The survey of Income and Program Participation: An Overview and Discussion of Research Issues

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1. Introduction

The Survey of Income and Program Participation (SIPP) is an on-going nationally representative household survey program of the U.S. Bureau of the Census. It provides comprehensive information on the economic resources of the American people and on how public transfer and tax programs affect their financial circumstances. The data from the SIPP provide government policymakers with an information base for studying government tax and transfer programs, for estimating future program costs and coverage, and for assessing the effects of proposed policy changes. The SIPP is designed to improve the measurement of information related to the economic situation of households and persons in the United States, and is the culmination of a large-scale development program, the Income Survey Development Program (ISDP), which examined concepts, procedures, questionnaires, and recall periods (Ycas and Lininger, 1981).

The need for a survey like SIPP arose because of the limitations of the March Income Supplement of the Current Population Survey (CPS), the principal source of information on the distribution of household and personal income in the United States. These limitations are inherent in the survey design, survey instrument, and survey procedures and can not be easily modified. As a consequence the Income Survey Development Program was established in 1975 by the U.S. Department of Health and Human Services to develop methods to overcome the principal shortcomings of the CPS--1) the underreporting of property income and other irregular sources of income; 2) the underreporting and misclassification of participation in major income security programs and other types of information that people generally find difficult to report accurately (for example, monthly detail on income earned during the year); and 3) the lack of information necessary to analyze program participation and eligibility. Several features distinguish the field tests of the ISDP from other data collections, particularly the CPS. They include: 1) interviews were obtained at regular intervals within a year; 2) most types of income were reported on a monthly basis; 3) income was reported on an individual basis; 4) individuals were followed over the survey period to obtain data on changes in income and family composition; and 5) information was collected on special topics such as disability, child care, fertility, net worth, and taxes paid to provide insight into the context of program benefits, program dependency, and overall economic well-being. Because the ISDP was the predecessor to SIPP, many characteristics of the ISDP can be seen in the SIPP, including the survey design, content, and questionnaire format.

This paper provides basic background information on the survey design and content as a prelude to its more specific goal of reviewing specific methodological, survey design, and statistical issues of concern to the program, including (1) questionnaire design; (2) data collection, including respondent rules, data collection mode, length of reference period, and rules for following movers; (3) concepts, design, and estimation; and (4) response error.

2. What is the SIPP?

The SIPP is a continuous household survey program of the U.S. Bureau of the Census with interviews of sample members conducted every 4 months for 32 months. Since a new sample is introduced each year, it may be thought of as a rotating

panel survey. Its principal features, about which more will be said below, are

a. most income is reported on a monthly basis;
b. individuals are followed for changes in income and household composition;
c. income is reported on an individual basis;
d. information on special topics is linked to the income data.

The purpose of the SIPP is to provide data to understand more completely the economic well-being of the Nation through (a) better measurement of income and program participation and (b) an expansion in what is meant by economic well-being--assets, liabilities, employer-provided benefits, and demographic and historical data.

2.1 Design Features

The primary goals in designing SIPP were to improve reporting of income and other program-related data and to do it in a way that would allow the analysis of changes over time at a microlevel. The design also had to accommodate the collection of a large quantity of information in a flexible manner that allowed some information to be collected more frequently than other information. These goals were met principally by using a survey design in which the same people are interviewed more than once. Persons at households selected for a sample panel are interviewed about their income and other topics once every 4 months for approximately 2 1/2 years. Sample persons are interviewed at new addresses if they move, and any other persons that they move in with, or vice versa, are also interviewed. In this way, a highly detailed record is built up over time for each person and household in a sample panel. This design minimizes the need for sample persons to recall most of the information for longer than a few months and reduces the number of questions asked in one interview.

To further enhance the estimates of change, particularly year-to-year change, a new sample panel is introduced every year instead of at the conclusion of a panel. Consequently, two or sometimes three panels are in the field concurrently, as is illustrated in figure 1. This overlapping panel design allows cross-sectional estimates to be produced from a larger, combined sample that is about double in size when two panels overlap.

The first SIPP panel, designated as the 1984 Panel but implemented in October 1983, started with approximately 20,000 interviewed households. The second panel, i.e., the 1985 Panel, began in February 1985 with around 14,000 interviewed households. Because of budget constraints, new panels of about 12,000 interviewed households are now fielded every February.

The reference period for the primary survey items is the 4 months preceding the interview; for example, in February, the reference period is the preceding October through January. When the household is interviewed again in June, the reference period is February through May. To create manageable interviewing and processing work loads each month instead of one large work load every 4 months, the sample households within a given panel are divided into four subsamples of nearly equal size. These subsamples are called rotation groups, and one rotation group or one-fourth of the sample is interviewed each month.
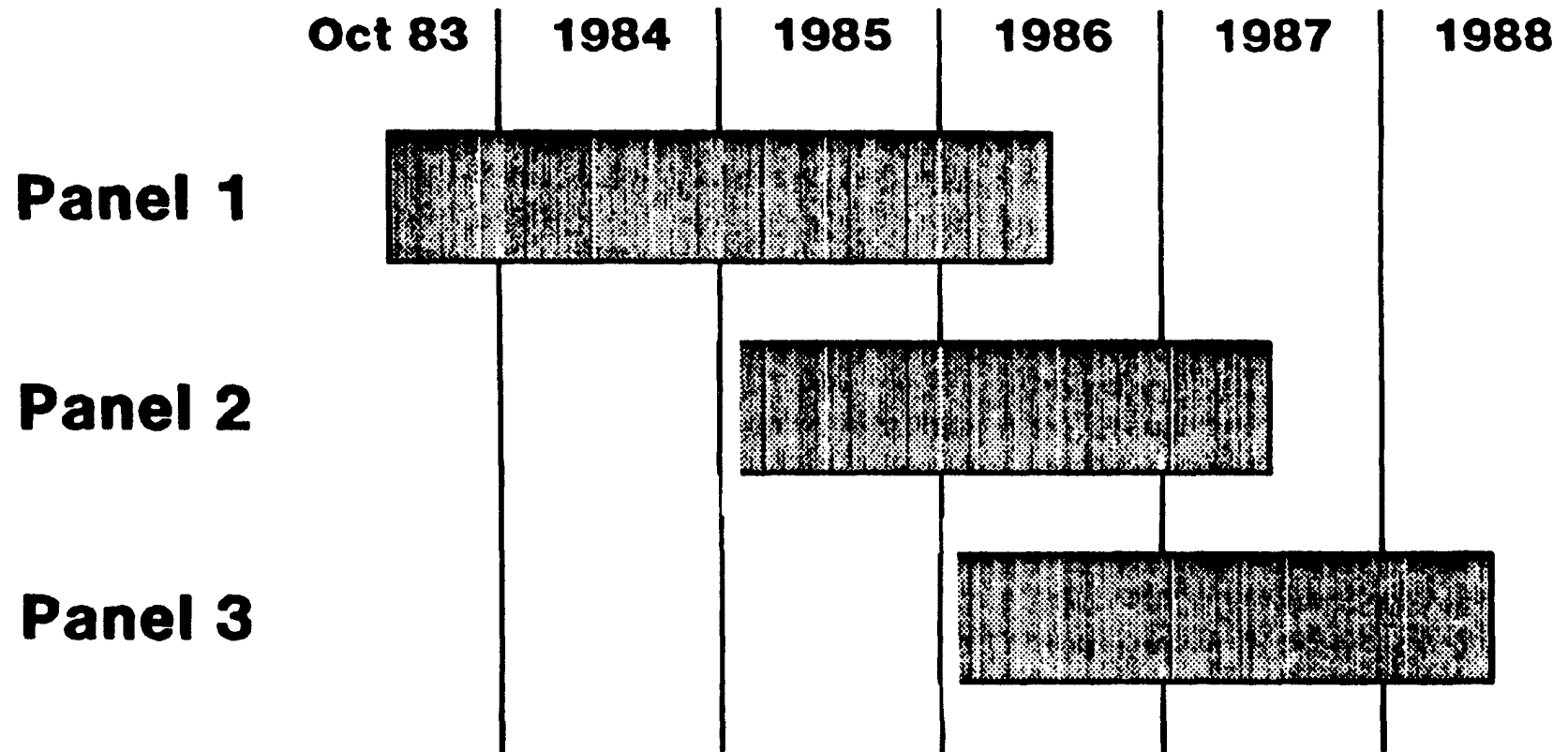
Figure 1.
Overlapping Panels

Figure 1

Oct 83	1984	1985	1986	1987	1988

Panel 1

Panel 2

Panel 3

Thus, it takes 4 consecutive months to interview the entire sample. This 4-month period of interviewing is called a _wave_. The following is an illustration of the relationship between waves, rotation groups, interview months, and reference periods in the 1987 Panel (Note minor but important differences in these relationships exist in the 1984, 1985 and 1986 Panels). The basic relationships are the same in subsequent panels. Looking at Wave 1 in figure 2, persons interviewed in February report data for the period October through January; in March another rotation group reports for November through February, and so forth for each of the four rotation groups. Notice that each rotation group within a wave uses a different reference period, namely, the 4 months preceding the interview month. As a result, data are available for 7 months at the conclusion of Wave 1 interviewing although each month is not represented by the full sample. For example, the October and April data will only be available for one rotation group (rotation groups 2 and 1, respectively); the November and March data for two rotation groups (rotation groups 2 and 3, and 4 and 1, respectively); and the December and February data for three rotation groups. Only the January data will be represented by the full sample (rotation groups 1-4). In Wave 2, the persons originally interviewed in February are interviewed again in June for information on the months of February through May. In July, the March respondents are asked to report data for March through June, and so on. After two interviews with the same rotation group, eight consecutive months of data are available. Then, if data collected in Wave 1 are used together with Wave 2 data, estimates for February through April can be produced using all four rotation groups. Thus, to produce calendar quarter estimates for the full sample, it is necessary to work with more than one wave of data. In the same way, data corresponding to a calendar year can only be obtained by matching data from four consecutive waves of interviewing; e.g., data collected in interviews conducted from February 1987 (part of Wave 1) through April 1988 (part of Wave 4) can be merged to produce monthly data covering calendar year 1987.

2.2 Survey Content

Each interview is planned to take about 30 minutes of a respondent's time and includes content that is divided into three main groups of questions. The substance of two of these groups should be essentially the same for each wave and for each panel. The third group of questions covers topics that will change in each wave of a panel. This will allow for the inclusion of some new content in each panel, although many of the topics will be repeated across all the panels. Each rotation group in a wave is administered the same set of questions although the reference period is different as explained above.

The first group of questions are control card items. The control card is a separate document from the questionnaire and serves several important functions. The control card is used to list every person residing at an address and to record basic social and demographic characteristics (age, race, sex, and so forth) for each person at the time of the initial interview. The card is reused at subsequent interviews to record changes in characteristics such as age, education attainment, and marital status; and to record the dates when persons enter or leave the household. Finally, during each interview, information on each source of income received and the name of each job or business is transcribed to the card so that this information can be used in the updating process at the next interview.

