Appendix 1: Study Methods
Listen to Us: Teacher Views and Voices

This appendix describes the sampling procedures used to select teachers to participate in the *Center on Education Policy's 2015 Survey of Public School Teachers*. In addition, it describes the methods used to develop and administer the survey and the analytic process used to obtain population estimates from the survey responses. Finally, this appendix includes a brief profile of teachers' current teaching status and educational background.

The survey was developed, administered, and analyzed with support from Policy Studies Associates, CEP's contractor for this project.

Survey Sample

We worked with an education data company (EDC) to draw the sample and to retrieve contact information for the traditional public school teachers included in the sample. First, we requested the total number of teachers for whom the EDC had contact information, disaggregated by the cells formed by crossing our three sampling strata (Exhibit 1) to create mutually exclusive categories. We then verified that the distribution of teachers across sampling strata in the EDC's database was reflective of the true distribution of the population of public school teachers, using data from the National Center of Education Statistics' (NCES) 2012-13 Common Core of Data Local Education Agency Universe Survey and 2010-11 Schools and Staffing Survey for school-level and urbanicity distributions.

The poverty categories used by the EDC do not match those used by NCES. We used U.S. Census Bureau data to confirm that the EDC's poverty categories conformed to the standard breakouts used for Census data, and further, that the distribution of teachers in the EDC's poverty categories was in line with expectations given Census data for the distribution of school-age children living in poverty.

In our sample request to the EDC, we stipulated that the sample be limited to only teachers working in traditional public schools, excluding charter school and private school teachers. The first question on the survey served as an additional filter to reinforce this exclusion rule, asking respondents to confirm that they taught in a public, non-charter school.

Exhibit A-1
Sample strata

School-level[1]	Urbanicity[2]	Poverty (percentage of students from high poverty backgrounds)[3]
Elementary school	Urban	High poverty (More than 31.0%)
Middle / junior high school	Suburban	Medium-high poverty (16.0 to 30.9%)
High school	Town	Medium-low poverty (6.0 to 15.9 %)
K-12 or other grade configuration	Rural	Low poverty (Less than 6.0%)

[1]Grades included in grade spans varied by district.
[2] Urban, suburban, town, and rural definitions are from NCES's Common Core of Data locale codes
[3]Definitions of poverty are from the U.S. Census.

Survey Development

The survey included 67 questions that covered a variety of topics including teachers' current teaching status, views on the teaching profession, preparation and support, other roles and responsibilities, performance evaluations, efforts to teach the current math and ELA standards, views on student testing, efforts to collaborate with other teachers, views on students' college and workplace readiness, educational background, and classroom characteristics.

As part of survey development, we sent a draft of the instrument to 200 teachers to serve as a pilot test. We asked the teachers both to respond to the survey and to provide feedback on the appropriateness and clarity of the wording and on the focus of the survey questions. We also asked them to estimate the amount of time required to complete the survey. The final version of the survey included revisions reflecting the teacher feedback that we received.

Survey Administration

In November 2015, we emailed the sampled teachers to explain the purpose of the survey, to provide background information on CEP and its work as a nonpartisan organization advocating for the improvement of public schools, to invite their participation in the online survey, and to explain that completing the survey would result in their automatic entry into a drawing to receive one of four $500 Amazon.com gift cards. A link to the online survey was imbedded in the email. We sent a total of four reminder emails to non-responding teachers.

Teachers completed the online survey between mid-November and mid-December 2015. We received completed responses from 3,328 teachers. In addition, we received 341 partial responses plus responses from an additional 261 teachers who were ultimately disqualified because they indicated that they were not currently teaching in a public school. Teachers who completed the survey were entered into a drawing to receive one of four-$500 gift cards.

Data Analysis

To obtain the population estimates from the sample responses, we developed survey weights that took into account the number of teachers in the population and the number of teachers who responded to the survey in each of the sixty-four cells formed by crossing the three survey strata. For example, a teacher who taught in an elementary school located in an urban district in which over 30% of the students were living in poverty (i.e., a high-poverty school) received a weight determined by multiplying the weight for elementary schools (0.50), urban schools (0.28), and high-poverty schools (0.7) by the population of all teachers (N=3,030,435), divided by the number of teachers from elementary, suburban, high-poverty schools who responded to the survey (N=66). These weights were used for all analyses presented in the report. Exhibit A-2 shows, by sampling strata, the number of teachers responding to the survey, the number of teachers included in the sample, and the number of teachers in the population.

