

Improving the Coverage of Private Elementary-Secondary Schools

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I. GENERAL

In September of 1986, members of the National Center for Education Statistics (NCES) along with Westat and the Census Bureau met to discuss the formulation of a new survey to gather information about public and private elementary and secondary schools in the United States. As a result, the Schools and Staffing Survey was created. The Schools and Staffing Survey is a network of surveys that evolved from one survey. They include: the Schools and Staffing Survey (SASS), the Teacher Followup Survey (TFS), and the Private School Survey (PSS).

The SASS was the first survey implemented. It consisted of two frames of elementary and secondary schools: public schools and private schools.

A. Definitions:

Private schools are institutions that include any of grades 1-12, have one or more teachers, are not administered by a public agency, and are not operated in a private home.

List Frame is a national coverage improvement operation designed to locate private schools not listed on the private school universe.

Area Search Frame is a coverage improvement operation consisting of an independent search, in a sample of counties in the country, to locate private schools not listed on the private school universe.

School Birth is any school added as a result of updating the universe.

School Death is any school found to be closed as a result of the updating process.

II. HISTORY

A. Private School Universe Creation

Between 1987 and 1994 the Census Bureau conducted four List Frame and four Area Search Frame operations to update the private school universe.

The Private School Universe was created in 1987 to select the private school sample for the 1988 Schools and Staffing Survey (SASS). The base for the private school universe is the Quality Education Data (QED) Inc. list. It is a commercial list of private schools compiled from various sources.

The National Center for Educational Statistics (NCES) purchased the QED list and provided it to the Census Bureau. In an attempt to improve coverage of private schools, the Census Bureau conducted two

coverage improvement operations, (1) the "List Frame" and (2) the "Area Search Frame".

B. 1987 Updates to the Private School Universe

Definition: Affiliation Lists are lists of private schools on the rolls of a specific private school association.

1. 1987 List Frame

The first "List Frame" operation began in January 1987. NCES provided the Census Bureau with 22 private school associations. The Census Bureau sent a letter explaining the survey and requesting lists of schools. Four associations requested nominal payment for their lists. The Bureau received 17 of the 22 lists requested.

Once the Bureau received the lists, they were clerically matched to the QED list. This operation resulted in 1,437 adds to the private school universe.

2. 1987 Area Frame

The first area search frame operation was conducted in March 1987 by field representatives (FRs). Ten sources plus the FR's own personal knowledge of the area were used to make independent lists of private schools in the sample counties. The sources were: Yellow Pages (Schools and non Roman Catholic Churches), Catholic Local Archdiocese, Local Government Offices, Local Education Agencies, Milk Companies, Real Estate Agencies, Chamber of Commerce, Fire Inspector, and Health Department.

Next the RO unduplicated the lists within county and matched them to the universe. All new schools were then contacted to determine eligibility.

C. 1989-90 Private School Survey and Updates to the Private School Universe

The first Private School Survey (PSS) was conducted in 1989-90. To prepare for it, the Census Bureau conducted a second coverage improvement operation on the private school universe.

The PSS is a **CENSUS** of private elementary and secondary schools in the country. The purpose of the survey is to:

- (1) build a universe frame of private schools that is of sufficient accuracy and completeness to serve as a sampling frame for other NCES private school surveys; and
- (2) to generate biennial data on the total number of private schools, teachers, and students.

Approximately 25,000 private schools were contacted in the first PSS.

1. 1989-90 List Frame Operation

The second List Frame operation began in March of 1989. The Census Bureau contacted QED Inc. to obtain an updated list of their schools. Also, the Census Bureau contacted 23 private school associations. Due to budget constraints, we only asked 12 of the 23 associations to send in their lists. The decision on which lists to request was based on the size of the lists. Eight of the 12 associations that sent lists had also sent us their list in 1987. The remaining four associations sent lists for the first time.

This list frame operation was conducted similar to the one in 1987 with some minor changes. For the eight affiliations that provided lists in 1987, we first asked for updates (births and deaths) instead of the complete list. If they could not provide updates, then we took the complete list.

2. 1989-90 Area Search Frame

The 1989-90 Area Search Frame was conducted in October of 1989. It differed from the 1987 Area Search Frame in three distinct ways.

- (1) Only five of the ten sources from 1987 were contacted. These sources are: Yellow Pages (Schools and Non-Roman Catholic Churches), Catholic Diocese, Local Education Agency, and Local Government Offices.
- (2) The unduplication process (to the universe) was not conducted in the RO.
- (3) Schools were screened over the telephone and, if eligible, interviewed at the same time.