Figure 2. Relationship Between SIPP Interview Months and Reference Periods: 1987 Panel

Wave	Rotation Group	Interview Month	1st Qtr Data	2nd Qtr Data	3rd Qtr Data	4th Qtr Data	
1	2	FEB OCT NOV DEC	JAN				
	3	MAR NOV DEC	JAN FEB				
	4	APR DEC	JAN FEB MAR				
	1	MAY	JAN FEB MAR	APR			
2	2	JUN	FEB MAR	APR MAY			
	3	JUL	MAR	APR MAY JUN			
	4	AUG		APR MAY JUN	JUL		
	1	SEP		MAY JUN	JUL AUG		
3	2	OCT		JUN	JUL AUG SEP		
	3	NOV			JUL AUG SEP	OCT	
	4	DEC			AUG SEP	OCT NOV	
	1	JAN			SEP	OCT NOV DEC	
4	2	FEB				OCT NOV DEC	JAN
	3	MAR				NOV DEC	JAN FEB
	4	APR				DEC	JAN FEB MAR
	1	MAY					JAN FEB MAR APR
5							
6			Continues in the pattern established above.				
7							
8							

The second major group of questions form the core portion of the questionnaire, which is divided into five sections. The core set of questions is asked at the first interview and then updated in each subsequent interview. The first section of the core collects the basic labor force participation data for the 4 reference months. In addition, this first section of the core collects much of the information on the receipt of income from various sources during the 4-month reference period. This includes income from government sources such as Aid to Families with Dependent Children, Supplemental Security Income, General Assistance, and Workmen's Compensation. Respondents are also asked about Social Security and other retirement income. The receipt of miscellaneous sources of income such as alimony, child support, interest from savings, income for foster child care, and educational assistance is also identified. In addition, questions on major sources of noncash benefits such as food stamps, Medicaid, Medicare, and health insurance coverage are included in this section.

The second section of the SIPP core questionnaire collects information associated with wage and salary earnings. This section includes information on industry and occupation as well as hourly earnings for up to two jobs. Data are collected for two jobs held either concurrently or sequentially during the 4-month reference period.

The third section of the core collects data on self-employment earnings and specific information about the kind of self-employment--whether it was incorporated, sole proprietorship, or partnership--and the profits and losses from the business.

The fourth section is identified as the general amounts section. This section of the questionnaire collects monthly amounts received from the income sources identified in the first section. Space is provided for amounts from up to six income sources.

The fifth and last section of the core questionnaire collects amounts of income earned from asset holdings. Asset sources include savings accounts, bonds, stocks, and rental property, as well as others. Information is collected for the 4-month reference period on both individual and joint recipiency.

The third major question group consists of the various supplements or topical modules that are included in waves following the initial interview. The administration of a module is possible in Waves 2 through 8 because less time is required to update the core information after the first interview. The topical modules cover areas that do not require examination every 4 months and may use a different reference period than the core questions. The modules provide a broader context for analysis by obtaining information on a variety of topics not covered in the core portion of the questionnaire. The module data may be analyzed independently or in conjunction with the control card items or core data. Frequently, a module is administered at the same time in concurrent panels so that the data may be combined to improve the reliability of the analyses.

There are two types of topical modules: fixed and variable. The fixed topical modules are designed to be conducted on a regular basis to augment the core data. They are considered necessary to meet the survey's goals and objectives. Although the topics are "fixed," the questions in these modules may be modified from time-to-time to accommodate conceptual changes or to make improvements in

collecting these data. An example of a fixed topical module is the annual "round-up" module on earnings and benefits. This module obtains wages and salary data from W-2 forms (a wage and tax statement filed by each employer for each employee) and estimates of annual self-employment for each appropriate person in the fifth and eighth interviews in each panel. Another fixed module administered at the same time obtains property income and tax-related information; e.g., filing status and taxes paid, to allow the estimation of tax incidence, disposable income, and the simulation of tax policy alternatives.

The variable topical modules are designed to satisfy the special programmatic needs of other Federal agencies. Time is set aside for variable modules to meet special content needs that develop as the survey continues. An example of a variable topical module is the child care topical module administered in the 1984 Panel. Variable topical modules may be repeated in subsequent waves or panels as necessary. Figure 3 contains a list of the fixed and variable modules scheduled for the 1984-1987 Panels.

2.3 Operational Procedures

Data collection operations are managed through the Census Bureau's 12 permanent regional offices. A staff of interviewers assigned to SIPP conduct interviews by personal visit each month. Self-response is required for each person 15 years old and older who is present at the time of interview and is obtained in about 65 percent of the cases each wave. A proxy respondent is asked to provide information for those who are not available. Telephone interviewing occurs in about 5 percent of the cases to obtain missing information, to interview persons who will not or cannot participate otherwise, or to interview persons who have moved far outside the interviewing area. Most of the interviewing is completed during the first 2 weeks of a month.

For cost reasons, personal visit interviews are only conducted at new addresses that are within 100 miles of a SIPP sampling area; telephone interviews are used otherwise. Persons who move into an institution, Armed Forces barracks, or outside the United States are not interviewed at the new location. When a sample person leaves an institution, interviewing resumes. (This procedure, however, was not implemented until the spring of 1985.)

When an original sample person (those interviewed in the first wave) moves in with other people, all of the additional persons (age 15 or older) are interviewed in subsequent waves. Additional persons (age 15 or older) who move in with original sample persons are interviewed also. These additional persons are considered part of the sample and are interviewed only while residing with the original sample person(s). These provisions were adopted because most types of analysis using SIPP data will focus on the household and family situation of individuals. (See papers by Kalton and Lepkowski (1985) and Jean and McArthur (1984) for further discussion of following movers.)

3. Questionnaire Design

The preceding section briefly described SIPP design, content, and operational features. It serves as background information to the discussion of research issues in the SIPP. The first topic--questionnaire design has been and will continue to be an important issue in the SIPP. Investigations have been conducted concerning: a) format of the questionnaire; b) independent versus

Figure 3. SURVEY OF INCOME AND PROGRAM PARTICIPATION
TOPICAL MODULE SCHEDULE
1984/1985 Panels

INTERVIEW DATES	1984 PANEL			1985 PANEL		
	Wave	Fixed Topical Module	Variable Topical Module	Wave	Fixed Topical Module	Variable Topical Module
Oct 83–Jan 84	1	None	None			
Feb 84 Apr 84	2	None	None			
May 84 Aug 84	3	Health and Disability Work History Education History				
Sept 84 Dec 84	4	Assets Liabilities	Pension Plan Coverage Characteristics of Job from which Retired Retirement Plans and Expectations Housing Costs and Conditions Energy Usage			
Jan 85 Apr 85	5		Child Care Arrangements and Expenses Welfare History Child Support Support for Non-Household Members Reasons for Not Working Reservation Wage Work Related Expenses	1	None (Feb 1985–May 1985)	None
May 85 Aug 85	6	Annual Income Taxes Employee Benefits Educational Financing and Enrollment	Training Questions (ETA)	2	None (June 1985–Aug 1985)	
Sep 85 Dec 85	7	Assets Liabilities	Pension Plan Coverage Update	3	Assets Liabilities	
Jan 86 Apr 86	8	Marital History Fertility History Migration History	Household Relationships Support for Non-Household Members Work Related Expenses	4	Marital History Fertility History Migration History	Household Relationships Support for Non-Household Members Work Related Expenses

Figure 3. SURVEY OF INCOME AND PROGRAM PARTICIPATION
TOPICAL MODULE SCHEDULE
1984/1985 Panels Continued

INTERVIEW	1984 PANEL			1985 PANEL		
DATES	Wave	Fixed Topical Module	Variable Topical Module	Wave	Fixed Topical Module	Variable Topical Module

May 86
Aug 86
	9	Annual Income
		Taxes
		Individual Retirement
		  Accounts
		Educational Financing
		  And Enrollment
				5	Annual Income
					Taxes
					Individual Retirement
					  Accounts
					Educational Financing
					  And Enrollment	

Sept 86
Dec 86
				6		Child Care Arrangements
						Child Support Agreements
						Support for Nonhousehold
						  Members
						Job offers
						Health Status and Utili-
						  zation of Health Care
						  Services
						Long-Term Care
						Disability Status of
						  Children

Jan 87
Apr 87
				7	Assets
					Liabilities
						Pension Plan Coverage
						Lump Sum Distributions
						  from Pension Plans
						Characteristics of Job
						  from which Retired
						Characteristics of Home
						  Financing Arrangements

May 87
Aug 87
				8	Annual Income
					Taxes
					Individual Retirement
					  Accounts
					Educational Financing
					  and Enrollment	

Figure 3. SURVEY OF INCOME AND PROGRAM PARTICIPATION
TOPICAL MODULE SCHEDULE
1986 Panel Continued

INTERVIEW DATES	Wave	Fixed Topical Module	Variable Topical Module
Feb 86 May 86	1	None	None
June 86 Sept 86*	2	Fertility History Marital History Migration History Recipiency History Employment History Work Disability History Education and Trainings History Household Relationships	Personal History
Oct 86 Dec 86	3		Child Care Arrangements Child Support Agreements Support for Nonhousehold Members Job Offers Health Status and Utilization of Health Care Services Long-Term Care Disability Status of Children
Jan 87 Apr 87	4	Assets Liabilities	Pension Plan Coverage Lump Sum Distributions from Pension Plans Characteristics of Job from which Retired Characteristics of Home Financing Arrangements

(1986 PANEL spans the Fixed Topical Module and Variable Topical Module columns.)

* These modules are collectively identified as the Personal History Topical Module.

Figure 3. SURVEY OF INCOME AND PROGRAM PARTICIPATION
TOPICAL MODULE SCHEDULE
1986 Panel Continued

INTERVIEW DATES		1986 PANEL	
	Wave	Fixed Topical Module	Variable Topical Module
May 87 Aug 87	5	Annual Income Taxes Individual Retirement Accounts Educational Financing And Enrollment	
Sept 87 Dec 87	6		Child Care Arrangements Child Support Agreements Support for Nonhousehold Members Work Related Expenses Housing Costs Energy Usage
Jan 88 Apr 88	7	Assets Liabilities	

Note the 1986 Panel did not contain an eighth interview due to budget reasons.

