b) specifically compared the characteristics of the schools that teachers in New York and Texas (respectively) move to and from. They found that teachers who transfer generally move to schools with fewer poor, minority, and/or low-performing students.

measures, however, found that teachers who transfer are somewhat less effective than those who do not (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2008) and that higher quality teachers are less likely to leave the teaching profession (Goldhaber, Gross, & Player, 2007; Krieg, 2006). The story is further complicated. Boyd et al. (2008) found that among teachers who transfer, those who are less effective are more likely to move to schools with higher concentrations of minority and low-performing students, while Goldhaber, Gross et al. (2007) found that more effective teachers are more likely to stay in challenging schools.

**Data Needed.** Many states collect data on attrition rates or turnover so it may be known that certain schools lose more teachers each year, but policymakers also need to track where teachers are going. If teachers are leaving to go to more affluent schools in other districts, a different intervention may be required than if teachers are leaving to go to other high-poverty schools or other schools in the same district or if they are leaving the profession entirely. Understanding where teachers are moving from and to is important for crafting appropriate policy.

**Data Needed.** Additional research is clearly needed—though, again, researchers are constrained by the availability of good data. In order to better understand the issue, measures of teacher quality should be combined with longitudinal data that follow teachers as they move to different schools.

**Is It the Best Teachers Who Leave?** The aforementioned mobility studies generally have little to say about the quality of teachers who move. In order to claim that teacher mobility worsens the distribution of teachers, it is crucial to know that higher need schools are losing more teachers to lower need schools and that the teachers who leave are of higher quality than their replacements. The evidence on this second condition is less conclusive than the evidence on turnover in general, and disparities in findings may relate to how teacher quality is defined. For example, in a study that defined teacher quality in terms of teacher performance on a certification exam, researchers found that higher quality teachers are more likely to leave teaching or move between schools and districts (Boyd, Lankford, Loeb, & Wyckoff, 2005b). More recent analyses using value-added

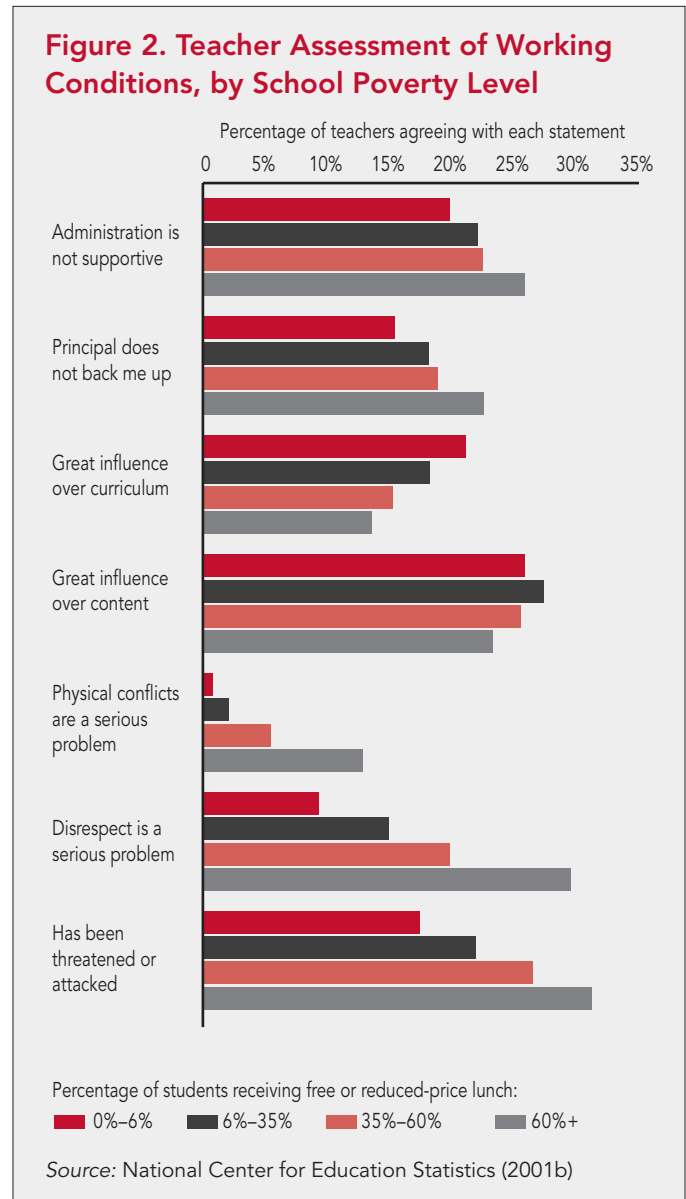
**Who Fills Vacancies?** Regardless of whether teachers who leave are significantly better or worse than teachers who stay, departing teachers must be replaced. In higher need schools, the replacements are more likely to be novice teachers (because fewer experienced teachers wish to transfer in). The net impact of turnover will depend on the quality of new incoming teachers who are hired. Indeed, Boyd et al. (2008) concluded that although teacher mobility contributes to the skewed distribution of teachers across schools, it is secondary to the initial matching of teachers and schools. In particular, teachers show a strong geographic preference in where they choose to work.

For example, one study of teachers in New York found that teachers tended to take jobs within 20 miles of where they went to high school (Boyd, Lankford, Loeb, & Wyckoff, 2005a). Reiningger (2006) extended the New York work by using the National Educational Longitudinal Study of 1988 to explore geographic preferences in a national sample and found that this phenomenon is not limited to

New York. Reininger showed that teachers are more likely than other college graduates to stay local and that these preferences further disadvantage students in the highest need locations. There also is a connection to the area where teachers attended college, though the link is much weaker. In addition, teachers tend to work in environments with which they are familiar; for example, a teacher who grew up in the suburbs is far more likely to take a job in a suburban district than in an urban setting. This type of geographic preference is particularly salient in the teaching profession because schools are everywhere, not clustered in specific areas.

**Why Do Teachers Leave?** The literature is clear that teachers move away from schools with poor working conditions—such as less autonomy, higher rates of student behavioral problems, and less support from administration—and that these conditions tend to be correlated with student characteristics. (For excellent summaries of this research, see Guarino et al., 2006; Hirsch, 2008.) Figure 2 shows that compared to teachers in more affluent schools, teachers in the highest poverty schools were more likely to disagree with statements about administrative support, less likely to feel that they have a high degree of influence over their classrooms, and more likely to see student behavior as a serious problem.

