BY THE U.S. GENERAL ACCOUNTING OFFICE

Report To The Chairman, Subcommittee On Domestic Marketing, Consumer Relations, And Nutrition, Committee On Agriculture House Of Representatives

Quality Control Error Rates For The Food Stamp Program

The Department of Agriculture holds states financially liable (sanctions them) for errors in determining food stamp benefits. Each state reports its program error rates to Agriculture based on a sample of food stamp cases it reviews. Agriculture validates these state-reported data, makes any necessary adjustments to produce an official error-rate estimate, and uses this estimate as its basis for sanctioning a state.

Because these error rates are estimates, the actual rate could fall anywhere within a specified range, called a confidence interval, around the estimate. GAO calculated the confidence intervals around the fiscal year 1983 error rates of 38 states, based on data available as of March 15, 1985. GAO found that fiscal year 1983 sanctions for these states could range from $686,300 to $15,697,300, depending upon which point in the confidence interval was used. By using the midpoint, as Agriculture does, GAO estimated that sanctions for the 38 states would amount to $6,697,300. Agriculture had not finalized its official state error rates and sanctions at the time of GAO's review.

GAO also analyzed state error rates and found that the rate of food stamp overissuances declined somewhat from fiscal years 1980 through 1983, while the rates for underissuances and improper denials/terminations of food stamps to eligible recipients remained relatively stable.

GAO/RCED-85-98
APRIL 12, 1985

RESOURCES, COMMUNITY,
AND ECONOMIC DEVELOPMENT
DIVISION

B-217883

The Honorable Leon E. Panetta
Chairman, Subcommittee on Domestic Marketing,
  Consumer Relations, and Nutrition
Committee on Agriculture
House of Representatives

Dear Mr. Chairman:

In a letter dated December 18, 1984, you asked us to provide information that would be useful to your subcommittee as it considers reauthorization of the Food Stamp Program. Your primary interest focused on the extent of errors that states made when determining households' eligibility and monthly food stamp benefit levels. The error rates are important because the U.S. Department of Agriculture's Food and Nutrition Service uses them as the basis for assessing sanctions (financial penalties) against, and providing incentive funding for, states.

The Service and states develop error rates for food stamp overissuances, underissuances, and improper denials/terminations. Overissuances represent food stamp benefits issued either to ineligible households or to eligible households that received more than their entitled assistance. Underissuances represent benefits that should have been issued to households that received less than their entitled assistance. Improper denials/terminations represent those households that were either incorrectly denied entry into the program or were improperly dropped from it. The Service assesses sanctions against states with overissuance error rates that exceed a specified target. On the other hand, the Service also provides incentive funding if a state's overissuance, underissuance, and improper denial/termination error rates are less than established target rates.

Each state derives its error rate by making quality control reviews of a sample of its food stamp caseload and then statistically projecting the review's results to its total caseload. The Service validates the state-reported error rates and makes any necessary adjustments to produce an official error rate. Because error rates are estimates, the actual rate could fall anywhere within a specified range, called a confidence interval, around the estimate. The Service, however, does not compute confidence intervals. Instead, it bases state sanctions on the official error rate developed during the quality control process. (See app. II for a more detailed description of the quality control and error-rate sanction systems.)

Our review showed that 1983 state sanctions could range between $686,300 and $15,697,300 depending on which point in the confidence interval was used to compute the sanction. By using the midpoint of the confidence interval, as the Service does, we estimate that the sanctions would amount to $6,697,300. We also show that error rates for overissuances declined between fiscal years 1981 and 1983 while underissuances and improper denials/terminations have remained relatively stable.

OBJECTIVES, SCOPE, AND METHODOLOGY

Based on your request, we

--computed confidence intervals, at a 95-percent confidence level, based on the 1983 food stamp official error rates and estimated the dollar amount of overissuances and sanctions based on different points in the confidence intervals (see p. 3);

--determined the trends in the rate of official underissuance and improper denial/termination of food stamp benefits for fiscal years 1981 through 1983 and compared these trends to changes in the official overissuance rate (see p. 5); and

--provided the error rates, where available, for fiscal years 1980 through 1983 as reported by the states and then as validated by the Service when establishing its official error rate (see p. 6).

We obtained summary and detailed information on official and state-reported food stamp error rates, nationally and by state, from Service headquarters in Alexandria, Virginia. Using these data, we identified national trends in the percent of food stamps overissued and underissued and the percent of cases in which benefits were improperly denied or terminated. It was agreed with your office that we would provide information on official overissuance and underissuance error rates based on dollars for fiscal years 1981 through 1983. We also agreed to provide data on state-reported overissuance and underissuance error rates for fiscal years 1980 through 1983. Because dollar error-rate data on improper denial and termination of food stamp benefits were not available, we agreed to use case error-rate data as the basis for providing information in this area.

We advised your office that neither the Service nor the states regularly calculate the confidence intervals that surround the error rates. However, data were available for us to calculate confidence intervals for the official fiscal year 1983 error rates for 13 of the 15 states in the Service's Northeast and Mid-Atlantic Regions. (See app. III, p. 9.) To get a broader representation of states, we requested the Service to compute

2

confidence intervals for fiscal year 1983 state-reported error
rates for those states for which it had sufficient data. The
Service was able to provide us with these confidence intervals for
25 additional states. (See app. III, p. 9.)

We obtained information from the Service on state administra-
tive expenditures and the amounts of benefits issued by each
state. We used these data to calculate what the amount of sanc-
tions and overissuances would be based on the midpoint and upper
and lower extremes in the confidence intervals around each state's
estimated error rate.

We made our review in accordance with generally accepted gov-
ernment auditing standards, but due to the time constraints of
your request, we did not verify the accuracy of state-reported and
Service-provided statistics. All error-rate figures are the
latest available as of March 15, 1985. These error rates may
change slightly as differences between federal and state quality
control review findings are resolved. A more detailed discussion
of our scope and methodology is presented in appendix V. Detailed
descriptions of the procedures used to sample and estimate error
rates and calculate confidence intervals, and the limitations of
these procedures, are in appendix VI.

COMPUTING CONFIDENCE INTERVALS
FOR QUALITY CONTROL ERROR RATES[1]

The official error rates published by the Food and Nutrition
Service represent the best statistical estimates of the percentage
of food stamp benefits overissued and underissued by states. For
example, the Service estimated that Connecticut had an error rate
of 12.8 percent in fiscal year 1983. This means that, for
Connecticut, 12.8 percent represents the best available statis-
tical error-rate estimate. However, as is true of all statistical
estimates, there is a chance that the true error rate would differ
from the Service's estimate. For this reason statisticians often
state ranges, called confidence intervals, when making estimates.
The Service, however, does not regularly compute confidence inter-
vals for error-rate estimates. Instead, it bases sanctions on the
official or best estimate of the error rate.

Confidence intervals show the range within which the true
error rate may fall, given a certain level of confidence, and are
constructed from two statistics--the best estimate of the error
rate and the sampling error. The best estimate is the point that
equals the midpoint of the percentages that fall within the confi-
dence interval. Sampling error is the maximum amount by which the

---

[1]In this section, statistical concepts have been simplified in
order to make them more easily understood by non-statisticians.

true error rate may be expected to differ from the estimated rate, given a desired level of confidence.[2] For Connecticut, the best estimate of the error rate was 12.8 percent and the sampling error--at a 95-percent level of confidence--was 2.0 percent. Consequently, based on our analysis, we can say that we are 95-percent certain that Connecticut's true fiscal year 1983 error rate was between 10.8 percent and 14.8 percent, with the best estimate being the midpoint (point estimate) of 12.8 percent.

The higher the level of confidence desired, the larger the sampling error. Confidence levels are decided by the users of statistics and represent the level of assurance they desire that statements made about the population are true. The confidence levels frequently selected in statistical studies are 99 percent, 95 percent, and 90 percent. (In this report we use the 95-percent level.)

Sanctions would differ depending on which point in interval is chosen

The size of the confidence intervals differed among the 38 states for which intervals were calculated for official or state-reported error rates. For example, for fiscal year 1983, confidence intervals ranged from a spread of almost 7 percentage points in Vermont (12.8 percent to 19.6 percent) to less than 2 percentage points in Maryland (6.3 percent to 7.9 percent).

Using different points within the confidence interval can dramatically affect the size of the sanction or whether one would be imposed, even when the confidence interval is fairly narrow. For example, using the Service's best estimate for 1983, Florida, with a reported error rate of 9.6 percent, would be subject to a $891,800 sanction. At the low extreme of its confidence interval, Florida would have an 8.4-percent error rate and therefore would be below the Service's target error rate and not subject to sanction. At the upper extreme, it would be subject to a $1,783,700 sanction based on an error rate of 10.7 percent. The following table summarizes the impact of basing sanctions on three different points in the confidence intervals for the 38 states covered in our analysis.

_____

[2]In addition to confidence level, two other factors determine the amount of sampling error: (1) sample size and (2) the variation in what is being measured. The impact of these two factors is discussed in appendix III.

Impact of Basing Fiscal Year 1983 Sanctions on Three Different Points in the 95-Percent Confidence Interval for 38 States

	Service's best point estimate	Lower extreme of interval	Upper extreme of interval
Number of states that would be sanctioned	9	2	20
Total amount of sanctions[a]	$6,697,300	$686,300	$15,697,300

[a]The state error rates used in this report are based on Service data available as of March 15, 1985. These error rates may change slightly as differences between federal and state review findings are resolved. Such changes could affect the amount of state sanctions involved.

Additional information, by state, on confidence intervals and the impact of basing sanctions on different points in the intervals is provided in appendix III.

