



Appendices

School Districts’ Perspectives on the Economic Stimulus Package: School Improvement Grants Present Uncertainty and Opportunity

Appendix 1: Study Methods

This appendix describes the sampling procedures used to select potential districts to participate in CEP’s *Survey of Local Education Agency Use of ARRA Education Funds*. Also described are the methods used to develop and administer the survey and the analytic process used to obtain population estimates from the survey responses. The survey was developed, administered, and analyzed with support from Policy Studies Associates, CEP’s contractor for this project.

SURVEY SAMPLE

We started with the publicly accessible dataset from the 2007-2008 Common Core of Data Local Education Agency Universe Survey conducted by the National Center of Education Statistics (NCES). This dataset contains information on 18,090 elementary and secondary education agencies located in the 50 states and the District of Columbia; American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands; the Department of Defense schools; and the Bureau of Indian Education. We chose to use the 2007-08 edition of the survey because when we drew the sample, the 2008-2009 dataset was in preliminary form.

From the dataset of 18,090 education agencies, we removed the 4,778 agencies that did not match our study population criteria. Specifically, we removed the agencies that were located outside of the 50 states and the District of Columbia; that were not operating; or that were regional education service agencies, federally and state-operated agencies, charter agencies, or designated as “other education agencies.”

The dataset also included agencies that were component(s) of a supervisory union sharing a superintendent and administrative services with other local school districts. In these cases, we retained the agency defined as the “supervisory union” and removed the component agencies associated with the unions. Finally, we removed the local education agencies (LEAs) that did not directly educate students through the employment of teachers and the operation of school buildings; many of these agencies represented towns that sent their students to neighboring districts or cooperative districts. We also removed agencies that solely served special segments

of the population, such as vocational centers, correctional facilities, schools for the blind or deaf, and schools of performing arts. **Exhibit 1** summarizes the edits that we made to the dataset to arrive at our sample frame.

Exhibit 1. Variables Used to Build Sample Frame

Variable Name	Variable Description	Use*	LEAs Subtracted	Unduplicated Deletions**
FIPST	Federal Information Processing Standards (FIPS) state code	Eliminated LEAs from locations outside of the 50 states and the District of Columbia (X>56; n=42).	42	42
BOUND07	The boundary change indicator is a classification of changes in an education agency's boundaries since the last report to NCES	Eliminated LEAs that had closed (X=2; n=149), were temporarily closed (X=6; n=35), or were scheduled to be operational in the future (X=7; n=56).	240	282
TYPE07	Agency type code	Eliminated agencies defined as "regional education service agencies" (X=4; n=1,203), "state-operated agencies" (X=5; n=275), "federally operated agencies" (X=6; n=36), "charter agencies" (X=7; n=2,126), and "other education agencies" (X=8; n=195).	3,835	3,925
UNION07	Indicator linking supervisory units and component agencies	Eliminated agencies that were represented in the dataset by a "supervisory union." Eliminated LEAs from CA (n=12), IN (n=3), NH (n=175), NYC (n=34), VT (n=291), and VA (n=2); eliminated the supervisory unions from MT (n=56).	573	4,498
SCH07	Number of schools associated with the agency	Eliminated LEAs that did not directly educate students or that served special populations of students.	280	4,778

Exhibit reads: The FIPST variable eliminated LEAs that existed outside the 50 states and the District of Columbia; this variable netted 42 deletions, which brought the total number of unduplicated deletions to 42.

* The "X" stands for the variable name in each row.

** The unduplicated count is cumulative from top to bottom.

We used the "ULOCAL07" variable in the NCES dataset, which is an indicator of a district's location relative to a populous area, to stratify the sample frame by geographic location and area population density. The NCES dataset contained four main location types, as well as three subtypes with each location type. We used the four main types but not the subtypes in our stratification—in other words, we used the main location type "city" as a stratum, but we did not create additional strata to distinguish among the subtype locations of "large," "medium," or "small." **Exhibit 2** presents definitions for the main location types, identifies the number of districts in the sample frame in each location type, reports the number of students who attend school in the districts in the sample frame, and identifies the number of districts in each location type that we sampled. We used disproportional stratification in order to include sufficient numbers of large districts in our analyses.

