EXECUTIVE SUMMARY

The Child and Adult Care Food Program (CACFP) subsidizes nutritious meals served to eligible children and functionally impaired adults participating in family day care homes (FDCHs), day care facilities, emergency shelters, and afterschool programs. To assist in meeting the requirements of the Improper Payments Information Act of 2002 (IPIA) (Public Law 107-300) to estimate the annual amount of erroneous payments, the U.S. Department of Agriculture (USDA), Food and Nutrition Service (FNS) contracted with Mathematica Policy Research, Inc. (MPR) to explore the feasibility and validity of different methods for estimating the number of meals served by Family Day Care Homes (FDCHs) in the CACFP. This report discusses the experiences and results of a pretest and pilot study that explored four methods for estimating erroneous meal claim payments in the CACFP nationally. The focus of the pilot is on evaluating differences in the quality of the estimates each method would produce and the feasibility and relative costs of implementing the methods nationwide.

The Methodologies Tested

The pilot tested two different methodologies designed to estimate the true number of meals served to children. In the Parent Recall Method, parents are surveyed about their children's attendance at the FDCH during a target week and about the meals and snacks their children received at the FDCH each day. In the Observations and Modeling Method, observational data about the meals and snacks provided to children at FDCHs are collected, along with data on the characteristics of sponsors, FDCHs, and participating children. These data are used to develop statistical models to project estimates of actual meals served.

A pretest conducted prior to the pilot included two additional methodologies for measuring the number of meals served, both based on data from sign-in/sign-out (SISO) logs. SISO logs are maintained by some FDCHs and track the times each child arrives at and departs from the FDCH each day. However, the pretest found limited use of SISO logs, so the two methods that relied on SISO data were excluded from the full pilot.

Parent Recall Method. Assessing the potential of the Parent Recall Method to produce accurate estimates of meals served involved comparing estimates based on parent recall data to observational data on the number of meals actually served to children. The measure of meals served is based primarily on reports from parents of which specific meals their children received. If a parent was unable to report that detailed information, the measure is based on the parent's report of whether their children attended the FDCH on the target day. It is assumed that children received all meals specified on their enrollment forms on days they attended.[1]

---

[1] Nearly all parents who completed interviews were able to answer questions about their child's daily attendance and receipt of most meals during the target week. However, about one-quarter of parents were unable to recall some specific information—typically whether their children had received snacks at the FDCH.

The differences between the estimates based on parent reports weighted to all children in the sampled FDCHs and the observed number of meals served are statistically significant, at the 0.05 level, for every type of meal except morning snacks.[2] For the estimates based on parent reports of their own children, however, none of the differences are statistically significant. Considered together, these findings suggest that, while estimates of meals served *to all children* at the sampled FDCHs based on parent reports for a subset of children are unlikely to be sufficiently accurate to fulfill the requirements of the IPIA, estimates of meals served *to children of respondents* are more reliable.

Estimates of meals received by children of survey respondents can be compared to claims data for those children—if disaggregated, child-level, claims data are available—to compute estimates of erroneous payments for those children. Assuming that the rate of erroneous payments for respondents' children is the same as that for children of nonrespondents, then this rate could be applied to national claims numbers to produce national estimates of erroneous payments.

Observations and Modeling Method. Evaluating the Observations and Modeling Method involves assessing the reliability of the predictions generated by statistical models developed using the observations data, along with other data, from the FDCHs in the pilot. Although direct observations provide the most reliable and accurate assessment of the number of meals served, such data are expensive and burdensome to collect. Thus, the pilot explored the possibility of using observations data on a set of FDCHs collected in one year to develop models that will rely on more easily obtainable data sources to predict meals served in later years. In general, the regression equations explain the variance of the dependent variables—whether the child was observed to receive the meal or snack—reasonably well.

Ideally, we would verify the models by applying the estimated parameters to an independent sample and comparing the predicted meals to the actual meals observed. If the predicted and observed values were similar, we would have more confidence in the ability of the model to predict meals served in a later study. Unfortunately, such a sample is not available in the pilot. The lack of this type of verification is a limitation of our evaluation of the Observations and Modeling Method. Another limitation is that no models were developed for supper or for snacks served very early or late in the day, due to lack of observations data for those eating occasions.

Strengths and Weaknesses of Each Methodology

Parent Recall Method. The Parent Recall Method is straightforward to implement in terms of both data collection and analysis. Its strengths include its relatively low cost, compared to direct observations, and lower burden on FDCH providers. Importantly, parents' reports of the meals their children received at FDCHs in the pilot were found to be consistent with estimates of meals served based on direct observations.

Weaknesses of the Parent Recall Method include the low quality of parent contact information on the enrollment forms provided by sponsors and the finding that parents tended to

---

[2] Tests of statistical significance could not be performed for supper, due to the sample size of 1.

report more meals than FDCHs claimed for reimbursement. The most serious weakness of this method is that, while the information reported on the survey was found to be fairly accurate, the number of meals reported for children for whom we have parent survey data is not representative of meals served to children for whom such data are not available.

Observations and Modeling Method. Among the strengths of the Observations and Modeling Method is that the observations on which it is based provide an independent assessment of the number of meals served. Although conducting the observations necessary to develop the statistical models is expensive and burdensome, once the models are fully developed and verified, the data needed to use them to predict meals served can be obtained at less cost and involve considerably less burden. The four models developed to predict children's receipt of breakfast, lunch, and morning and afternoon snacks have the potential to produce fairly accurate estimates of children's receipt of those meals.

However, the Observations and Modeling Method also has several weaknesses. First, while the models estimated in the pilot demonstrate the potential of the method, the specific models developed in the pilot are inadequate for use in estimating erroneous payments nationally, because (1) they were based on a small number of FDCHs, which were not representative of all homes nationally, (2) they have not been verified on an independent sample, and (3) no models were developed for supper or for snacks served early in the morning or late in the day.

SISO Log Method. Information collected from FDCH providers in the pilot sample confirmed the pretest finding that use of SISO logs by FDCHs is very limited. As a result, the methods relying on such logs are not feasible.

Recommendations

Based on the experiences in the pilot study, we recommend the Parent Recall Method for use in estimating erroneous payments in a national study:

Method	Feasibility	Potential Accuracy	Relative Cost
Parent Recall	High	National estimates of EP: High	Low
		Separate estimates of over- and under-claims: High	
		Subgroup estimates: High	
Observations and Modeling	High	National estimates of EP: High	Short run: High
		Separate estimates of over- and under-claims: Low	Long run: Low
		Subgroup estimates: Low	
SISO Logs	Low	Low	Low