A different set of difficult working conditions may drive teachers from rural schools. Because rural schools tend to have small numbers of students in each grade level, teachers often are asked to teach many different courses—which may require multiple credentials for them to be considered highly qualified. It also is important to note that in rural schools, teacher attraction and retention often are more about the area’s amenities (or lack thereof) than student or school characteristics, with teachers leaving because of isolation, weather, distance from large communities and family, and inadequate shopping (Collins, 1999). Reeves (2003) notes that isolated rural communities tend to face problems with attracting teachers; for schools on the outskirts of suburban areas, however, the problem is more one of retention (i.e., teachers may start in the rural



schools but soon leave for the higher salaries of the suburban schools). This diversity in the issues facing different types of schools and districts is one reason for policymakers to carefully consider the reasons behind distribution problems in order to craft appropriate policies.

The studies discussed in this Teacher Preferences subsection have consistently found that schools with the highest levels of poor and minority students have the most difficult time recruiting and retaining teachers. This situation undoubtedly contributes to the skewed distribution of teacher quality within



and across districts. It also is important to remember that teacher choices are only one part of the story. Research is being conducted to evaluate the importance of school and district decisions as well as the institutional and political roadblocks that prevent high-need schools and districts from staffing their schools with the high-quality teachers they require. It is important for states to consider these issues as they implement policies to equalize teacher distribution.

## TQ Center Interactive Data Tools

The TQ Center Interactive Data Tools (<http://www.tqsource.org/dataTools.php>) allow users to extract valuable, customized information related to teacher preparation as well as teacher recruitment and retention across schools, districts, states, and regions. The specific data tools are as follows:

- **Teacher Preparation Data Tool**  
<http://www2.tqsource.org/prep/data/index.asp>
- **Teacher Recruitment and Retention Data Tool**  
<http://www2.tqsource.org/randr/data/index.asp>

The data that make up these tools are derived from the 2003–04 Schools and Staffing Survey conducted by the U.S. Department of Education’s National Center for Education Statistics (NCES). For the Recruitment and Retention Data Tool, the data also are based on the Common Core of Data conducted by NCES.

## INSTITUTIONAL POLICIES AND CONSTRAINTS

The work reviewed in the previous section suggests that teachers prefer to work in schools with fewer high-need students. To the extent that district hiring and assignment policies make it easier for teachers to act on those preferences, there may be larger disparities in the distribution of teachers across schools. For example, a report from The New

Teacher Project (Levin, Mulhern, & Shunck, 2005) examines union contract provisions and their contribution to the staffing problems in several urban districts. One interpretation of the findings is that transfer and reassignment policies can worsen inequities within districts because they allow teachers who start out at high-need schools to transfer to other positions in the district (though, as discussed previously, it is not clear that these transferring teachers are more effective than those who stay).

These transfer regulations also disadvantage high-need schools because they affect the timing of hiring new teachers. In a study conducted for The New Teacher Project, Levin and Quinn (2003) surveyed a handful of urban districts and discovered that these districts often are waiting until late in the summer (or even after the beginning of the school year) to make hiring offers, largely because of state and district policies that slow down the process. This situation is consistent with national data as well. According to data from the 1999–2000 SASS (National Center for Education Statistics, 2001a), in schools with the highest proportions of students in poverty, 47.1 percent of all newly hired teachers are hired in the second half of the summer or after the beginning of the school year; this percentage drops to 41.7 percent in schools with the lowest proportions of students in poverty. This late hiring can reduce the overall quality of new hires in these districts; the best individuals drop out of the applicant pool earlier because they are more likely to have attractive alternatives. Furthermore, Liu and Johnson (2006) note that late hiring affects more than a district’s ability to hire the most qualified individuals; among teachers who are eventually hired, late hiring compromises a teacher’s ability to find a school that is a good fit, which in turn can lead to higher turnover.

Levin and Quinn (2003) highlight three specific problems that contribute to this late hiring: notification requirements that allow outgoing teachers to wait until far into the summer before letting districts know that they will not be returning

in autumn; the timeline of state budget processes, which often means that districts do not know their budget allocations until July or later; and within-district transfer rules that give incumbent teachers first priority for openings. This last issue may be particularly salient for the distribution of teachers within districts; only 71.2 percent of principals in high-poverty schools feel that they have a great deal of influence over the hiring of new teachers in their schools, compared to 83.2 percent for principals in more affluent schools (Levin & Quinn, 2003).

Recent work suggests that transfer policies may not be a problem in all districts, however. Koski and Horng (2007) found that the restrictiveness of transfer rules (in terms of how much preference must be given to internal candidates) did not have any measurable impact on the distribution of novice or credentialed teachers within districts. The researchers further found that in many districts, human resources administrators follow the letter of the contract language but have found ways to get around the contract provisions and staff schools as they see fit. Although this finding would seem to contradict the conclusions of The New Teacher Project (Levin & Quinn, 2003), the two studies are not entirely inconsistent in that the California districts in which administrators considered the contracts most binding were large urban districts, similar to the districts in The New Teacher Project study. Thus, it may be that although contract provisions do not pose a constraint for the majority of districts, they still may be exacerbating problems with teacher quality in the large districts that educate the majority of the most disadvantaged students.

## SCHOOL AND COMMUNITY PREFERENCES

It is possible that different types of schools simply hire different types of teachers. Factors may include parent preference or action. For example, some studies have found that parents value racial homogeneity when choosing where to live or what schools to send their children to (Bayer, McMillan, & Rueben, 2004; Weiher & Tedin, 2002), which

may indicate a preference by minority parents for their children to have minority peers and teachers. If minority teachers also appear to be of lower quality based on standard measures (e.g., minority individuals are less likely to attend selective colleges, which is one of the only teacher quality measures available in SASS), these community preferences may contribute to the observed disparities in teacher quality across schools. Other research suggests that some teachers who are the subject of parent complaints are transferred to schools with more low-income students, where it is generally assumed that parents are less likely to complain (Bridges, 1990). If parents in low-income communities are indeed less likely to complain—and less likely to wield power in the system in general—then the hiring and assignment policies discussed above are even more likely to lead to inequities in the distribution of highly qualified teachers. Other research, however, indicates that parents of students at low-income schools place great emphasis on teachers' ability to improve student achievement (Jacob & Lefgren, 2005).