ERROR-RATE TRENDS AND DIFFERENCES BETWEEN STATE-REPORTED AND OFFICIAL ERROR RATES

Since fiscal year 1980 the nationwide food stamp overissuance error rate has been declining while the underissuance error rate and the percentage of cases in which benefits were improperly denied or terminated have remained relatively stable. These trends occurred for both official and state-reported error rates. As shown in the following table, the official overissuance rate decreased over 2 percentage points between fiscal years 1981 (when sanctions were first imposed) and 1983 (the most recent period for which data were available). However, throughout that period, the underissuance and improper denial/termination rates basically maintained their fiscal year 1981 levels. Official error rates for fiscal years 1981 through 1983, and state-reported error rates for fiscal years 1980 through 1983, for each state and the nation as a whole are in appendix IV.

Official National Food Stamp Program Error Rates[a]

| | Fiscal year 1981 | | Fiscal year 1982 | | Fiscal year 1983 |
	Oct-Mar	Apr-Sept	Oct-Mar	Apr-Sept	Oct-Sept[b]
Overissu- ances	10.5	9.1	9.9	9.2	8.4
Underissu- ances	2.6	2.4	2.4	2.5	2.4
Improper denials/ termin- ations	3.9	3.5	3.5	3.9	not available

[a]Overissuance and underissuance percentages are based on dollars; improper denial and termination percentages are based on cases. Generally, case percentages are higher than dollar percentages and comparisons between the two are not appropriate.

[b]Beginning with fiscal year 1983, the Service published a fiscal year error rate. Prior to that, separate error rates were published for the first and second half of each fiscal year. Fiscal year 1983 error rates are based on data available as of March 15, 1985. These error rates may change slightly as differences between federal and state review findings are resolved.

When the Service validated state-reported error rates, it generally found some errors not reported by the state. As figure 1 shows, since fiscal year 1981 the Service has adjusted state-reported error rates about 1 percentage point upward each year as a result of these validations.

Figure 1
Comparison of Official and State-Reported
Error Rates for Fiscal Years 1981 Through 1983
(Combined Overissuances and Underissuances)

13.2 (Percent of Benefits in Error)

Oct.-Mar.	Apr.-Sept.	Oct.-Mar.	Apr.-Sept.	Oct.-Mar.	Apr.-Sept.
80-81	81	81-82	82	82-83	83

▬▬ Official Error Rate
▬ ▬▬ State-Reported Error Rate
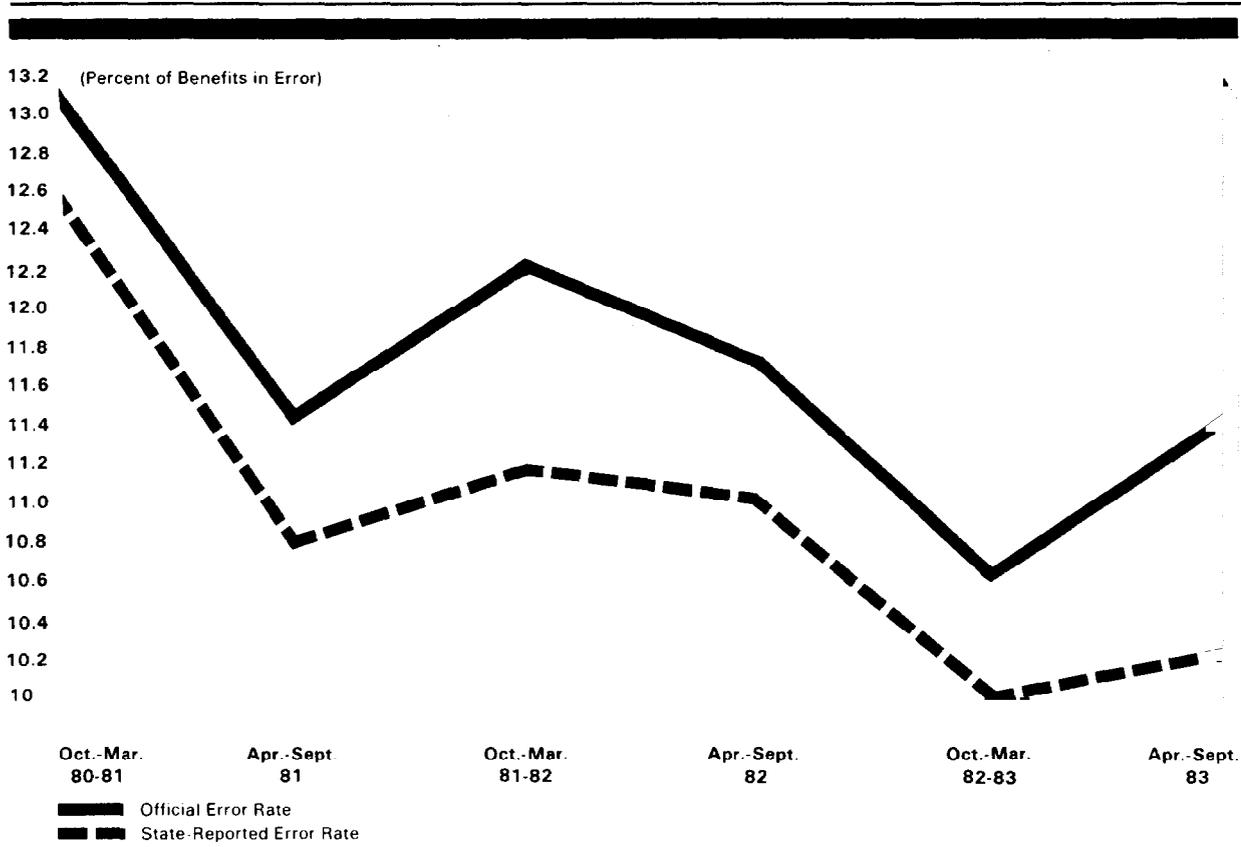
AGENCY COMMENTS

Service program officials and statisticians reviewed a draft of our report and provided us with official oral comments. The agency agreed with our findings, analyses, and methodology and suggested several minor changes that we have made in the final report.

- - - -

As arranged, unless you publicly announce its contents earlier, we plan no further distribution of this report until 2 days after its issue date. At that time, we will send copies to the Chairman, Senate Committee on Agriculture, Nutrition, and Forestry and the Chairman, Senate Committee on Governmental Affairs. We also will send copies to the Secretary of Agriculture and the Director, Office of Management and Budget. We will make copies available to others on request.

Sincerely yours,
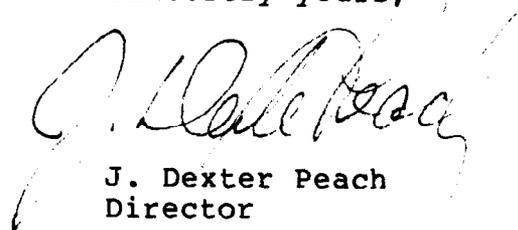
J. Dexter Peach
Director

C o n t e n t s

ILLUSTRATIONS

U.S. House of Representatives
Committee on Agriculture
Subcommittee on Domestic Marketing,
Consumer Relations, and Nutrition
Room 1301, Longworth House Office Building
Washington, D.C. 20515

December 18, 1984

Honorable Charles A. Bowsher
Comptroller General of the United States
General Accounting Office Building
441 G Street
Washington, D. C. 20548

Dear Mr. Bowsher:

I am writing to request the General Accounting Office to provide my Subcommittee with information that would be useful to me as I consider reauthorization of the food stamp program next year. One of the important issues before the Subcommittee will be that of fiscal sanctions based upon quality control error rates. To assist my efforts, the following information would be helpful:

1.   Calculations of quality control error rates for each state are based upon a sample of food stamp cases and actually represent the midpoint of a statistical range derived from the sample results. Please indicate, over the past few years, how wide the range has been for each state and the country as a whole, and what the dollar impact would be of basing sanctions on various points within the range.

2.   What has been the trend in recent years in terms of improper denials and underissuance of benefits? Have there been increases in these areas since the implementation of sanctions based upon quality control error rates? How does state performance in these areas compare with recent improvements in state performance on overissuance and payments to ineligibles? Please provide as up to date information as possible, including data on FY 1984 to the extent available.

3.   What has been the state reported and official error rate (as validated by the Food and Nutrition Service) for each state for fiscal years 1981 through 1983. Please also provide the state reported error rates for years prior to FY 1981.

I anticipate that food stamp legislation could be considered as early as April 1985. I would appreciate receiving the requested information by April 1, 1985. Thank you.

Sincerely,
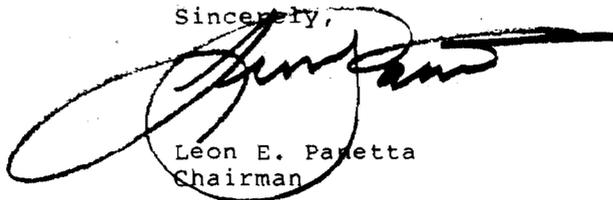
Leon E. Panetta
Chairman

THE QUALITY CONTROL AND

ERROR-RATE SANCTION SYSTEMS

The Food Stamp Program provides food assistance benefits to households that meet program eligibility requirements. Income, household size, and liquid assets, such as bank accounts, are the principal factors for determining household eligibility. Benefits are issued in the form of food coupons used by eligible households to purchase food and thus obtain a more nutritious diet. The program is administered nationally by the Department of Agriculture's Food and Nutrition Service with 100-percent federal financing of the food stamp benefits--$10.7 billion in fiscal year 1984. States are responsible for local administration and day-to-day operation of the program, but the federal government finances part (usually 50 percent) of the states' administrative costs.

THE QUALITY CONTROL SYSTEM

The Food Stamp Act of 1977 mandated the quality control review system and required states to conduct quality control reviews. These reviews identify the types of benefit issuance errors made and quantify the losses attributable to each type. Error-rate results are compiled and reported for each fiscal year[1] and provide data on three categories of benefit issuance errors: issuances to ineligible households, overissuances to eligible households, and underissuances to eligible households. (For the purposes of this report, we will refer to issuances to ineligible households and overissuances to eligible households as "overissuances.") Quality control reviews also provide information on the percentage of cases in which benefits were improperly denied or terminated.