Figure 3. SURVEY OF INCOME AND PROGRAM PARTICIPATION
TOPICAL MODULE SCHEDULE
1987 Panel Continued

INTERVIEW DATES	Wave	1987 PANEL Fixed Topical Module	Variable Topical Module
Feb 87 May 87	1	None	
June 87 Sept 87	2	Fertility History Marital History Migration History Recipiency History Employment History Work Disability History Education and Training History Family Background Household Relationships	Personal History
Oct 87 Jan 88	3		Child Care Arrangements/ Child Support Agreements Support for Non-Household Members Work-Related Expenses Shelter Costs/Energy Usage
Feb 88 May 88	4	Assets and Liabilities Real Estate Property and Vehicles	
June 88 Sept 88	5	Annual Income and Retirement Accounts Taxes School Enrollment and Financing	

Figure 3. SURVEY OF INCOME AND PROGRAM PARTICIPATION
TOPICAL MODULE SCHEDULE
1987 Panel Continued

INTERVIEW DATES		1987 PANEL	
	Wave	Fixed Topical Module	Variable Topical Module

Oct 88
Jan 89
	6		Work Schedule
			Child Care Arrangements
			  Child Support Agreements
			Support for Non-Household Members
			Health Status and Utilization of
			  Health Care Services
			Long-Term Care
			Disability Status of Children

Feb 89 May 89	7	Assets and Liabilities Real Estate Property and Vehicles Work Disability Assets Deductible expenses for shelter, medical care, dependent care	Eligibility
June 89 Sept 89	8	Annual Income and Retirement Accounts Taxes School Enrollment and Financing	

dependent updates of income sources; c) the use of a section of the question-
naire to obtain data missing from an earlier wave; d) the use of data in the
"annual round-up" to help develop calendar-year income estimates, and
e) approaches to the collection of employer-provided benefits.

3.1 Questionnaire Format

The principal effort of the ISDP was directed to overcoming problems which
resulted in underreporting and misclassification of income in the CPS March
Supplement. In an ISDP field test, two questionnaire approaches were developed.
For simplicity, one version may be referred to as the "short" form and the
other as the "long" form.

The short-form approach attempted to gather income data directly while keeping
respondent burden at a moderately low level. For each household member, ques-
tions were asked directly about the receipt of certain income types. If income
were received, the amount received during the reference period was determined
before proceeding to the next source of income.

The general strategy of the long-form approach was to isolate events, exper-
iences, and other attributes associated with the receipt of specific types of
income. This form contained an extensive set of probes about the receipt of
income and lengthy questions to ascertain income amounts. Amounts associated
with specific income types were not obtained until all sources of income were
determined.

The hypothesis tested was that the long-form approach produces more complete
and accurate reporting of income; Olson (1980) provides a summary of the
analysis conducted on the two questionnaire formats. Several approaches to
the analysis were implemented and are discussed in Olson's summary: (1) staff
observation of training and interviewing; (2) debriefing sessions of inter-
viewers and observers; (3) case-by-case reviews of completed questionnaires;
(4) analysis of survey and item response rates; and (5) data analyses focussing
on the quality of the data collected and questionnaire edit failures, especially
those associated with the inability of the interviewer to follow questionnaire
skip patterns. The form adopted for further research and ultimately the SIPP
was a variation of the long form. The long form was perceived by both inter-
viewers and respondents as less burdensome and also was shown to have higher
income-reporting rates.

Another experiment with questionnaire formats was also included in the ISDP;
this experiment contrasted a household-screening format with a person-based
approach which was based on a revised version of the questionnaire used in the
April 1978 CPS Income Supplement Test. The latter version was intended to
reduce burden by asking a single household respondent whether anyone in the
household received a particular kind of income during the reference period.
Each affirmative response was followed by a question to identify exactly which
household member(s) received that type of income. Complete recipiency for all
household members was recorded before asking about amounts of income received
by specific individuals. This approach was expected to reduce interview time
without reducing data quality.

The approach above was contrasted with a person-based approach. Under this
approach, questions on all sources of income were asked of the first household

member, then repeated for the second, and so on. A separate form was filled out for each adult in a sample household, but extensive use was made of skip instructions and check items to reduce the number of questions asked of any one respondent.

Differences in the quality of the data obtained with the two questionnaire formats and differences in the interview times appeared slight. Large differences were not observed between the two approaches in estimates of income-recipiency rates, and in the incidence of "don't know" and "refusals." Interview time, expected to be significantly less under the household questionnaire approach, was about 5 minutes less per household and about 3 minutes less per person than the person approach. Since the household-screening format did not offer a significant improvement over the person-based approach, this person based format, with modest improvements and refinements, was adopted for SIPP.

3.2 Independent versus Dependent Updates

Questionnaire design issues and discussions concerning data collection procedures continue to be a part of the SIPP program. The general issue is whether interviews conducted without the use of responses from previous interviews (the so-called independent approach) produce better estimates than interviews conducted using the previous interview responses to remind respondents of earlier statuses (the so-called dependent-interview approach). In the SIPP a dependent approach is used to update income receipt patterns at each interview.

Figure 4 exhibits the questions designed to update sources of income. In order to conduct the interview, the interviewer must transcribe income sources reported at the previous interview from the control card onto the questionnaire. The approach has not been systematically evaluated, but it is apparent from several analyses that the approach is not working as well as some had expected.

Data problems related to the correct timing of changes in income sources exist. As will be discussed in section 6, there appear to be too many transitions in receipt of income sources between the first month of the previous interview and the last month of the current interview.

A similar dependent approach to data collection is also possible with the data collected in the SIPP on personal net worth. These data are obtained at two points in time, one year apart. Specifically, data on asset and liability values, collected in Wave 4 of the 1984 Panel, were provided to one-half of the respondents interviewed in the Wave 7 interview. To examine differences between the dependent and independent approach, one-half the sample in Wave 7 was provided information collected on asset and liability values collected in Wave 4, while the other half was not provided the previously reported information.

The rationale for this dependent or "feedback" approach was that respondents would provide more accurate estimates of change if they were first reminded of the amount they reported the previous year. If respondents know the amount of the change in asset values and were reminded of their beginning balance, then presumably their reporting of the current balance would be consistent with the true amount of change over the period. Lamas and McNeil (1987) analyze these data, but give no definite answer about the impact of the feedback approach since benchmark data are not available. They do, however, say that the dependent interview did not affect cross-sectional estimates and that the approach

Figure 4

11a. According to the information we obtained last time, . . . had received (Read income types in 11b, column (2)) during (8 months ago) through (5 months ago). Was this information recorded correctly?

1251	1 ☐ Yes
	2 ☐ No — Resolve problems and make appropriate entries in 11b, column (5) } Ask 11c

b. INCOME ROSTER

Line No. (1)	Income type (2)	Income code (3)	This reference period (4)	Previous reference period (5) Should not have been listed	Was not listed; should have been
1		1252 ☐☐	1254 1 ☐ Yes — Mark ISS / 2 ☐ No	1255 1 ☐	2 ☐
2		1256 ☐☐	1258 1 ☐ Yes — Mark ISS / 2 ☐ No	1259 1 ☐	2 ☐
3		1260 ☐☐	1262 1 ☐ Yes — Mark ISS / 2 ☐ No	1263 1 ☐	2 ☐
4		1264 ☐☐	1266 1 ☐ Yes — Mark ISS / 2 ☐ No	1267 1 ☐	2 ☐
5		1268 ☐☐	1270 1 ☐ Yes — Mark ISS / 2 ☐ No	1271 1 ☐	2 ☐
6		1272 ☐☐	1274 1 ☐ Yes — Mark ISS / 2 ☐ No	1275 1 ☐	2 ☐
7		1276 ☐☐	1278 1 ☐ Yes — Mark ISS / 2 ☐ No	1279 1 ☐	2 ☐
8		1280 ☐☐	1282 1 ☐ Yes — Mark ISS / 2 ☐ No	1283 1 ☐	2 ☐

C. During the past 4 months, that is _____, _____, _____, and _____ did . . . get income from (Read income types in 11b, column (2))?

MARK (X) APPROPRIATE BOX IN ITEM 11b, COLUMN (4) FOR EACH INCOME TYPE LISTED.

12a. During this 4-month period, did . . . get any income from the Federal Government (that we haven't talked about)?

1284	1 ☐ Yes
	2 ☐ No — SKIP to 13a

b. What was it called?

Anything else?

Mark (X) all that apply.

1286	1 ☐ Social Security — Mark "1" on ISS
1288	2 ☐ Federal Supplemental Security Income (Federal SSI) — Mark "3" on ISS
1290	3 ☐ A serviceman's or widow's pension from the Veterans Administration (VA) — Mark "8" on ISS
1292	4 ☐ Anything else — Mark appropriate code on ISS and specify
1294	☐☐

13a. During this 4-month period, did . . . receive any (other) pension, disability, retirement, or survivor income (that we haven't talked about)?

1296	1 ☐ Yes
	2 ☐ No — SKIP to Check Item R8

b. What was the source of this income?

Anything else?

Mark (X) all that apply.

1298	1 ☐ U.S. Government Railroad Retirement — Mark "2" on ISS
1300	2 ☐ Black Lung payments — Mark "9" on ISS
1302	3 ☐ Worker's Compensation — Mark "10" on ISS
1304	4 ☐ Payments from a sickness, accident or disability insurance policy purchased on your own — Mark "13" on ISS
1306	5 ☐ Pension from company or union — Mark "30" on ISS
1308	6 ☐ Federal Civil Service or other Federal civilian employee pension — Mark "31" on ISS
1310	7 ☐ U.S. Military retirement pay (exclude payments from the Veterans Administration) — Mark "32" on ISS
1312	8 ☐ National Guard or Reserve Forces retirement — Mark "33" on ISS
1314	9 ☐ State government pension — Mark "34" on ISS
1316	10 ☐ Local government pension — Mark "35" on ISS
1318	11 ☐ Income from paid-up life insurance policies or annuities — Mark "36" on ISS
1320	12 ☐ Other or DK — Specify and enter code from income source list. If income type is not listed or DK, enter code "38" — Mark ISS.
1322	☐☐

CHECK ITEM R8 Is "Medicare" marked for . . . on cc item 47?

1324	1 ☐ Yes — Mark "172" on ISS and SKIP to Check Item R23, page 8
	2 ☐ No

produced results consistent with expected differentials in net worth across subgroups. They also looked at microlevel changes in net worth using only households with fully reported wealth data and found some evidence that the dependent interview reduced the estimates of the change in net worth. More analysis of this experiment will soon be available (Weidman, King, and Williams, 1988).

The same questionnaire design issue, the dependent versus independent interview, has also occurred in the repeated measurement of industry and occupation. During the 1984 and 1985 SIPP Panels these data were collected independently during each interview even though the individual had not changed employers. This procedure acknowledges the fact that an employee's duties may change from time-to-time and allows these changes to be recorded. Sufficient change in duties can result in a change in the person's occupation classification from interview to interview even though the employer has not changed.

