THE SURVEY OF INCOME AND PROGRAM PARTICIPATION

A Comparison of Gross Changes in Labor Force Status from SIPP and CPS

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U.S. Census Bureau

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Presented at the Conference on Individuals and Families in Transition: Understanding Change Through Longitudinal Data, in Annapolis, Maryland, March 15-18, 1988. Paul Ryscavage is a senior labor economist and Angela Feldman-Harkins a survey statistician in the Housing and Household Economics Statistics Division of the U.S. Bureau of the Census. This paper reports the general results of research undertaken by the Census Bureau staff. The views expressed are attributable to the authors and do not necessarily reflect those of the Census Bureau.

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INTRODUCTION

The study of the movement of persons into and out of the labor force and between employment and unemployment, or "labor force dynamics," has had a resurgence in recent years. Much of this renewed interest stems from a joint Bureau of the Census and Bureau of Labor Statistics conference in 1984 relating to the gross labor force flows derivable from the Current Population Survey (CPS).

Most research in this area in the 1980's has focused on ways of overcoming statistical problems associated with the CPS flows. Few researchers realize, however, that gross labor force flows can also be derived from a relatively new household survey called the Survey of Income and Program Participation (SIPP). It is possible that this data source may add something to our knowledge of labor force dynamics.

As a beginning, this paper presents a comparison of the gross labor force flows as recorded in the SIPP and CPS during 1984. In that year, employment was growing rapidly and unemployment was dropping sharply in response to vigorous economic growth. In other words, we are examining flows occurring in a very strong phase of the business cycle. Our comparison shows that 1) the SIPP flows are smaller in general than the CPS flows and, 2) when the SIPP flows are balanced out, net changes in them are more consistent with the net changes in SIPP stocks than is the case with the CPS flows and stocks.

We reserve judgement, however, with respect to the quality of the SIPP labor force flows at this point. The survey designs in SIPP and CPS are very different. As is well known, because of CPS's survey design, month-to-month flows are frequently found to be inconsistent with their stocks. As will be shown in the paper, because of SIPP's survey design, month-to-month flows are bound to be more consistent with its stocks, by definition. But this particular survey design may also create other statistical problems that are embodied in the flows. This aspect of the comparison, therefore, awaits further investigation.

The paper begins with a review of the CPS and SIPP survey designs, with emphasis placed on sample rotation differences and reference period differences. The second section examines the monthly labor force status estimates, or the stocks, from both surveys for each month between December 1983 and December 1984. The following section presents the labor force flows from both surveys, while the last section discusses some of the statistical problems that might affect the quality of the SIPP gross change data.

SIPP and CPS Survey Designs

SIPP is essentially an income survey, conceived in the 1970's for the purpose of collecting better income and program participation data than has been collected in other surveys. The CPS, in contrast, is a labor force survey, developed in the late 1930's and early 1940's to measure the levels of unemployment and employment. The designs of both surveys are different, therefore, because their purposes are different.

SIPP is a longitudinal survey of persons in which data are collected from the same persons over approximately a 2½ year period. When the survey began in late 1983, the sample contained 20,000 households divided into four rotation groups of equal size. One rotation group is interviewed each month producing a staggered sample design; the full sample, consequently, is interviewed over a four month period. The reference period for each rotation group is the previous four months and labor force questions are asked in reference to each week in this period.

The combination of SIPP's staggered sample design and the four month reference period is the major reason the month-to-month flows are relatively consistent with their stock estimates. In any month-to-month period, the labor force information used to derive the flows is based on only one interview in three of the four rotations groups. Unless a respondent refuses to answer all of the SIPP labor force questions, the flows and stocks should be consistent. In the fourth rotation group, the gross flows between two months will be based on two interviews--and here inconsistencies can arise because a respondent may have missed an interview.

An obvious problem emerging from this sample design and reference period length concerns recall. For any monthly estimate recall periods differ in length from rotation group to rotation group and range from one-half month to slightly more than four months (SIPP interviews typically take place at sometime during the first two weeks of the interview month). More will be said about this problem and other potential problems in a later section.