Schools and districts also may affect the distribution of teachers through the hiring process. Administrators do not always hire the most effective teachers (Ballou, 1996; Jacob & Lefgren, 2005), though it is unclear whether this problem is larger in high-poverty/high-minority schools and districts. Unfortunately, almost nothing is known about community preferences or hiring processes; even less is known about how these processes actually might affect the distribution of teachers across schools. These considerations are important for policymakers to keep in mind as they craft new policies.



## POLICY RESPONSES

The research makes it clear that the distribution of teacher quality across schools—and particularly within districts—is the result of a complex and multifaceted process. If policymakers hope to equalize this distribution, reform will be required on multiple fronts: No single policy is likely to work for all schools and districts. Schools and districts need the resources to create incentives for teachers to choose high-need schools; they also need reforms in the institutions and environments in which teachers work.

Several states and many large individual districts already have adopted policies aimed specifically at attracting and retaining teachers in high-need schools (Loeb & Miller, 2006; Prince, 2002b). Unfortunately, the effectiveness of these policies has rarely been analyzed directly. Note that although numerous policies can have some impact on recruitment and retention of teachers overall (such as programs to encourage individuals to choose teaching as a career), the focus is on policies intended to attract and retain teachers in high-need schools; this focus generally requires targeting policies specifically to these schools.

A number of data sources provide general information about which states have adopted various policies for recruiting and retaining teachers. For example, SASS contains several questions about district policies, such as incentive pay for teaching in high-need locations. The National Comprehensive Center for Teacher Quality (TQ Center) provides several state policy databases that detail which states have specific policies (e.g., loan forgiveness, housing assistance) to attract and retain teachers in high-need schools (see box at the top of the right column).

### TQ Center State Policy Databases

The TQ Center State Policy Databases (<http://www2.tqsource.org/resources/policy.asp>) provide information about policies in all 50 states, the District of Columbia, and the four U.S. territories as well as information on legislation and state board rules and regulations. Two of these databases are of particular interest:

- **Teacher Preparation State Policy Database** <http://www2.tqsource.org/prep/policy/index.asp>
- **Teacher Recruitment and Retention State Policy Database** <http://www2.tqsource.org/m2dev/reports/reportTQ.aspx?id=1133>

Loeb and Miller (2006) also provide an exhaustive list of 2005 state policies for an impressive variety of teacher policies; the list is reliably accurate for 2005 (before states were required to write equity plans detailing how they would improve teacher distribution). Finally, in select years, *Education Week's* annual *Quality Counts* report contains information about state-level policies to improve teacher quality.

Although they are fairly comprehensive in their coverage of state-level policies, most of these resources discuss the existence of policies rather than specifics about the policy or its implementation. Information about these details is rarely found in large data sets; in general, the data needed to evaluate whether these policies actually improve the distribution of teachers are relatively scarce.

The following discussion examines some of the specific policy options relating to financial incentives (salary, performance pay, and alternative compensation); working conditions; mentoring and induction programs; hiring and transfer policies; and resource allocation. It also reviews what is known about the efficacy of these options.

## POLICIES RELATING TO FINANCIAL INCENTIVES

A number of districts and at least a few states have implemented programs to give more money to teachers in high-need schools. According to Loeb and Miller (2006), in 2005 five states (Arkansas, California, Hawaii, Louisiana, and New York) used salary to attract and/or retain teachers in hard-to-staff schools. Although many states recently have passed reforms to increase teacher salaries, many of those increases have been intended as across-the-board raises for all teachers in the state. Although comprehensive raises may assist with attraction and retention in the state overall, it is unlikely that such raises will improve the distribution across schools within the state. Other states also have had targeted programs at other points in time but did not in 2005. For example, North Carolina's program ran from 2001–02 to 2003–04 (Clotfelter, Glennie, Ladd, & Vigdor, 2006).

In addition to the five states offering higher salaries to teachers in hard-to-staff schools, as noted in Loeb and Miller (2006), 22 states offer targeted fiscal incentives in the form of housing assistance, tuition and school fee support, and loan assumption. These programs vary widely in the magnitude of their incentives as well as in the requirements that teachers must fulfill in order to qualify. For example, some salary incentives are designed as one-time (or multiyear) bonuses while others permanently increase a teacher's base pay; some are only for teachers in shortage subject areas or for teachers who agree to spend a minimum amount of time teaching in a high-need school; and some states define *hard to staff* as schools with certain student characteristics (e.g., thresholds for poverty) while others target schools based solely on performance on state accountability measures. Prince (2002b) provides an excellent review and discussion of various types of financial incentives and the characteristics of good programs. Given the wide variation in the details of these policies,

it is next to impossible to make blanket statements about which types of financial interventions are most effective. Moreover, there is very little analysis of the effectiveness of specific policies.

### SALARY INCREASES

One policy variable is base salary. Although there is general agreement that teachers will respond to differences in base wages, the effects are fairly small; that is, in order to have a noticeable effect on teacher retention, any salary increases would have to be quite large. However, because almost all districts pay teachers according to districtwide salary schedules (i.e., a given teacher's salary is the same regardless of where he or she teaches within the district), virtually all of the evidence on wage effects has come from district-level studies that rely on interdistrict variation in salaries. Thus, large increases in salaries at the district level may slow the loss of teachers districtwide but little evidence exists of the impact of targeted salary differentials on mobility within a district.

A few studies that controlled for student characteristics did not find that wage effects were statistically significant (Ingersoll, 2001; Scafidi et al., 2007; Smith & Ingersoll, 2004). At least one recent study (Clotfelter, Glennie et al., 2006), however, found a larger impact of targeted salary bonuses on teacher retention and transfers. Furthermore, some studies (using data from different geographic locations) indicate that salary effects are heterogeneous, differentially affecting the behavior of teachers based on gender, age, and minority status (Gritz & Theobald, 1996; Hanushek, Kain, & Rivkin, 2004b) while other studies indicate no difference in teacher behavior (Brewer, 1996). The implication of this research, with findings varying across locations, is that more than one type of incentive may be needed to recruit and retain highly qualified, experienced teachers, depending on a combination of local and group preferences.