The independent collection of industry and occupation data has, however, several problems. Undue variation in occupation classification can result when respondent descriptions of duties vary slightly or when the interpretation of the written description varies between the clerical staff members assigning the classification codes. Research into this problem has provided some estimates of the number of times occupation and industry classifications change from interview to interview for persons with the same employer. Among individuals who reported the same employer during the first 12 months of the 1984 SIPP Panel, approximately 40 percent of these persons changed three-digit occupation codes between two consecutive interviews and 20 percent changed three-digit industry codes. In addition, only about 50 percent of persons with the same employer in all 12 months had the same occupation and only about 70 percent had the same industry code in all three waves (Kalton, McMillen, and Kasprzyk, 1986).

As a result, a modification was made in the 1986 SIPP Panel to reduce changes in occupation and industry codes resulting from random response error and clerical interpretation, and to reduce interview time. The modification introduces a "screener" question that asks if activities or duties have changed during the past 8 months. A negative response eliminates the detailed occupation and industry questions. The occupation and industry classifications are then brought forward from the previous interview.

It is important to note that while this change was made for the 1986 SIPP Panel, industry and occupation data from the 1985 SIPP Panel, collected during the same time period, were still collected independently each wave, giving rise to a natural experiment embedded in the two panels. These data have not yet been analyzed.

3.3 Missing Interview Questionnaire

In panel surveys respondents may miss one or more interviews. When this occurs it is possible that collecting retrospective data for missed interviews may alleviate the problem of nonresponse. Other errors, however, such as recall error may be introduced into the survey. In order to determine the feasibility of obtaining retrospective information covering periods of missed interviews, a new section was added to the questionnaire, a section called the "missing wave." This section of the questionnaire was used to gather information at

wave (i+1) for interviews missing in wave (i) conditioned on the fact that data were available from wave (i-1). The missing wave section of the questionnaire did not contain all missing questions but rather a very reduced set of questions concerning labor force status, receipt of income from assets, jobs, and program participation.

In principle, this appears to be a reasonable approach compared to imputation when handling a specific type of missing data problem in a panel survey. Huggins (1987a) evaluated the use of this sequence of questions and concluded that the small number of transitions observed for specific income types did not justify the respondent burden and cost of asking the additional questions, since comparable methods, such as a direct substitution imputation, were available.

3.4 Annual Roundup

The SIPP obtains monthly data for a 4-month reference period from a variety of income sources. The relatively short reference period and repeated interviews every 4-months should result in better estimates of income received during a calendar year. One topical module on the SIPP, however, concentrates on direct questions on annual amounts received (using the W-2 form obtained from the employer)--the annual round-up/tax topical module. These questions have two purposes: 1) to provide alternative estimates of annual calendar-year income for a selected group of income sources, and 2) to provide information to guide imputation models for item nonresponse for individuals not reporting in one or more interviews. The first issue which needs to be addressed is how estimates obtained by summing monthly amounts collected in the core data compare with the direct question on annual earnings. Preliminary findings are reported in a Census Bureau memorandum (U.S. Bureau of the Census, 1988a). One rather discouraging result was that persons who had imputations in the monthly core questions were also very likely to be nonrespondents on the annual sequence of questions. Much more work on this topic is necessary before models of annual earnings can be delivered.

3.5 The Collection of Employer-Provided Benefits

In recent years interest in employer contributions to health insurance, retirement, and life insurance plans have become an important focus of national attention. Since one of the goals of the SIPP is to provide improved measures of economic well-being, research was initiated on the collection procedures and questionnaire design appropriate for obtaining data of this type. A small study was conducted with the last rotation group of the last interview of the 1985 Panel (August 1987). The aim of the study was to determine the feasibility of obtaining the amount of the employer and employees contributions to health insurance, pension, and life insurance plans. One-half of the sample cases in the last rotation group were used in this study. A short questionnaire on these topics was sent to the employers of individuals in the survey upon authorization from the individual respondent. The two principal issues surrounding this study are 1) would respondents sign a form authorizing the Census Bureau to contact their employers, and 2) would the employers send the information to the Census Bureau with the approval of their employees. The use of a signed released procedure had been implemented in other surveys, in particular, the National Medical Care Utilization and Expenditure Survey (NMCUES) and the National Medical Care Expenditure Survey (NMCES). This small study, however, was the SIPP's first attempt at such methodology. Obviously, the

analysis will center around respondent cooperation in signing releases, employer response rates, missing data rates, and cost. Carmody, Fischer, and Meier (1988) provide a description of the study and some preliminary analysis.

4. Data Collection

Four topics affecting data collection in the SIPP are discussed below: 1) respondent rules; 2) data collection mode; 3) length of reference period; and 4) rules for following movers.

4.1 Respondent Rules

When interviewing households with more than one member, a problem which must be addressed is the extent to which proxy responses are acceptable. Since not everyone may be present at the time of the interview, both time and money can be saved by asking another household member about persons who are not present. The difficulty with this is that along some dimensions of the survey instrument, the proxy report may result in less accurate data than the self-report. Kalton, Kasprzyk, and McMillen (1988) provide a discussion of this issue in the context of panel surveys.

A formal test of respondent rules, conducted in the ISDP, compared the quality of reporting in a treatment group where proxy interviews are accepted from any household member who felt qualified to answer for a missing person with a treatment group where proxy interviews are not permitted except for extreme situations (respondent physically or mentally incapable, unable to speak English, away from the household during the entire interviewing period, etc). About 85 percent of adults interviewed in the self-response rule households were self-respondents and about 65 percent were self-respondents in the usual or proxy-response rule households. Thus, the implementation of the self-response rule resulted in approximately 20 percent more self-interviews than the other treatment (Coder, 1980).

Refusal rates were slightly higher for the self-response treatment and the percent of households interviewed was slightly higher for the proxy-response treatment. The differences, however, were too small to give insight into which rule should be preferred. Person noninterview rates in households where at least one other adult was interviewed were higher under self-response rules than under usual response rules. Differences between treatment groups in reported income recipiency rates also appeared to be small and unaffected by the response rule, and combined "don't know" and "refusal" rates for income amounts of various income types were not consistently lower under the self-response mode.

Under the self-response rules, records were used more often by persons when answering wages and salary questions, and response rates for hourly wage rates were higher; but in general the evidence for either set of response rules was not conclusive. Thus, as a result of these findings, estimated costs for using a self-response rule (4-to-6 percent higher than the proxy rule), and the implementation of a "call back" procedure to obtain certain critical information unavailable at the time of the interview, the SIPP respondent rules now allow proxy interviews to be taken.

The respondent rules adopted for the SIPP are that adults present at the time of the interview report for themselves while proxy informants are accepted for absent adults. A hierarchy of proxy informants has been established for the SIPP so that a spouse is always the first choice as a proxy; the second-level proxy is the adult who was the proxy at the previous interview; the third-level proxy is an individual who was proxy at any other interview; and finally, a first-time proxy is accepted.

Observation of self-proxy rates on a cross-sectional basis over the course of the panel reveals little variation--63 percent to 67 percent of the respondents at each interview report for themselves. However, Kasprzyk and McMillen (1987) report a somewhat different picture when considering self-proxy reporting patterns over the length of the panel. They found that only 40 percent of the individuals who participated in all eight interviews of the panel were self-reporters at each interview. Another 19 percent of the individuals had only 1 or 2 proxy interviews conducted, about 11 percent never reported for themselves. Except for a specific problem related to the measurement of state-to-state transitions (Weidman, 1986) and one of labor earnings for prime-aged males (Hill, 1987a), no significant data analysis addressing the self-proxy reporting issue has taken place. In view of the extent of proxy reporting in the SIPP, the nature and quality of self-proxy responses during the panel should be addressed sometime in the near future.

A related problem is the response rule for college students. Students are usually considered members of their parents' households until they establish a permanent residence elsewhere. Thus, the usual procedure for students living away from home while attending school is to treat them as household members who are temporarily absent and obtain proxy interviews from other members of their parents' household. In order to measure the accuracy of information taken from proxy interviews for students living away from home, one interview during an ISDP field test was first obtained by proxy at the parents' household and then by self-interview at the student's school residence. The results of this study are described by Roman and O'Brien (1984). The analysis presented is limited due to flaws in the administration and implementation of the test. The authors observed, however, that quite often a proxy cannot identify a particular source of student income and, even if they can identify it, they are more likely to respond "don't know" to the particulars about that source. They also noted that the larger the income or expense, the better the proxy response becomes.

4.2   Data Collection Mode

The SIPP has conducted most interviews (approximately 95 percent) face-to-face. Because of the rising costs of face-to-face interviews, the Census Bureau is considering the possibility of conducting a substantially larger number of SIPP interviews by telephone. Considerable disagreement existed among the staff working on the SIPP over the practicality of using the current questionnaire with a telephone interview, since the questionnaire is long, complex, and relies on numerous "check items" which route individuals through the form depending on a variety of statuses. Some also felt that the sensitive nature of the topics covered, income and related matters, would result in large amounts of missing data. In order to understand both the interviewers and respondents reaction to the telephone collection mode in the context of SIPP, a telephone interview pretest was conducted in June 1985. The pretest was conducted in 2 of the Census Bureau's Regional Offices with a sample of 280 households.

Refusal rates (about 2.5 percent) and noncontact rates (about 11 percent) were within staff's expectations. No unexpectedly high nonresponse rates were observed (U.S. Bureau of the Census, 1986a).

Following this, a SIPP National Telephone Test took place from August to November 1986 and February to April 1987; the purpose of the test was to study the large-scale use of warm telephoning in SIPP and to learn whether people are willing to furnish data by telephone for two interviews in a row. Households within 50 percent of the segments were designated as maximum telephone interview cases; the remaining 50 percent were maximum personal visit cases. Interviewers conducted almost all of the telephone interviews from their homes. Gbur and Durant (1987) and Carmody, Fischer, and Meier (1988) report preliminary results from the first phase of the experiment.

They indicate that household response rates did not seem to be seriously affected by the use of the telephone and person nonresponse rates were comparable by mode. Item nonresponse rates were only slightly affected by telephone interviewing; additional analysis is forthcoming.

4.3 Length of Reference Period

The ISDP focussed on data collection techniques designed to improve the reporting of cash and noncash income, and as such the length of the reference period for most survey items was an important design decision.

This issue was addressed twice during the ISDP. First a single interview using a 6-month recall period was compared with two consecutive interviews, both using 3-month reference periods. Second, an experiment was conducted comparing reported property income amounts using a 3-month recall versus those with a 6-month recall period. Thus, the receipt of property income was collected from the full sample, but the sample was randomly split, with one-half the sample reporting amounts of property income received for a 3-month period, while the remaining half of the sample reported amounts obtained from property income for a 6-month interval.

