

SOME RESEARCH ISSUES FOR THE SURVEY OF INCOME AND PROGRAM PARTICIPATION
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Introduction

The Survey of Income and Program Participation (SIPP), scheduled to begin in October 1983, is designed to obtain improved data on the economic situation of persons and families in the United States. Information will be collected on various sources of money and nonmoney income, taxes paid, assets and liabilities to produce improved estimates of income distribution, poverty, and wealth. Data will also be collected on eligibility and participation in various Government transfer programs, on labor force status, household composition, household expenses, disability, work-related expenses, work history and pension coverage. The goals and objectives of the SIPP have been described by Lininger (1980) and in a Bureau of the Census memorandum (1983).

The SIPP is the culmination of a five year development program of the Census Bureau and the Department of Health and Human Services, aimed at designing a survey which substantially improves the reporting of income and program-related data and provides the flexibility and timeliness to be responsive to the data requirements of program planning and policy analysis. The development program and some preliminary findings are described by Ycas and Lininger (1981), and Vaughan, Whiteman, and Lininger (1983). During the development program, four pilot surveys were funded to explore survey design issues as they relate to the improved measurement, collection and processing of income, program, and wealth data. The largest pilot, the 1979 Research Panel, consisted of a nationally representative sample of 8200 households. This panel, although primarily methodological, combined feasibility tests with controlled experimentation of alternative design features; in many ways it serves as a prototype of the 1984 SIPP. The 1979 Panel included the use of quarterly interviews, a sample that is followed over a period of more than a year, a flexible questionnaire structure that permits addition of questions on emerging policy issues, and procedures to allow survey data to be linked with information in administrative records. Decisions affecting the design, methodology, and content of the SIPP may be researched using the 1979 Panel data. Technical documentation available through the National Technical Information Service (1983) provides a detailed description of the 1979 Panel.

The 1984 SIPP

Interviews with persons in the first SIPP panel will begin in October 1983 and conclude in August 1986, with nine interviews at four month intervals; each wave of interviewing will consist of four rotation groups with approximately the same number of households assigned randomly to each of the four groups. The reference or recall period for most data items will be four months.

Census Bureau interviewers will collect the information during personal visits to the sampled households. Interviews will be obtained for

each person aged 15 and over in the original sampled household. The first interview averages approximately 30 minutes for each person. Later interviews will be shorter, about 25 minutes. Self-responses will be obtained for all adults present at the time of the interview and proxy responses accepted for all others.

A basic feature of the survey design is that the panel sample consist of persons at sampled addresses who are followed to their new addresses if they move as long as the new address is within 100 miles of any SIPP Primary Sampling Unit (PSU). Anyone aged 15 or over living with an original sample person, either at the sampled or new address, will also be interviewed in order to continue providing data on the social and economic milieu in which sample persons reside.

The 1984 SIPP panel will be a self-weighting sample consisting of 20,000 assigned households (prior to refusals and nonrespondents) in 184 Primary Sampling Units nationwide. In January 1985 and every January thereafter, a new slightly smaller panel will be introduced which will allow the development of annual estimates for a combined sample on the order of 35,000 interviewed households. The SIPP then is comprised of two separate but overlapping sample panels; this design enhances estimates of year to year change as well as estimates of levels of income of different types. Under this design, portions of the sample are the same from one year to the next, resulting in a change estimate that is based in part on direct comparisons across two years for the same groups of households.

Questionnaires will vary from wave to wave in a SIPP Panel. There are three general content components to the questionnaires: first, the "core" portion which changes little, if at all, over the life of the panel; second, the topical sections, which change from wave-to-wave, but appear regularly in each SIPP Panel; and third, the topical sections which appear as needed on a one time basis to address policy issues with minimal lead-time. Core items occurring in each interview deal with monthly household composition, labor force status, asset holdings, and a detailed income profile. Topical data appearing regularly in each SIPP Panel include education, work and marital history, fertility, migration, asset values and liability, taxes paid and employer-provided benefits. Topical data appearing on a one-time basis cannot be predicted in advance, but would relate to issues important to the policies of the administration, questions pertaining to energy assistance allowances, for example. In general, the SIPP will be responsive to the data requirements of Federal departments and agencies and will provide an overview and more complete understanding of the Federal tax and transfer system and its relationship with the private sector.