## PERFORMANCE PAY AND ALTERNATIVE COMPENSATION

Although performance pay and alternative teacher compensation policies generally are adopted as more comprehensive teacher labor market reforms rather than with the intention of specifically targeting high-need schools, such policies are another potential tool for affecting the distribution of teachers. For example, Teacher Incentive Fund (TIF) grantees have increased rapidly and most teachers affected by these programs are working with high-need populations—poor or minority students or both—in urban and rural areas around the country. The Center for Educator Compensation Reform (CECR) tracks the grantees and provides a number of resources, including case studies of various TIF sites, lists of grantees, and references to relevant publications (see <http://cecr.ed.gov/>). Roughly 215,000 teachers were eligible to participate in TIF in multiple locations throughout 19 states (Center for Educator Compensation Reform, 2009).

An evaluation of programs in Texas that provided performance pay in participating districts found that in schools participating in the Texas Educator Excellence Grant Program, a state-funded program that provides grants to districts to design and implement performance pay plans, teacher turnover decreased considerably for teachers who received large bonuses (Springer et al., 2008). Evaluators also found that the probability of turnover increased dramatically for teachers who received no or small awards.

Another state effort with outcomes data is North Carolina's bonus program. In 2001–02, North Carolina adopted a policy that promised annual bonuses of up to \$1,800 to mathematics, science, and special education teachers who agreed to teach in schools with high levels of low-income or low-performing students. Researchers assessing the program found that the program reduced turnover rates, particularly among mathematics and middle

school teachers, and that the program seems to have been particularly effective among teachers with more than 10 years of experience (Clotfelter, Glennie, et al., 2006). Furthermore, the researchers ascertained through surveys that many teachers did not fully understand the program, which may have reduced its effectiveness. For example, although the bonus remained in place for a given teacher even if the school did not remain eligible (e.g., test scores improved above the threshold performance), many teachers believed that the bonus was contingent on school eligibility. This situation could have affected their decision to stay or transfer. Interestingly, the results of Clotfelter, Glennie, et al. (2006) appear at odds with the research on teacher mobility, which has found much smaller and/or insignificant effects of salary. It may be that teachers respond differently to specific bonus programs than districtwide salary increases; for example, teachers may appreciate that the bonus program provides not only financial incentives but also explicit recognition that teachers are working in a more challenging environment.

Kowal, Hassel, and Hassel (2008) compared incentives for hard-to-staff positions in other sectors (civil service, the military, medicine, and private industry) to those in education. They found that paying more for hard-to-staff positions is a common strategy among various industries and sectors. They also noted that a portfolio of incentives might be called for in order to address the preferences for a diverse workforce. Evidence from other sectors suggests that recruitment and retention bonuses, loan repayment programs, and differentiated salary structures may be useful strategies for recruiting and retaining teachers in hard-to-staff positions. They warn, however, that the success of such efforts is dependent on tailoring incentives to meet the specific needs of teachers whom districts wish to recruit as well as those of teachers they wish to retain.



**Data Needed.** Despite the many state and district efforts to provide incentives for effective teachers in high-need schools, it remains a question as to whether these policies have been effective in either attracting teachers to these schools or retaining them. To conduct such an analysis well requires information about the details of a policy, data on teachers and/or schools that participated in the program, and information on an appropriate control group.

In the Clotfelter, Glennie, et al. (2006) study, the authors compared the turnover of teachers in schools that were just above and just below the cut-off for eligibility before and after the implementation of the policy in subjects that were and were not eligible for the bonus. Such a study requires data that follow individual teachers over time and when they change schools as well as data about school characteristics and policy specifics. Currently, very few states provide these data, although grants from the U.S. Department of Education to develop longitudinal data systems will begin to fill this need.

## POLICIES RELATING TO WORKING CONDITIONS

Schools with high proportions of low-income and/or minority students tend to have less positive working conditions, which can increase teacher attrition. In fact, teachers often indicate in surveys that they would be more likely to respond to nonfinancial incentives that improve working conditions than to salary bonuses (Hirsch, 2008). Although it is challenging to create policies that enhance teacher autonomy or administrative support, some schools and districts attempt to mitigate these problems by developing guidelines for working conditions or school climate, providing professional development for principals, or giving teachers more time for planning and collaboration (Hirsch, 2008).

## POLICIES RELATING TO MENTORING AND INDUCTION PROGRAMS

Mentoring and induction programs may be a cost-effective way to reduce turnover, though the impact may depend on how a program is structured. Reed, Rueben, and Barbour (2006) found that in California, the Beginning Teacher Support and Assessment (BTSA) program reduced transfers among new teachers. This finding is consistent with Smith and Ingersoll's (2004) finding that mentoring and support for new teachers is correlated with a lower probability of leaving the profession. Smith and Ingersoll (2004) also note that induction packages that include mentoring, collaboration with other teachers, involvement with an external network of teachers, a reduced teaching load, and the assistance of a teacher's aide reduce by half the probability of a teacher leaving or transferring.

A specific example of such a package of services can be found in the Teacher Advancement Program (TAP). TAP participants are given tools to track students' performance as a means of helping teachers improve instruction; they participate in teacher cluster group meetings each week; they receive classroom observations conducted by a school leadership team, which provides information to support them in meeting their goals; and they are financially rewarded for their accomplishments. TAP includes several elements in addition to teacher support, such as performance pay, which also may affect teacher retention. In a recent study of Chicago Public Schools, Glazerman, McKie, and Carey (2009) found that participating in TAP had a positive effect on teacher retention in schools.

It is worth noting that if all schools adopted similar mentoring or induction programs, the impact on the distribution of teachers likely would be smaller than if such programs were targeted to high-need schools (i.e., if all schools adopt the policies, presumably the reduction in mobility and attrition would improve teacher quality in all schools but may not close the quality gap between high- and low-need schools). It also is possible that districtwide programs have different effects than statewide programs.

Assessing the effects of mentoring or induction policies also is complicated by the fact that different schools often provide different mixes of support services for new teachers. According to data from the 1999–2000 SASS (National Center for Education Statistics, 2001b), teachers in the highest poverty schools are slightly less likely to have mentors or induction programs during their first year of teaching. This finding is consistent with research that finds gaps in the presence of mentors for new teachers in high- and low-poverty schools in Florida, Massachusetts, and Michigan, which could contribute to higher teacher turnover in high-poverty schools (Johnson, Kardos, Kauffman, Liu, & Donaldson, 2004). But the SASS data also show that teachers in high-poverty schools are slightly more likely to have a classroom aide and common planning time with other teachers (National Center for Education Statistics, 2001b). Additional research on the efficacy of specific types of support for new teachers is needed in order to assess the impact of such support on the distribution of teachers across schools. It may be that what matters is not only the existence of induction services but also the quality of these services.

