

IMPROVING THE COVERAGE OF PRIVATE ELEMENTARY-SECONDARY SCHOOLS

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I. Introduction

The Private Schools Survey (PSS) is a biennial census of private elementary and secondary schools. The data collected from this survey is used as the basis of the private school universe. This universe is updated using two different coverage improvement operations: list and area frame updating. In the list frame updating procedure, school lists are collected from each state department of education (including DC) and the largest of the private school associations. These lists are compared to the most recent private school universe and the new schools are added (list frame adds). In the area frame updating operation, an independent list of private schools is created from a nationally representative sample of counties. This list is compared against the universe, previously updated by the state and association lists, and the new schools are temporarily added (area frame adds). New schools found in both the list and area frame updating operations are classified as list frame adds. Table 1 illustrates the number of additions found in each of the frames during the 1999-00 updating procedure.

Table 1. Number of Total Additions (Traditional and K-terminal) in the List and Area Frame Updating Procedure in 1999-00

	In-Scope Additions	Out-of-Scope Additions
List Frame Addition Not Found in Area Frame County	1743	1836
List Frame Addition found in Area Frame County but not in Area Frame	125	213
Addition Found in Both List and Area Frames*	945	475
Area Frame Additions Not Found by List Frame*	2377	3877

* Weighted counts.

This paper offers an evaluation of the 1999-2000 PSS updating procedure, which is an update of the 1997-98 operations. We compared the results of the latest private school universe update with those of previous updates based on selected school characteristics: religious orientation, school level, enrollment, coeducational status, and presence of a library. We also compared the growth rates of the list frame sources used in the 1999-2000 universe update.

Results of earlier updating operations have previously been reported.

The following definitions are useful to this paper:

Additions: Additions (Adds) are private schools that are added to the universe

K-terminal: A K-terminal school contains kindergarten as the highest grade.

Traditional: A traditional school contains any of the grades kindergarten through twelfth.

ECC: An ECC (Early Childhood Care) is a center-based program for children who are 3-5 years old, excluding family day care centers. Some programs may include kindergarten or higher grade levels.

II. Analysis of List Frame Sources

There are two main sources of private schools that form the list frame: state and association lists. In 1999, the state lists contributed 64% of the total adds as compared to 59% in 1997. In addition, the states contributed 71% of the total in-scope adds as compared to 53% in 1997. A school is classified as out-of-scope if it does not fit the PSS definition of a school. Examples of out-of-scope reasons include the following: the school is closed, not a private school, day care only, or an adult education center.

A. State Lists

The state lists had an overall growth rate (ratio of in-scope adds to the total number of schools on the universe) of 4.62% in 1999 as compared to 4.89% in 1997. We found 6 states with a growth rate of over 10%: Alaska, Vermont, Nevada, Idaho, Tennessee, and North Carolina. The first four of these states are small so even a few new schools have a large effect on the growth rate. North Dakota is the only state with a growth rate of 0%. This does not mean that there were not any new schools in North Dakota, just that we did not identify any in-scope adds on the state list.

We investigated the possibility of that an add was reported on more than one list. There are 292 adds that are reported by a state list and at least one association list. See Table 2. No commonalities were found between these schools.

This paper reports the results of research and analysis undertaken by Census Bureau staff. It has undergone a Census Bureau review more limited in scope than that given to official Census Bureau publications. This report is released to inform interested parties of ongoing research and to encourage discussion of work in progress.

When we analyzed the number of unique adds provided by each state list, we found that the California state list provided the largest number of unique adds (445). There were 2 states, Connecticut and Wyoming that did not provide any unique adds. This means the adds from these 2 states were also reported by at least one association list.

A special case of multiple source listings is the possibility that an add was reported by both the traditional and ECC state lists. We investigated this possibility by examining these lists for overlapping schools. We found that the scope of the ECC lists varied greatly by state.

B. Association Lists

The Association lists had an overall growth rate of 2.75%, the same as in 1997. We found 3 lists with a growth rate of over 10%: Council of Islamic Schools in North America, American Association of Christian Schools, and Southern Baptist Christian Schools. The Islamic list above is very small, so each new school has a large impact on the growth rate. The Southern Baptist Christian Schools list was new to PSS in 1999; therefore the growth rate would be large. The Jesuit Secondary Education Association was the only list with a growth rate of 0%.

We also investigated the possibility of an add being reported by more than one association list. There were only 20 of these adds that were not reported on state lists. See Table 2. We looked for common threads in the characteristics of these adds, none were found.

When we analyzed the number of unique adds provided by each list, we found that the Association of Christian Schools International provided the greatest number of unique adds (281). There are 3 lists that were completely unique but they each provided a small number of adds to the universe. The Friends Council on Education is the only list that did not provide any unique list frame adds.