Program regulations require states to carry out quality control reviews by selecting a statistically valid sample of their programs' participant caseload. States then must thoroughly review each case in the sample to verify the accuracy of the participants' eligibility and the amount of benefits provided them. The results of these reviews are used to project an error rate (percent of dollar benefits erroneously issued) for the state's total caseload. This approach is taken because it would not be economically feasible to require states to review every food stamp case to determine the true error rate.

---

[1] In fiscal year 1983, states made semi-annual reviews, but the Service adjusted the review results and developed an annual error rate. Prior to fiscal year 1983, states made reviews and compiled and reported results for 6-month periods beginning each April and October.

The results of states' quality control reviews are validated by Food and Nutrition Service reviewers. The reviewers select a subsample of cases from each state's quality control sample and rereview it to determine if the state properly completed its review of the required sample cases and accurately reported the results. The Service discusses the results of its validation work with each state and adjusts the state's reported error rates upward or downward to reflect any problems found with the state's reported results.

The Service began validating state-reported error rates when sanctions were initiated by the Food Stamp Act Amendments of 1980 at the start of fiscal year 1981. However, the Service routinely validates only state-reported overissuance and underissuance rates because states are held liable for these errors, but not for improper denials and terminations. Since fiscal year 1983 improper denials and terminations have affected a state's eligibility for incentive funding. Therefore, the Service has validated this error rate only if a state may be entitled to these funds. To receive incentive funding for fiscal year 1983, states were required to have improper denial/termination case error rates below the national average and combined overissuance and underissuance rates not exceeding 5 percent. For fiscal year 1983 only one state, Nevada, was eligible to receive enhanced funding under this formula and had its rate of improper denials and terminations validated.

THE ERROR-RATE SANCTION SYSTEM

The Food Stamp Act Amendments of 1980 established an error-rate sanction system under which states were to be held liable for part of their errors as determined through quality control reviews. For fiscal years 1981 and 1982 (four quality control periods), states were held liable for an amount equivalent to the overissuances and underissuances exceeding the following targets:

1. The state's error rate had to equal or fall below the national average error rate (total overissuances and underissuances) for the base period (first half of the previous fiscal year); or

2. If a state's error rate for the base period exceeded the national average for that period, the state had to achieve a 10-percent reduction in the difference between the base period error rate and a Service-established national goal of 5 percent.

The Food Stamp Act Amendments of 1982 significantly changed food stamp procedures for applying sanctions starting in fiscal year 1983. First, states were held liable for part of their overissuances but were no longer liable for underissuances. Second, the liability was no longer equivalent to the amount of the excess

4

issuance errors but was based on the amount of a state's federally
reimbursed administrative costs for that fiscal year. Thus, the
amount of a sanction hinges in large part on how much a state
spends to administer the program.

Third, the legislation established overissuance target goals
of 9 percent of total issuances for fiscal year 1983, 7 percent
for fiscal year 1984, and 5 percent for fiscal year 1985 and
beyond. But it did not require that all states meet the targets
for 1983 and 1984. Any state with an overissuance error rate
exceeding 9 percent during the legislatively established 6-month
base period--October 1980 through March 1981--could avoid a sanc-
tion by meeting an individually determined target error rate. The
target for fiscal year 1983 was a reduction in a state's actual
error rate equal to at least one third of the difference between
its base-period rate and the 5 percent target for fiscal year
1985. For fiscal year 1984, the reduction was to be at least two
thirds of this difference; and for fiscal year 1985 and beyond,
the state's error rate cannot exceed 5 percent. For example,
Connecticut with a 14.1 percent error rate in the base period had
to reduce that error rate by at least 3 percent in fiscal year
1983 (one third of the 9.1 percent difference between 14.1 percent
and 5 percent) and by at least 6 percent (two thirds of the orig-
inal 9.1 percent difference) in fiscal year 1984. Connecticut
would have to further reduce its error rate by another 3.1 percent
in fiscal year 1985 to achieve the targeted 5-percent error rate.
Neither the original nor revised sanction systems take into
account improper denials and terminations.

During the 4 fiscal years--1981 through 1984--that the sanc-
tion system has been in effect, the Service has issued a total of
59 sanctions to 26 states for about $57 million. However, states
have yet to pay the federal government any of the sanction amounts
because the sanctions were either waived by the Service, success-
fully appealed in administrative hearings, or are still in
litigation.[2]

---

[2]GAO's report entitled Federal and State Liability for Inaccurate
   Payment of Food Stamps, AFDC, and SSI Program Benefits (GAO/RCED-
   84-155, April 25, 1984) provides a more detailed description of
   the food stamp error-rate sanction system, as well as an analysis
   of its results and a comparison with the sanction systems of
   other income security programs.

CONFIDENCE INTERVALS FOR FISCAL YEAR 1983

OVERISSUANCE ERROR RATES

The Food and Nutrition Service bases sanctions on an estimate of a state's food stamp overissuance error rate. Estimates are used because it would be economically infeasible for the Service or the states to review every food stamp issuance and thereby determine the true error rate for a state. When any estimating method is used, a chance exists that the estimated rate will be different from the true rate. By using scientifically derived random sampling techniques, however, the Service can provide an estimate of what the error rate might be. The Service also could provide information on how much the estimated rate might differ from the true rate, but Service officials told us they do not regularly do so.

The estimated error rate that the Service uses when making sanctioning decisions represents the best available estimate of a state's true error rate, given the statistically valid sample of cases reviewed. However, because this rate (as with all sampling results) is an estimate and because the true error rate, if known, might be greater or less than the estimate, statistical studies will often state ranges (called confidence intervals) for estimates of this type. These confidence intervals show how much the estimate could differ from the true rate, given a desired level of confidence.

Confidence intervals are constructed from two statistics: the best available point estimate and the sampling error. The point estimate is the midpoint of the percentages that comprise the confidence interval. Sampling error is the maximum amount by which the true error rate may be expected to differ from the best available estimate, given a desired level of confidence. The higher the level of confidence desired, the larger the sampling error. Confidence levels frequently selected in statistical studies are 99 percent, 95 percent, and 90 percent. (In this report, we use the 95-percent level of confidence.) Confidence levels are decided by the users of the statistical data and represent the level of assurance they desire that statements made about the population being sampled are indeed true.

The following table illustrates the concepts of confidence levels, sampling error, and confidence intervals and shows how they can be used:

| | Best | | |
Desired level of confidence	available error rate estimate	Sampling error	Confidence interval
----------------------------------(percent)-----------------------------			
90	10.0	± 1.6	8.4 - 11.6
95	10.0	± 2.0	8.0 - 12.0
99	10.0	± 3.0	7.0 - 13.0

The first column shows various levels of confidence that a user might select. The best available estimate of the error rate is computed from the sample data. The sampling error is then computed from the data and the desired level of confidence. Finally, the confidence interval is determined by first subtracting the sampling error from the estimated rate in the second column to get the lower bound of the confidence interval and then by adding the sampling error to the estimated rate to get the upper bound of the confidence interval. As the table shows, the sampling error increases and the confidence interval widens as the desired level of confidence increases. Statements that might be made from the above information include the following:

--We can be 95-percent sure that the true error rate is between 8 and 12 percent. (Conversely there is a 5-percent chance that the true error rate is not between 8 and 12 percent--a 2.5-percent chance that it is less than 8 percent and a 2.5-percent chance that it is greater than 12 percent.)

--We can be 90-percent sure that the true error rate does not differ from the sample estimate of 10 percent by more than 1.6 percentage points.

--We can be 99-percent sure that the true error rate is not less than 7.0 percent and not greater than 13.0 percent.

In addition to confidence level, two other factors determine the amount of sampling error. The first factor is the amount of variation in what is being measured. There would generally be more variation in a state where the issued amount of food stamp benefits range from $10 to $500 per case than in a state where benefits range from $10 to $100 per case. As the amount of variation increases or decreases, so does the sampling error.

The final factor that affects sampling error is the sample size. As the sample size increases or decreases, the sampling error changes in like fashion and, given a desired level of confidence, the confidence interval becomes narrower or wider.

In the remainder of this appendix, we present the Food and Nutrition Service's estimates of states' fiscal year 1983 food stamp overissuance error rates. We also have included the upper and lower bounds of the confidence interval at the 95-percent confidence level for these estimates. Using each of these three points, we have calculated the amount of the potential food stamp sanctions and overissuances. This analysis addresses the question of how much the sanctions and overissuances could vary from what the Service calculated if the true state error rates were known. It is a "worst case" analysis in that it shows the maximum amount sanctions and overissuances based on true error rates could be expected to differ from sanctions and overissuances based on the Service's estimate. For any state, only a 2.5-percent chance exists that the true error rate is as low as the lower extreme of the 95-percent confidence interval. The same holds true for the upper extreme of the 95-percent confidence interval.

WIDTH OF CONFIDENCE INTERVALS
VARIED FROM STATE TO STATE

As shown in the following table, the width of the confidence intervals for the official and state-reported overissuance error rates at the 95-percent confidence level differed among the 38 states in our review. At one extreme, Vermont--which had the largest sampling error--had a confidence interval 6.8 percentage points wide. At the other end, Maryland--which had the least amount of sampling error--had an interval only 1.6 percentage points wide. Most of the states in our review had confidence intervals at the 95-percent level that were about 2 to 4 percentage points wide, which means that we can be 95-percent certain that the true error rate in most states did not exceed or fall short of the Service's best-estimate error rate by more than 1 to 2 percentage points.