In contrast, the CPS is basically a cross-sectional survey with a longitudinal dimension. Its sample size is apporximately 59,500 households that are divided into eight rotation groups of equal size. Because of its "4-8-4" rotation scheme (i.e., households come into the sample for four months, drop out for eight, and return for four more) each month one rotation group is being interviewed for the first time and another for the last time. This means that between any two consecutive months only six of the eight rotation groups will be common. Another important difference from the SIPP is the CPS reference period. Labor force questions are asked in the week containing the 19th of the month, but with reference to the week containing the 12th--a one week reference period. 1/

In the CPS, therefore, month-to-month gross labor force flows are based on two interviews (in month t - 1 and month t) in six of the eight rotation groups. Since only a subset of the CPS sample is used to derive the flows, while the entire sample is used to derive the stocks, inconsistencies between the two are unavoidable. Moreover, even in the common rotation groups the chance for problems arise because of the fact that the information to derive the flows comes from two independent interviews. Consequently, while the recall period in the CPS is very short, the sources of difference between the net changes implicit in the gross flow data and those in the stock data are much greater in the CPS than in SIPP.

1/ In some years, the reference week in December is moved back a week to avoid seasonal changes in labor force behavior associated with the holidays in that month.

Other significant differences exist in the survey designs of SIPP and CPS which should be noted. First, in SIPP persons who move out of a sample household are followed in order to keep them in the survey. Interviews are also obtained for persons moving into households containing SIPP sample members. In the CPS, "movers" are not followed. Second, in SIPP, personal interviews are obtained from each person 15 years of age and over if possible, and proxy interviews are obtained only from responsible household members. In the CPS, a responsible household member, age 14 and over, can answer on behalf of all household members. Third, the SIPP interview lasts 10 to 15 minutes per individual during which time not only labor force information is obtained, but also information relating to income, earnings, program participation, and a variety of other topics. The CPS interview, on the other hand, lasts only 5 to 7 minutes and covers fewer topics.

One last important difference relates to the surveys' different approaches to measuring labor force activity. As was mentioned earlier, the reference periods in both surveys differ--and this affects the measurement concept. The CPS concept is one of "current" labor force activity, while SIPP's is a measurement of "work experience" over four months. Consequently, while in the CPS an individual can have only one labor force status assigned to him or her for a month (the labor force status in the reference week is used to summarize the situation for the month), in SIPP it is possible for the person to have been employed, unemployed, or not in the labor force, all in the same month. Eight employment status

recodes (ESR's) are used to summarize the work experience situation for an individual in a month. 2/

Monthly "Stock" Estimates of Labor Force Status from SIPP and CPS

In 1984, the Nation's gross national product grew by 6.8 percent in real terms and this surge in economic growth was reflected in the labor market. According to the Bureau of Labor Statistics (BLS), between December 1983 and December 1984 employment shot up by 3.2 million workers and unemployment fell by 1.0 million persons. Because these labor force indicators were signaling large net changes, this period seems to be appropriate for comparing SIPP and CPS gross labor flows, although we would also like to make the comparison in another phase of the business cycle as well.

Before looking at the flows, however, it is important to first compare the monthly stock estimates of labor force status from SIPP and CPS for this period. Obviously, if the SIPP is not measuring labor force developments as the CPS, especially in a period of strong cyclical behavior, it would be pointless to go much further in our analysis.

2/ The ESR's are:
ESR 1 - With job entire month, worked all weeks.
ESR 2 - With job entire month, missed work 1 or more weeks, but not because of a layoff.
ESR 3 - With job entire month, missed work 1 or more weeks because of a layoff.
ESR 4 - With job part of month, but not because of a layoff or looking for work.
ESR 5 - With job part of month, some time spent on layoff or looking for work.
ESR 6 - No job in month, spent entire month on layoff or looking for work.
ESR 7 - No job in month, spent part of month on layoff or looking for work.
ESR 8 - No job in month, no time spent on layoff or looking for work.

As mentioned earlier, the measurement of labor force activity in SIPP and CPS is conceptually quite different (i.e., work experience vs. current activity). Although we can't change that conceptual difference, we can replicate the CPS reference period in SIPP by using only those SIPP data that relate to the CPS reference weeks. This could be done because in SIPP labor force activity is recorded weekly during its four month reference period, and thus the week containing the 12th of the month could be identified (see Appendix A for the details of this procedure). The effect of this replication is to create three mutually exclusive labor force status groups--employment, unemployment, and not in the labor force--just as in the CPS.