## **POLICIES RELATING TO HIRING AND TRANSFER**

The work by The New Teacher Project (Levin & Quinn, 2003) suggests that reforms to improve hiring practices could help disadvantaged schools, particularly within large urban districts. The New Teacher Project advocates for the following: (1) removing disincentives for teachers to notify districts early of their intention to resign or retire; (2) moving up within-district transfer timelines and reducing the preference given to internal applicants; (3) promoting earlier and more predictable budgets as well as protecting the highest need schools from budget surprises; and (4) reforming human resources systems for processing applicants. Superintendents in individual districts across the country have tried to adopt some of these reforms but generally have had little success (Prince, 2002a).

Most recently, in direct response to The New Teacher Project study, California passed legislation that allows principals in low-performing schools to reject teachers who want to transfer into their schools from other schools in the district. It also sets an annual April 15 deadline for teacher transfer decisions; after that, schools are free to hire other applicants. It will be at least a few years before researchers can assess whether these changes have any impact on the distribution of teachers across California schools. Good evaluation of these reforms, however, seems particularly important in light of Koski and Horng's (2007) findings that transfer rules actually may have little effect on the distribution of teachers in most districts. As discussed earlier, there are almost no data on contract provisions such as transfer rules; such data are clearly imperative for evaluating these kinds of policies.

Teachers unions strongly opposed the California legislation (Rauh, 2006). Prince (2002a) lists several additional examples from districts across the country where attempts to change teacher transfer policies were met with stiff union resistance. This situation underscores the role of political power. State-level policies, such as the California initiative, may help districts that are otherwise unable to negotiate favorable policies with strong unions. Similarly, policies that encourage and support parent involvement in personnel decisions may help equalize the distribution of teacher quality; but data on such policies are scarce. It is important to understand these power dynamics because when states and districts attempt to change or implement policies that affect the placement of teachers, they often are met with resistance from teachers unions, parents, or both (Prince, 2002a).

## **EXPANDING THE TEACHER PIPELINE**

A slightly different way to think about hiring policies is to increase the applicant pool for high-need schools. Boyd et al. (2008) examined the gap in teacher qualifications among schools in New York City and found that it closed significantly between 2000 and 2005. They attribute this result

in part to alternative certification routes (e.g., the New York City Teaching Fellows and Teach For America programs), which specifically attempt to attract individuals to teach in the highest need schools. Although it is unclear whether similar programs would yield similar results elsewhere, it seems obvious that state or district policies to expand opportunities to enter teaching will have a larger effect on the distribution of teacher quality if they also target individuals with an interest in teaching in high-need schools.

Along similar lines, rural and urban areas may want to consider “grow your own” policies, given the evidence on geographic preferences. Such policies work with geographic preferences, encouraging students from a particular community to stay local and become teachers, and they may help counteract the advantage enjoyed by suburban schools.

## **POLICIES RELATING TO RESOURCE ALLOCATION**

A number of reform proposals focus on how dollars are allocated to districts and/or school campuses. These policies do not directly affect teacher preferences or any of the other factors that contribute to the inequitable distribution of teachers, but they may help create an environment in which additional reforms are easier to implement. For example, many states have school finance formulas that provide additional funding to districts with more students in poverty, which may allow these districts to offer higher salaries or to create targeted bonus or induction programs. The formulas in many states do not recognize the higher costs associated with attracting and retaining teachers in rural areas, however; if anything, rural areas often receive less funding for teachers because the cost of living is lower. Policies that instead recognize that teacher costs are higher in rural areas (because of the lack of amenities) would allow rural schools to offer better teacher incentives.

For larger districts, allocation of funds among schools also could be better tied to school needs. For example, The Education Trust–West (2005)

has been a strong advocate for changes in how schools report average teacher salary. In states that require average salaries to be reported, individual schools generally list the average salary for the district, even if actual salaries in that school are significantly higher or lower. By requiring that schools report actual teacher salaries, the disparities across schools in teacher education and experience become far more transparent, paving the way for additional reforms to equalize teacher quality across schools.

Debate also exists about school-based, weighted pupil formulas—which would require that districts provide individual schools with additional resources for students’ needs. Rubenstein et al. (2006) provide an excellent discussion of weighted student-funding approaches. In addition, Roza and Hill (2004) describe how teacher salaries traditionally are averaged across districts, resulting in schools with many lower paid novice teachers receiving considerably fewer dollars per pupil. Although a weighted formula does not necessarily directly affect the distribution of teachers—particularly when districts still pay all teachers according to a districtwide salary schedule—in theory, the additional resources for high-need schools may allow those schools to adopt changes that could help attract and retain better teachers, such as lowering class sizes, offering incentives, or buying better induction programs.

## **COMPARISON OF COST-EFFECTIVENESS OF VARIOUS INCENTIVES AND POLICIES**

Effective policies are those that accomplish the goals they are intended to accomplish. As states adopt new policies to address teacher inequities, it is important that they evaluate those policies for effectiveness, which will require collecting data about outcomes such as whether teacher retention and transfer rates change as a result of targeted policies and incentives. It also is important for policymakers to consider which policies are most cost-effective (meaning which policies have the

largest impact for the smallest dollar investment). One way to maximize cost-effectiveness is to ensure that policies are appropriate to the problem; for example, although policies that change hiring and transfer rules may help large urban districts, small rural districts are likely to be better off with additional financial resources to compensate teachers for the unique conditions in those districts or with more options for alternative certification.

It also is useful to compare the cost-effectiveness of different policies on average. Imazeki (2008) compared the reduction in attrition among new teachers (as measured by the change in the probability that a new teacher will leave a school or district) associated with a salary increase to the reduction in attrition associated with the adoption of an induction program for new teachers. Given the lack of evidence on the effectiveness of specific state policies and the general lack of good data to do such analysis, Imazeki drew upon existing studies of teacher mobility. The studies summarized by Imazeki used variation in salaries across districts to identify salary effects versus looking at the impact of a specific bonus paid on top of base salaries (such as North Carolina's bonus program). Teachers may view bonuses differently, and the effects could be larger than those discussed here.