Exhibit 2. Definitions and Frequencies of Sample Strata

Locale Type	Definition¹	Number (and percent) of districts in the sample frame	Number (and percent) of K-12 students in the sample frame	Number (and percent) of districts in the sample
City	Territory inside an urbanized area (a “densely settled area that has a census population of at least 50,000”) and inside a principal city (the “largest city inside the urbanized area”)	751 (5.6)	13,447,851 (28.8)	180 (30.0)
Suburb	Territory inside an urbanized area (a “densely settled area that has a census population of at least 50,000”) and outside a principal city (the “largest city inside the urbanized area”)	2,741 (20.6)	18,384,606 (39.4)	180 (30.0)
Town	Territory inside an urban cluster (a “densely settled area that has a census population of 2,500 to 49,999”)	2,502 (18.8)	5,904,016 (12.6)	120 (20.0)
Rural	Territory outside of urbanized areas (“densely settled areas that have a census population of at least 50,000”) and urban clusters (“densely settled areas that have a census population of 2,500 to 49,999”)	7,318 (55.0)	8,967,808 (19.2)	120 (20.0)
<i>Totals</i>		<i>13,312 (100.0)</i>	<i>46,704,281 (100.0)</i>	<i>600 (100.0)</i>

Exhibit reads: Locales defined as “city” consist of 5.6% of the districts in the sample frame, contain 28.8% of the students who attend the districts in the sample frame, and represent 30% of the districts sampled for the study.

¹ We derived the definitions from U.S. Census Bureau definitions: www.census.gov.

Many states divide their densely populated areas into “elementary school districts” and “union high school districts.” For a densely populated area, we retained the elementary and secondary school districts in the sample frame. When drawing the sample, we excluded districts if the sample already included another district from the same Core Based Statistical Area (CBSA).

SURVEY DEVELOPMENT

The challenge in developing the survey was to strike a reasonable balance between collecting enough data to describe how LEAs are using ARRA education funds and minimizing the response burden. To that end, the survey included 29 close-ended items that ask about (1) current and projected funding for elementary and secondary education, (2) the use of State Fiscal Stabilization Funds, (3) the use of ARRA Title I funds, (4) the use of ARRA IDEA funds, (5) district efforts to address the four ARRA assurances and involvement in preparing state applications for Race to the Top grants, and (6) challenges and assistance needs associated with using ARRA education funds. A final question asked districts if they were better off with ARRA education funds than they would have been without them. Some of these items had multiple

response options, and four items included space for respondents to provide additional information about their strategies and experiences in using ARRA education funds.

As part of survey development, we sent a draft of the instrument to central office administrators in LEAs in three states. We asked the administrators to review the instrument and 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 and to indicate who else in their districts might be involved in responding to individual items. The final version of the survey reflects the feedback we received.

SURVEY ADMINISTRATION

Our recruitment of survey respondents from the districts in our sample involved multiple steps. In February 2010, CEP contacted the superintendents of the districts in the sample to explain the purpose of the survey and to provide background information on CEP and its previous report and research on state-level implementation of ARRA. In addition, CEP asked superintendents to identify the person in their district who would be responsible for completing the survey. In some districts, for example, the appropriate respondent was the chief financial officer, while in others it was the director of federal programs or the director of research and/or accountability. Many districts found it necessary to ask several members of the staff to complete various parts of the survey.

We gave superintendents approximately one week to respond to the initial invitation before initiating follow-up calls to request the contact information for the designated survey respondent. We made up to three telephone attempts about a week apart to each non-responding superintendent before sending a final attempt letter. Through the contacts that we made with the superintendents of the districts in the sample, we received 450 responses (75.0% of the sample). Of those who responded, 290 (48.3%) agreed to participate and designated a district administrator to complete the survey, while 160 (26.7%) declined to participate.

Beginning in March 2010, we sent the survey to the designated respondents. Within two days of receiving the name of the designated respondent from the superintendent, we sent an email message to the respondent, with the survey attached, asking him or her to respond to the survey. Respondents could complete the survey as an electronic form or as a paper-and-pencil instrument that could be returned by fax or regular mail.

We began following up with non-respondents one week after the initial distribution of the surveys. This process continued in one-week intervals. After the third call, we sent letters asking non-respondents to complete the survey. The completed surveys were submitted between March and May of 2010. We received completed survey documents from 233 districts, for a response rate of 80.3% of the districts that agreed to participate and 38.8% of the original sample of 600 districts.

DATA ANALYSES

To obtain the population estimates from the sample responses, we multiplied each sample response by a weighting factor specific to that particular stratum and question. The weighting factors were stratum-specific because the proportion of districts included in the sample from each stratum was not equal (i.e., we used a disproportional stratified sample). The weighting variables were also question-specific because we dealt with missing responses by eliminating the cases from the set of responses used in the analysis. This approach to treating missing data has the advantage of simplifying the reporting of results; it has the disadvantage of increasing the estimated standard errors.

We calculated both the standard error and confidence interval for each of the estimated response frequencies presented in CEP's report describing the survey findings. 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 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 districts in the nation is included in a particular range. 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. Additional information about the confidence intervals for specific responses is available in appendix 3 accompanying CEP's report.