Olson (1980) describes some analyses conducted on the first experiment. Not surprisingly, the proportion of respondents reporting some positive amount of income in the initial 3-month reference period is higher for the 3-month reference period group than for the 6-month reference period group; that is, using a 6-month recall period understates the proportion of income reported in earlier periods. This pattern held for a number of specific sources of income such as wages, Aid to Families with Dependent Children, and unemployment compensation. These findings, though not definitive, support the presumption that longer recall periods increase chances of omission due to memory loss. Other analysis showed that the number of sources of income reported per household in the first 3 months of the 6-month reference period was lower than for the corresponding time using a 3-month reference period. Analyses of the second experiment were not conducted due to the withdrawal of funding for the development program.

The results of the first experiment along with additional ISDP experience led to a 4-month recall period for the SIPP; this decision maintains cost at the appropriate budget level while trying to maintain satisfactory data quality. The problem of recall error has not been studied systematically in the SIPP.

The SIPP Record Check Study (section 6) may provide insight into recall problems in the reporting of monthly income from selected income sources. The Statistical Methods Staff (U.S. Bureau of the Census, 1986b) reviewed September 1983 data to determine whether the number of months between the occurrence of the event and the reporting of the event affects the reported values. The analysis found no "recall lag" effect. This result is not definitive, however, since there were few changes/transitions <u>within</u> the interview wave.

4.4 Rules for Following Movers

An important design feature in the ISDP and now the SIPP is that all persons in a sample household at the time of the first interview remain in sample during the 2 1/2-year period of the panel; this rule holds even if one or more persons should move to a new address. For cost and operational reasons, face-to-face interviews are conducted at new addresses that satisfy some geographic constraint--in the ISDP, the address had to lie within 50 miles of an ISDP primary sampling area; while in SIPP, the address must lie within 100 miles of a SIPP primary sampling area.
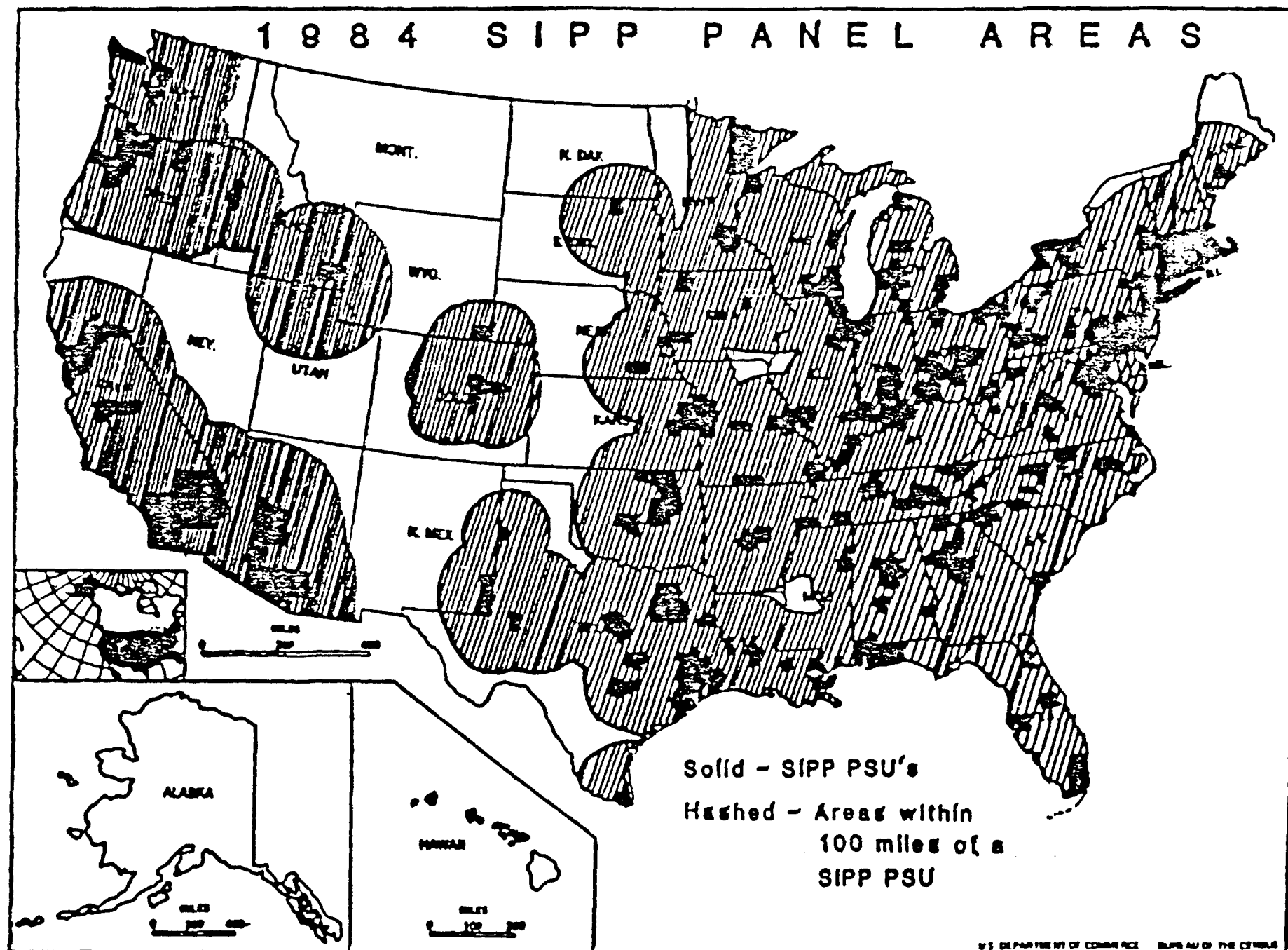
For each panel a sample of addresses is selected and individuals are identified at these addresses at the time of the first interview. After the first interview, the sample is no longer address-based but rather person-based, consisting of all individuals enumerated during the first interview. Thus, these people and anyone with whom they share living quarters ("new entrants") are interviewed in subsequent interviews.

Figure 5 shows the SIPP sampling areas for the 1984 Panel. The hash-marks illustrate the "within 100 miles of a SIPP primary sampling area" rule. Approximately 96.5 percent of the U.S. population lies within the area of the SIPP following rules. As a consequence, the rule does not appear to be very restrictive. When SIPP sample individuals move outside of the hash-marked areas, interviewers are instructed to conduct telephone interviews when possible.

During the ISDP two issues concerning movers were important: (1) the production of cross-sectional point-in-time estimates at each interview; and (2) the costs associated with following movers. Huang (1984) presents several unbiased base weights for cross-sectional estimates of the noninstitutionalized population when the sample contains movers. He associates observations at any given point in time with the known inclusion probabilities of the original sample households. Two approaches are described: 1) a multiplicity approach, which depends on the number of ways that a new household can be included in the sample; and 2) a "fair share" approach which assumes all household members contribute equally to their household. The SIPP as well as the ISDP adopted the "fair share" approach.

The issue of costs was addressed by a "Mover's Cost Study." This study was to shed some light on the data collection costs resulting from following movers to their new addresses. White and Huang (1982) describe the study and provide some results based on the movers procedures adopted for the field test. They found that the number of eligible households for interview increased by 8.8 percent as a result of following movers during a one-year time period. They also found that movers represented about 22 percent of the total sample after 15 months, and that during this period of time the number of interviewing hours

Figure 5

1 9 8 4   S I P P   P A N E L   A R E A S

Solid – SIPP PSU's

Hashed – Areas within
100 miles of a
SIPP PSU

increased by 7 percent and the number of miles charged by interviewers increased by 11.4 percent.

Jean and McArthur (1984) discuss data collection issues in the SIPP as they pertain to movers and offer recommendations to improve coverage in future SIPP panels. Kalton and Lepkowski (1985) also discuss the procedures for following movers adopted in SIPP, and propose a research program aimed at measuring the extent of noncoverage from various sources and its concentration in particular subgroups. More recently, Jean and McArthur (1987), considering five waves of SIPP data, report that, among persons who moved sometime after the first inter- view (that is, between Waves 2 and 5), 69 percent completed all five interviews, 23 percent did not complete the fifth interview, and 9 percent were interviewed in the fifth wave but were missing at least one intervening interview.

At this time there are no plans to review the operational decisions of whom to follow and where to follow. The rules for following movers can be assessed from the coverage point of view, and even though minor modifications to the rules are possible in order to improve coverage (such as following children under the age of 15 who are no longer living with the original sample person), there is no immediate intention to do so. Rather, the issue of concern in the future revolves around the interviewer's ability to find a mover and conduct the interview. This is essentially a question of assessing whether the success rate in finding movers can be improved and whether nonresponse adjustment factors can be developed which compensate for the mover population who can not be traced or who refuse to participate in the survey.

5. Concepts, Design, and Estimation

During the ISDP and continuing with the SIPP program, significant research activity has taken place in the area of conceptualizing annual units of analysis using subannual data and the statistical estimation of these concepts. The treatment of nonresponse in panel surveys has also been a topic of study; research interest has been evident in the three areas of nonresponse in a panel study--unit, wave, and item. Finally, estimation techniques to reduce sampling error and methods to sample subgroups have also been under study in the ISDP and SIPP programs.

5.1 Longitudinal Concepts

Annual family and household statistics are important indicators of the Nation's economic well-being. The SIPP collects monthly data reflecting changes in the composition of households; these data allow the development of annual household statistics which reflect actual household composition experienced during the year, unlike current household statistics which ignore intra-year changes in household composition. The construction of annual units of analysis, whether they are households, families, or program units, raises methodological issues concerning longitudinal weights and imputation techniques. The main issue is, however, conceptual. Given intra-year composition change, how should annual measures reflect change in household composition? That is to say, how should households and families be defined which account for survey measurements at two or more points in time?

Analysts at the Census Bureau have given considerable thought to the question
of defining households and families over time (McMillen and Herriot, 1985;
Citro, 1985). Empirical research to examine several definitions of longi-
tudinal households and measures of annual income status and family type has
been reported by Citro, Hernandez, and Herriot (1986) and Citro, Hernandez and
Moorman (1986). The empirical research emphasized four concepts: 1) a house-
hold is the same over time if it has the same reference person; 2) a household
is the same over time if it has the same principal person (this definition
differs from the first in its treatment of married-couple households for which
the reference person may be either the husband or wife, but the principal
person is always the wife); 3) a household is the same over time if it has the
same reference person and is the same family type over time; and 4) a household
continues over time if it has the same reference person, is the same family
type, and has the same membership size.

This research has provided preliminary indications that the choice of defini-
tion does not appreciably affect annual measures of low income status or of
households by type. If this finding does not change after additional research,
considerations, such as ease of implementation and operational simplicity, will
be the determining factors in choosing a longitudinal household definition.