Figures A, B, and C contain the SIPP and CPS estimates of labor force status for the population 16 years of age and over for the months between December 1983 and December 1984. The data are not seasonally adjusted and the actual estimates can be found in Appendix B. 3/

In general, a similarity does exist in the SIPP and CPS trends of employment (Figure A) and unemployment (Figure B), and to a lesser extent in the trends of the not in the labor force groups (Figure C). Regarding employment, both rose from a level of 103 million or so in December 1983 and were between 106 and 107 million one year later. In fact, only in the January to April period are the estimates statistically different from one another at the 95 percent confidence level. The SIPP estimates of unemployment are all higher and statistically different from those of the CPS, however, the trend is similar. While unemployment

3/ The resident Armed Forces is included in the SIPP estimates produced through the replication procedure. Differences in labor force measurement between SIPP and the CPS are discussed in Ryscavage and Bregger (1985).

Figure A. Monthly estimates of employment (not seasonally adjusted) according to CPS and SIPP, December 1983-December 1984

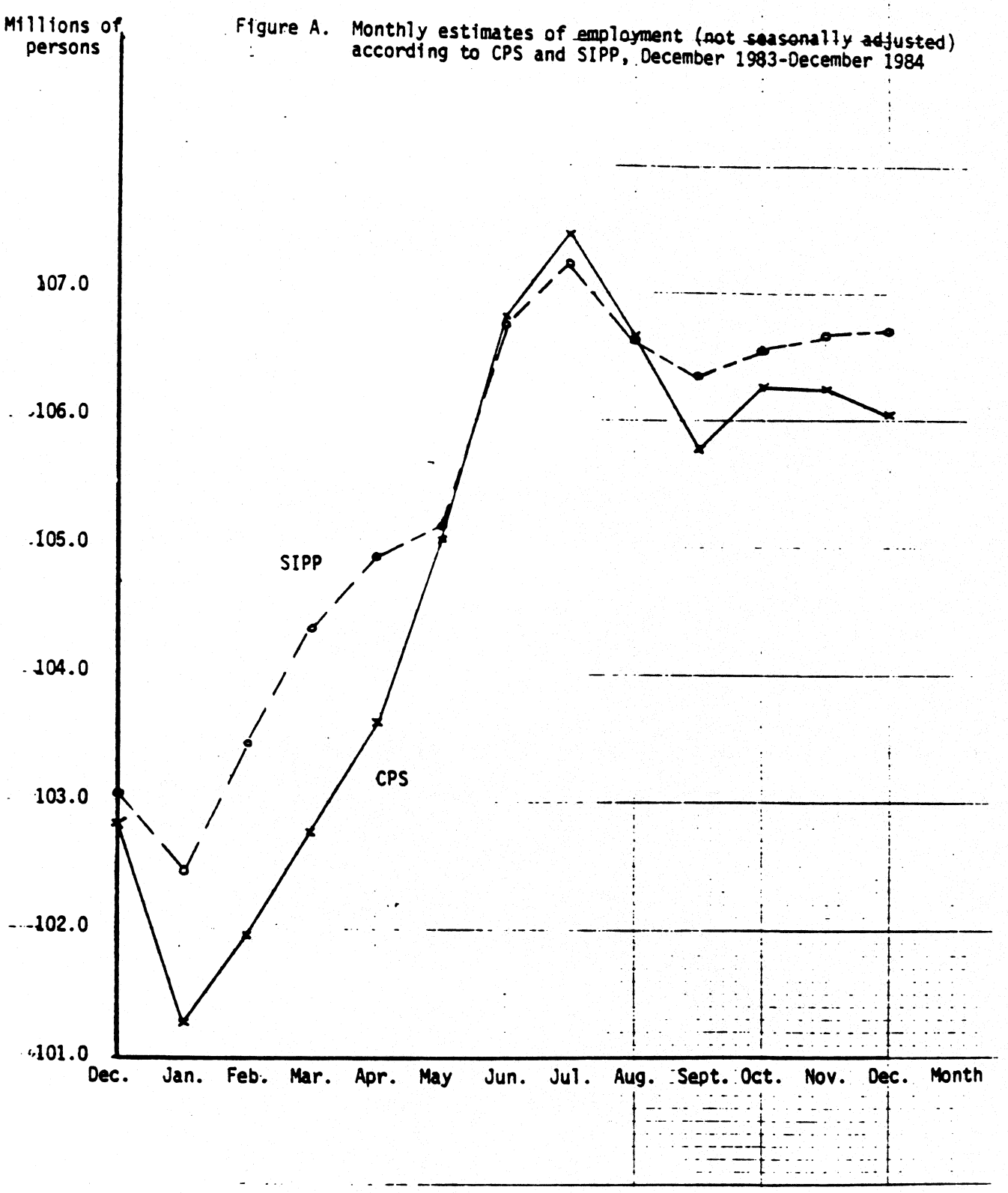


Figure B. Monthly estimates of unemployment (not seasonally adjusted) according to CPS and SIPP, December 1983-December 1984