Across all of the estimated response frequencies, the median standard error is 4.2%; the standard errors range from 0.0% to 7.3%. The standard errors result in 95% confidence intervals that have a median lower bound 7.1 percentage points below the estimate and a median upper bound 9.2 percentage points above the estimate; the lower bound of the confidence intervals range from 0.0% to 14.4% of the estimate, while the upper bound of the confidence intervals range from 0.0% to 14.1% above the estimate. The size of the interval does not affect the level of certainty (95%) that the interval captures the true population value.

Appendix 2: General Information about Confidence Intervals and Statistical Significance

The tables and footnotes in the report provide information about whether the difference between estimated percentages is statistically significant. Statistical significance signals whether this difference is likely to be due to chance. If it appears that the difference in estimated percentages is due to chance (i.e., the difference is not statistically significant), then we cannot say that districts are more likely to do one thing than another. For example, 36% of districts were unfamiliar with the turnaround model for improving schools, while 40% were unfamiliar with the restart model. The difference between 36% and 40% is not statistically significant, so we cannot say that a higher percentage of districts was unfamiliar with the restart model.

One the other hand, if the difference is larger than is likely to be explained by chance alone, then the estimated percentages can be compared. For example, we estimate that 11% of districts have implemented the turnaround model for improving schools, while 1% have implemented the restart model. The difference between the 11% and 1% is statistically significant, and so we can say that fewer districts have implemented the restart model.

One method of determining the statistical significance in the difference between two percentages is to compare the confidence intervals of the two percentages. 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. Appendix 3 contains the specific confidence intervals for the tables used in this report and illustrates how ranges of estimated percentages (the confidence intervals) are used to determine statistical significance.

Appendix 3: Confidence Intervals for Survey Responses

The figures in this appendix display the confidence intervals for the survey responses relating to school improvement grants shown in tables 1 and 2 in the full report. In figure A1a, for example, the bars depict the confidence intervals for the estimated percentages of districts that were unfamiliar with each of the four school improvement models. All four bars overlap, indicating that the differences between these four percentages *are not* statistically significant. Conversely, in figure A1b, the bars showing the confidence intervals for the estimated percentages of districts that have implemented the turnaround and restart models do not overlap, indicating that the difference between these percentages *is* statistically significant.

Figure A1a. Percentages of districts unfamiliar with school improvement models

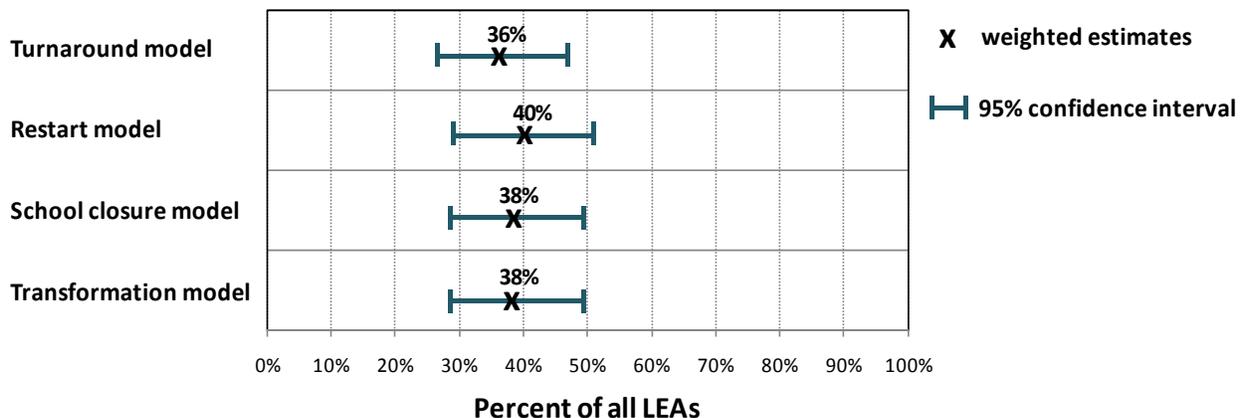


Figure reads: An estimated 36% of districts were unfamiliar with the turnaround model for improving schools, while an estimated 40% were unfamiliar with the restart model, an estimated 38% were unfamiliar with the school closure model, and an estimated 38% were unfamiliar with the transformation model.

Note: The 95% confidence intervals for the estimates in the figure are as follows: 36 (26, 47); 40 (29, 51); 38 (28, 49); 38 (28, 49). This means, for example, that we are 95% certain that the actual percentage of districts that were unfamiliar with the turnaround model is between 26% and 47%.

Source: CEP Survey of Local Education Agency Use of ARRA Education Funds, spring 2010.