5.2 Statistical Estimation for Longitudinal Concepts

Research on estimation for longitudinal concepts has proceeded along two paths--
longitudinal person estimation and longitudinal household (family or program
unit) estimation. The work on person estimation includes the calculation of
selection probabilities to yield unbiased longitudinal estimates of individual
characteristics and the use of controls in additional stages of estimation
(Judkins et al., 1984). A refinement of this work and a description of the
method proposed to produce longitudinal weights for person analysis covering
the first three SIPP interviews has been reported by Kobilarcik and Singh
(1986).

Kobilarcik and Singh define the longitudinal universe as the noninstitutional
population (excluding military barracks) on December 1, 1983, the midpoint of
the Wave 1 interview months. The sample from the longitudinal universe
consists of eligible persons living in the selected living quarters at the
time of the first interview. "Interviewed" persons for purposes of this esti-
mation procedure are 1) those who responded to each of the first three SIPP
interviews, and who during the first interview lived in a household in which
all eligible members responded to the interview; and 2) those individuals who
resided in a Wave 1 interviewed household, but during the second or third
interview died or moved to an ineligible address.

Thus, noninterviewed persons in the estimation procedure are those who at the
time of the first interview lived in a household in which at least one house-
hold member failed to respond to the first interview, and those who resided in
a Wave 1 interviewed household but failed to respond at the second and/or third
interview. All persons classified as interviewed are assigned positive weights.
Weights for this universe are derived in the usual way, using the reciprocal of
the probability of selection, calculating an adjustment for noninterviews, and
adjusting to demographic population controls. The nonresponse adjustment has
two phases, an adjustment first for household nonresponse and then for person
nonresponse, the latter using information collected during the first interview.

A conceptually similar approach has been adopted for the panel (eight interviews) microdata file. The longitudinal universe for the panel consists of eligible persons living in the selected living quarters at the time of the first interview. A "panel" or "cohort" weight for the eight-interview file is developed by treating only those individuals who responded at all eight interviews as "interviewed" persons. The cohort weight serves to represent the United States noninstitutional population (excluding military barracks) as of November 1983. This weight is useful for analyzing data over the 2 1/2-year time period with the analytic unit being the individual.

A similar point of view has been adopted for the estimation of calendar-year characteristics for the individual. SIPP, as a panel, obtains 2 1/2 years of monthly income data. As such the development of 2 successive years of calendar-year income estimates is possible. Thus, in addition to the "panel" weight, two other weights exist on the panel file--the weights applicable to the development of calendar-year income estimates from each of the 2 calendar years, 1984 and 1985.

Specific details can be found in a memorandum from Statistical Methods staff (U.S. Bureau of the Census, 1988b). Generally, the idea is to use all individuals (initial sample people or new entrants) who have provided data for all interviews during the time period of interest. Once again, the two weights are cohort weights for 1984 and 1985, and represent the civilian noninstitutionalized population on January 1, 1984, and January 1, 1985. Thus, individuals with positive weights are those who participated in the survey throughout 1984 or throughout 1985.

The panel file of eight interviews contains a data record for everyone who has ever been in the survey. Thus, the availability of three weights although relatively easy to understand, may result in some confusion for analysts of the SIPP panel data, since the set of positively weighted individuals will change depending on the time period the analysis is to cover.

The topic of longitudinal household (family or program unit) estimation has also been studied. Several approaches to this issue were reported by Ernst, Hubble, and Judkins (1984) and more recently by Ernst (1988). The latter work describes why weighting by the reciprocal of the probability of selection does not, in general, work for longitudinal household and family estimates, and presents a class of weighting procedures which can accomplish this task. Ernst, furthermore, describes the difficulties that can arise in applying these weighting procedures because the information necessary to create the weight may not be available. Ernst also presents conditions which, if satisfied, by the longitudinal concept, are sufficient for there to exist a weighting procedure that avoids these problems. Finally, he discusses procedures for adjusting longitudinal concepts for nonresponse and for controlling demographic variables to independent estimates. These procedures may need to be treated differently for estimation of longitudinal concepts than for cross-sectional concepts.

The topics discussed in this section have been under development for an extended period of time. Longitudinal household concepts for SIPP were first discussed by Griffith (1978) and Lane (1978). Some elementary thoughts about the estimation of the concepts were discussed by Kasprzyk and Kalton (1983). Empirical research comparing several concepts was not undertaken until 1984/1985 with Citro's work as an American Statistical Association/National Science Foundation/

Census Bureau Research Fellow. Finally, with the end of the development of the first panel file and its release to the public, we expect further evaluations of the estimation procedures and of the usefulness of longitudinal household concepts. These evaluations will likely consider the quality of the estimates, the reasonableness of the results from a "real" world point of view, and the effect of attrition on estimates of the number and characteristics of longitudinal households. After ten years of discussing whether and how to analyze longitudinal households, we are now in a position to evaluate empirically concepts and estimation procedures. Work on these topics will occur during 1988-1989.

5.3 Nonresponse and Imputation

Nonresponse in longitudinal surveys can be treated from either the cross-sectional or longitudinal point of view. Either treatment is valid depending on the uses of the data. If a longitudinal analysis is conducted, then treating nonresponse from the longitudinal perspective is more desirable since it reflects the survey design. This point of view, because of the repeated interviews, often provides information which is highly correlated with the missing data--the same information measured at different points in time as well as information on patterns of behavior and transitions from one state to another. Thus, under this perspective, nonresponse is not viewed as nonresponse in a set of unrelated observations but as nonresponse in a set of variables with a logical dependency between two or more points in time. For example, in the SIPP, income data obtained at time t-1 or time t+1 can be used to impute for missing income data at time t. This view adds considerable information to the data set for the treatment of nonresponse and justifies matching waves as quickly as possible to treat nonresponse from a longitudinal perspective.

If nonresponse in a longitudinal survey is treated from a cross-sectional perspective, each wave is treated as a separate survey. This has practical advantages in that the release of wave data may occur more quickly than if the separate waves were first linked, and linkage and editing problems resolved. A disadvantage is that records with imputed data will be inconsistent from wave to wave because data processing and estimation procedures are implemented independently from one time to the next. Despite the inconsistencies at the micro-record level, changes in aggregates from one wave to another can be investigated.

An additional complication to the treatment of nonresponse comes from the fact that, in SIPP, unit nonresponse can be measured in several ways (Chapman, Bailey, and Kasprzyk, 1986). The typical way is to consider the total number of eligible households assigned including the "Type A" noninterviews (household noninterviews including refusals, no one at home, etc.) for Wave 1 as denominator. The numerator is then the total number of Type A's in the survey.

In SIPP, an additional form of unit noninterview exists because survey procedures call for following all people who lived at the sample address at the time of the first interview. Thus, a "Type D" noninterview household is defined as a household of one or more original sample persons who cannot be followed to their new address(es) or moved beyond 100 miles of a SIPP PSU. Table 1 provides cumulative Type A and Type D household nonresponse rates by wave for the 1984 to 1987 SIPP Panels. As mentioned earlier, by nature of its design, the SIPP should expect its cumulative nonresponse rate to increase after each

TABLE 1
HOUSEHOLD NONINTERVIEW RATES AND SAMPLE LOSS 1/

1984 SIPP Household Noninterview Rates and Sample Loss

Wave	Type A Rate	Type D Rate	Sample Loss 2/
1	4.9%	--	4.9%
2	8.3%	1.0%	9.4%
3	10.2%	1.9%	12.3%
4	12.1%	2.9%	15.4%
5	13.4%	3.5%	17.4%
6	14.9%	4.1%	19.4%
7	15.6%	4.9%	21.0%
8	15.8%	5.7%	22.0%
9	15.8%	5.7%	22.3%

1985 SIPP Household Noninterview Rates and Sample Loss

Wave	Type A Rate	Type D Rate	Sample Loss 2/
1	6.7%	--	6.7%
2	8.5%	2.1%	10.8%
3	10.2%	2.7%	13.2%
4	12.4%	3.4%	16.3%
5	14.0%	4.1%	18.8%
6	14.2%	4.8%	19.7%
7	14.4%	5.2%	20.5%
8	14.4%	5.5%	20.8%

1986 SIPP Household Noninterview Rates and Sample Loss

Wave	Type A Rate	Type D Rate	Sample Loss 2/
1	7.3%	--	7.3%
2	10.8%	1.5%	13.4%
3	12.6%	2.3%	15.2%
4	13.8%	3.0%	17.1%
5	15.2%	3.7%	19.3%
6	15.2%	4.3%	20.0%
7	15.3%	4.8%	20.7%

1987 SIPP Household Noninterview Rates and Sample Loss

Wave	Type A Rate	Type D Rate	Sample Loss 2/
1	6.7%	--	6.7%
2	11.1%	1.5%	12.6%
3	11.5%	2.6%	14.2%
4	12.3%	3.3%	15.9%

1/Type A noninterviews consist of households occupied by persons eligible for interview and for whom a questionnaire would have been filled if an interview had been obtained. Reasons for Type A noninterview include: no one at home in spite of repeated visits, temporarily absent during the entire interview period, refusal, and unable to locate a sample unit.

Type D noninterviews consist of households of original sample persons who are living at an unknown new address or at an address located more than 100 miles from a SIPP PSU, provided a telephone interview is not conducted.

2/The sample loss rate consists of cumulative noninterview rates adjusted for unobserved growth in the Type A noninterview unit (created by splits).

interview--and it does--but the wave-to-wave change in sample loss decreases during the course of the panel. See Nelson, Bowie, and Walker (1987) for a more complete review of unit nonresponse in the SIPP, including comparisons of the SIPP sample loss with those observed in other panel surveys and a discussion of the methods Census Bureau staff are using to maintain respondent cooperation. With nonresponse accumulating during the panel, some concern about the effectiveness of the household nonresponse compensation procedures exists. In particular, the issue is the selection of the most effective weighting classes for nonresponse adjustment. Petroni and King (1988) describe a study which weights the sample in two ways in order to see the effectiveness of the cells chosen as nonresponse adjustment cells. Their work, even though preliminary, suggests that it might be helpful to include monthly household income, metropolitan/nonmetropolitan, and a further breakdown of the race and Spanish-origin cells.

Another way of viewing response rates in the SIPP is to look at them on a "person" basis as opposed to a household basis; that is, consider sample loss in terms of the reduction in the numbers of initially interviewed sample persons over the time these individuals were eligible for interview. Table 2 and table 3, taken from Kasprzyk and McMillen (1987), provide a summary of response patterns observed during eight SIPP interviews. A detailed accounting of response patterns is available in an internal Census Bureau memorandum (U.S. Bureau of the Census, 1988c). This memorandum also presents tables giving the distribution of the reasons for noninterviews and characteristics of persons who leave the 1984 Panel sample.

Under either way of measuring nonresponse--rates based on household or rates based on persons--it is clear that, in a longitudinal survey, a missing data problem exists which is different from the cross-sectional missing data problem. This is the problem of wave nonresponse--individuals or households who miss one or more (but not all) interviews--and its treatment.