D. 1991-92 Private School Survey and Updates to the Private School Universe

The second PSS was conducted starting in the fall of 1991. To prepare for it, the Census Bureau conducted a third coverage improvement operation on the private school universe beginning in the spring of 1991.

1. 1991-92 List Frame

The 1991-92 list frame operation was more extensive than the first two. In 1991 we contacted 44 private school associations, 50 states and the District of Columbia, QED, Inc. and a private vendor, Jostens Education Data, to obtain lists of private schools.

The 44 associations included the associations from 1987 and 1989. Twenty-six of the 44 associations provided lists. We matched and unduplicated all 26 association lists and the lists from the 50 states and the District of Columbia as well as the lists from QED, Inc. and Jostens.

Some lists were available as electronic files while others were in book form or a printout. As in the first two list frame operations, we had to purchase some lists. As in the 1989 List Frame, we requested only births and

deaths of schools from the associations. However, all associations sent complete lists.

This operation yielded 7,552 adds to the universe before mailout (6,267 from states, 959 from the affiliations, 20 from QED Inc. list and 306 from the Jostens). There were 385 schools that overlapped between the four sources.

2. 1991-92 Area Search Frame

The 1991-92 Area Search Frame began in September of 1991. This provided more time to gather and unduplicate lists of private schools and to match the schools to the universe. We wanted to have the operation completed in time for the birth schools to be interviewed during the nonresponse followup phase.

As in 1989 five sources were used to obtain lists of private schools. The difference between the two years was mostly in the check-in and keying procedures.

E. 1993-94 Private School Survey

The third PSS was conducted starting in the fall of 1993. To prepare for it, the Census Bureau conducted a fourth coverage improvement operation that began in the spring of 1993.

1. 1993-94 List Frame

The 1993-94 list frame operation was done in two parts. Association and QED Inc. list updating was done in time to use for the 1993-94 SASS sampling operation. We matched and unduplicated these lists with the 1991-92 PSS universe. These lists yielded 927 births before mailout: 919 from association lists and 8 from the QED Inc. list.

The state list updating operation was done in time to get the birth schools on the private school universe for the 1993-94 PSS. We matched and unduplicated these lists with the 1993-94 SASS universe. This yielded 2,172 births before mailout.

2. 1993-94 Area Search Frame

As in the previous area search frame the FRs contacted five sources plus used their own knowledge to obtain lists of schools in sample counties in their area. The matching, keying and unduplicating operations were centralized in the Indiana processing office, enabling us to maintain better control.

In addition to obtaining the lists of private elementary and secondary schools the FRs also sent in lists of nursery schools, daycare centers and pre-kindergarten schools. These schools/programs were used to help develop an early childhood care frame. The remainder of this paper will discuss the analysis of this 1993-1994 list frame and area frame updating operation, but it will not discuss the early childhood care frame.

III. GOALS/OVERVIEW OF THE 1993-1994 FRAME UPDATING ANALYSIS

We will determine the characteristics of the list frame and area frame by religious orientation (Catholic, Other Religious, Nonsectarian), school level (elementary, secondary, combined), and total student enrollment, school type, and minority student population percentage.

We will determine the effect of the adds on private school characteristics, such as religious orientation, school level, and enrollment, school type, and minority student population percentage. The statistic of interest in this analysis is the percentage of the universe estimate of each characteristic that is represented by the adds (i.e., the numerator will be either the list frame or area frame adds estimate of the characteristic and the denominator will be either the list frame universe (original universe plus adds) or the entire PSS universe estimate of the characteristic). We will show how the universe benefits from the adds in general and by school characteristic.

By answering the following questions, we will identify which sources (states, associations, and QED) of lists provided us with the most up-to-date and complete information about the types of school births we need.

- (a) Which source was most effective?
- (b) Which source provided the largest quantity of eligible or in-scope additions to the private universe?
- (c) Which source provided the eligible or in-scope additions with the highest interview rate?
- (d) Which source provided the largest quantity of ineligible or out-of-scope additions?
- (e) Which source had the highest out-of-scope rate?
- (f) How did these results compare the results with those from the 1991 analysis?

IV. ANALYSIS OF LIST SOURCES FOR ADDITIONS TO THE 1993-94 PRIVATE SCHOOL UNIVERSE

There were three main sources of lists that we contacted when it was time to update the private school universe. These sources are the states (including the District of Columbia), twenty-four of the largest private school associations, and QED, Inc.

