

APPENDIX

STATEMENT ON METHODOLOGY FOR OBTAINING IMPROVED ESTIMATES OF PERCENT IN A LANGUAGE MINORITY AND PERCENT OF THIS MINORITY ILLITERATE

Among the factors determining eligibility under Title II and/or Title III of the Voting Rights Act Amendment of 1975 are two that are obtainable only from sample tabulations from the 1970 census. They are:

1. The number of minority-language citizens of voting age 18 years of age or older as a percentage of total citizens 18 years of age or older in a political subdivision.

2. The illiteracy rate of minority citizens 18 years of age or older in the political subdivision.

Unpublished data from the 1970 census were used to calculate these percentages for each appropriate political subdivision. Since the characteristic "Citizenship" is collected only in the 5-percent census sample,¹ it is possible to compute the appropriate estimated percentages using data solely from the 5-percent sample as follows:

For each language minority in each political subdivision, let

x = the estimated number of adult minority-language citizens from the 5-percent sample

y = the estimated total number of adult citizens from the 5-percent sample

z = the estimated number of adult minority-language citizens with less than 5 years of school, based on the 5-percent sample

The percentages of interest may then be expressed as:

1. $\frac{x}{y}$ = the number of adult minority-language citizens as a fraction of total adult citizens based on 5-percent sample data.

¹For a summary description of the sampling and estimation methodology employed for 1970 census sample data, see source note. The reference also presents definitions and concepts employed in tabulating minority-language persons and their characteristics.

2. $\frac{z}{x}$ = the number of illiterate adult minority-language citizens as a fraction of total adult minority-language citizens based on 5-percent sample data (minority-language adult citizen illiteracy rate).

Although these estimated percentages could have been used, it was decided to base the determinations on "improved estimates" employing data from the larger census samples and complete counts (100 percent data). All estimates based on a sample are subject to sampling variability, but statistics based on the 15- and 20-percent samples are relatively more reliable than those based only on 5-percent census data, and statistics based on 100-percent data (complete counts) are not subject to any sampling variability. Therefore, for each language minority in each jurisdiction, "improved" estimates were calculated and used for determining the eligibility of the jurisdiction for consideration under the Act.

The improved estimates² are figures based on using citizenship rates defined from 5-percent data and applying them to totals defined from 15-percent, 20-percent, and 100-percent data. In general:

a. For an improved estimate of $\frac{x}{y}$, the number of adult minority citizens as a fraction of total adult citizens, the improved estimate is found by first calculating a citizenship rate for adult minority persons in the jurisdiction and a citizenship rate for total adult persons in the jurisdiction using 5-percent data. These rates are then applied to more reliable counts of adult minority persons and total adult persons in the jurisdiction. For total persons and all minorities except Spanish, complete count data were used for the improved estimate. For Spanish-heritage persons, 15-percent data were used.

b. For an improved estimate of $\frac{z}{x}$, the illiteracy rate for adult minority citizens, the improved estimate is

²For Puerto Rican groups in New York, New Jersey and Pennsylvania, the improved estimate did not incorporate 5-percent data as noted earlier.

found by first calculating a citizenship rate for illiterate adult minority persons and a citizenship rate for total adult minority persons from 5-percent data. These rates are then applied to more reliable counts of illiterate adult minority persons and total adult minority persons in the jurisdiction. For all minorities except Spanish, 20-percent data were used for the improved estimate. For Spanish heritage persons, 15-percent data were used.

The determinations for the Voting Rights Act were made on the basis of the improved point estimates calculated as described above.

A more detailed description of the statistical considerations involved in the estimates for the Voting Rights Act Amendment may be obtained from the Statistical Methods Division, Bureau of the Census.

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