Imazeki's findings indicate that the effects of district-level salary increases are quite small; on average, an increase of roughly \$4,000 will reduce the probability of transfer by a few percentage points at most (and in most cases, substantially less).

The effects of induction or mentoring are noticeably larger. For example, participation in California's BTSA program—which includes a variety of support services for new teachers—reduces the probability of interdistrict transfers among new teachers by 5 percentage points for teachers with multiple-subject certifications (Reed et al., Rueben, & Barbour, 2006). Smith and Ingersoll (2004) found that a basic induction program (which includes only

mentoring and supportive communication from administrators) had no impact on transfers between schools, but when a seminar for beginning teachers and collaboration with other teachers was added in, the impact increased to 8 percentage points. When extra resources such as teacher aides and fewer course preparations were added, the impact went up to 12 percentage points; these last interventions, however, also can add significantly to the cost.

Although the cost of induction programs varies, California's BTSA program provides a useful example. In 2005–06, the state provided \$3,675 for each first-year BTSA teacher and districts provided an additional \$2,000 (typically in the form of time that the more experienced teachers spend with the new teachers). In contrast, using the same data, a salary increase of \$5,675 would have a somewhat smaller impact on turnover. Although the difference in the turnover rate is only about 1 percentage point, the cost difference is magnified substantially when one considers that induction programs are a one-time investment per teacher, while salary increases of any magnitude are generally built permanently into a teacher's salary for the rest of his or her career. Even if the impact on retention is similar, the induction program appears to be more cost-effective.





## IDENTIFYING SCHOOLS AND DISTRICTS IN NEED OF TARGETED ASSISTANCE FOR IMPROVING TEACHER DISTRIBUTION

States and districts can make the most of scarce resources by implementing the most cost-effective policies and ensuring that these policies are appropriate to the different problems facing different types of schools and districts. Equally important is focusing those policies on the districts and schools that most need assistance. States have been given the freedom to develop their own mechanisms for identifying schools that are high-poverty and high-minority; but within these categories, some schools will require more assistance. Most states have developed plans that simply target assistance to any school with a percentage of poor and minority students that falls above a certain cut-point. For example, some states look at the distribution of percentage of students in the free or reduced-price lunch program and define *high poverty* as any school in the top quintile or quartile. These schools are then the focus of policies to attract and retain high-quality teachers.

This approach is unlikely to be the most cost-effective, however. Although research suggests that on average, high-poverty and/or high-minority

schools need additional help to attract and retain high-quality teachers, it is important to remember that these studies all use aggregate data. In practice, many high-poverty, high-minority schools have a stable staff of highly qualified, experienced teachers and do not need state and district assistance. Offering incentives to these schools would be an inefficient use of scarce resources.

### DIFFERENCES ACROSS STATES

It also is worth noting that states vary considerably in the numbers of districts and schools with large percentages of minority and poor students. Although states naturally will want to set cut-points that are based on regional realities, this approach may lead to inequities across states in terms of which students actually receive assistance. For example, in a state with large numbers of minority students and where most students qualify for free lunch, the cut-points might be very different than in a state with only a few high-poverty, high-minority districts and schools. Table 1 illustrates how cut-points might vary.

As Table 1 shows, the highest quartile of schools for State A and State B capture potentially very different students in terms of poverty and minority. However, if both states were to focus efforts on their highest quartile, many schools in State B (schools that would receive no assistance in State A) would qualify for assistance with efforts for improving teacher distribution. And

**Table 1. Cut-Point Comparisons**

School Quartile	State A (HIGH Poverty and Minority)	State B (LOW Poverty and Minority)
Highest Quartile	95%–100% free lunch and minority	35%–100% free lunch and minority
Quartile 2	85%–94% free lunch and minority	25%–34% free lunch and minority
Quartile 3	60%–84% free lunch and minority	15%–24% free lunch and minority
Lowest Quartile	25%–59% free lunch and minority	0–14% free lunch and minority



in both states, schools in the top quartile may have no need for assistance because they already have plenty of highly qualified, experienced teachers. States may want to consider how their demographics compare to the larger national distribution and set targets accordingly.

## DATA NEEDED TO DETERMINE EQUITABLE DISTRIBUTION BY POVERTY AND MINORITY STATUS

States should look at both the distribution of poor and minority students and the distribution of qualified and experienced teachers in determining which schools to target for assistance. Furthermore, they should include information about whether schools are hard-to-staff by examining data on teacher turnover. Specifically, states and districts should collect the following data:

- Percentage of courses taught by highly qualified teachers
- Average experience of teachers in a school
- Number of open positions in a school (as a percentage of full-time equivalent positions)
- Percentage of minority students
- Percentage of students receiving free or reduced-price lunch

To determine which districts and schools qualify for targeted assistance, states should use a combination of these metrics. For more guidance in considering what to measure and how to measure it with precision, see *Thinking Systemically: Steps for States to Improve Equity in the Distribution of Teachers* (National Comprehensive Center for Teacher Quality, 2009).



## STATE STRATEGIES CURRENTLY BEING USED TO IMPROVE TEACHER DISTRIBUTION

As states attempt to support districts in addressing inequities in teacher distribution, they are trying many different strategies for helping districts to identify and support schools needing assistance with equitable distribution. Several states have provided districts with specific guidance and tools that may be useful for other states and districts to consider.

The strategies highlighted in this section consist of efforts on the part of three states—California, Georgia, and Ohio—to assist districts in identifying and correcting inequities within districts. Many states also have policies, such as those discussed in previous sections, which directly affect teacher distribution by targeting incentives to high-need schools. For example, California’s Assumption Program of Loans for Education forgives student loans for individuals who agree to teach in high-need schools and subject areas for a certain amount of time. For states where districts contain relatively few schools, such as states with large rural populations, these state-level policies may be more effective.

### CALIFORNIA

The California Department of Education’s “Equity Plan Criteria” outlines the requirements that California school districts must meet (California Department of Education, 2009), as summarized below:

- Identify core academic classes that are least likely to be taught by highly qualified teachers.
- Include information about student achievement in the analysis.
- Note which schools have not maintained a rate of 100 percent highly qualified teachers.

