The Survey of Income and Education (SIE) described in this set of five papers may ultimately be judged a failure if the only judgmental criterion is the degree to which it fulfills its original goals. Ginsburg and Grob succinctly state the problems the Congress will have in determining the relative shares of Elementary and Secondary Education Act monies based on the estimates from the SIE of the number of children 5 to 17 years old living in poverty in each of the States. However, to judge the SIE on that basis alone would be an exercise in tunnel vision ignoring the SIE as a valuable resource to be exploited in the development of a wide range of research and policy evaluation. Already the SIE is being utilized extensively in the development of the current administration's welfare reform proposals now under consideration by the Congress. In fact the SIE is the most extensive body of data available for simulating the proposed welfare reforms and will certainly be the primary micro-data set used for that purpose during the evolution of the policy debate surrounding this particular proposal for the next couple of years. When one considers that the proposed welfare reforms may include a net increase in Federal expenditures of from five to ten billion dollars or more for 1980, then the expenditure of 14 million dollars to enlighten the policy debate seems more than worthwhile from almost any cost-benefit perspective. In addition to this use the SIE will provide information for analyzing various proposals and issues pertaining to tax structures, income transfer programs, related social programs, distributions of income and wealth and measures of economic and social well-being.

Despite my belief that current and potential benefits of this data base more than warrant the efforts and expense described by George Gray and Marvin Thompson in their paper I want to mention some reservations that I have with the Survey of Income and Education and its potential uses. Some of my reservations are peripheral to the SIE itself but pertinent to the more global process of data collection and analysis that have been addressed in this series of papers.

The first matter I wish to discuss is one of content and is raised because of current trends in analysis of micro-data sets of this sort. Specifically my reservations concern the attempt by the SIE to measure certain types of in-kind income. Ginsburg and Grob defined one of the specific areas of analysis for which these data were well suited as the measurement of the distribution of income and wealth. If in-kind benefits are to be included for low-income persons when deriving measures of relative shares of income then it is only fair to include them for higher income persons also. To do otherwise distorts the distributions being measured. Some analysts might contend that in-kind income accruing to the middle or upper income sectors of society is insignificant. I contend otherwise. Ask the man with a company car that can be used for personal purposes during non-business hours if it is of no value to him personally. Ask the corporate executive if his preferential stock options are worthless or middle level management personnel if their profit sharing and retirement packages are meaningless. Ask sales personnel if their prizes of vacations, cars, televisions, etc., won in sales competitions are of no value to them. Ask a very large portion of the working men and women in this society if their health benefits which are increasingly covering eye and dental care would be relinquished freely. What about life insurance, expense accounts, memberships in athletic or social clubs, clothing allowances, travel benefits, and educational benefits that commonly accrue as non-cash income to workers in our society? These kinds of income are of value, in many instances of significant value, and their receipt should at least be measured, even if their value cannot.

Also there is currently a popular trend to include in-kind income accruing to low-income persons in the calculations of the number of persons in poverty. I am not opposing the inclusion of in-kind benefits in income definitions, even though there are tremendous measurement problems. However, I am opposed to using the Orshansky poverty indices as currently defined as the relevant poverty thresholds if in-kind benefits are included. The Orshansky index brings together two separate food expenditure measures to define the poverty thresholds: (1) the cash expenditures needed to provide a family of given composition with a pre-defined level of nutrition; and (2) the ratio of total cash income to cash expenditures on food. That is, the poverty level income (PL) equals the product of cash food need (CFN) and cash income divided by food expenditures (\$Income/Foodbill). Arithmetically that is:

 $PL = CFN \times (\$Income/Foodbill)$

The cash food need component of this relationship is determined by measuring the costs of pre-defined bundles of food that meet certain nutritional requirements of families of given composition. The cash income/food expenditure component is an empirical measure derived originally for this purpose from the 1955 Food Consumption Survey. The important element to note in this relationship is that the income element used in defining poverty is cash income. If inkind benefits are to be included in counting the poor then they should be included in the definition of poverty. If in-kind benefits are included in the income portion of the \$Income/Foodbill ratio then the poverty thresholds for all classes of families would rise. Assuming the problems of measuring in-kind income are overcome and these benefits are included in both the definition and measurement of poverty, it is impossible, a priori, to estimate the net changes in the number of poor persons or in their characteristics from currently defined levels.