Figure A1b. Percentages of districts that implemented school improvement models

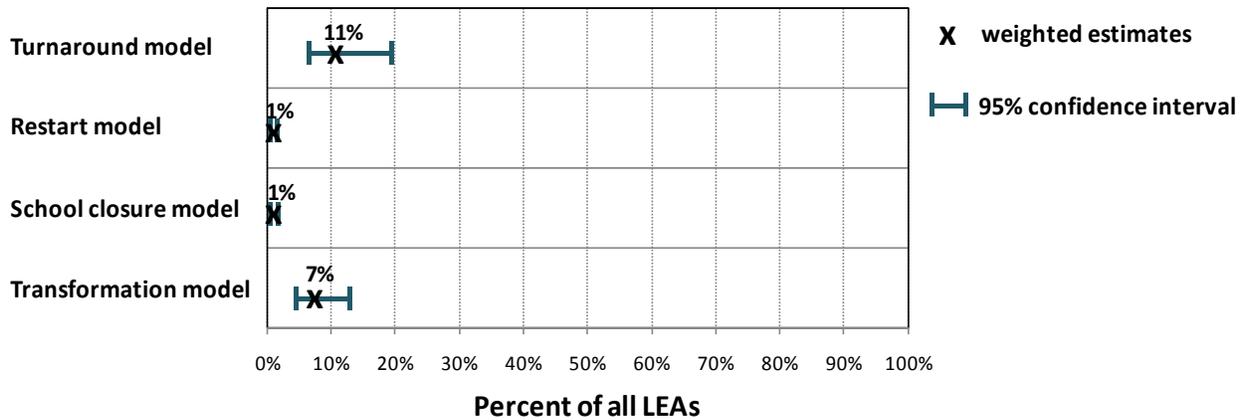


Figure reads: An estimated 11% of districts had implemented the turnaround model for improving schools, while an estimated 1% had implemented the restart model, an estimated 1% had implemented the school closure model, and an estimated 6% had implemented the transformation model.

Note: The 95% confidence intervals for the estimates in the figure are as follows: 11 (6, 19); 1 (<1, 2); 1 (<1, 2); 6 (3, 12). This means, for example, that we are 95% certain that the actual percentage of districts that had implemented the turnaround model is between 6% and 19%.

Source: CEP Survey of Local Education Agency Use of ARRA Education Funds, spring 2010.

Figure A2. Percentages of districts receiving state assistance for each school improvement model

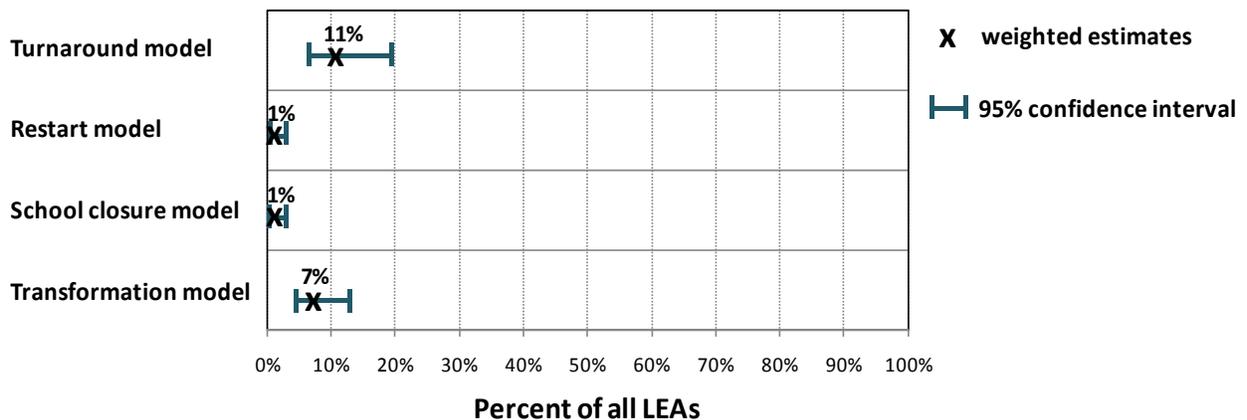


Figure reads: An estimated 11% of districts received state assistance with the turnaround model for improving schools, while an estimated 1% received assistance with the restart model, an estimated 1% received assistance with the school closure model, and an estimated 7% received assistance with the transformation model.

Note: The 95% confidence intervals for the estimates in the figure are as follows: 11 (6, 19); 1 (<1, 3); 1 (<1, 3); 7 (4, 13). This means, for example, that we are 95% certain that the actual percentage of districts that received state assistance with the turnaround model is between 6% and 19%.

Source: CEP Survey of Local Education Agency Use of ARRA Education Funds, spring 2010.