TABLE 1
Confidence Intervals at 95-Percent Confidence Level[a]
for Fiscal Year 1983

	Overissuances		
	----------(percent of total issuances)---------		
State	Lower extreme	Best available point estimate	Upper extreme
Alabama	5.3	6.2	7.0
Alaska	8.9	12.2	15.4
Arizona	8.7	9.8	10.9
Connecticut[b]	10.8	12.8	14.8
Delaware[b]	3.4	4.9	6.4
Dist. of Col.[b]	8.3	10.1	11.9
Florida	8.4	9.6	10.7
Guam	3.0	5.2	7.5
Hawaii	3.1	4.1	5.0
Indiana	7.4	8.4	9.4
Iowa	7.1	8.4	9.7
Kansas	7.1	8.2	9.3
Louisiana	7.6	8.7	9.8
Maine[b]	6.9	8.4	9.9
Maryland[b]	6.3	7.1	7.9
Michigan	6.4	7.4	8.4
Minnesota	4.8	5.7	6.5
Mississippi	7.2	8.2	9.3
Missouri	5.6	6.4	7.3
Nebraska	5.6	7.8	10.0
Nevada	1.1	2.1	3.1
New Hampshire[b]	7.6	10.0	12.4
New Jersey[b]	6.7	8.0	9.3
New Mexico	9.8	11.1	12.4
North Carolina	6.3	7.4	8.5
North Dakota	2.8	5.1	7.4
Pennsylvania[b]	8.8	10.4	12.0
Rhode Island[b]	7.2	8.9	10.6
South Dakota	5.5	7.5	9.4
Tennessee	5.4	6.5	7.5
Texas	5.2	6.1	6.9
Utah	10.1	12.1	14.1
Vermont[b]	12.8	16.2	19.6
Virgin Islands[b]	11.2	14.8	18.4
Virginia[b]	5.5	6.5	7.5
Washington	8.3	9.5	10.7
West Virginia[b]	4.7	5.5	6.3
Wyoming	7.1	10.3	13.5

[a]GAO computed the confidence intervals for the official error
rates of 13 states. At our request, the Food and Nutrition
Service computed those for the remaining 25 states based on
state-reported error rates.

[b]Based on official overissuance error rate as of March 15, 1985.
These error rates may change slightly as differences between
federal and state review findings are resolved. Remainder is
based on state-reported error rates.

USING VARIOUS POINTS IN A CONFIDENCE
INTERVAL CAN AFFECT SIZE OF SANCTIONS

Using different points in the confidence interval when assessing sanctions can significantly affect the amount of a sanction, especially when the confidence interval is wide. As table 2 shows, using the Service's best point estimate would result in sanctions of $6,697,300 for 9 of the 38 states in our review. If sanctions were based on the lower extreme of the 95-percent confidence interval, only 2 states would be subject to sanctions; and the amount of the penalty would be reduced to $686,300. Basing sanctions on the upper extreme would increase sanctions to $15,697,300 and the number of sanctioned states to 20. Thus, the amount of sanctions for some states could be reduced by as much as two thirds or could be almost tripled, depending on which point was used. Some states not subject to sanction on the basis of the Service's best point estimate would be faced with penalties if the upper extreme of the confidence interval were used, and some states being sanctioned on the basis of the best point estimate would not be subject to sanctions if the lower extreme of the confidence interval were used.

TABLE 2
IMPACT OF BASING FISCAL YEAR 1983 SANCTIONS ON BEST
POINT ESTIMATE AND ON UPPER AND LOWER EXTREMES OF
THE 95-PERCENT CONFIDENCE INTERVAL[a]

State	Lower extreme		Best available point estimate		Upper extreme	
	Over-issuances	Sanc-tion	Over-issuances	Sanc-tion	Over-issuances	Sanc-tion
			----(thousands of dollars)----			
Alabama	17649.8	0	20528.9	0	23408.0	0
Alaska	1776.8	0	2426.8	0	3076.7	0
Arizona	12354.6	0	13949.8	0	15545.0	0
Connecticut[b]	7712.0	0	9172.7	570.2	10633.5	1425.4
Delaware[b]	948.2	0	1362.3	0	1776.5	0
Dist. of Col.[b]	3809.6	0	4637.5	0	5465.5	170.8
Florida	38121.0	0	43274.4	891.8	48427.8	1783.7
Guam	537.9	0	943.1	0	1348.3	0
Hawaii	2552.4	0	3298.1	0	4043.7	0
Indiana	19934.8	0	22548.6	0	25162.3	420.5
Iowa	7403.8	0	8741.1	0	10078.4	244.0
Kansas	5023.8	0	5803.7	0	6583.5	0
Louisiana	22660.9	0	25879.2	0	29097.6	965.4
Maine[b]	4898.6	0	5937.7	0	6976.8	109.4
Maryland[b]	11134.2	0	12633.9	0	14133.6	0
Michigan	32699.8	0	37689.1	0	42678.3	0
Minnesota	4968.2	0	5850.7	0	6733.2	0
Mississippi	19373.7	0	22230.8	0	25087.8	436.2
Missouri	12475.5	0	14301.5	0	16127.5	0
Nebraska	2377.7	0	3307.2	0	4236.7	104.7
Nevada	236.2	0	456.3	0	676.5	0
New Hampshire[b]	1863.7	0	2463.6	0	3063.5	227.3
New Jersey[b]	19289.1	0	23077.2	0	26865.3	809.2
New Mexico	9367.8	0	10595.3	563.4	11822.7	845.1
N. Carolina	16742.4	0	19670.6	0	22598.8	0
North Dakota	432.0	0	789.2	0	1146.4	0
Pennsylvania[b]	49028.7	0	57990.5	2316.4	66952.3	3474.6
Rhode Island[b]	2901.5	0	3569.7	0	4237.9	227.1
South Dakota	1467.3	0	1982.6	0	2497.8	117.9
Tennessee	17486.4	0	20921.1	0	24355.7	0
Texas	36052.6	0	41778.4	0	47504.3	0
Utah	4365.1	415.1	5233.5	1037.9	6101.9	1868.0
Vermont[b]	3393.1	271.2	4284.7	705.0	5176.4	1030.4
Virgin Island[b]	2628.8	0	3469.7	226.3	4310.6	497.8
Virginia[b]	12125.2	0	14380.0	0	16634.8	0
Washington	12123.6	0	13895.1	353.0[c]	15666.7	705.9
West Virginia[b]	6843.6	0	8014.7	0	9185.7	0
Wyoming	838.1	0	1220.8	33.4	1603.5	233.9
Total[d]	425598.1	686.3	498310.0	6697.3	571021.7	15697.3

[a]GAO calculations based on data supplied by the Food and Nutrition Service.

[b]Based on official overissuance error rate. Remainder of states are based on state-reported error rate.

[c]The Service assessed a sanction of $705,900 against Washington based on the state's official error rate. The GAO calculation is based on the state-reported error rate.

[d]Totals are for 38 states only.   11

OFFICIAL AND STATE-REPORTED ERROR RATES:

OVERISSUANCES, UNDERISSUANCES, AND

IMPROPER DENIALS/TERMINATIONS

Between fiscal years 1981 and 1983 (the most recent period
for which data were available), the national official overissuance
error rate decreased by over 2 percentage points (from 10.5 to 8.4
percent) while the official error rates for underissuances and
improper denials/terminations held about constant at 2.4 percent
and 3.5 percent, respectively. On average, states reported over-
issuance errors of about two thirds of a percentage point less
than the official overissuance rate and underissuance errors of
about two tenths of percentage point less than the official rate.

The following tables provide food stamp error rate data by
state and for the program as a whole for all quality control
periods. Tables 3 and 4 provide the official overissuance and
underissuance error rates for fiscal years 1981 through 1983.
(Fiscal year 1980 data were not available because the Service did
not begin validating error rates until fiscal year 1981.) Tables
5 and 6 provide the state-reported overissuance and underissuance
error rates for fiscal years 1980 through 1983. Table 7 provides
the improper denial/termination error rates; and table 8, the
trends in national error rates for fiscal years 1980 through
1983. For fiscal year 1983 we show state-reported data on a
6-month basis and the official total for the year because that
year the Service adjusted semi-annual, state-reported error rates
to derive an official, annual error rate.

TABLE 3

Official Food Stamp Overissuance Error Rates
(Oct. 1980 through Sept. 1983)

State[a]	Percent of benefits issued to ineligible households and overissued to eligible households				
	10/80-3/81	4/81-9/81	10/81-3/82	4/82-9/82	FY 1983 (Total)
U.S. total	10.5	9.1	9.9	9.2	8.4
Alabama	9.5	6.3	5.4	6.1	7.0
Alaska	21.4	24.9	21.2	20.3	13.9
Arizona	15.1	9.4	12.6	11.6	9.8
Arkansas	8.8	9.6	9.5	9.8	8.9
California	8.7	5.8	9.3	8.0	6.8
Colorado	11.7	13.9	14.5	13.8	12.6
Connecticut	14.1	13.7	13.6	12.9	12.8
Delaware	7.8	7.1	6.0	6.9	4.9
Dist. of Columbia	13.8	12.5	11.3	10.9	10.1
Florida	12.5	13.2	10.7	9.7	10.2
Georgia	9.2	10.4	6.6	10.2	7.5
Guam	4.6	11.2	4.9	5.7	7.6
Hawaii	7.0	6.9	6.7	5.2	4.3
Idaho	8.8	10.3	7.4	9.4	8.5
Illinois	9.1	8.0	7.7	10.3	7.2
Indiana	9.0	7.2	6.8	8.0	9.8
Iowa	10.6	7.9	9.2	9.3	9.5
Kansas	11.6	10.6	10.2	9.3	9.1
Kentucky	9.1	6.6	7.0	7.2	6.9
Louisiana	10.3	10.6	9.9	9.5	8.8
Maine	9.7	6.5	7.8	9.3	8.4
Maryland	13.7	14.6	10.7	8.7	7.1
Massachusetts	12.3	10.3	13.7	12.9	13.0
Michigan	9.4	9.2	9.1	8.9	7.7
Minnesota	6.7	9.5	10.2	6.5	8.0
Mississippi	9.9	10.4	8.9	9.3	8.3
Missouri	8.8	8.3	6.9	8.0	7.2
Montana	15.5	11.6	7.4	7.8	5.5
Nebraska	11.1	11.0	10.3	11.0	7.2
Nevada	3.7	3.1	1.5	1.5	2.2
New Hampshire	13.3	12.3	15.6	17.1	10.0
New Jersey	10.0	8.9	8.5	8.8	8.0
New Mexico	12.9	13.9	13.1	12.6	11.4
New York	15.0	12.4	14.1	8.8	10.4
North Carolina	9.8	12.8	9.5	11.6	7.9
North Dakota	4.4	5.8	7.2	6.6	5.0
Ohio	8.3	7.3	9.7	9.4	7.0
Oklahoma	9.8	8.8	7.5	8.5	8.8
Oregon	7.2	10.8	12.0	11.2	10.2
Pennsylvania	10.5	8.7	11.8	9.9	10.4
Rhode Island	11.7	9.2	8.8	9.1	8.9
South Carolina	8.4	9.6	11.6	9.0	8.7
South Dakota	10.5	6.2	11.1	10.2	7.8
Tennessee	11.8	10.8	10.9	9.0	6.8
Texas	9.0	9.6	10.8	8.6	7.6
Utah	8.5	7.3	7.2	12.2	13.3
Vermont	9.5	9.0	9.7	10.6	16.2
Virgin Islands	15.0	6.5	8.4	14.7	14.8
Virginia	8.4	6.7	7.0	9.6	6.5
Washington	9.0	7.2	10.3	9.1	10.1
West Virginia	7.7	10.2	8.9	9.1	5.5
Wisconsin	11.1	9.5	10.6	12.1	8.3
Wyoming	11.5	13.4	8.3	9.1	9.9