Table 2. Distribution of Sources of Total List Frame Additions in 1999

	Number of Association Lists*			
	0	1	2	3
Not on State list	0	962	20	0
State list	2002	281	10	1

*Note that for the purpose of the multiple source investigation, the ECC lists are considered association lists.

III. List Frame Updating Analysis

A. Characteristics of List Frame Adds

The following tables depict the distribution of the list frame adds by selected school characteristics.

1. Religious Orientation

Table 3. Distribution of List Frame Adds by Religious Orientation

	1993	1995	1997	1999
Catholic	6%	4%	7%	6%
Other Religious	58%	57%	64%	69%
Nonsectarian	36%	39%	29%	25%

The percentage of Other Religious adds increased from 1993 to 1999, while the percentage of Nonsectarian adds decreased.

This pattern held across teachers and students in both magnitude and direction.

2. School Level

Table 4. Distribution of List Frame Adds by School Level

	1993	1995	1997	1999
Elementary	47%	49%	51%	41%
Secondary	10%	11%	12%	9%
Combined	43%	40%	37%	50%

The net percentage of elementary adds decreased overall from 1993 to 1999, while the net percentage of combined adds increased.

This pattern held across teachers and students in both magnitude and direction.

3. Enrollment

Table 5. Distribution of List Frame Adds by Enrollment

	1993	1995	1997	1999
0-75 Students	68%	69%	71%	72%
76-150 Students	18%	18%	16%	15%
151-225 Students	6%	7%	5%	6%
226 + Students	8%	6%	8%	7%

The small schools contributed more schools to the total list frame adds than the larger schools did; this distribution has remained the close to the same since 1993.

The teacher and students distributions did not reflect this trend. The larger schools contributed more teachers and students to the list frame than the smaller ones.

4. Coeducational Status

Table 6. Distribution of List Frame Adds by Coeducational Status

	1997	1999
Coeducational	94%	94%
All-male	3%	2%
All-Female	3%	4%

The coeducational status of the school question was new to the survey in 1997. The distribution of the schools in 1999 is virtually identical to that of 1997.

The above pattern held across teachers and students in both magnitude and direction.

5. Library Status

Table 7. Distribution of List Frame Adds by Library Status

	1997	1999
Library	71%	70%
No Library	29%	30%

The library status question was also new in 1997. The distribution of the schools in 1999 is unchanged from that of 1997.

This pattern held across teachers and students in both magnitude and direction.

B. Impact of List Frame Adds

The following tables illustrate the percent, by school characteristic, of private schools that were found during the list frame updating operation. They can be interpreted as: the list frame adds represent X% of the private school universe.

1. Religious Orientation

Table 8. Impact of the List Frame Additions by Religious Orientation

	1993	1995	1997	1999
Catholic	1.4%	1.1%	1.4%	1.1%
Other Religious	10.7%	10.3%	8.5%	9.2%
Nonsectarian	14.6%	15.0%	8.1%	7.2%

There was a considerable decrease in the impact that the Nonsectarian adds had on the private school universe from 1993 to 1999. The impacts of the Other Religious and Catholic adds decreased slightly.

The pattern held across teachers and students in direction, but not in magnitude.

2. School Level

Table 9. Impact of the List Frame Additions by School Level

	1993	1995	1997	1999
Elementary	6.4%	6.7%	5.1%	4.2%
Secondary	8.6%	9.3%	7.9%	6.1%
Combined	12.2%	11.8%	7.9%	10.6%

The impact that each school level has on the universe decreased overall from 1993 to 1999.

This pattern held across teachers and students in direction, but not in magnitude.

3. Enrollment

Table 10. Impact of the List Frame Additions by Enrollment

	1993	1995	1997	1999
0-75 Students	16.8%	18.9%	12.4%	12.8%
76-150 Students	7.3%	7.8%	5.0%	4.8%
151-225 Students	3.4%	3.7%	2.3%	2.5%
226 + Students	2.2%	1.4%	1.5%	1.5%

The impacts of the enrollment categories on the private school universe have decreased since 1993.

There is a strong inverse relationship between the size of the school and the impact of the updating operation on the private school universe.

This pattern held across teachers and students in both magnitude and direction.

4. Coeducational Status

Table 11. Impact of the List Frame Additions by Coeducational Status

	1997	1999
Coeducational	6.0%	6.2%
All-male	8.5%	5.9%
All-Female	9.0%	9.4%

The 1999 impact of the coeducational and all-female schools is similar to that in 1997. But the impact of the all-male schools has slightly decreased.

This pattern held across teachers and students in both magnitude and direction.

5. Library Status

Table 12. Impact of the List Frame Additions Library Status

	1997	1999
Library	5.0%	5.2%
No Library	11.0%	11.9%

The impacts of schools both with and without a library have remained virtually unchanged from 1997.