Exhibit A-2
Survey respondents, sample, and population frequencies

	Respondent N	Sample N	Population N
Total	3,328	129,735	3,030,435
School-level			
Elementary school	1,321 (39.7%)	65,510 (50.5%)	1,530,226 (50.5%)
Middle school	675 (20.3%)	24,143 (18.6%)	563,943 (18.6%)
High school	1,169 (35.1%)	35,968 (27.7%)	840,165 (27.7%)
Other/K-12 school	163 (4.9%)	4,114 (3.2%)	96,101 (3.2%)
Urbanicity			
Urban	1,123 (33.6%)	35,840 (27.6%)	837,179 (27.6%)
Suburban	1,425 (42.8%)	55,164 (42.5%)	1,288,555 (42.5%)
Town	325 (9.8%)	16,316 (12.6%)	381,113 (12.6%)
Rural	455 (13.9%)	22,415 (17.3%)	523,588 (17.3%)
Poverty			
High poverty	427 (12.9%)	16,678 (7.4%)	224,262 (7.4%)
Medium-High poverty	1,632 (49.0%)	57,176 (35.7%)	1,081,047 (35.7%)
Medium-Low poverty	1,099 (33.0%)	46,280 (44.0%)	1,335,562 (44.0%)
Low poverty	170 (5.1%)	9,601 (12.9%)	389,564 (12.9%)

Exhibit reads: One thousand three hundred and twenty-one survey respondents (or 39.7 percent) reported that they teach in an elementary school.

For each survey item, we estimated both the standard error and the confidence interval for each estimated response frequency. The estimated standard error of a proportion provides information about the accuracy of the percentage estimate. The size of the standard error is influenced by the distribution of responses, the number of respondents, and the size of the population. Estimated standard errors are used to construct 95% confidence intervals for the estimated percent. The confidence interval for a proportion indicates the degree of certainty that the true value for the population of all public school teachers in the nation—or a teacher who teaches at a particular school-level; in a geographic region characterized as urban, suburban, or rural/town; or in a school that serves a high, medium, or low percentage of students living in poverty—lies within the upper and lower bounds of the confidence interval. Confidence intervals provide information about the accuracy of the estimated percentages. If the confidence intervals for two percentages do not overlap, then the difference is statistically significant.

For proportions, the confidence interval is not symmetric relative to the estimated percent (except in the case where the estimated percent equals 50); this is because a proportion has a lower and upper bound (0 and 1, respectively), and the boundary affects the calculation of the interval.

Teacher Profile

The following provides a general profile of the teachers who participated in the survey. Specifically, it provides a summary of teachers' work status, the current grade level they teach, the special student populations they serve, the subject areas they teach, their teaching experience and educational background, and their average class size.

Work Status

Almost all teachers were working full time (98%). This estimate did not vary significantly by school level, urbanicity, or school poverty.

Current Grade Level

Teachers were well distributed across grade levels (i.e., pre-Kindergarten through Grade 12), with between approximately 10% and 20% of teachers reporting teaching in each grade. About half the teachers (48%), however, reported teaching just one grade-level and the other half (52%) reported teaching multiple grades. This estimate varied somewhat by school level, however. That is, the vast majority of high school and Other/K-12 teachers reported teaching multiple grades (85% and 79%, respectively) whereas the majority of elementary and middle school teachers reported teaching a single grade (66% and 53%, respectively).

Special Student Populations Served

The vast majority of teachers reported teaching all special student populations, including English language learners (ELLs) (72%), students with special needs (89%), and students who are economically disadvantaged or low-income (95%). These estimates varied in some respects, however, by school level, urbanicity, and poverty level. For example, more middle school teachers reported teaching students with special needs (95%) compared with elementary school (87%) and high school (89%) teachers. With regard to urbanicity, fewer teachers in rural districts or towns reported teaching ELLs (54%) compared with teachers in urban (80%) and suburban districts (79%). In addition, fewer teachers in low-poverty schools (68%) reported teaching ELLs compared with teachers in medium-poverty schools (74%).