The amount of missing data for an individual with wave nonresponse is typically greater than that encountered for records with item nonresponse. Data available from completed waves of interviewing, however, provide more information about the nonresponding unit than is available for total nonrespondents. Thus, nonresponse compensation strategies may include weighting, imputation, or a combination of both. Kalton, Lepkowski, and Lin (1985) discuss this issue and empirical findings in the context of the ISDP. This work made it clear that the choice between weighting and imputation for missing data of this type is far from obvious. Kalton (1986) and Kalton and Miller (1986) further refine the understanding of this problem and conclude that imputation can distort some forms of estimates and that weighting may be the preferred solution for large subclasses when the reduction in effective sample size is tolerable. They caution, however, that imputation may be better for estimates based on small subclasses when the loss of sample is important. In the case of a three-interview longitudinal SIPP file the difference in sample size between weighting and imputation is not substantial, and, consequently the weighting approach is the safer general-purpose solution; however, in an eight-interview longitudinal SIPP file the choice is by no means obvious. Finally, Lepkowski (1988) after further empirical research concludes that a specific strategy for wave nonresponse can only be developed after consideration of such factors as the major survey design objectives, the panel design, and the distribution of wave nonresponse patterns. He provides criteria to be considered in developing

TABLE 2
Response Patterns for Original Sample Persons
(100-level) 1/

Response every interview (8 interviews)		Number	Percent
Pattern:	XXXXXXXX	32192	73.0%
Attrition Cases		8173	18.5%
Patterns:	XXXXXXX0	623	1.4%
	XXXXXX00	802	1.8%
	XXXXX000	919	2.1%
	XXXX0000	1149	2.6%
	XXX00000	1259	2.9%
	XX000000	1603	3.6%
	X0000000	1818	4.1%
All other Patterns		3723	8.5%
Total		44088	

1/The universe for the table consists of all persons eligible for eight interviews in the 1984 SIPP Panel and for whom a personal interview was conducted (either self-or proxy-interview) during the first wave of the 1984 SIPP Panel. The symbol "X" represents a successful interview and the symbol "0" represents no interview (either no household interview or no personal interview).

TABLE 3
Number of Missing Interviews for Original Sample Persons
(100-level) 2/

Number of Interviews Missing	Number of Persons	Percent
0	32192	73.0%
1	2794	6.3%
2	1377	3.1%
3	1283	2.9%
4	1396	3.2%
5	1482	3.4%
6	1746	4.0%
7	1818	4.1%
Total	44088	100.0%

2/The universe for the table consists of all persons eligible for eight interviews in the 1984 SIPP Panel and for whom a personal interview was conducted (either self-or proxy-interview) during the first wave of the 1984 SIPP Panel.

missing data strategies and concludes that weighting strategies appear to be preferable for compensating for wave nonresponse.

Item nonresponse, as with unit nonresponse, can be viewed from the cross-sectional or longitudinal dimension. Item nonresponse typically refers to missing data items in an otherwise completed interview. It provides a good illustration of the fact that there is nothing theoretically special about longitudinal imputation for item nonresponse. Longitudinal imputation for item nonresponse is simply imputation for item nonresponse using auxiliary data from a larger data base, using longitudinal data elements as well as cross-sectional ones.

Discussions of the levels of item nonresponse in the SIPP have occurred periodically at the meetings of the American Statistical Association (Coder and Feldman, 1984; Lamas and McNeil, 1984; McMillen and Kasprzyk, 1985). These reports have focused on cross-sectional item nonresponse rates. One general observation common to these papers is that for "core" data from the SIPP, the levels of item nonresponse are low. In addition to the papers cited above, levels of item nonresponse can be found in the U.S. Bureau of the Census, Current Population Reports, Series P-70, "Economic Characteristics of House-holds in the United States." Table 4 provides a summary of SIPP item nonresponse rates for each calendar quarter of 1984 compared to the March 1985 Current Population Survey.

The concept of cross-sectional item nonresponse based on data obtained in one interview can be extended to a longitudinal concept that combines the nonresponse experience for successive interviews. This has been done for the first three observations in the 1984 SIPP; the results for a selected group of income types are shown in table 5. The rates in this table are based on the total number of persons reporting receipt of the specified income type at any time during the 12-month period. The first column shows the percent of all income recipients that reported amounts for all months during which the income source was received. The other columns indicate situations in which amounts were not reported in one or more, one or more but not all, and all months of recipiency. The right-most column showing the proportion of cases for which no income amount was reported indicates that only in a small number of cases was no information available.

The treatment of item nonresponse in the longitudinal context was described by Heeringa and Lepkowski (1986) and Kalton and Lepkowski (1983). Heeringa and Lepkowski empirically compare a simple longitudinal imputation method, longitudinal direct substitution (a value of a nonmissing item is substituted from one time period to another when the same item is missing), with a cross-sectional hot-deck scheme. Not surprisingly, they demonstrated that the direct substitution method for longitudinal imputation understates change. They concluded, however, that this may be preferable to the gross overstatement of change resulting from the use of the cross-sectional hot-deck method.

Other imputation work focussing on model development has been conducted by Huggins and Weidman (1986a, 1986b). Models which impute missing reponse patterns have also been investigated (Samuhel and Huggins, 1984: Huggins, Samuhel, and Weidman, 1985).

Table 4. Item Nonresponse Rates for SIPP and March 1985 CPS, for Selected Income Types

Income Type	SIPP 1984 1st Quarter Monthly Average	SIPP 1984 2nd Quarter Monthly Average	SIPP 1984 3rd Quarter Montly Average	SIPP 1984 4th Quarter Monthly Average	March 1985 CPS
Wage and Salary	7.2	7.5	7.5	7.6	18.9
Self-Employment Income	16.8	16.2	16.0	16.1	26.5
Social Security Income	7.6	8.4	8.1	8.4	19.9
Federal Supplement Security Income	10.8	11.6	11.7	12.3	21.3
Aid to Families with Dependent Children	6.1	6.9	6.5	5.5	16.0
Unemployment Compensation	10.1	13.6	10.4	12.7	21.8
Company or Union Pension	13.9	14.0	12.8	14.7	24.0
Food Stamp Allotment	5.2	6.3	6.7	6.6	13.7
Veterans' Compensation or Pension	11.3	11.2	11.9	13.5	18.3

1. U.S. Bureau of the Census, Current Population Reports, Series P-70, No. 3, Economics Characteristics of Households in the United States: First Quarter 1984, U.S. Government Printing Office, Washington, D.C. 1985

2. U.S. Bureau of the Census, Current Population Reports, Series P-70, Economics Characteristics of Households in the United States: Second Quarter 1984, U.S. Government Printing Office, Washington, D.C. 1985

3. U.S. Bureau of the Census, Current Population Reports, Series P-70, Economics Characteristics of Households in the United States: Third Quarter 1984, U.S. Government Printing Office, Washington, D.C. 1985

4. U.S. Bureau of the Census, Current Population Reports, Series P-70, Economics Characteristics of Households in the United States: Fourth Quarter 1984, U.S. Government Printing Office, Washington, D.C. 1986

TABLE 5 -- Longitudinal Item Nonresponse Rates for Amounts of Selected Income
Types: 1984 SIPP Panel 12-Month Summary 1/

INCOME TYPE	(percent)			
	ALL AMOUNTS REPORTED	ONE OR MORE AMOUNTS NOT REPORTED	ONE OR MORE BUT NOT ALL AMOUNTS NOT REPORTED	NO AMOUNTS REPORTED
Hourly Wage Rate	83.0	17.0	9.0	8.0
Social Security.	82.8	17.2	13.1	4.1
Private Pension.	78.8	21.8	13.6	8.2
AFDC	91.0	9.0	5.6	3.4
Food Stamps.	91.9	8.1	6.2	1.9
Unemployment Compensation.	87.9	12.1	4.0	8.0
Federal SSI.	88.0	12.0	7.6	4.4

NOTE: These rates are based on the total number of persons with recipiency in one or more of the 12-months. Also these rates do not reflect imputations made to type Z person noninterviews.

1/This table, prepared by John Coder of the Census Bureau, is taken from SIPP Working Paper Series No. 8601, "Some Aspects of the Survey of Income and Program Participation," compiled by Daniel Kasprzyk and Roger A. Herriot.

5.4 Sampling Error Reduction through Estimation Techniques

Two methods for reducing sampling error through estimation techniques are under study: composite estimation and the use of administrative records in SIPP estimation.

Composite estimation is a technique that combines estimates from the current and previous time periods with the goal of improving the precision of survey estimates by taking advantage of the correlations between responses for the same analytic units at different time periods. Composite estimation is particularly effective when the correlations are high, which is likely to be the case for many important data items in the SIPP. Chakrabarty (1986) has conducted a preliminary review of the types of composite estimates appropriate for the SIPP data structure. The content of the survey has not been sufficiently stable during the first few years of the SIPP to seriously consider adoption of a composite estimator.

Another approach to variance reduction is through the use of administrative records for post-stratification. Currently, cross-sectional estimation procedures for SIPP make use of a second-stage adjustment to increase the precision of estimates by ratio adjusting collection month and reference month estimates to population estimates. However, the Census Bureau has access to some Internal Revenue Service (IRS) and Social Security Administration (SSA) files which can be used to produce detailed age, race, and sex distributions by adjusted gross income. The issue, which we have just begun to explore, is how these administrative data can be used for post-stratification to improve estimates of mean and median personal and household income as well as the estimates of the deciles of the personal and household income distributions.

The first phase of this research (U.S. Bureau of the Census, 1987) will estimate the reductions in variances of SIPP estimates by using the IRS data as auxiliary variables in the estimation procedure. The procedure being studied has been advocated by Herriot (1983) and Scheuren (1983). In the SIPP study the estimation method will involve a ratio adjustment of SIPP estimates at the second stage of estimation in cells defined by age + race + sex + "income" where "income" is adjusted gross income as reported to the Internal Revenue Service.

Controls are prepared from a 1-percent sample of the 1984 IRS file matched with age, race, and sex characteristics from the SSA Summary Earnings Record (a file containing individuals lifetime covered earnings, up to the maximum for each employer, and quarters of social security coverage of the individual). Adjusted gross income from the 100-percent IRS file is then matched to a file of SIPP data. The SIPP cases are then reweighted by controlling to the 1984 IRS controls; that is, a factor f_j, which is the ratio of IRS control in $cell_j$ to the SIPP estimate of persons matched to IRS data with 1984 IRS income in $cell_j$, is applied to persons who fall in $cell_j$ based on the IRS data. Estimates and variances of selected SIPP characteristics will be obtained using the newly created weights and with the weights which do not use this procedure. Fay and Huggins (1988) will provide some indications of the usefulness of this method at the 1988 meetings of the American Statistical Association.