A. HIGHLIGHTS

- (1) All birth schools on the QED list were found on other lists. We could have eliminated the QED list for the 1993-1994 operation.
- (2) The fifty states and D.C. provided 70% of the total additions to the private universe during the 1991 update. Among the individual state lists 60% of the state additions came from

Utah, Georgia, Nevada, Wyoming, California, Connecticut, North Carolina, North Dakota, Arizona, Vermont, District of Columbia, Delaware, Florida, Michigan, and Alabama. These states were listed in order of effectiveness (highest rate of in-scope births to lowest rate of in-scope births compared to what was on each list).

- (3) Twenty-one of the twenty-four association lists requested provided additions to the private universe. Their contribution to the private universe is on a smaller scale than the state lists.

B. State Lists

At the national level, the state lists have contributed more to the in-scope, out-of-scope, and interview rates than either the association or QED lists. Sixty-five percent of the 2,288 in-scope adds came from the state lists. Eighty-five percent of the 811 out-of-scope adds also came from the state lists. The two main out-of-scope reasons from state lists are "School Closed" and a category that included reasons such as duplicate, PK only, and school merged. The interview rates for the individual schools for the in-scope additions coming from the state lists was 83% (a decrease of 12% from 1991).

The contributions made by the updating operation differed by state. When we rank the states from most effective to least effective, we find the following results. At least 7% of the schools from each of the top 16 states were in-scope births. After the lists were matched to the current private universe, the top sixteen states account for 55% of the state additions. Approximately 2/3 or more of the schools from each of these 16 states' additions were eligible or in-scope with four exceptions: Maine at 46%, Arizona at 33%, Delaware at 37%, and Alabama at 59%. Of these in-scope schools, each state had approximately an 85% interview rate with three exceptions: Maine at 50%, California at 70%, and Delaware at 55%. Thus, in general these states provided quality additions as well as a large quantity of additions.

For the remaining 35 states, their contribution was less relative to the overall total of state additions. Less than 7% of the schools from each of these lists were in-scope births.

C. Association Lists

35% of the 2,288 total in-scope adds are from association lists. 15% of the 811 total out-of-scope adds came from this source. The two main out-of-scope reasons for affiliation lists are "School Closed" (47%) and "Don't Know" (30%).

The top five association lists are the most effective ones. They alone account for 75% of the association

additions. The lists from these associations provided good quality additions as well as a large quantity.

Each of the remaining fifteen association lists were less than 10% effective (i.e., less than 10% of the schools from each of these lists were in-scope compared to the total on the list). However, the importance of these lists to these associations outweighs the fact that they provided a small quantity of additions.

D. Quality Education Data List

The original QED list only provided school births. There were 39 school births. Only 8 were left after clerical unduplication with the existing universe.

Less than 1% of the 2,288 total in-scope adds are from QED. Similarly, a small percentage of the 811 total out-of-scope adds come from this source. The only out-of-scope reason is "Don't know".

E. List Overlap

We updated the private school universe with affiliation and QED lists for the 1993-1994 SASS private school sample. We then updated the universe with state lists for 1993-1994 PSS. Thus, there is no evidence of overlap between state and affiliation lists.

For example, suppose that "ABC" elementary school was added to the universe as a result of the affiliation updating operation for SASS. Now suppose that "ABC" elementary school was on a state list. Because this school was already on the universe, it would not have been counted as a birth from the state list updating operation.

F. Summary

In general, the 1993-94 interview rate among the individual states and affiliations is lower than that for 1991-92.

The total number of births from the association lists in 1993-94 is slightly smaller (919) than that of 1991-92 (959).

The total number of births from the state lists in 1993-94 is drastically smaller (2,172) than that of 1991-92 (6,267). The difference in these figures could be attributed to the way in which the updating operation was done (refer Section II.E for an explanation).

V. ANALYSIS OF THE CHARACTERISTICS OF LIST FRAME ADDS AND THEIR IMPACT

A. HIGHLIGHTS

Other Religious adds make up the largest percentage additional students, teachers, and graduates across all religious orientation categories. The exception is for schools where Nonsectarian adds make up the largest percentage.

Combined school adds make up the largest percentage of additional schools, students, teachers, and graduates across all school levels.

Updating had a big impact on Nonsectarian and Other Religious schools, but very little impact on Catholic schools.

Updating had the biggest overall impact on combined schools although the impact on elementary and secondary schools was significant as well.

Updating had the biggest impact (on all variables) on the smallest schools. With the exception of graduates in Catholic schools, impact decreased as the size of the school increased.