- Note which schools have a poverty rate of 39 percent or higher.
- Analyze current as well as historic retention rates by school.
- Describe why some schools have higher vacancy rates.
- Include a description of an effective administrator.
- Describe what the local education agency (LEA) will do to ensure that principals at identified schools either have or will develop the characteristics of an effective administrator.
- Analyze how staffing may enhance or inhibit the effectiveness of teacher quality improvement programs being implemented within the LEA, and develop a district-level equity plan.
- Ensure that inexperienced, underqualified, or out-of-field teachers are not placed in schools with inexperienced and underqualified administrators.
- Perform a comprehensive analysis for certain schools on the following:
  - Student achievement, attendance, and discipline
  - Teacher certification and experience
  - Curriculum implementation, opportunities for professional development, and the master schedule
- Determine why a site has failed to meet achievement goals and/or highly qualified teacher goals; describe the role played by hiring and retention policies as well as staff development of teachers and administrators.

California’s requirement that districts consider additional factors in their equity plans—such as principal qualifications and experience—goes beyond federal law, which requires only four factors: minority and poverty for students, and experience and highly qualified status for teachers.

It is notable that California has gone beyond the letter of the law to instruct districts to consider factors that may contribute to the inequitable distribution of teachers, such as school leadership and academic performance. By including such factors, California is making it possible for districts to target resources in a more cost-effective way—directing resources strategically based on a set of key factors. The take-away is that the more information a district has on important differences among schools, the more effectively it will be able to target resources that are appropriate and at the necessary level.

In addition, California, with about 1,000 districts serving a highly diverse population, has created a toolkit to guide districts that acknowledges the districts’ varied strengths and areas of need. This toolkit (California Department of Education, 2007) provides useful guidance for districts, including a section on district hiring policies that may contribute to inequitable distribution and instructions on how districts can calculate an “effective index number” to determine equitable distribution. The formula for elementary schools is as follows:

1. Determine the percentage of NCLB core academic classes taught by a highly qualified teacher on those campuses.
2. Of the NCLB core academic classes taught by a highly qualified teacher, determine the percentage of classes that are taught by a highly qualified teacher with five or more years of experience.
3. Add those two percentages together and divide by 2.

Districts are instructed to compute these numbers separately for low-poverty schools and high-poverty schools (in which 40 percent or more students are eligible for free or reduced-priced lunch) and compare the results. The larger the difference, the more inequitably teachers are distributed. This simple metric can be adapted by other states using their own definitions of experience and high-poverty, high-minority percentages.

## GEORGIA

Georgia has an initiative that provides districts with comparison data for each school. Project EQ, available by accessing a secure server through the Georgia Professional Standards Commission's website (see <http://eq.gapsc.org/eqLink.asp>) is a unique online resource in which LEAs can enter projects designed to address the inequitable distribution of teachers. The system is designed to encourage sharing and collaboration on equitable distribution initiatives. Projects illustrate how a district addresses particular aspects of equitable distribution, focusing on specific strategies. Districts are expected to track and report results and evaluate the success of their projects, completing a Summary of Impact section and an Evidence of Success section in the online portal.

LEAs can examine data on schools and teachers. These data allow districts to compare schools on key factors and easily identify which schools are most in need of assistance.

**School data** include the following:

- Percentage of minority students, compared to all schools in the district and in the state at the same grade level
- Percentage of economically disadvantaged students, compared to all students in the district and in the state at the same grade level

**Teacher data** include the following:

- Average experience of teachers within the school
- Percentage of teachers with “low-level experience”
- Percentage of teachers with “middle-level experience”
- Percentage of teachers with “high-level experience”
- “Experience continuity ratio” (i.e., the sum of the number of years that all current teachers have been in the school, divided by the count of teachers, divided again by the age of the school with a maximum of six years)

A message board on the Project EQ website allows authorized users to offer suggestions and feedback on the equitable distribution projects. By posting and sharing information about these projects, the state has provided a useful forum for the exchange of ideas about what works. Even project failures offer useful lessons for other districts that may have considered trying a similar strategy.

Moreover, the site is available to districts in all states—not just Georgia—and thus may be well positioned to serve as a national clearinghouse of projects. Although the site is still being populated, it eventually will include details about project implementation, effectiveness, and lessons learned.

## OHIO

Ohio's District Teacher Equity Project provides urban districts in Ohio with data to assist them in conducting data analyses to guide their teacher distribution efforts. A recent progress report from the Office of Educator Equity (2009) describes a number of pioneering efforts to gather information about teachers' preferences and to restructure systems that will improve efforts to rectify teacher distribution inequities. Ohio districts are increasingly accessing their teacher distribution files to conduct analyses: from 72 percent of district personnel in 2007–08 to 100 percent of district personnel in 2008–09.

To assist in this effort, the Ohio progress report offers districts step-by-step instructions in how to conduct a teacher distribution data analysis:

1. Conduct a data analysis (by core subject courses) to identify where and to what extent any teacher distribution inequities exist on a school-by-school basis.
2. Identify (by core subject area and by school) where more than 10 percent of the core subject courses in schools are taught by teachers who are not highly qualified. (Ohio has identified “high percentages” as schools in which more than 10 percent of the core subject courses are taught by teachers who are not highly qualified.)

3. Identify the percentage of minority and economically disadvantaged students who are taught by inexperienced versus experienced teachers in the core subject areas.
4. Identify the percentage of minority and economically disadvantaged students who are taught by highly qualified versus not highly qualified teachers.
5. Develop aligned strategies that address specific findings from the data to resolve teacher inequities.
6. Replicate this entire process annually to determine how to enhance the process.

Of note in these instructions is that districts are expected to identify inequities by specific core subject courses. Gathering this information should prove particularly useful to Ohio districts and states because it will allow them to target incentives, policies, and strategies toward specific subject matter teachers, resulting in greater cost-effectiveness.

The Ohio report also provides details about pilot projects that are under way in the state:

- **District Teacher Equity Project**, which helps urban districts use data to guide the implementation of key strategies
- **Coherent Human Capital Management Project**, which is focused on comparing current human resources systems with best practices for recruiting teachers, improving working conditions, developing teacher leaders, and other strategies.
- **Teacher Exit Survey Pilot**, which helps urban districts learn from exiting teachers which factors are influencing mobility and attrition
- **Culturally Relevant Pedagogy Project**, which is focused on conducting research in urban districts to create user guides and modules to help beginning and experienced teachers to improve their understanding and skills for teaching diverse student populations

## CONTINUING EFFORTS

These strategies from California, Georgia, and Ohio are notable in their diversity of focus and theoretical foundations, making them suitable for a variety of different settings. Given that local conditions, culture, teacher preferences, and student characteristics may vary widely across districts within a state, it makes sense to adapt teacher distribution projects accordingly.