5.5 Sampling for Special Subpopulations

Subgroups of the population are often cited as being more affected by governmental policy than others--the population of persons in poverty, the aged, the Blacks, Hispanics, and participants of Federal income security programs. Early design goals of the ISDP emphasized a concern for improving the reliability of subpopulation estimates. This was exhibited in the emphasis placed in the ISDP on sampling from administrative program lists. Thus, samples were oftentimes drawn from lists of current participants of Federal-or state-administered programs (Kasprzyk, 1983; Bowie and Kasprzyk, 1987).

A Census Bureau Working Group analyzed subsampling (screening) proposals for oversampling special populations. The issue studied concerned the reliability of estimates when different subsampling schemes are introduced. Subsampling characteristics based on income and demographic variables were identified and estimates of reliability for different subsampling rates and characteristics were calculated (U.S. Bureau of the Census, 1985).

This group concluded that subsampling proposals, for a general-purpose income survey like the SIPP, provided only modest gains in precision for low income items and did not outweigh the disadvantages, which included an increase in the complexity of the operation, the loss of a self-weighting design, and large decreases in precision for the middle income items. Because of renewed interest in improving the reliability of the estimates of the "poor" and "near-poor" subpopulations, it is likely that this issue will be reexamined in 1988 and 1989.

6. Response Error

Response error is one aspect of a more general problem, nonsampling error, discussed by Kalton, McMillen, and Kasprzyk (1986) in the context of the SIPP. Response error occurs when incorrect data are recorded on the questionnaire. This can occur for a variety of reasons, such as a faulty questionnaire, memory errors, inappropriate respondents, etc. In this section we briefly describe a response error issue with the SIPP gross flow data and some recent considerations in developing an understanding of the SIPP response error structure.

6.1 SIPP Gross Flow Data

Analysis of program data on a month-to-month basis in ISDP revealed a tendency for reported program turnover to occur between waves of interviewing more often than within the wave (Moore and Kasprzyk, 1984). Analysis using the SIPP data (Burkhead and Coder, 1985) covering month-to-month changes in receipt of income sources for a 12-month period focussed on changes occurring between the last month of one reference period and the first months of the succeeding reference period. The results using SIPP and ISDP data are similar, where an uneven pattern of change is observed, and this pattern is clearly associated with the interviewing scheme. Gross changes are significantly higher between the last month of one reference period and the first month of the next.

Tables 6 and 7 illustrate the magnitude of the problem in the 1984 SIPP Panel. These tables clearly show that respondents report transitions within an interview period differently than between two interview periods. This phenomenon has also been observed in the reporting of the amounts of income received (U.S. Bureau of the Census, 1986c).

Table 6: MONTHLY TRANSITIONS FOR PERSONS: SOCIAL SECURITY AND FOOD STAMPS

(Persons interviewed first 12 months in sample)

	Mean Number of Monthly Transitions within Interview 1	4th month to 5th month	Mean Number of Monthly Transitions within Interview 2	8th month to 9th month	Mean Number of Monthly Transitions within Interview 3
SOCIAL SECURITY					
Receiving both months	6,484	6,473	6,651	6,650	6,781
Not receiving to receiving	56	157	44	134	31
Receiving to not receiving	19	105	13	73	17
FOOD STAMP					
Receiving both months	1,339	1,224	1,365	1,243	1,344
Not receiving to receiving	72	162	55	140	40
Receiving to not receiving	53	207	40	190	38

Adapted from Burkhead and Coder (1985)

Table 7: MONTHLY TRANSITIONS FOR PERSONS: EARNINGS AND UNEMPLOYMENT COMPENSATION

(Persons interviewed first 12 months in sample)

		Mean Number of Monthly Transitions within Interview 1	4th month to 5th month	Mean Number of Monthly Transitions within Interview 2	8th month to 9th month	Mean Number of Monthly Transitions within Interview 3
EARNINGS	Receiving both months	18,959	18,455	19,158	18,536	19,360
	Not receiving to receiving	676	1118	482	1136	534
	Receiving to not receiving	557	1296	451	1129	453
UNEMPLOY-MENT COMPEN-SATION	Receiving both months	435	313	462	294	343
	Not receiving to receiving	129	234	141	165	90
	Receiving to not receiving	155	241	128	294	105

Adapted from Burkhead and Coder (1985)

The reporting behavior described above is not unique to the SIPP. Hill (1987b) used monthly data from the 1984 and 1985 waves of the Panel Study of Income Dynamics (PSID) to investigate the extent and determinants of excessive change between waves relative to measured change within waves of the PSID. He found that in spite of different question sequences and recall periods, between-wave transitions dominate the within-wave transitions in the PSID just as they do in the SIPP. The main causes for the problem are not known, but question-naire wording/design, respondent recall error, and the interaction between these two factors seem likely.

Weidman (1986) did an empirical analysis to look for obvious relationships between respondent characteristics and changes in receipt status of a number of income types. He did not detect any sizable relationships between gross change distributions, self/proxy status and nine demographic variables (age, race, sex, education, marital status, household size, tenure, relationship to reference person, and size of metropolitan area) for consecutive months, but did note that more transitions occur when some of the data are imputed. The absence of any notable relationships indicates a need for exploring other ways to understand this problem.

Interest in gross flow estimates remains high. Hubble and Judkins (1986) developed a model to estimate biases in gross flow estimates resulting from response errors, the parameters of which are estimated using SIPP response error rates and the ratios of within-wave and between-wave gross flow estimates. Several strong assumptions, as well as a reinterview program which produces accurate reinterview data on gross flows within the period, are necessary. Weidman (1987) presents linear models that try to represent the relationships between observed and actual transitions. The models are admittedly oversimpli-fied using only survey reported data, but, nevertheless, illustrate the need to obtain more information about the SIPP error structure in reporting receipt of benefits from government transfer programs.

6.2 Recent Considerations in Understanding the SIPP Error Structure

The SIPP program realizes the need to improve understanding of misreporting and misclassification, particularly as they relate to the measurement of flows in income on a month-to-month basis. At a minimum some effort to improve the questionnaire to reduce the problem described in the previous section is necessary. Two types of studies are currently in process: 1) SIPP record check study; and 2) a series of turnover studies. They differ in that the former allows a microlevel comparison of the data, while the latter provides macrolevel comparisons.

SIPP Record Check Study

One way to address the SIPP error structure in reporting receipt of program benefits and amounts is to develop validation studies of items common to both survey records and administrative records. The SIPP program has initiated such a study to investigate response quality issues.

The goal is the improved understanding of the quality of the SIPP data and, ultimately, the development of quantitative estimates of response and non-response errors in order to adjust the survey data or modify survey procedures to obtain better quality data. The research questions addressed in this study

include: 1) the quality of the respondent reports of receipt of program benefits for a variety of state and Federally administered transfer programs; 2) the quality of benefit dollar amount reporting for these programs; 3) demographic correlates of report quality; 4) extent of misclassification errors; 5) the effects of self-proxy respondent status on report quality; and 6) between-wave recipiency turnover effects. Four state-administered programs and six Federally administered programs are included in the study. Moore and Marquis (1987) provide very preliminary results, suggesting that reporting problems are different for the Aid to Families with Dependent Children (AFDC) and the food stamp programs--the former having a net underreporting and a time-placement problem for reporting a transition in program status, while the latter has only a time-placement problem. Moore and Marquis (1988) will provide further results at the 1988 meeting of the American Statistical Association.

Macrolevel Turnover Studies

Singh, Weidman, and Shapiro (1988) summarize research on the measurement of transitions in the SIPP. They describe several studies which compare aggregate statistics from administrative data with transition rates as measured in the SIPP. With regard to the food stamp program, they showed that SIPP transition rates are very similar to those observed from an administrative record sample. A comparison of SIPP to AFDC administrative data showed that average start-up and average exit rates were lower in the SIPP though not statistically significant. Using aggregate data from the Social Security Administration, Singh, et al.(1988) report that SIPP measured significantly higher start-up and exit rates for the Supplemental Security Income Program. These studies are limited, but are, nevertheless, useful in trying to roughly assess the magnitude of bias in estimates of transitions.

Other research to reduce the microlevel gross flow reporting problem is planned:

°providing more information on this problem with interviewer training materials;

°placing significantly more emphasis on data quality during interviewer training;

°analyzing the effectiveness of the changes instituted to reduce the problem in the 1988 Panel questionnaires;

°developing a calendar as a data collection aid to assist the respondent in recalling the timing of certain transitions;

°analyzing existing data to study interviewer effects on the proportion of between-wave transitions;

°analyzing self-proxy response status and their effect on the measurement of transition;

°conducting exploratory research in a cognitive laboratory setting to generate hypotheses/models for improving the measurements of transitions;

°planning the development of an alternative data collection method, such as a time-line calendar.

This work will occur during 1988 and 1989.

7. Conclusion

The SIPP program has been ambitious from its inception and expectations for the program have been high. Morton Hunt in his Profiles of Social Research referred to the SIPP as "the most exciting thing going on in Social Science in the 1980's." Enthusiasm and high expectations have continued to characterize the program. This paper has described the program and tried to show the scope of the research undertaken under its aegis. As such, it has described the principal research issues of the program from its earliest days to the present time. Recently more effort has been expended on the "evaluation" and analysis of the data collected in the SIPP. Vaughan (1988), Coder (1988), Farley and Neidert (1988), King, Petroni, and Singh (1987), and Singh, Weidman, and Shapiro (1988) describe how the data compare to other established data sets. The latter two research papers also describe the sources of nonsampling error and the magnitude of sampling error in the SIPP. Numerous presentations of analytic results from the SIPP data have been made at meetings of demographers, sociologists, economists, and statisticians. Approximately 60 analytic research papers will be presented in 1988.

The current activity suggests an acceptance of the new data set; however, further methodological research is still in order. Time-in-sample bias, a source of nonsampling error in all panel surveys, has not been investigated in the context of the SIPP. The combining of data from two SIPP panels, an integral part of the survey design, has not yet been undertaken at this time. Indeed, estimates from two or more panels must be rigorously compared. Because of the cumulative nonresponse rates, additional research to improve nonresponse compensation procedures is desirable. Finally, the availability of longitudinal microdata files allows the possibility of analyzing the data longitudinally. Analyses conducted will lead to questions and investigations into edits, imputations, and estimation procedures used on the longitudinal products.

As in all large-scale, continuing survey efforts, research is needed to improve understanding of the effects of survey methods on the data collected. A relatively new survey, like the SIPP, which is complex in its implementation requires a commitment to understanding the measurement process. The wide range of topics discussed above—questionnaire design, data collection, longitudinal concepts and estimation, and response error—illustrate where the interest and emphasis was placed during the development program and the first few years of the SIPP program. One hopes that the program's level of commitment to research methods can be maintained in the future.

Acknowledgments

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