The pattern held across teachers and students in both magnitude and direction.

IV. Area Frame Updating Analysis

A. Characteristics of Area Frame Adds

This section deals with weighted estimates unless otherwise noted.

It should be noted that the unweighted number of in-scope adds is around 350, thus, the results should be interpreted cautiously.

The following tables portray the distribution of the area frame adds by selected school characteristics.

1. Religious Orientation

Table 13. Distribution of Area Frame Adds by Religious Orientation

	1993	1995	1997	1999
Catholic	3%	3%	4%	4%
Other Religious	64%	62%	74%	76%
Nonsectarian	33%	35%	22%	20%

There was a considerable increase in the percentage of Other Religious adds from 1993 to 1999, while the percentage of Nonsectarian adds declined.

The pattern above held across teachers and students in both magnitude and direction.

2. School Level

Table 14. Distribution of Area Frame Adds by School Level

	1993	1995	1997	1999
Elementary	45%	47%	44%	48%
Secondary	6%	4%	6%	10%
Combined	49%	49%	50%	42%

The percentage of elementary and secondary adds increased slightly while the percentage of combined adds decreased considerably from 1993 to 1999.

This pattern did not hold across teachers or students. At the teacher and student level, combined schools contributed more to the adds than elementary schools.

3. Enrollment

Table 15. Distribution of Area Frame Adds by Enrollment

	1993	1995	1997	1999
0-75 Students	74%	77%	82%	77%
76-150 Students	16%	12%	10%	9%
151-225 Students	5%	6%	5%	4%
226 + Students	5%	5%	3%	10%

The percentage of adds in the second smallest enrollment category decreased steadily from 1993

while the net percentage of adds in the largest category has increased.

Small schools contributed more significantly to the area frame adds than all the larger schools combined.

This pattern did not hold across teachers or students. At these levels the larger school contributed more to the area frame adds.

4. Coeducational Status

Table 16. Distribution of Area Frame Adds by Coeducational Status

	1997	1999
Coeducational	>99%	98%
All-male	<1%	1%
All-Female	<1%	1%

The distribution of the area frame adds in 1999 is very similar to that of 1997.

This pattern held across both teachers and students in both magnitude and direction.

5. Library Status

Table 17. Distribution of Area Frame Adds by Library

	1997	1999
Library	81%	76%
No Library	19%	24%

The percentage of schools with a library decreased slightly from 1997 to 1999 while the percentage of schools without a library increased.

This pattern held across both teachers and students in both magnitude and direction.

B. Impact of Area Frame Adds

The following tables illustrate the percent, by school characteristic, of private schools that were found during the area frame updating operation. They can be interpreted as: the area frame adds represent X% of the private school universe.

1. Religious Orientation

Table 18. Impact of the Area Frame Additions by Religious Orientation

	1993	1995	1997	1999
Catholic	1.0%	1.0%	0.9%	0.8%
Other Religious	11.0%	11.0%	10.8%	9.7%
Nonsectarian	12.0%	13.0%	7.1%	5.9%

The impact of Nonsectarian adds on the private school universe has decreased considerably since 1995. The impacts of the other categories remained close the same.

This pattern held across teachers and students in direction but not magnitude.

2. School Level

Table 19. Impact of the Area Frame Additions by School Level

	1993	1995	1997	1999
Elementary	6.0%	7.0%	5.0%	4.9%
Secondary	5.0%	4.0%	5.0%	6.4%
Combined	13.0%	14.0%	12.0%	8.9%

The impact of combined schools on the private school universe has decreased from 1995 to 1999. The impacts of the other grade levels have remained close to the same.

This pattern did not hold across teachers and students. At these levels, the impact that the secondary schools had on the universe is less than the impact of elementary schools.

3. Enrollment

Table 20. Impact of the Area Frame Additions by Enrollment

	1993	1995	1997	1999
0-75 Students	15.6%	19.0%	14.8%	12.7%
76-150 Students	6.7%	5.7%	3.8%	3.0%
151-225 Students	2.6%	3.5%	2.5%	1.8%
226 + Students	1.2%	1.4%	0.8%	2.0%

The impact of the schools in the smaller enrollment categories decreased from 1995 to 1999 while the impact of the larger schools increased.

This pattern held across both teachers and students in both magnitude and direction.

4. Coeducational Status

Table 21. Impact of the Area Frame Additions Coeducational Status

	1997	1999
Coeducational	7.0%	6.4%
All-male	1.0%	2.0%
All-Female	1.0%	3.6%

The impact of the single-sex schools increased from 1997 to 1999 while the impact of the coeducational schools stayed close to the same.

This pattern held across teachers and student in direction but not magnitude.

5. Library Status

Table 22. Impact of the Area Frame Additions by Library Status

	1997	1999
Library	7.0%	5.6%
No Library	11.0%	9.2%

The impacts of both schools with and without libraries slightly decreased.