[a]Fifty U.S. states plus the District of Columbia, Guam, and the Virgin Islands.

13

TABLE 4

Official Food Stamp Underissuance Error Rates
(Oct. 1980 through Sept. 1983)

Percent of benefits underissued to eligible households

State[a]	10/80-3/81	4/81-9/81	10/81-3/82	4/82-9/82	FY 1983 (Total)
U.S. total	2.6	2.4	2.4	2.5	2.4
Alabama	2.3	1.7	2.1	1.6	2.0
Alaska	1.0	2.7	2.0	3.6	2.4
Arizona	3.6	4.0	2.8	2.7	3.3
Arkansas	2.4	2.6	3.1	2.5	2.0
California	3.0	3.4	2.8	3.2	3.8
Colorado	2.6	2.8	2.7	1.0	2.3
Connecticut	2.7	2.5	2.9	4.2	3.2
Delaware	3.9	1.6	2.5	1.6	1.9
Dist. of Columbia	5.2	4.4	7.3	4.3	3.1
Florida	2.5	2.1	2.2	3.3	3.1
Georgia	3.4	2.1	2.2	2.6	2.4
Guam	1.9	2.0	2.2	1.1	1.4
Hawaii	2.4	2.3	2.4	1.3	1.2
Idaho	2.0	2.0	1.5	2.8	1.6
Illinois	2.4	3.4	2.2	1.9	2.4
Indiana	1.0	0.8	2.5	2.2	2.1
Iowa	1.6	1.4	2.2	1.2	2.0
Kansas	3.0	2.1	1.6	1.4	1.9
Kentucky	1.8	2.2	1.9	2.0	1.9
Louisiana	1.9	3.0	2.6	3.0	2.5
Maine	2.9	2.3	1.9	1.8	2.3
Maryland	3.0	2.1	1.7	1.6	2.2
Massachusetts	3.6	1.5	2.1	3.4	1.8
Michigan	3.1	2.6	2.3	3.2	2.1
Minnesota	2.2	1.5	1.6	2.4	1.7
Mississippi	2.6	1.3	3.9	2.9	3.0
Missouri	2.0	2.1	2.3	2.5	2.3
Montana	1.9	2.7	1.6	1.8	1.3
Nebraska	2.2	1.9	4.0	1.8	2.4
Nevada	1.4	0.6	1.6	0.2	1.1
New Hampshire	2.8	2.4	2.1	1.5	1.9
New Jersey	1.8	2.4	2.4	2.2	2.4
New Mexico	2.4	1.8	2.7	2.7	3.0
New York	4.1	3.2	2.7	3.4	3.1
North Carolina	6.0	3.4	3.8	0.9	3.3
North Dakota	2.5	1.5	2.0	0.7	0.7
Ohio	1.8	1.7	1.8	1.3	1.4
Oklahoma	2.4	3.1	4.0	3.3	3.4
Oregon	1.4	2.2	3.2	1.8	2.5
Pennsylvania	3.1	1.9	1.5	2.6	2.0
Rhode Island	2.3	2.0	3.3	1.6	2.6
South Carolina	2.1	2.6	1.3	3.2	2.5
South Dakota	1.8	1.6	1.4	1.6	1.1
Tennessee	2.6	2.4	2.4	2.2	1.9
Texas	2.0	2.3	2.3	2.2	2.4
Utah	3.0	4.2	3.0	4.1	2.5
Vermont	1.9	1.6	2.5	2.2	2.7
Virgin Islands	3.3	4.3	1.0	3.2	4.8
Virginia	1.8	2.3	2.8	1.9	2.1
Washington	1.6	2.4	1.7	1.8	1.6
West Virginia	2.2	2.9	2.5	1.5	1.9
Wisconsin	3.2	3.7	4.2	4.5	3.4
Wyoming	1.1	1.2	0.8	1.7	2.0

[a]Fifty U.S. states plus the District of Columbia, Guam, and the Virgin Islands.

14

TABLE 5

State-Reported Food Stamp Overissuance Error Rates
(Oct. 1979 through Sept. 1983)

State[a]	Percent of benefits issued to ineligible households and overissued to eligible households							
	10/79-3/80	4/80-9/80	10/80-3/81	4/81-9/81	10/81-3/82	4/82-9/82	10/82-3/83	4/83-9/83
U.S. total	10.2	8.9	9.9	8.6	8.9	8.7	7.8	8.0
Alabama	8.7	7.9	7.7	5.9	5.8	5.9	5.7	6.6
Alaska	10.4	13.3	20.0	24.5	22.0	17.8	12.0	12.5
Arizona	11.1	10.7	14.0	10.0	13.0	11.9	11.4	8.2
Arkansas	8.5	6.5	8.3	6.6	8.5	7.0	6.0	7.7
California	7.2	7.8	7.5	5.4	7.2	7.2	5.6	5.5
Colorado	8.4	8.8	11.0	12.0	13.2	12.7	11.1	9.5
Connecticut	9.6	10.3	13.8	13.7	12.0	10.2	11.6	11.9
Delaware	12.3	7.5	7.3	7.1	4.9	5.5	4.5	5.0
Dist. of Columbia	18.2	11.5	12.9	12.3	11.0	12.6	9.7	9.3
Florida	9.1	8.6	10.8	12.1	10.5	9.4	8.7	10.5
Georgia	10.4	8.8	9.0	9.3	6.5	10.2	8.1	6.5
Guam	4.2	8.4	4.4	11.2	4.6	6.2	5.1	5.8
Hawaii	4.8	4.2	7.0	4.7	6.7	4.8	3.9	4.3
Idaho	10.6	10.0	9.9	8.6	7.0	8.0	4.5	6.8
Illinois	12.0	7.9	8.6	7.3	7.5	8.9	7.0	7.2
Indiana	8.2	6.8	9.1	6.9	7.1	8.1	8.7	8.1
Iowa	12.9	8.1	10.7	7.9	9.2	9.3	9.3	7.3
Kansas	11.9	9.2	11.3	10.9	7.9	7.7	8.9	7.5
Kentucky	8.1	6.3	8.3	6.4	7.0	7.3	6.7	6.7
Louisiana	11.0	7.7	8.9	9.7	9.9	9.8	7.6	9.6
Maine	10.4	8.0	8.9	6.5	8.5	7.8	5.4	7.6
Maryland	14.7	14.5	14.5	14.8	10.0	8.6	7.5	6.7
Massachusetts	11.1	9.9	11.2	10.3	11.0	11.8	9.4	11.3
Michigan	10.5	10.1	9.3	8.7	9.1	8.2	6.9	7.8
Minnesota	7.0	6.3	6.2	4.6	6.4	5.1	5.6	5.7
Mississippi	10.1	10.6	10.5	9.2	7.3	8.6	7.2	9.2
Missouri	8.0	8.0	9.1	8.0	6.9	8.0	6.8	6.8
Montana	7.9	10.2	14.6	11.4	4.8	7.8	4.8	3.9
Nebraska	14.5	10.1	9.6	11.9	11.3	10.6	8.9	6.8
Nevada	5.1	3.1	3.4	2.8	2.6	1.5	2.7	1.5
New Hampshire	9.1	8.4	14.4	12.3	12.4	13.6	10.6	8.7
New Jersey	9.8	7.5	9.4	8.4	8.0	8.9	7.4	7.8
New Mexico	13.8	12.6	15.0	11.8	13.5	11.8	12.5	9.6
New York	16.9	14.8	15.1	13.5	11.2	9.0	9.8	10.7
North Carolina	10.2	9.3	10.6	10.7	11.2	9.1	6.5	8.2
North Dakota	5.1	7.9	4.6	8.6	7.2	6.0	5.8	4.2
Ohio	7.7	9.1	7.7	6.4	8.8	8.5	6.3	7.7
Oklahoma	7.6	6.4	7.3	7.3	6.7	8.3	9.3	6.8
Oregon	9.3	9.1	5.3	8.2	8.1	6.7	8.6	8.7
Pennsylvania	11.4	6.4	10.0	8.4	12.0	10.1	9.5	9.2
Rhode Island	15.1	12.3	11.4	9.2	6.6	6.6	6.7	8.3
South Carolina	11.5	9.5	8.2	8.1	8.7	7.3	9.5	10.3
South Dakota	10.1	8.3	8.1	5.1	10.8	10.2	7.9	7.8
Tennessee	10.3	10.5	11.9	10.6	10.9	9.0	6.5	6.1
Texas	8.1	7.2	8.5	7.9	8.9	8.1	6.7	5.4
Utah	10.1	11.5	9.9	7.3	7.7	11.4	13.6	10.5
Vermont	12.0	8.9	9.6	9.0	11.4	9.9	6.0	9.2
Virgin Islands	12.7	12.2	10.5	5.1	6.0	15.2	12.1	16.0
Virginia	7.2	8.1	8.4	6.7	6.7	9.5	6.7	6.0
Washington	8.3	7.9	8.6	6.1	7.3	8.0	8.8	10.3
West Virginia	7.5	7.3	7.3	10.3	8.8	9.3	6.4	4.7
Wisconsin	10.8	8.6	8.8	8.8	8.1	8.2	6.5	7.2
Wyoming	10.9	10.0	10.8	13.2	8.1	9.2	6.5	13.8

[a]Fifty U.S. states plus the District of Columbia, Guam, and the Virgin Islands.