The Need for a Research Agenda

Withdrawal of funding support for the SIPP in 1982 by the Department of Health and Human Services, the principal sponsor of the developmental program, resulted in interruptions in planning the SIPP and in analyzing much of the data collected in the pilot surveys. These surveys provide a large body of data which can address a number of important methodological, statistical, and substantive issues. Resolution of many of these issues will be very helpful for understanding the new SIPP data base. Some issues for research emerging from the development program are briefly described below. The list is not meant to be comprehensive since research ideas are now being solicited within the Census Bureau and from others through an Interdepartmental SIPP Advisory Committee of the Office of Management and Budget and through Census' various professional advisory committees. In addition, the Social Science Research Council (SSRC) has formed a SIPP Working Group whose purpose is not only to explore research issues but also to facilitate a dialogue between the Census Bureau and the wider community of potential SIPP data users. The goals of the SSRC Working Group are described in the Social Science Research Council's Items (1983).

Some Research Issues: Managing SIPP Data

Research issues need not be confined to statistical or substantive issues; one critical goal is to efficiently manage the SIPP data. Processing experience with data collected during the development program has shown that the complexity of the data, especially its longitudinal aspects, results in severe difficulties for the analyst. The large amount of data and the multiple purposes for which they will be used--developing statistical and econometric analyses from (a) individual waves, (b) linking core data across the waves, (c) linking topical data with core data, and (d) reconfiguring analysis units (usually household, family, or program unit) over time according to concepts defined by the analyst--suggest a flexible "user friendly" data management system is necessary for the SIPP. This type of "user friendly" environment would undoubtedly improve analysts access to SIPP data. Consequently, a small working group at the Census Bureau is conducting a feasibility and requirements analysis for a data base management system. The working group intends to (a) identify the principal characteristics of a SIPP data base management system needed by analysts of the SIPP data, (b) specify and evaluate available alternative systems, and (c) examine the feasibility of implementing such a system at the Census Bureau. Short and long range SIPP data management and processing options will be considered by the working group. The "short term" depends on constraints of the Census Bureau's current processing environment. In the long run, however, these constraints need not be considered, since changes in the processing environment are expect-

ed. In effect, all options will be open. Although this approach primarily assists the Census Bureau's access to SIPP data and its analysis program, a successful system which enhances the Census Bureau's analytical capabilities will in the long run affect the delivery of SIPP public microdata products.

Sampling Issues for the SIPP

As viewed within the Federal statistical community the SIPP is a multi-purpose survey vehicle. Early goals of the SIPP featured flexibility in its design and content. The SIPP has always been thought of as a vehicle for questionnaire modules on new subjects of emerging policy interest, prepared with a short lead time, even on an ad hoc basis. It has also been viewed as a vehicle from which improved estimates can be obtained for population subgroups such as the high and low income groups, Blacks and Hispanics, and participants of Federal income security programs. As such, the investigation of better and more efficient ways to sample subpopulations of interest to program agencies is an essential aspect of the research program. The Census Bureau should study the trade-offs between cost and efficiency of alternative methods of oversampling special populations. At a minimum, the use of the following strategies to oversample special subgroups ought to be studied for consideration in future SIPP panels: (a) other current surveys or SIPP itself to screen for the desired characteristics, (b) telephone interviews for screening purposes, (c) program lists, and (d) other administrative records.

The development program placed special emphasis on sampling from program lists in the ISDP field tests (Griffith and Kasprzyk, 1980; Kasprzyk, 1983). Although this emphasis is not carried over into the first SIPP panel, sample supplementation to improve the reliability of characteristics of Federal program participants will be a continuing option available to Federal agencies. Work on this topic, implemented under the aegis of the ISDP, remains largely undone. Thus, another research issue is the investigation into estimation and nonsampling error issues related to the combined use of program and area samples. For example, if two or more overlapping frames are used for sampling then some sample units have a nonzero probability of being selected from more than one frame. The basic problem is the accurate determination of frame membership and the combining of estimates from all frames. Investigatory work using the 1979 Panel data should begin on the two topics below:

- (a) Whether matching errors in the determination of the overlap domain override the gain in obtaining additional sample cases from the area frames;
- (b) Whether methodological improvements for identifying the overlap domain are possible.

The problems mentioned above are of interest to the program in the near future, since results could affect sampling strategies for oversampling special populations. As we consider future SIPP panels and note that the cost of the interview component of a personal interview survey has dramatically increased while survey budgets have remained fixed or declined, a research program to evaluate alternatives to the personal interview survey should be considered.

Longitudinal Issues

Some panel surveys are largely analyzed cross-sectionally, treating each wave of the panel as a separate survey. While this may still be true for many analyses with SIPP data, annual income estimation and a comprehensive personal profile for each person in sample requires the merging of information from more than one wave of interviewing. Thus, SIPP analysts must address the analytic complexities inherent in the survey design. Three principal areas of research on panel surveys are apparent:

- (1) Treatment of nonresponse;
- (2) Definitions of units of analysis; and
- (3) Definitions of populations of inference.