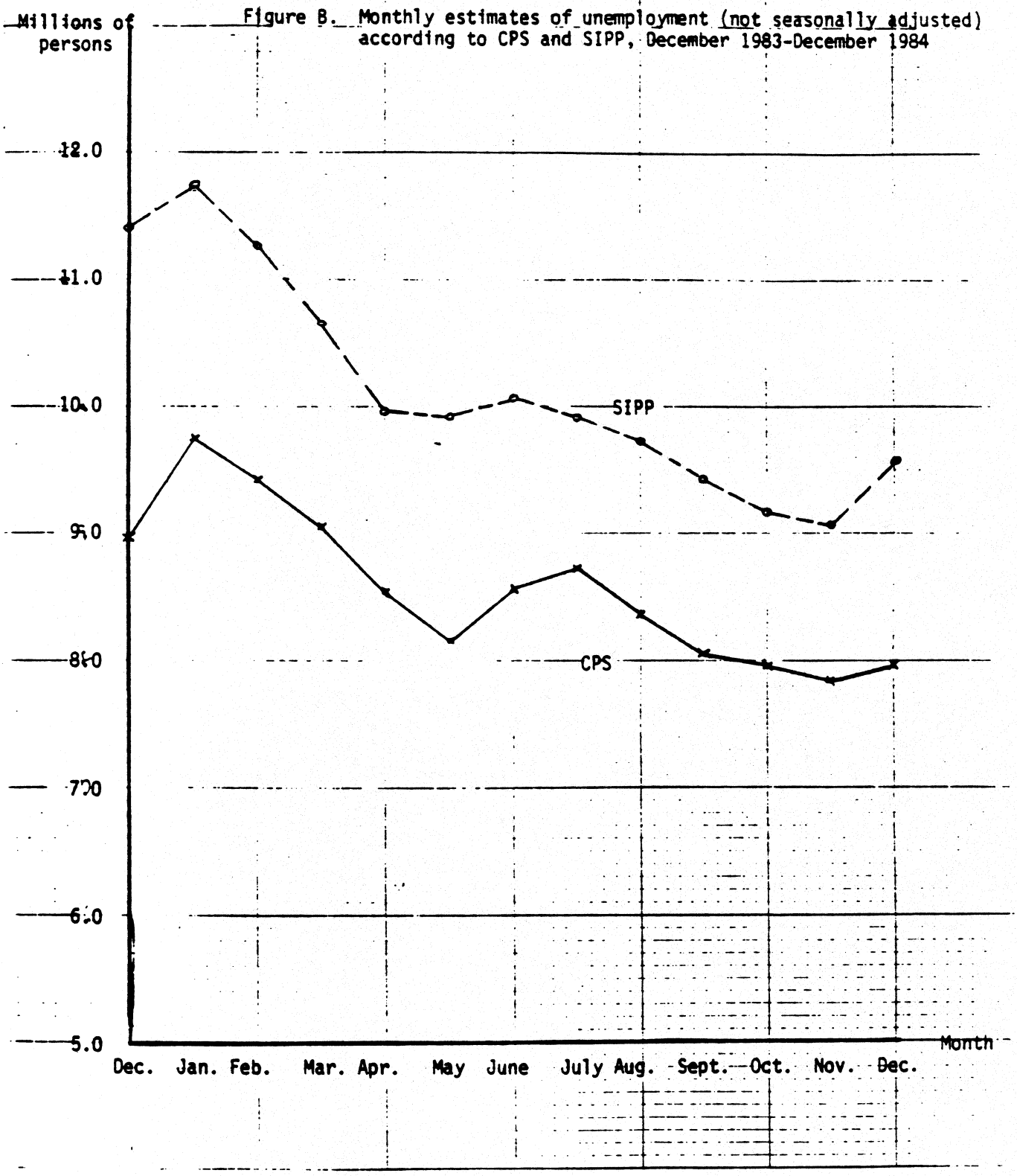