The second general area of concern regarding the SIE is the whole problem of error and how it potentially impacts on the ultimate analytical results which will be generated using the survey. The problems of error have been spelled out in at least four of the papers presented here. Ginsburg and Grob demonstrated the importance of error when they indicated that one standard error in the estimate of poor children in California could mean 10 million dollars in Elementary and Second-

	March		
	1976		CPS Rate
Type of Income	CPS	SIE	SIE Rate
Total	1 9. 5	13.0	1.5
Wages or salary 1/	10.8	6.1	1.8
Nonfarm self-employment 1/	7.6	2.5	3.0
Farm self-employment 1/	7.2	2.1	3.4
Social Security or Railroad Retirement.	11.2	2.6	4.3
Supplemental Security Income	10.1	1.5	6.7
Public Assistance or Welfare 2/	10.1	1.6	6.3
Interest from Savings Accounts	13.7	7.0	2.0
Dividends, rent, estates or trusts	11.7	3.7	3.2
Veterans' Payments, Unemployment			
Compensation, Workmen's Compensation.	10.6	2.0	5.3
Private, Federal, Military, State			
and Local Pensions	10.5	1.9	5.5
Alimony and Child Support, Contribu-			
tions from Persons not in the House-			
hold or any other Money Income	10.3	1.6	6.4

1/ Persons who did not work in 1975 who did not respond to the earnings questions were not considered nonrespondents for these items. 2/ Public assistance and welfare consists mainly of Aid to Families with Dependent Children and General Assistance.

ary Education monies for the State. Statistically, the extent of sampling error is relatively easy to identify and thus the implications of this sort of error can be measured. But sampling error is only one component of the total error included in any estimates from the SIE or similar data sets. Sampling error, in fact, may well comprise the smallest portion of total error in such estimates.

There are three papers in this set that deal specifically with various aspects of nonsampling error. Robert Fay describes a methodology for measuring nonsampling error but does not present findings, out of deference to the Congress, from actual tests of the model. He indicates that the perspective was to determine the presence of systematic nonsampling error. To do this a reinter-view of "greater intensity" was conducted to serve as a benchmark against which SIE responses were judged. The stated goal of this process was to determine if Elementary and Secondary School Act monies would be allocated among the States in the same way using either the SIE or the reinterview as the basis for distribution. The basic assumption here, that the distribution of funds based on the SIE would be judged equitable if the more intense procedures would not change the allocation is not necessarily valid. A respondent or even a household comprising several respondents could have consciously provided corresponding misinformation on both the SIE and the more intensive reinterview. To the extent that nonsampling error was not random on the first interview it could potentially have been reinforced in the reinterview. Additionally, in the test described here, reliability of the survey can only be measured for those respondents providing complete information on both interview waves. This procedure itself may serve as a selection process for those respondents most willing and conscientious about providing correct information in the first place.

The Coder paper indicated considerable variance in nonresponse to the income items by State. For example, the income nonresponse rate in Connecticut (18.3 percent) was more than twice that in Arkansas (9.1 percent) or New Mexico (9.1 percent). Marks and Nisselson mention an upward bias in estimates of children in poverty families due to errors from "within household coverage." If this bias is accentuated by income nonresponse then the State variations in nonresponse rates could be quite important.

Marks and Nisselson are fairly specific in their discussion and estimation of noncoverage of households in the SIE. They estimate that between 6 and 11 percent of possible housing units were missed in the SIE sampling process depending on which reinterview subsample stratum of households was considered. When this noncoverage rate is combined with the income nonresponse rate of 13 percent discussed by Mr. Coder in his paper the nonsampling error problem is a matter for serious concern.

There is a corollary issue raised by Coder's paper regarding nonresponse to income questions on the March CPS. In his Table 1 he compares the SIE and March 1976 CPS person's income nonresponse rates. I have lifted the first two columns of that table and added a column indicating the magnitude of the differing nonresponse rates (i.e., Column 1 divided by Column 2) in Table 1.

The overall nonresponse to the whole set of income items was roughly one-third better on the SIE than the March CPS. Reducing overall income nonresponse by 33 percent is not insignificant. However, the improvement on an item-by-item basis varied considerably. For example the nonresponse rate for Social Security or Railroad Retirement on the March CPS was more than four times the rate on the SIE. For Supplemental Security Income the difference was nearly seven times, for Public Assistance more than six times, etc.