B. Characteristics of Adds

1. General

Other Religious adds contributed 1,169 schools (58.6% of all school adds). This was followed by 709 Nonsectarian school adds (35.6%) and 116 Catholic school adds (5.8%). This pattern for schools across religious orientation is similar for students, teachers, and graduates.

Elementary school adds contributed 936 schools (46.9% of all school adds). This was followed by 854 combined school adds (42.8%) and then 205 secondary school adds (10.3%).

This pattern for schools is different across school level for students, teachers, and graduates (when valid). Combined schools contribute more than elementary schools to the total of the adds.

2. Enrollment

Small schools contribute more significantly to the list frame adds than the larger ones. The overall percent contributions for schools for each of the size categories for the list frame adds schools are as follows: 0-75 students: 68% (68% of the adds are schools with less than 75 students), 76-150 students: 18%, 151-225 students: 6%, 226 + students: 8%.

In general these percents hold true (in magnitude and direction) for each religious orientation and school level. The exception is the Catholic schools where the larger schools contribute a greater number or adds than than the smaller schools.

3. Minority Student Percentage

The overall percent contributions for schools for each of the minority student percentage categories for the list frame adds are as follows: less than 6%: 33% (33% of the adds are schools with less than 6% minority students), 6% to less than 21%: 28%, 21% to less than 51%: 18%, 51% or more: 21%.

In general, the above pattern holds true (in magnitude and direction) for each religious orientation and school level. The exceptions are secondary schools where each category for the adds contributes approximately 25% and nonsectarian schools where the schools with a larger minority student percentage contribute more significantly to the adds.

4. School Type

Regular elementary/secondary schools make up the vast majority of the list frame adds at 61% (61% of the list frame adds are regular schools). Alternative school adds contribute 17% to the total adds followed by Special Education schools at 12%. Each of the other three school types (Montessori, Special Program Emphasis, and Voc. Tech.) contribute less than 5% each.

The exceptions to the above pattern are secondary and nonsectarian schools where special education schools contribute the most.

C. Impact of Adds on Private School Characteristics

1. General

The list frame adds represented 8.3% of schools, 3.7% of students, 5.2% of teachers, and 2.7% of graduates on the universe. Nonsectarian led the way with 14.6% for schools on the universe, followed closely by Other Religious at 10.7%, and Catholic considerably smaller at 1.4%. These percentages were reduced somewhat for each religious orientation when you look at students, teachers, and graduates. However, the general relationship seen for schools still holds. These percentages ranged from 5% to 9% (of students, teachers, and graduates on the universe) for Other Religious; 5% to 8% (of students, teachers, and graduates on the universe) for Nonsectarian; 0.5% to 1.5% (of students, teachers, and graduates on the universe) for Catholic.

The school grade level percentages indicated that the list frame updating had a substantial impact on improving the coverage for all three school grade levels. Combined schools led the way with 12.2% for schools, followed by 8.6% for secondary schools and 6.4% for elementary schools. As was seen for religious orientation, these percentages were reduced somewhat when looking at the other statistics (i.e., students, teachers, and graduates).

2. Enrollment

The enrollment percentages showed variation and reflected a strong inverse relationship between the size of the school and the impact of the updating operation on improving the coverage for the different enrollment categories. The smallest schools (0-75 students) led the way at 16.8% indicating that the small schools were greatly impacted by the updating operation. The second smallest group (76-150 students) of schools showed a 7.3% impact, followed by 3.4% for the group of schools that had 151-225 students and 2.2% for the largest schools (226 + students). The pattern for enrollment percentages for students, teachers, and graduates is very similar in both magnitude and direction to that for schools.

3. Minority Student Percentage

The minority student population percentages showed a slight variation between the percentage of minority students at the school and the impact of the updating operation on improving coverage of the universe for the different categories. Schools with a large population of minority students (51% or more) led the way with an 11.0% impact. In other words, the updating operation resulted in 11% of the schools on the 1994 PSS universe having a minority student population of at least 51% that would not have been on the universe if the updating operation had not been done. As the percentage of minority students at a school decreases, so does the impact on the universe.

In general, the same pattern can be seen for secondary and combined schools as well as other religious and nonsectarian schools.

4. School Type

Regular elementary/secondary school adds contribute more to the list frame adds (61%) than the other five school types combined. Their impact (6.2%), however, on the list frame universe of this school type is the smallest of the six school types. In contrast, Vocational/Technical schools make the smallest contribution (.3%) to the list frame adds, but they have the largest impact (51.1%) on the list frame universe of this school type.

VI. ANALYSIS OF THE CHARACTERISTICS OF AREA FRAME ADDS AND THEIR IMPACT

A. HIGHLIGHTS

Other Religious adds make up the largest percentage of additional area frame schools across all religious orientation categories.