Early in the process of developing state plans for addressing equitable distribution, many states took a sweeping approach—a few strategies to be applied across the state, without careful consideration of local needs. Now, however, states have developed increasing sophistication in their approaches and have added considerable detail about how analyses should be conducted. These efforts will greatly improve the targeting of resources to have the maximum impact on teacher distribution.





## CONCLUSION

It is clear that the inequitable distribution of highly qualified teachers puts schools with the neediest students at a disadvantage. It also is clear that this distribution is driven largely by teacher preferences, aided by institutional constraints that may hinder the ability of principals and superintendents to hire the people they want, and likely influenced by school and community preferences.

What is far less clear is whether the policies and reforms intended to help reduce inequities in teacher distribution actually are effective; more data are sorely needed. In particular, assessment of policy effectiveness requires more than a simple accounting of whether money was spent; rather, it must analyze whether the distribution of teachers is different because of the policy.

## RECOMMENDATIONS

The following recommendations will help states focus their efforts on collecting information that will allow them to develop cost-effective policies to improve teacher distribution and to assess whether those policies are achieving their objectives.

- **Recommendation 1.** Use key indicators to identify schools most in need of assistance rather than targeting all schools that fall into the top quartile.
- **Recommendation 2.** Maintain comprehensive data on characteristics of teachers, including teaching experience, certification, teacher test scores (e.g., Praxis or other certification exams), participation in induction programs and other professional development, salary and other compensation, and course-level teaching assignments.
- **Recommendation 3.** Link teachers with all students they teach, thus making it possible to collect and analyze data about student characteristics and outcomes related to specific teacher characteristics, such as teacher experience and qualifications. Analyses of these data will help illuminate both who teaches whom and the interaction between teacher and student characteristics, as reflected in teacher outcomes (e.g., retention and transfer) and student outcomes (e.g., achievement, promotion, graduation).
- **Recommendation 4.** Track teacher movements both within and across districts, as well as exits out of the profession. This step should include identifying both the school to which a teacher moves and the school from which he or she moves (so as to compare characteristics of schools before and after transferring).
- **Recommendation 5.** Investigate the reasons for inequities within and across districts because they will vary across districts. Understanding the reasons behind the distribution can help ensure that appropriate solutions are applied.
- **Recommendation 6.** Analyze the specifics of union contracts—particularly hiring and assignment policies—in order to identify areas where reform may be needed.
- **Recommendation 7.** To make implementation of new programs smoother and more effective, involve all stakeholders: teachers, board members, union representatives, parents, and community members.
- **Recommendation 8.** Weigh the relative cost-effectiveness of policies—both short-term and long-term—to determine how to ensure the maximum benefit to targeted schools.
- **Recommendation 9.** Collect and analyze detailed information connected specifically to policies designed to affect the distribution of teachers, including specifics of the policies themselves, such as the type and amount of financial incentives and eligibility requirements. Collect data on which teachers receive incentives through programs targeted to high-need schools and the type and amount of the incentive, which teachers are eligible but did not take the incentive, and



where those teachers ended up. (Administrative data sets may or may not report an individual teacher’s actual salary; even if a teacher’s total salary and benefits are reported, it is important to know how much of that salary is coming from specific incentive programs.)

## FURTHER THOUGHTS

Although it may not be realistic to try to change teachers’ preferences, it may be possible to influence their decisions about where to teach and whether to stay or leave a school, a district, or the profession. In addition, the introduction of state policies and laws that target specific high-need schools to support the equitable distribution of effective teachers can provide districts with needed authority to implement strategies to ensure more equitable distribution of teachers.

There is very little research about what actually works in influencing the decisions of highly qualified, experienced teachers to teach in—or remain in—high-poverty, high-minority schools. Moreover, what works in one state, region, district, or school may not work in another, depending on local conditions. Considerable progress already is being made as states collect and analyze data to guide their efforts, develop targeted strategies, and provide resources to districts to support their efforts. As states wrestle with the challenges and experiment with solutions, there will be a welcome opportunity to deepen understanding of this important work and examine lessons learned.



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# ABOUT THE NATIONAL COMPREHENSIVE CENTER FOR TEACHER QUALITY

The National Comprehensive Center for Teacher Quality (TQ Center) was created to serve as the national resource to which the regional comprehensive centers, states, and other education stakeholders turn for strengthening the quality of teaching—especially in high-poverty, low-performing, and hard-to-staff schools—and for finding guidance in addressing specific needs, thereby ensuring that highly qualified teachers are serving students with special needs.

The TQ Center is funded by the U.S. Department of Education and is a collaborative effort of ETS, Learning Point Associates, and Vanderbilt University. Integral to the TQ Center’s charge is the provision of timely and relevant resources to build the capacity of regional comprehensive centers and states to effectively implement state policy and practice by ensuring that all teachers meet the federal teacher requirements of the current provisions of the Elementary and Secondary Education Act (ESEA), as reauthorized by the No Child Left Behind (NCLB) Act.

The TQ Center is part of the U.S. Department of Education’s Comprehensive Centers program, which includes 16 regional comprehensive centers that provide technical assistance to states within a specified boundary and five content centers that provide expert assistance to benefit states and districts nationwide on key issues related to the current provisions of ESEA.

## ACKNOWLEDGMENTS

The authors wish to thank the following reviewers who provided expert feedback on this brief: Robin Chait, Center for American Progress; Megan Dolan, Ed.D., The George Washington University Center for Equity and Excellence in Education; Tiffany Miller, Ph.D., California Department of Education; Michelle Reininger, Ph.D., Northwestern University; and Elizabeth Witt, Ph.D., U.S. Department of Education. We are grateful for their efforts. Thanks also to Tricia Coulter, Ph.D., of Learning Point Associates for her efforts in ensuring the readability and accessibility of the brief.



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This work was originally produced in whole or in part by the National Comprehensive Center for Teacher Quality with funds from the U.S. Department of Education under cooperative agreement number S283B050051. The content does not necessarily reflect the position or policy of the Department of Education, nor does mention or visual representation of trade names, commercial products, or organizations imply endorsement by the federal government.

The National Comprehensive Center for Teacher Quality is a collaborative effort of ETS, Learning Point Associates, and Vanderbilt University.