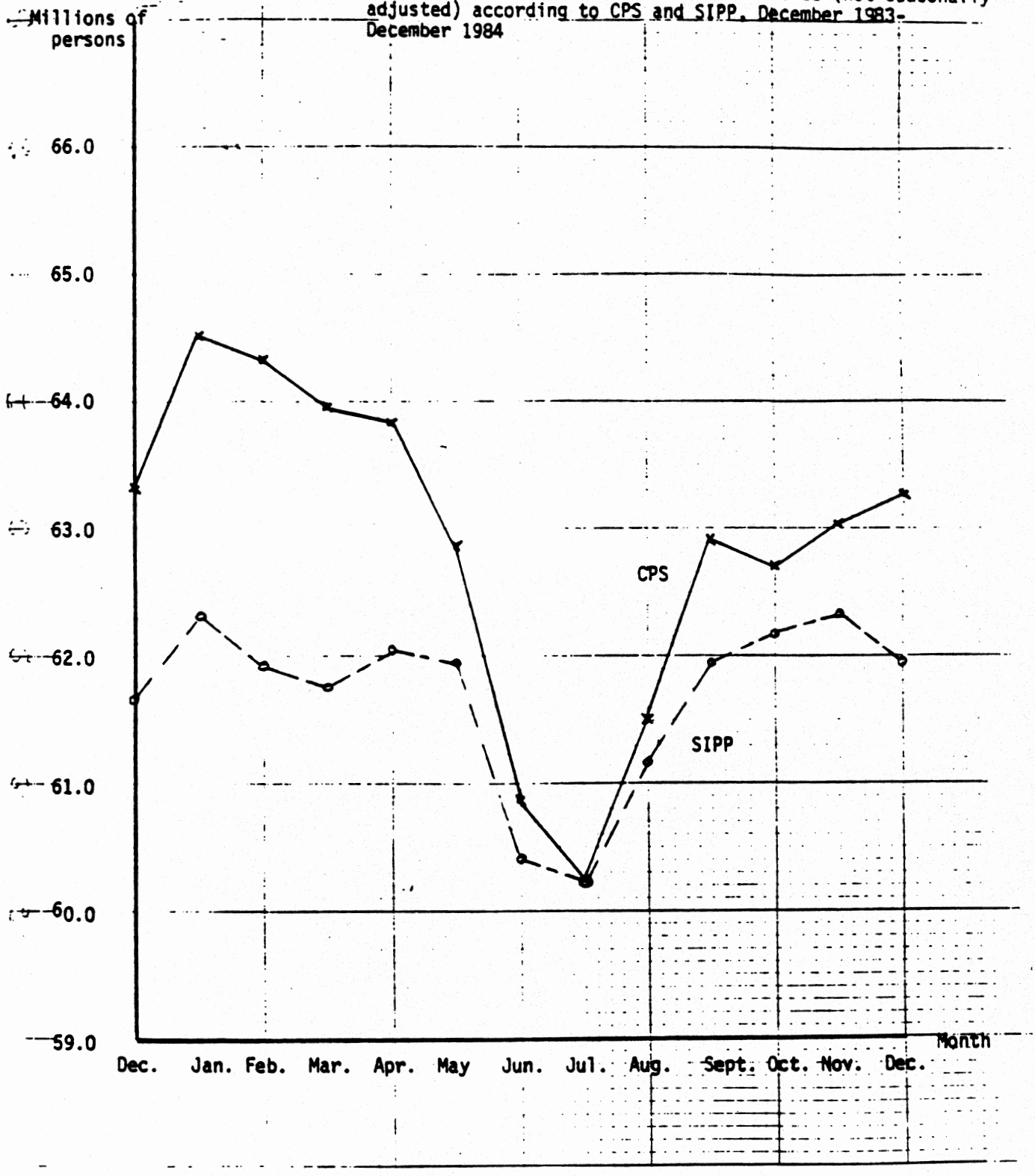