By providing a time dimension of repeated observations to the data, panel surveys add considerable information to the data base. The repeated observations also add considerable complexity to the treatment of nonresponse compensation procedures. Some work from the development program addressed this issue (Kalton, Kasprzyk, and Santos, 1981; Kalton and Lepkowski, 1983), but a basic understanding of the nature and extent of the nonresponse problem remains elusive. Before any conceptual work can begin on SIPP strategies for nonresponse adjustment, a better understanding of the cross-wave nonresponse problem--whole-unit (household), person, and item nonresponse--must be developed. First, household and person nonresponse patterns over the entire panel should be obtained. Second, a strategy for dealing with households who do not respond to a particular wave interview, either by weighting or imputation, should be formulated and tested. Third, an analysis of the extent and nature of item nonresponse over the length of the panel is needed. Fourth, the quality of data available by type of nonresponse pattern should be evaluated; that is, those households or persons missing for four waves of interview for example, but available for one wave may provide little or no information at the time of interview. Fifth, the nature of the item nonresponse problem should be scaled down by identifying subsets of items important to the early SIPP longitudinal analyses. Finally, imputation strategies for item nonresponse ought to be implemented and evaluated using data from the development program.

The second area of research under this topic concerns the issue of analysis unit definitions in a panel survey. Analysis of panel data can become complicated when the unit of analysis is not a single individual; for example, household and family level analyses are complicated because the composition of households and families can change over time; original sample persons often leave to join other households or families or to set up new ones. The principal issue is the way households/families are defined longitudinally and the changes which lead to the formation of a new household/family or the dissolution of an old household/family. Griffith (1979), Ycas (1981), and Dicker and Casady (1982), provide much of the conceptual framework for this issue and discuss various definitions. An operational definition of longitudinal household/family, however, was never implemented because of the termination of the development program. The SIPP research effort ought to reconsider and compare the longitudinal concepts which have been proposed.

The third area of research is directly related to the topic of longitudinal analysis units--defining the populations of inference in a panel survey. For cross-sectional surveys the population for which inferences are made is fairly readily defined as the population existing at a particular point in time. In a panel survey, however, the population changes from one wave to the next. If the population changes slowly, the populations of inference may not be very different. If the population changes dramatically from one wave to the next, then perhaps cross-sectional and longitudinal data analysis should be done separately depending on the analytic requirements of the study. Some analyses may require the population to be defined as those units which remain in the population for all waves to which the analyses apply. Other analyses may require an average population of inference over the period of interest. Thus, in conjunction with developing definitions of longitudinal households/families, corresponding populations of inference should be defined.

The issues described above relate to methods for longitudinal estimation. Having investigated nonresponse over the life of the panel and developed consistent set of rules for defining dynamic household/family models, the next step in the research plan should be the implementation of a longitudinal weighting system. Some work on this topic is necessary as alternative household/family definitions will require longitudinal weights to allow evaluation of their appropriateness in an ongoing SIPP data series.

Measurement-Related Research

The development program was very concerned about the improved measurement of various income and asset types. Gains were made in helping the respondent provide accurate survey reports of both the kind and amount of many types of income and assets (Goudreau, Oberheu, and Vaughan, 1981; Klein and Vaughan, 1980; Vaughan, 1980; Vaughan,

Whiteman, and Lininger, 1983). Emphasis was also placed on the topic of net worth and how best to obtain such information in an ongoing household survey. The development program sponsored research aimed at developing benchmark data on net worth and at evaluating the accuracy of reported assets and liabilities for estimating net worth in the pilot studies (Ferber and Frankel, 1981; Ferber, Frankel, Pearl, and Chiswick, 1980). Current and reliable net worth data will help improve estimates of the program-eligible populations and help support assessments of the impact of alternative eligibility and benefit formulas on individuals and in the aggregate. Numerous difficulties in obtaining improved estimates of assets and liabilities suggest that a list of SIPP research issues would not be complete without a long range agenda of research aimed at improving the measurement of net worth. Some strategies worth consideration are:

1. Developing off-line small scale pilot studies to test different treatments of measuring net worth components, including new forms and devices;
2. Developing record check studies through financial institutions; and
3. Evaluating the net worth data collected in the 1979 Panel.

Finally, numerous topics exist in which measurement problems are significant, such as data on pensions. Topics such as this require the development of small scale pilot studies.