Subjects Taught

The teachers responding to the survey were well distributed across subject area. That is, as shown in Exhibit A-3, slightly more than a third of teachers reported teaching early childhood or general elementary subjects. With regard to the core subjects, an estimated 10% of teachers reported teaching English/language arts, 8% teach mathematics, 9% teach the natural sciences, and 8% teach the social sciences. As a check on the representativeness of the survey data, we looked at the distributions of teachers by subject against the distributions reported in NCES's 2012 Schools and Staffing Survey of Teachers, which used a nationally representative sample of teachers. Although the questions were asked slightly differently (e.g., the CEP survey included more subjects), the final distributions of teachers by subject area are fairly similar, with no obvious subject areas that are significantly over- or under-represented in the CEP sample.

Exhibit A-3
Distribution of Teachers, by Subject Area Taught, by Survey Sample

Subjects Taught	CEP Survey of Teachers (2015)	SASS Survey of Teachers (2012)
Early Childhood or General Elementary (multiple subjects)	35	32
ELA	10	11
Mathematics	8	8
Natural sciences	9	7
Social sciences	8	6
Secondary (multiple subjects)	4	---
Visual and Performing Arts	9	6
Foreign Languages	3	3
PE/Health	3	5
Special Education	6	13
ELL	3	2
CTE/Vocational/Technology	3	5
Other	1	2

Teaching Experience

Teachers responding to the survey were also well-distributed with regard to their teaching experience, with significant percentages of teachers representing each category of experience. Specifically, 7% of teachers had taught for one to three years, 15% had taught for 6-10 years, and 19% reported having taught for 16 to 20 years. The distribution of teachers by teaching experience did not vary significantly by school-level, urbanicity, or school poverty. See Exhibit A-4 for the distribution of teachers by years of teaching experience.

Exhibit A-4
Distribution of Teachers by Years of Teaching Experience

Years of Experience	Percent of ALL Teachers
1 to 3 years	7
4 to 5 years	6
6 to 10 years	15
11 to 15 years	18
16 to 20 years	19
21 to 25 years	14
26 to 30 years	11
More than 30 years	9

Educational Background

All responding teachers reported holding at least a bachelor's degree, and a majority had advanced degrees, with 64% reporting having earned a Master's degree and 3% having earned a Ph.D, J.D., or higher. The distribution of teachers by educational background varied somewhat by school level, with slightly more middle school teachers reporting having a Master's degree (70%) compared with elementary school teachers (62%). In addition, more high school teachers reporting having earned a Ph.D, J.D., or higher (5%) compared with elementary and middle school teachers (2% each). Also, slightly fewer teachers in high-poverty schools and in rural districts or towns had Master's degrees compared with teachers in low-poverty schools or in urban or suburban districts. That is, 68% of teachers in low-poverty schools reporting having earned a Master's degree compared with 59% of teachers in high-poverty schools. Among teachers in rural districts or towns, 59% reported having earned their Master's degree compared with 66% of teachers in urban and suburban districts.

With regard to certification, the vast majority of teachers reported having earned their certification in the area that they currently teach (97%), with no significant variation by school-level, urbanicity, or poverty level.

Average Class Size

Teachers reported teaching a range of class sizes, from fewer than 15 students to more than 34 students. The highest percentage of teachers (34%) reported teaching classes of 25 to 34 students, and the fewest (5%) reported teaching classes of more than 34 students. With regard to small class size (i.e., fewer than 15 students), 14% of teachers reported teaching this class size overall, but more teachers in elementary schools (22%) reporting teaching this class size than did teachers in middle schools (12%) and high schools (15%). By contrast, more middle school and high school teachers reported teaching large class sizes of more than 34 students (9% and 8%, respectively) compared with elementary school teachers (2%). Interestingly, fewer teachers in rural districts reported teaching large class sizes (1%) compared with teachers in urban and suburban districts (6% and 7%, respectively). Distributions of teachers by class size did not very much by school poverty, with the exception of teachers in high-poverty schools, many more of whom reported working with a class size of 15-20 students (25%) compared with teachers in low-poverty schools (15%).