Combined school adds make up the largest percentage of additional area frame schools across all school levels.

Area Frame updating had a big impact on Nonsectarian and Other Religious schools, but very little impact on Catholic schools.

Area Frame updating had the biggest impact on combined schools although the impact on elementary and secondary schools was also significant.

Area Frame updating had the biggest impact on the smallest schools.

B. Characteristics of Adds

1. General

Other Religious adds contributed 1,286 schools (63.5%) of all school adds in the 1994 PSS area frame updating operation. This was followed by 671 Nonsectarian school adds (33.1%) and then 69 Catholic school adds (3.4%).

Combined school adds contributed 1,003 schools (49.5%) of all school adds in the 1994 PSS area frame updating operation. This was followed by 904

elementary school adds (44.6%) and then 119 secondary school adds (5.9%).

2. Enrollment

Small schools contribute more significantly to the area frame adds than any of the larger ones. The overall percent contributions for schools for each of the size categories for the area frame adds schools are as follows: 0-75 students: 74% (74% of the adds are schools with less than 75 students), 76-150 students: 16%, 151-225 students: 5%, 226 + students: 5%.

In general, these percents hold true (in magnitude and direction) for each religious orientation and school level. The exception is the Catholic schools.

3. Minority Student Percentage

Schools with a low minority student population (less than 6%) contribute more significantly to the area frame adds than any with larger ones. The overall percent contributions for schools for each of the minority student percentage categories for the area frame adds are as follows: less than 6%: 46% (46% of the adds are schools with less than 6% minority students), 6% to less than 21%: 27%, 21% to less than 51%: 14%, 51% or more: 13%.

The above pattern holds true (in magnitude and direction) for other religious schools and elementary and combined schools.

4. School Type

Regular elementary/secondary schools (60%): contribute more significantly to the area frame adds than the other school types combined. Alternative/nontraditional schools follow distantly with a 17% contribution. The other four school types (Montessori, Special Program Emphasis, Special Education, Vocational/Technical) each contribute less than 10% to the area frame adds.

C. Impact of Adds on Private School Characteristics

1. General

The area frame adds represented 8% of the schools on the 1994 PSS universe. The area frame updating had a substantial impact on improving the coverage of Nonsectarian and Other Religious schools -- increasing them by 12% and 11% respectively. The impact on Catholic schools was minimal at 1%.

On the other hand, the area frame updating had an impact on improving the coverage for all three grade levels -- combined schools: 13%, elementary schools: 6%, secondary schools: 5%.

2. Enrollment

The enrollment percentages showed variation and reflected a strong inverse relationship between the size of the school and the impact of the updating operation on improving the coverage for the different enrollment categories. The smallest schools (0-75 students) led the

way at 15.6% indicating that the small schools were greatly impacted by the updating operation. The second smallest group (76-150 students) of schools showed a 6.7% impact, followed by 2.6% for the group of schools that had 151-225 students and 1.2% for the largest schools (226 + students).

3. Minority Student Percentage

The impact for each of the minority student population percentage categories is similar. Schools with a small population of minority students (less than 6%) led the way slightly with a 9% impact (9% of the schools on the 1994 PSS universe having a minority student population of less than 6% would not have been on the universe if the updating operation had not been done). The impact for schools in the remaining categories is as follows: 6% to less than 21%: 8%, 21% to less than 51%: 7%, 51% or more: 7%.

4. School Type

The area frame adds were made up mostly of regular elementary/secondary schools (see Section V.A.4). However, their impact on the private school universe was only 6%. In other words, 6% of the schools on the 1994 PSS universe were represented by regular elementary/secondary area frame adds schools. Area frame updating had a substantial impact on improving the coverage of Montessori, Special Program Emphasis, Vocational/Technical, and Alternative/Nontraditional schools increasing them by 21%, 21%, 38% and 17% respectively.

VII. CONCLUSION

We should continue to collect lists of private schools from all the states in the future.

We should also continue to collect lists of private schools from the associations in the future. The association lists do contribute to the universe on a smaller scale than the state lists. Requesting these lists may do more than just update the universe. List requests from associations may promote good public relations with the association heads and they in turn may encourage participation among their member schools.

The list frame updating operation continues to be effective in improving the coverage of private schools.

Since area frame updating estimated that we're missing 8% of the universe, we need to continue this area frame updating to achieve a more complete private school universe.

Updating operations are especially needed for improving coverage of small schools, Other Religious and Nonsectarian schools, and non regular types of schools.