TABLE 6

State-Reported Food Stamp Underissuance Error Rates
(Oct. 1979 through Sept. 1983)

State[a]	Percent of benefits underissued to eligible households							
	10/79-3/80	4/80-9/80	10/80-3/81	4/81-9/81	10/81-3/82	4/82-9/82	10/82-3/83	4/83-9/83
U.S. total	2.4	2.4	2.6	2.2	2.3	2.3	2.2	2.3
Alabama	2.1	1.7	2.2	1.9	2.1	1.4	1.6	1.6
Alaska	3.0	2.3	1.1	2.7	1.9	3.7	2.8	2.2
Arizona	2.5	3.4	2.9	3.0	2.6	3.5	3.3	3.3
Arkansas	1.3	1.8	1.9	2.0	2.8	2.8	2.0	1.5
California	2.6	3.5	3.0	2.9	2.7	3.3	3.3	3.6
Colorado	1.1	1.7	2.1	2.5	2.7	2.0	1.8	2.4
Connecticut	2.7	0.8	2.2	2.5	1.8	2.0	2.6	2.4
Delaware	1.3	3.1	3.1	1.9	2.4	1.6	2.2	1.1
Dist. of Columbia	3.4	4.1	4.4	4.7	6.6	4.3	3.1	3.4
Florida	2.7	2.2	2.5	2.1	2.3	2.3	2.6	3.3
Georgia	3.0	2.2	2.3	2.0	2.1	1.9	2.2	3.2
Guam	0.4	0.7	1.9	1.8	2.2	1.3	2.3	1.9
Hawaii	2.1	1.7	2.5	2.4	2.2	1.5	1.5	1.2
Idaho	1.6	2.7	1.8	1.9	1.0	1.2	1.6	0.8
Illinois	3.9	3.2	2.4	1.9	2.1	1.9	2.2	2.4
Indiana	2.1	1.4	1.1	2.0	1.8	2.2	2.2	2.0
Iowa	2.1	1.9	1.5	1.6	2.2	1.2	1.7	2.3
Kansas	1.9	2.9	3.0	1.9	1.7	1.4	1.8	1.9
Kentucky	1.2	1.9	1.7	2.2	1.9	2.0	1.2	1.2
Louisiana	2.2	2.4	2.0	2.8	2.8	3.0	2.4	2.6
Maine	2.0	2.1	2.7	2.3	1.6	2.1	1.6	1.9
Maryland	2.5	2.4	2.6	1.9	1.7	1.3	2.1	1.9
Massachusetts	1.7	1.6	2.0	1.4	1.7	2.9	0.8	1.4
Michigan	3.1	2.9	2.8	2.6	2.2	2.9	2.3	1.8
Minnesota	2.0	2.3	1.9	1.5	1.5	2.3	1.6	2.2
Mississippi	2.2	3.0	2.4	2.4	3.0	2.7	1.8	3.0
Missouri	1.7	2.5	2.0	2.1	2.3	2.5	2.6	2.0
Montana	2.1	1.2	1.5	2.5	1.7	1.8	1.2	2.2
Nebraska	4.0	3.2	2.2	2.1	3.6	1.8	1.9	1.9
Nevada	1.7	1.8	1.1	0.6	1.1	0.0	0.9	0.8
New Hampshire	2.3	1.6	3.0	2.4	1.8	2.0	2.0	1.1
New Jersey	1.7	2.0	1.9	1.8	2.5	1.7	1.8	2.6
New Mexico	2.4	2.3	2.3	2.1	2.3	2.9	2.8	2.6
New York	4.7	3.6	3.7	3.1	3.6	3.0	2.4	3.2
North Carolina	2.6	3.1	4.6	3.7	3.9	2.3	2.9	2.8
North Dakota	1.5	0.8	2.5	1.4	2.0	0.7	1.1	2.8
Ohio	1.5	1.2	1.5	1.5	1.7	1.3	1.3	1.3
Oklahoma	2.0	2.6	1.9	2.0	3.6	3.3	3.6	3.2
Oregon	2.2	1.5	1.4	1.8	2.2	1.7	2.2	2.0
Pennsylvania	2.3	2.2	2.5	1.9	1.4	2.5	2.2	2.2
Rhode Island	3.1	2.8	1.9	2.0	2.2	1.6	1.5	2.1
South Carolina	2.1	2.2	2.6	2.3	3.0	2.6	2.7	2.8
South Dakota	2.1	0.8	1.3	1.5	0.8	1.3	1.2	1.3
Tennessee	2.5	2.1	1.9	2.1	2.2	1.9	2.1	1.3
Texas	1.7	1.8	1.5	2.0	2.1	2.1	2.0	2.1
Utah	1.9	2.5	2.5	4.2	2.5	4.4	2.5	2.2
Vermont	1.6	2.2	1.6	1.6	1.8	1.3	1.9	2.5
Virgin Islands	2.2	3.0	3.2	2.8	0.2	3.2	3.8	3.6
Virginia	1.9	1.8	2.4	2.0	2.8	2.0	2.0	2.1
Washington	1.2	1.4	1.4	1.4	1.3	1.5	1.5	1.9
West Virginia	1.8	1.6	2.0	2.4	2.6	1.4	2.0	1.4
Wisconsin	3.0	3.4	3.1	3.0	3.3	3.6	2.9	2.4
Wyoming	0.6	1.4	1.1	0.9	0.5	2.0	1.8	1.5

[a]Fifty U.S. states plus the District of Columbia, Guam, and the Virgin Islands.

16

TABLE 7

Improper Denial/Termination Food Stamp Error Rates
(Oct. 1979 through Sept. 1983)

State[a]	Percent of cases improperly denied or terminated to eligible households							
	10/79-3/80	4/80-9/80	10/80-3/81	4/81-9/81	10/81-3/82	4/82-9/82	10/82-3/83	4/83-9/83
U.S. total	3.9	4.0	3.9	3.5	3.5	3.9	3.2	n/a
Alabama	0.5	1.8	1.6	1.8	1.4	2.2	2.4	1.4
Alaska	5.7	5.6	2.4	4.2	2.2	2.9	3.4	3.7
Arizona	0.7	0.2	4.8	1.5	2.0	4.1	3.3	3.4
Arkansas	0.7	1.9	1.9	1.0	0.2	0.5	0.1	0.0
California	7.1	9.4	9.1	9.5	10.0	9.6	5.4	2.9
Colorado	2.5	1.1	3.5	1.7	1.3	1.0	1.2	1.8
Connecticut	2.1	n/a	1.8	0.5	1.3	1.3	0.0	0.5
Delaware	1.1	0.0	1.5	0.8	0.0	0.0	0.5	0.9
Dist. of Columbia	3.3	1.8	18.9	5.9	1.7	0.8	1.6	1.3
Florida	0.2	2.5	3.6	1.1	1.7	1.1	1.0	0.8
Georgia	4.5	2.1	2.6	2.4	0.9	1.1	1.5	1.5
Guam	5.6	2.1	1.5	2.7	2.2	4.0	4.3	0.8
Hawaii	2.1	0.7	2.8	0.7	0.6	1.5	1.6	3.0
Idaho	8.5	7.0	4.0	2.2	2.5	1.7	2.7	1.2
Illinois	3.3	3.8	3.8	2.8	3.5	3.4	2.9	2.0
Indiana	5.2	2.8	1.5	2.7	2.4	2.3	2.5	2.4
Iowa	4.1	3.2	4.9	3.4	4.2	4.9	3.6	3.9
Kansas	1.5	1.6	2.6	2.3	1.7	2.1	4.1	3.3
Kentucky	1.3	0.9	1.7	1.6	1.0	1.8	1.5	1.3
Louisiana	1.7	2.4	2.9	5.1	2.5	4.6	2.2	1.0
Maine	0.4	0.5	0.2	0.6	0.6	2.2	1.8	1.8
Maryland	6.3	6.8	6.0	8.5	3.8	3.0	4.0	3.0
Massachusetts	n/a	2.5	1.5	1.8	1.6	0.2	1.2	1.3
Michigan	8.1	5.8	5.9	6.5	6.7	5.0	4.8	3.5
Minnesota	5.3	5.1	4.1	5.0	6.2	5.4	6.0	9.7
Mississippi	0.6	0.5	0.5	1.8	1.9	1.6	1.4	0.8
Missouri	2.9	2.3	1.2	2.3	1.0	1.2	1.1	n/a
Montana	4.8	8.7	1.9	4.2	2.4	2.4	3.8	n/a
Nebraska	6.5	4.6	4.4	2.8	5.5	2.3	0.0	0.6
Nevada	0.0	0.3	1.0	0.6	0.2	1.3	1.2	1.1
New Hampshire	2.1	1.4	1.9	5.3	5.2	3.4	0.9	1.0
New Jersey	1.1	0.9	1.3	0.9	1.2	1.2	2.3	0.6
New Mexico	3.4	1.6	2.5	1.5	2.3	1.5	1.8	1.0
New York	1.5	2.2	2.8	1.1	1.9	1.1	2.3	1.9
North Carolina	1.8	3.9	2.0	2.4	0.8	1.2	2.3	n/a
North Dakota	0.0	1.1	1.2	1.9	4.1	0.0	2.0	0.9
Ohio	4.6	2.8	1.6	2.4	3.6	5.6	4.6	5.1
Oklahoma	0.7	0.6	1.8	1.6	0.9	6.0	4.8	5.5
Oregon	10.6	9.0	5.4	3.3	2.9	2.8	1.8	n/a
Pennsylvania	4.3	0.0	5.6	5.6	4.3	4.2	2.7	2.4
Rhode Island	2.0	0.6	0.5	1.6	0.5	0.3	1.9	n/a
South Carolina	0.3	2.5	0.5	1.3	2.5	1.9	2.6	n/a
South Dakota	1.2	0.5	0.5	2.0	0.9	0.5	0.9	2.5
Tennessee	2.5	2.4	2.0	2.2	2.2	2.4	2.6	n/a
Texas	3.3	3.1	4.0	7.0	7.0	9.0	5.9	4.0
Utah	2.0	2.2	2.6	2.8	5.3	3.3	5.2	0.7
Vermont	3.0	2.1	3.6	2.1	0.4	1.3	2.8	2.0
Virgin Islands	1.2	5.9	2.4	4.4	4.0	3.5	2.6	5.4
Virginia	2.1	1.3	1.5	2.4	1.8	2.0	2.2	1.6
Washington	5.6	9.9	6.1	4.4	5.8	6.8	6.3	n/a
West Virginia	1.1	0.3	1.4	1.3	2.9	1.6	1.5	0.8
Wisconsin	2.1	1.8	1.6	3.6	1.5	2.2	2.4	1.6
Wyoming	1.1	1.4	1.8	1.5	1.6	0.6	2.4	2.5