Figure C. Monthly estimates of not in the labor force (not seasonally adjusted) according to CPS and SIPP, December 1983-December 1984



declined from 9.0 million to 8.0 million according to the CPS, the SIPP recorded a drop from 11.4 million to 9.6 million during the period. For the not in the labor force group, the estimates from SIPP and CPS were not statistically different from one another in the May to November period and in the other months the CPS estimates were higher. Both surveys recorded the seasonal drop in this group in the summer months and then the increase in the fall months.

While conceptual and methodological differences abound between the SIPP and CPS, both were producing similar readings of labor market developments during 1984. The next step is to compare the labor force flows from both surveys.

Comparing Labor Force "Flows" in SIPP and CPS

The traditional approach to examining short-run labor force dynamics using the CPS gross flow data has been a data matrix which shows the labor force status of the population age 16 and over in month t (or an average of months) by the labor force status of those persons in month t - 1. Table 1 displays these matrices using the SIPP and CPS data. Persons located on the diagonal of the matrix (from upper left to lower right) are persons with no change in labor force status between t - 1 and t, while those in the off-diagonal cells reflect the flows or transitions in labor force status from one period to another.

The flows, theoretically, account for the changes in the stock estimates of labor force status. The relationship between the stocks and flows have been commonly expressed as follows:

Table 1. Average monthly gross labor force flows between December 1983 and December 1984 according to CPS and SIPP (in thousands)

Status in month t - 1	Total	Status in month t: Employment	Unemployment	Not in LF
CPS				
Total	176,383	104,887	8,165	63,331
Employment	105,025	100,001	1,757	3,267
Unemployment	8,337	2,019	4,600	1,718
Not in LF	63,021	2,867	1,808	58,346
SIPP				
Total	176,525	105,121	9,996	61,408
Employment	104,889	101,621	1,422	1,846
Unemployment	10,163	1,766	7,505	892
Not in LF	61,473	1,734	1,069	58,669

FLOW COMPARISONS

	Inflows	-	Outflows	=	Change
Employment	ue + ne		eu + en		
CPS	2,019 + 2,867		1,757 + 3,267		-138
SIPP	1,766 + 1,734		1,422 + 1,846		232
Unemployment	eu + nu		ue + un		
CPS	1,757 + 1,808		2,019 + 1,718		-172
SIPP	1,422 + 1,069		1,766 + 892		-167
Not in LF	en + un		ne + nu		
CPS	3,267 + 1,718		2,867 + 1,808		310
SIPP	1,846 + 892		1,734 + 1,069		-65

$$E_t - E_{t-1} = ue + ne - eu - en$$
$$U_t - U_{t-1} = eu + nu - ue - un$$
$$N_t - N_{t-1} = en + un - ne - nu$$