The comparisons between the SIE and CPS clearly indicate that nonresponse to the income items on the March CPS could be reduced. It is widely held that more persistent pursuit of income information on the March CPS would actually result in lower response rates to labor force questions on subsequent waves of the CPS as Coder suggests. He also indicates, however, that there may be a clear advantage to collecting income information on the March CPS through personal versus telephone interviews. Thus the March CPS might benefit significantly from a more strenuous effort to reduce telephone interviewing. In addition, most of the income items from the March Supplement to the CPS are not directly related to the employment situation. In fact many of the recipients of welfare and pension income will have no attachment to the labor force during their tenure in a CPS rotation group. There is the possibility that more diligence in collecting non-wage income information might result in significantly improved data while having only a minimal impact on the gathering of subsequent labor force statistics. Thus it would seem there might be some reasonable trade-off between income data and slightly reduced labor force response rates. While the CPS was originally intended to gather labor force data, the March Supplement has become a major policy evaluation tool and thus the integrity of these data is of the utmost importance. Because of differences in income nonresponses 75 percent more income was allocated on the March 1976 CPS than on the SIE (i.e., 20 billion versus 12 billion dollars). Some effort should be made, at least on a limited basis, to improve the response rates to the income items of the March income supplement to the CPS. The SIE is proof that it can be done.

Another related issue, that does not follow directly from the SIE itself but is of critical importance in its utilization, is the problem of analytical error. This is an issue that has been widely ignored by the research community as well as the ultimate consumers of these data, the policy analysts and policy makers. Errors of this type arise because of mis-specifications of the issues being analyzed, because of the failure of the information available to fit the issues being tested and because of vagaries that exist in the computer software and simulation packages and procedures used to process the data. Hopefully, errors of mis-specification are caught by the professional community. Having data sets that are capable of fitting any analytical question is virtually impossible because the data sets usually precede the research problems. Potentially a very serious source of error in the analytical process, however, lies with the electronic data processing software. As the sophistication and complexity of the computer simulation and analytical software increases it is becoming more and more difficult for the analyst to be in control of the statistical and arithmetic operations actually performed. Increasingly the scenario is one of an analyst providing specifications for the task at hand, and the computer programmer converting those specifications into machine

readable form. If there is any imprecise communication between the two it can result in error, potentially undetectable by either party. This potential for error is further compounded by the fact that in many instances there are large numbers of individuals who participate in this process in an evolutionary time frame. In the case of software performing standard statistical calculations, the results of newly created programs can be checked against previously existing ones. In the case of simulation systems of new or existing social programs this is not the case. To use these simulation programs is frequently quite simple. For example, assume we have an income maintenance simulation model: there is a requirement to specify the format of the input data elements (e.g., pertinent SIE data), a need to set certain exogenous parameters (e.g., tax rates, guarantee levels, unemployment rates, etc.) which are used in an iterative process of generation of a series of endogenous parameters (e.g., estimated asset levels, labor supply effects, etc.) that combine with all other information available to the system to generate caseload and cost estimates for a proposed income maintenance program. The estimated variables from each iteration of the model include stochastic error separate from the measurement error previously discussed. As the interactive process between analysts and the data processing machinery is simplified, the need for them to understand what specific calculations are actually performed in order to generate impressive and neatly formatted printed output is drastically reduced. The implications of the combined error factors are frequently overlooked.

The intention here is not to say that these simulations should not be performed. It is merely to point out that the problems of analytical error deserve our equal attention with those of sampling and other nonsampling error. We need to determine how these separate kinds of error combine and measure their implications on the estimates being generated.

The final issue addressed in this comment relates to the SIE as it fits into the time serial package of Census surveys. Grob and Ginsburg point out that there may not be comparability between poverty estimates generated from the SIE and the 1980 Census. If the SIE or similar surveys in the future are to bridge the gaps between the decennial Censuses, as Grob and Ginsburg suggest, then it would seem worthwhile to standardize key elements of the survey forms, data collecting procedures, etc., to guarantee that differences in measured phenomena are not the result of differences in measurement technique.