[a]Fifty U.S. states plus the District of Columbia, Guam, and the Virgin Islands.
n/a: not available.

TABLE 8

Trends in National Food Stamp Error Rates
(Oct. 1979 through Sept. 1983)

Percent change in issuance errors

Type of error rate	10/79-3/80	4/80-9/80	10/80-3/81	4/81-9/81	10/81-3/82	4/82-9/82	10/82-3/83	4/83-9/83	FY 1983 (total)
Official Overissuance Rate	n/a	n/a	10.5	9.1	9.9	9.2	8.2	8.5	8.4
% change from prior period	n/a	n/a	n/a	-13.3	8.8	-7.1	-10.9	3.7	n/a
% change from 10/80-3/81	n/a	n/a	n/a	-13.3	-5.7	-12.4	-21.9	-19.0	-20.0
Reported Overissuance Rate	10.2	8.9	9.9	8.6	8.9	8.7	7.8	8.0	n/a
% change from prior period	n/a	-12.7	11.2	-13.1	3.5	-2.2	-10.3	2.6	n/a
% change from 10/80-3/81	n/a	n/a	n/a	-13.1	-10.1	-12.1	-21.2	-19.2	n/a
Official Underissuance Rate	n/a	n/a	2.6	2.4	2.4	2.5	2.3	2.6	2.4
% change from prior period	n/a	n/a	n/a	-7.7	0.0	4.2	-8.0	13.0	n/a
% change from 10/80-3/81	n/a	n/a	n/a	-7.7	-7.7	-3.8	-11.5	0.0	-7.7
Reported Underissuance Rate	2.4	2.4	2.6	2.2	2.3	2.3	2.2	2.3	n/a
% change from prior period	n/a	0.0	8.3	-15.4	4.5	0.0	-4.3	4.5	n/a
% change from 10/80-3/81	n/a	n/a	n/a	-15.4	-11.5	-11.5	-15.4	-11.5	n/a
Negative Case Rate	3.9	4.0	3.9	3.5	3.5	3.9	3.2	n/a	n/a
% change from prior period	n/a	2.6	-2.5	-10.3	0.0	11.4	-17.9	n/a	n/a
% change from 10/80-3/81	n/a	n/a	n/a	-10.3	-10.3	0.0	-17.9	n/a	n/a

n/a: not applicable

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objectives were to provide certain information on food stamp error rates as requested. Specifically, we

--computed confidence intervals, at a 95-percent confidence level, for the 1983 food stamp error rates, and the dollar amount of overissuances and sanctions based on different points in the confidence intervals;

--determined the trends in the rate of official under-issuance and improper denial/termination of food stamp benefits for fiscal years 1981 through 1983 and compared these trends to changes in the official overissuance rate; and

--provided the error rates, where available, for fiscal years 1980 through 1983 as reported by the states and then as validated by the Service when establishing its official error rate.

During our field work from December 1984 to March 1985, we collected national and state data for fiscal years 1980 through 1983. Data for fiscal year 1984 were not available at the time of our review. We reviewed federal legislation, regulations, and policies governing the quality control and error-rate sanction systems. We discussed the data, program policies and require-ments, and the statistical procedures for calculating confidence intervals with officials from the Food and Nutrition Service.

Using summary and detailed information on national and state food stamp error rates obtained from Service headquarters in Alexandria, Virginia, we identified national trends in the percent of benefits overissued and underissued and the percent of cases in which benefits had been improperly denied or terminated. State-reported error rates were available for fiscal years 1980 through 1983. Official error rates were available only for fiscal years 1981 through 1983 because the Service did not validate state-reported error rates prior to fiscal year 1981.

From the Service's Northeast Regional Office in Burlington, Massachusetts, and Mid-Atlantic Regional Office in Robbinsville, New Jersey, we obtained data on the results of the Service's quality control validation reviews and state quality control sampling procedures. Using this information and statistical for-mulas suggested by the Service, we computed confidence intervals for the official fiscal year 1983 error rates for 13 of the 15

states in these regions.[1] This group of states represents a
typical range of confidence intervals because it includes states
with both high and low estimated error rates and states with both
large and small sample sizes. Service officials told us that con-
fidence intervals should not vary because of any systematic dif-
ferences in regional operations or conditions. Because data
needed for our computation of confidence intervals for other
states were not readily available, it was not feasible for us to
include in this report confidence intervals for the official error
rates for all states.

To get a broader representation of states, however, we re-
quested that Service headquarters' staff compute confidence inter-
vals from state-reported data for those states for which it had
sufficient data. We made this request because Service officials
told us that the confidence intervals for state-reported error
rates should generally be very similar to those for official error
rates. We found this observation to be true for those states in
the Northeast and Mid-Atlantic Regions for which we calculated
confidence intervals for both official and state-reported error
rates. The Service was able to provide confidence intervals for
25 additional states. (See app. III for a list of these states.)

A detailed description of the procedures used to sample and
estimate error rates and calculate confidence intervals and of the
limitations of confidence interval calculations is contained in
appendix VI. Our statisticians agreed that the statistical for-
mulas that Service program officials and statisticians used to
compute confidence intervals for state-reported error rates are
appropriate. We did not verify the accuracy of the state-reported
data that the Service used in its calculations, because of time
constraints imposed by the requested issuance date. When calcu-
lating confidence intervals for official error rates for the 13
states in the Northeast and Mid-Atlantic Regions, we used statis-
tical formulas suggested by Service program officials and statis-
ticians. Although these formulas may understate the width of
confidence intervals by a small amount (see app. VI), an alterna-
tive methodology was not readily available to us, given our time
constraints. However, this limitation should not significantly
affect the analyses presented in this report.

We also obtained information from the Service on state admin-
istrative expenditures and the amounts of benefits issued by each
state. We used these data to calculate what the amount of sanc-
tions and overissuances would be based on the midpoint and the
upper and lower extremes in the confidence interval around each
state's estimated error rate.

---

[1]Connecticut, Delaware, District of Columbia, Maine, Maryland, New
Hampshire, New Jersey, Pennsylvania, Rhode Island, Vermont,
Virginia, Virgin Islands, West Virginia.

Our procedures for calculating confidence intervals and the amount of sanctions and overissuances based on different points in the intervals were coordinated with statisticians in the Food and Nutrition Service and reviewed by Service program officials.

Service officials and statisticians reviewed a draft of our report and provided us with official oral comments. The agency agreed with our findings, analyses, and methodology and suggested several minor changes that we have made to the final report.

PROCEDURES USED TO SAMPLE AND ESTIMATE ERROR RATES
AND CONFIDENCE INTERVALS

Confidence intervals were computed for both state-reported and official error rates. We computed confidence intervals for official error rates for 13 states by using data obtained from, and methodology suggested by, the Service. The Service computed confidence intervals for state-reported error rates for 25 additional states for which it had sufficient data. (See app. III for a discussion of confidence intervals and the results of the Service's and our confidence interval computations for the 38 states.) For each type of confidence interval, the following sections describe the sampling procedures, the equations for deriving the estimated food stamp payment error rates and the confidence intervals, as well as major limitations of the methods.

STATE-REPORTED ERROR RATES

State sampling procedures

In fiscal year 1983 two quality control samples of active households were conducted, the first covering the 6 months ending March 1983 and the second covering the 6 months ending September 1983. Each month the state selected a sample of households receiving food stamps that month. The minimum number of households to be reviewed for each 6-month period depended on the average number of food stamp households within the state, as shown below:

Average monthly households	Minimum 6-month sample size
60,000 or over	1,200
10,000 to 59,999	150 + .021 (N-10,000)
Under 10,000	150

N = Average monthly number of households

Generally, states use systematic sampling, however, a few states' samples were not self-weighting (not all cases had the same probability of selection). This report only provides confidence intervals for states which used a self-weighting sampling plan, because Service headquarters did not have readily available the data needed to appropriately weight the data for states with samples which were not self-weighting.