Evaluation of Data Quality

Since SIPP data will be collected beginning in October 1983, with the first public use tape released in late 1984, one way of obtaining a better understanding of the SIPP data is by analyzing data from the development program's 1979 Research Panel. Three topics fall immediately into this category:

1. There is a need to study "between wave" changes in program participation and benefit amounts because of a tendency for reported program turnover in Waves 1 and 2 to occur between waves more often than within waves. A study should be undertaken to evaluate these changes. In addition, it would be useful to investigate whether between-wave differences in aggregate program receipt and amounts for the remaining waves of the 1979 Panel are similar to the Wave 1-Wave 2 differences.
2. There is a need to investigate the effect of respondent rules on the quality and consistency of the 1979 Panel multiwave data. SIPP respondent rules--

to maximize self response and minimize the changes in proxy reporting during the Panel--have been formulated on the basis of observation and experience from the development program; they seem to be practical and reasonable. It would be useful, however, to investigate the experience of the 1979 Panel to determine the patterns of response modes during the panel and whether changes in respondents affected the quality of the 1979 Panel data.

3. There is a need to study households and persons who move out of their sample locations into new living arrangements. Several areas of study are possible:
 - a. Using 1979 Panel data, " mover" households, their characteristics, and the characteristics of individuals in mover households could be identified. Mover households could also be compared on a number of variables, income, for example, with households that experience no change.
 - b. A study could be developed using the new SIPP Panel to identify whether movers who are not followed are different from those who are followed. For example, a short telephone follow-up of movers not followed under SIPP procedures using a new survey instrument to identify differences in socio-economic variables of movers and non-movers might be considered. Ultimately, these data and the survey data should provide information on the effect of mover rules on SIPP estimates.

There are additional areas related to data quality which are of concern to the SIPP program:

1. Because of its design SIPP has a potential for wave-to-wave missing and inconsistent data problems. The research issue, which is primarily an operational issue, is to develop appropriate forms and procedures to identify and correct missing and inconsistent data problems at or near the time of the interview. The development of an automated month-by-month income and work experience profile which routinely identifies cross-wave edit failures and data problems could help in the development of SIPP longitudinal data products.

2. To help evaluate SIPP data, benchmark statistics need to be constructed against which income amounts and reciprocity data from the SIPP can be compared. The work of Czajka, et al., (1982) which identified data sources and developed and documented procedures for the construction of income benchmarks serves as a model for SIPP income benchmark development.
3. By the end of the decade many of the SIPP survey design decisions should be reevaluated--mover rules, respondent rules, recall period, data collected from split and merged households, etc. A program of research aimed at evaluating these decisions should be developed.

Nonsampling Error Issues

As a large continuous data collection effort, the SIPP should have a commitment to measure and understand nonsampling errors for important survey variables. As a consequence, other areas of research which should be considered for adoption include:

1. Recall bias on monthly estimates of income and program participation, including within reference period effects and time in sample bias;
2. The use of administrative and reinterview data to study response error;
3. The development of nonresponse/refusal studies aimed at identifying ways to reduce noninterview/refusal rates;
4. The effect of interviewer characteristics, such as age, race, sex and experience, on response rates, panel attrition and data quality in general.

Estimates of Sampling Error

Applications of SIPP data are expected for a wide variety of analyses - microsimulation and econometric models, multivariate analysis, and simple tabulations and cross-tabulations. Since SIPP is a new survey program, it does not have a history of sampling error estimates for selected statistics. There is then a need for easily and routinely producing sampling errors for core and topical data from the SIPP. The Census Bureau should begin to develop a system, satisfying title 13 constraints, to allow the user to produce his own sampling error estimates without undue difficulty.

Summary

The Survey of Income and Program Participation is a multipurpose national longitudinal survey now being undertaken as an ongoing program by the U.S. Bureau of the Census. The scope of the survey is broad and the group of potential users quite diverse, including analysts in government, academia and business. Because analysis of data from the development program was incomplete, with many issues left unresolved, a research program for the SIPP is being established. Topics for the research program include: (a) management of longitudinal data, (b) sampling issues for special subpopulations, (c) issues related to longitudinal data, (d) measurement-related research, (e) evaluation of data quality, (f) non-sampling error issues, and (g) sampling error estimation issues. Although the initial research focus of the program is primarily methodological, the new data base nevertheless will provide ample opportunity for substantive research on many topics.

Because there are so many topics, some priorities for research must be assigned based on the needs of the program. As such, subcommittees have been established at the Census Bureau to identify and discuss specific projects included under these broad topics. This work should result in clarifying specific projects, reviewing the literature, developing detailed proposals for the work, and determining whether the work should be done at the Census Bureau or elsewhere.

After the initial research projects have begun, composing a multi-year research plan should be the next step in planning the SIPP research agenda.

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