This pattern held across teacher and students in direction but not magnitude.

V. K-terminal Updating Analysis

A. Characteristics of List Frame Adds

The following tables (Tables 22 and 24) depict the distribution of the K-terminal adds by religious orientation. Tables 23 and 25 illustrate the percent of private schools that were found during the K-terminal updating operation.

Table 23. Distribution of K-terminal Additions in the List Frame

	1995	1997	1999
Catholic	1%	2%	1%
Other Religious	32%	23%	22%
Nonsectarian	67%	76%	77%

There has been a steady decrease in the number of Other Religious k-terminal adds from 1995 to 1999. In this same time frame the number of Nonsectarian adds steadily increased.

This pattern held across teachers and students in both magnitude and direction.

B. Impact of List Frame Adds

Table 24. Impact of K-terminal List Frame Additions by Religious Orientation

	1995	1997	1999
Catholic	4.8%	18.1%	3.1%
Other Religious	13.4%	26.9%	4.4%
Nonsectarian	13.7%	35.9%	6.4%

The impacts substantially decreased from 1997 to 1999. But, note that the number of k-terminal lists processed as part of the updating procedure has varied from year to year. For example, only 8 lists were processed in 1995, 30 in 1997, and 17 in 1999.

This pattern did not hold across teachers or students. At those levels, other religious schools had the largest impacts.

C. Characteristics of Area Frame Adds

Table 25. Distribution of K-terminal Additions in the Area Frame

	1995	1997	1999
Catholic	1%	4%	1%
Other Religious	23%	27%	39%
Nonsectarian	76%	70%	60%

There has been a steady increase in the percentage of Other Religious adds from 1995 to 1999, while the percentage of Nonsectarian adds steadily declined.

This pattern held across teachers and students in both magnitude and direction.

D. Impact of Area Frame Adds

Table 26. Impact of K-terminal Area Frame Additions by Religious Orientation

	1995	1997	1999
Catholic	21.1%	15.7%	4.0%
Other Religious	27.9%	11.9%	15.3%
Nonsectarian	35.8%	12.4%	10.6%

The impacts of the Catholic and Nonsectarian adds steadily decreased from 1995 to 1999. The impact of the Other Religious adds initially decreased from 1995 to 1997 but increased from 1997 to 1999.

This pattern held across teachers and students in direction but not magnitude.

VI. Comparison of List Frame and Area Frame Additions

All statements in this section have been tested at the 10% significance level.

In terms of religious orientation, Catholic schools had the lowest concentration of adds and other religious schools had highest concentration of adds in both the list and area frames. The list frame (7%) had a slightly higher concentration than the area frame (4%) for Catholic schools. The list frame (69%) had a slightly lower concentration than the area frame (76%) for other religious schools. Also the impact of the list frame adds was similar to the impact of the area frame adds on the universe.

In terms of grade level, combined schools (50%) were the largest contributor for the list frame adds followed closely by elementary schools (41%). In the area frame the elementary schools (48%) were the largest contributor of adds followed by combined schools (42%). The elementary schools had the smallest impacts on the universe in both the list (4.2%) and area (4.9%) frames.

In terms of enrollment, the characteristics of list and area frame adds were similar to each other with one exception. In the area frame, the largest

enrollment category made up a larger percentage of the adds than the middle categories. The smallest schools made up the bulk of the adds in both frames, 72% of the list frame adds and 77% of the area frame adds. The impact on the universe was similar in both frames. There is a strong inverse relationship between the size of the school and the impact that the updating operation had on both frames.

In terms of coeducational status, the characteristics of the adds in both frames were similar, coed schools made up almost all the adds, 94% of the list frame and 98% of the area frame adds. In general, the impact of the area frame adds was smaller than that of the list frame adds.

In terms of library status, the characteristics of both frames were similar, schools with libraries contribute the most adds, 70% of the list frame adds and 76% of the area frame adds. The impact of the updating operation was similar in both frames.

VII. Conclusion

The list frame updating operation continues to improve the coverage of schools, teachers and students. The 1999 additions represented about 6% of the schools, 3% of the teachers and 3% of the students on the private school universe. But note that the list frame only identified approximately half of the additions to the private school universe. The state and association lists are useful in the updating procedure, but by themselves are not enough.

Therefore, we should also continue to do the area frame updating, since this operation identified an additional 6% of the schools, 4% of the teachers and 3% of the students added to the private school universe.

The results of the multiple source investigation indicate that there is only one association list and two state lists that are completely non-unique. But without further investigation, they cannot be eliminated from future PSS updating operations.

The additions from the K-terminal updating operation represent 6% of the schools, 8% of the teachers and 10% of the students on the k-terminal portion of the private school universe.