Estimating equations

The estimate of the payment error rate for each quality control period (P) is obtained from

$$P = \frac{\sum x_i}{\sum y_i}$$

22

with estimated variance

$$VAR(P) = \frac{1}{n\bar{y}^2} \left[\frac{\Sigma (x_i - Py_i)^2}{n-1} \right]$$

where:

x_i = amount of payment in error to sample case i;

y_i = total allotment issued to sample case i;

n = total number of completed sample cases; and

$\bar{y} = \dfrac{\Sigma Y_i}{n}$ = average allotment per household.

The 95-percent confidence intervals were computed as:

$$P \pm 1.96 \sqrt{VAR(P)}$$

The samples for both halves of fiscal year 1983 were combined to provide estimates of the entire year as shown below.
The estimate of the fiscal year 1983 payment error rate (P83) is:

$$P83 = \frac{\Sigma T_i P_i}{\Sigma T_i}$$

where:

T_i = average monthly dollars issued in period i, based on the full quality control sample average dollars issued per case for that period, times the monthly average number of cases subject to quality control review in that period;

P_i = payment error rate estimate for quality control period i;

i = quality control period.

with estimated variance

$$VAR(P83) = \frac{\Sigma T_i^2 VAR(P)_i}{\left[\Sigma T_i \right]^2}$$

where:

T_i = average monthly dollars issued in period i, based on full quality control sample for period i;

$VAR(P)_i$ = variance of P_i computed as shown above.

23

The 95-percent confidence intervals were computed as:

$$P83 \pm 1.96 \sqrt{VAR(P83)}$$

where:

   P83 = fiscal year estimate of payment error rate from state
         quality control sample;

VAR(P83) = variance of P83 computed as shown above.

Limitations of confidence
interval calculations

     The Service's and our method for calculating confidence
intervals for quality control error rates has five limitations.
The first three limitations result from the data available for the
analysis while the remaining two relate to the procedures used to
calculate confidence intervals. Each limitation is discussed
below:

1. Although data to compute confidence intervals for the
    official issuance error rates were not readily available
    for all states, Service headquarters had data needed to
    compute confidence intervals on state-reported error
    rates for many states. However, confidence intervals on
    state-reported error rates will only approximate those of
    the official rates. The official rates represent an ad-
    justment based on the Service's review of a subsample of
    quality control cases. The official rates also include a
    penalty for states that fail to complete at least
    95 percent of their required quality control reviews.
    However, Service officials told us that the confidence
    intervals for state-reported error rates should generally
    be very similar to those for official error rates. We
    found the Service's observation to be true for those
    states in the Northeast and Mid-Atlantic Regions where we
    calculated confidence intervals for both official and
    state-reported error rates.

2. The data that the Service used to compute confidence
    intervals for state-reported error rates may not contain
    the complete results of each state's quality control
    reviews. Therefore, we are not reporting results for
    states when data on less than 95 percent of the completed
    cases were available for computation.[1]

3. Data to appropriately weight the quality control data
    from states whose samples were not self-weighting were
    not readily available. Ten states had sampling designs

_____

[1]As a result, we eliminated five states--Arkansas, Kentucky,
Montana, Ohio, and Oklahoma--from our review.

that were not self-weighting and were therefore excluded from our analysis.[2]

4. We combined the quality control samples for each half of fiscal year 1983 to form an estimate for the entire fiscal year. Our methodology for doing this is appropriate when the average monthly amount of benefits issued in each period is known. Because only sample estimates were available, the confidence intervals we computed for the fiscal year 1983 error rates may be slightly too narrow.

5. The Service's procedure for calculating the confidence intervals for state-reported error rates treats the population being sampled as if it were infinite. Because the population is not infinite, the effect is to overstate the width of the confidence intervals. The amount of overstatement is likely to be inconsequential, however, because the quality control samples generally represent far fewer than 10 percent of the food stamp households.

OFFICIAL ERROR RATES

Service's sampling procedures

The Service rereviews a random subsample of each state's quality control sample to independently determine error rates. The Service's subsample size is determined as follows:

$$n' = .14n + 50.31$$

where:

n' = the Service's subsample size (maximum 180);
n = the state's minimum required sample size.

Estimating equations

The Service derives the official payment error rates in a two step procedure. First, an error rate estimate is obtained by using a double sampling regression estimate. (This step is not used if there are no differences found in the federal rereview.) Then the error rate estimate is adjusted upward if the state failed to complete at least 95 percent of its required quality control reviews.

---

[2]California, Colorado, Georgia, Idaho, Illinois, Massachusetts, New York, Oregon, South Carolina, and Wisconsin.

The regressed payment error rate (R) is estimated as

$$R = \frac{\overline{x''}}{\overline{t}}$$

where:

$\overline{t}$ = average dollar value of issuance per household based on the full quality control sample;

$\overline{x''}$ = regression estimate of average value of allotment issued in error to participating households.

$$\overline{x''} = \overline{x} + b(\overline{Y} - \overline{y})$$

where:

$\overline{x}$ = average value of allotments issued in error in the Service's subsample according to the Service's findings;

$\overline{y}$ = average value of allotments issued in error in the Service's subsample according to state findings; and

$\overline{Y}$ = average value of allotments issued in error in the full quality control sample according to state findings.

b = the estimate of the slope parameter and is equal to:

$$\frac{\sum x_i y_i - n'\overline{xy}}{\sum y_i^2 - n'\overline{y}^2}$$

where y_i is the state's finding on rereview case i, x_i is the Service's finding on rereview case i, and n' is the number of completed cases in the Service's rereview subsample.

The variance of the regressed payment error rate (VR) is computed as:

$$VR = \frac{\dfrac{s_x^2}{n'}\left[1 - r^2 \dfrac{(n-n')}{(n)}\right]}{\overline{t}^2}$$

26

where:

$$s_x = \sqrt{\frac{\sum\limits^{n'} (x_i - \overline{x})^2}{n' - 1}}$$

where x_i is the amount of error payment according to the Service for the ith case in the Service's review sample, and n' is the number of completed cases in the rereview sample.

n' = number of completed cases in the Service's rereview sample;

n   = number of completed cases in the full quality control sample;

$r = b \dfrac{(s_y)}{(s_x)}$ where b and s_x are computed as previously shown; and

$$s_y = \sqrt{\frac{\sum\limits^{n'} (y_i - \overline{y})^2}{n' - 1}}$$

where y_i is the amount of error payment according to state findings for the ith case in the rereview sample.

$\overline{t}$ = average dollar value of issuance based on full quality control sample.

After the regressed error rates were computed, a check was made to see if the state completed the required number of quality control reviews. If the state had completed less than 95 percent of its required reviews, the official error rate (A) is computed as follows:

$$A = \frac{r(R)}{95} + \frac{(95 - r)(R + QCSD)}{95}$$

$$= R + \frac{(95 - r)(QCSD)}{95}$$

where:

r   = percent of required quality control reviews completed by state;

R   = regressed error rate;

QCSD = Standard deviation of the state-estimated error rate based on the full quality control sample.

When states complete 95 percent or more of their case reviews, A = R.

The variance of the official payment error rates (VA) were computed as:

$$VA = VR$$

where VR is the variance of the regressed error rate computed as previously shown.

When the state completes at least 95 percent of the required quality control reviews the regressed error rate, (R) is equal to the official error rate (A); and therefore, the variance of A equals the variance of R. When the state completes less than 95 percent of the required reviews the official error rate (A) equals the regressed error rate (R) plus a penalty (QCSD). By treating the penalty as a constant with no variance, the variance of the official rate (VA) is equal to the variance of the regressed rate (VR).

The 95-percent confidence intervals for the official payment error rates were computed as:

$$A \pm 1.96 \sqrt{VA}$$

where:

A = official payment error rate; and
VA = variance of the official payment error rate.

Once the official FNS payment error rates and their associated variances were calculated for each of the two quality control periods in fiscal year 1983, the official error rates from the two samples were combined to provide estimates for the entire year as shown below.

The estimate of the fiscal year 1983 payment error rate is:

$$FY = \frac{\sum T_i A_i}{\sum T_i}$$

where:

T_i = average monthly dollars issued in period i, based on full quality control sample average dollars issued per case for that period, times monthly average number of cases subject to quality control review in that period;

A_i = official adjusted error rate estimate for quality control period i;

i = quality control period;

with estimated variance

$$VFY = \frac{\sum T_i^2 VA_i}{\left[\sum T_i\right]^2}$$

where:

   T_i = average monthly dollars issued in period i, based on full
        quality control sample for period i;
   VA = variance of A_i computed as previously shown.

The 95-percent confidence interval would be computed as:

$$FY \pm 1.96 \sqrt{VFY}$$

where:

   FY = fiscal year estimate of official dollar error rate;
   VFY = variance of FY computed as previously shown.

Limitations

     Our analysis was limited to states where both the full
quality control sample and the Service's rereview subsample were
self-weighting. In addition, the estimating methods used have the
following limitations:

   1. In calculating the confidence intervals for official
       error rates, we assumed that the average issuance per
       case was known. However, the Service's average
       issuance figure is only a sample estimate, and the
       width of the confidence interval may be somewhat too
       narrow because no sampling error for the average
       issuance is included in the estimate.

   2. When states complete less than 95 percent of their
       required reviews, the standard deviation of the state-
       reported error rate is added as a penalty and is
       treated as a constant. However, the standard
       deviation is based on sample data and therefore has
       some sampling error. This tends to slightly under-
       state the true width of the confidence intervals.

     The exact magnitude of the confidence interval understate-
ments described above is not known. However, because we believe
it to be slight in both cases, these limitations should not
significantly affect the analyses presented in this report.

(023247)

31036

AN EQUAL OPPORTUNITY EMPLOYER

UNITED STATES
GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

_____

OFFICAL BUSINESS
PENALTY FOR PRIVATE USE $300