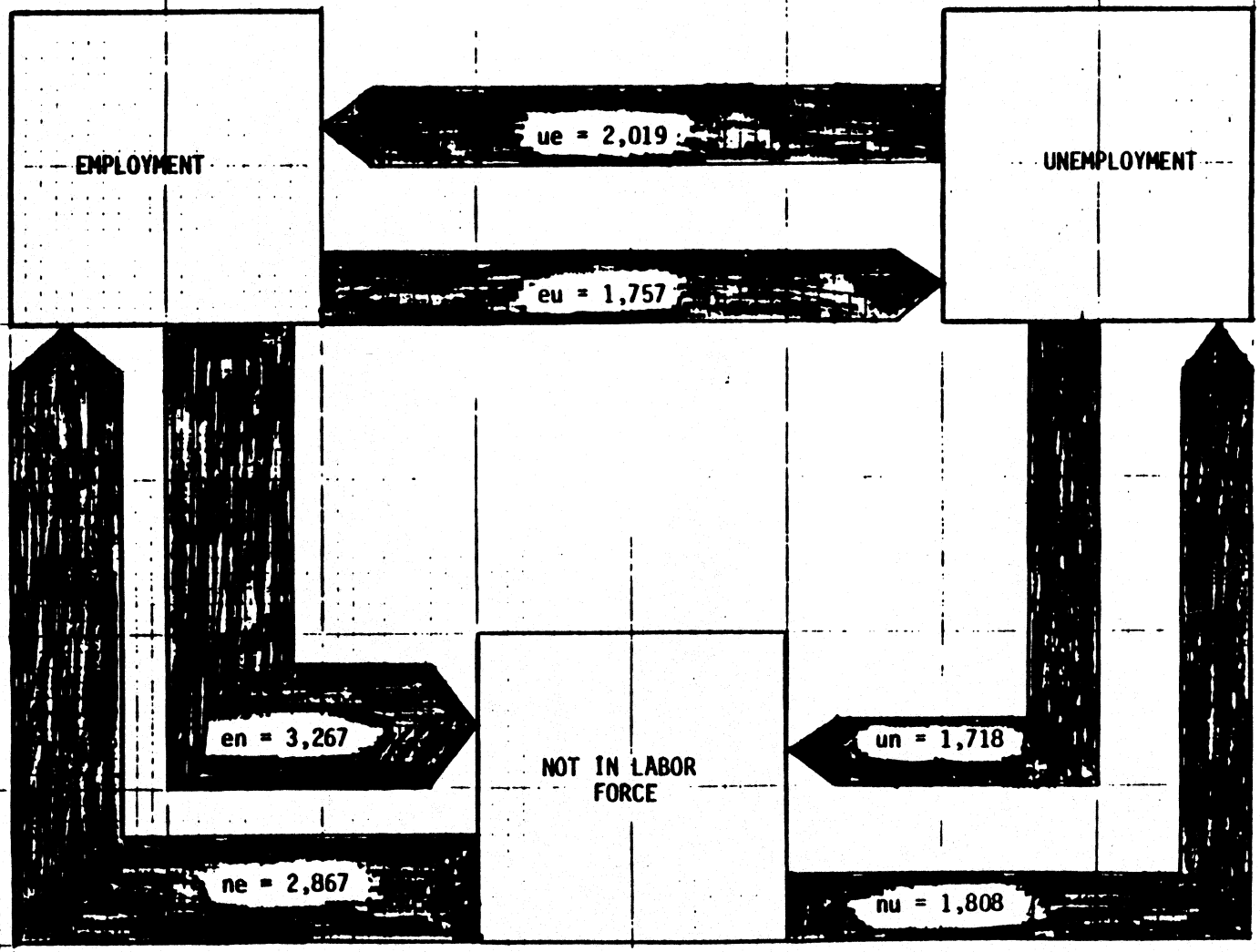
where the capital E, U, and N are the stock estimates in time period t and t - 1, while the lower case letters, eu, nu, ne, and so on, are the flow estimates between the periods. In the matrices, the capital letters correspond to the marginals of the rows and columns and the lower case letters to the off-diagonal cells. The first two elements on the right side of the equations represent inflows into the stocks and the last two represent the outflows.

Table 1 contains the average of the monthly flows (and nonflows) between labor force statuses in the December 1983-December 1984 period as reflected in both surveys. These are averages of weighted data. 4/ A quick glance at Table 1 indicates that the flows among labor force statuses were relatively smaller according to SIPP than according to the CPS, especially so for those flows involving the not in the labor force group (i.e., ne, en, un, nu). Both the average en and ne flows in SIPP were more than 1 million persons smaller than in CPS, and the un and nu flows in SIPP were about 800,000 persons smaller. Figures D and E show the average monthly labor force flows diagramatically. (See Appendix B for the month-to-month flows from the CPS and SIPP during 1984.)

The long observed problem with the CPS gross flow data are evident here as well: Changes in the stock estimates derived from the flow data (after the flows have been balanced out) are inconsistent with the net changes derived from the published CPS stock estimates. Consider the

4/ The weights for month t are used to weight the data for month t - 1.

Figure D. Average monthly gross labor force flows between December 1983 and December 1984 according to CPS (in thousands)



--One block of the width of each flow equals approximately 400,000 persons.

Figure E. Average monthly gross labor force flows between December 1983 and December 1984 according to SIPP (in thousands)

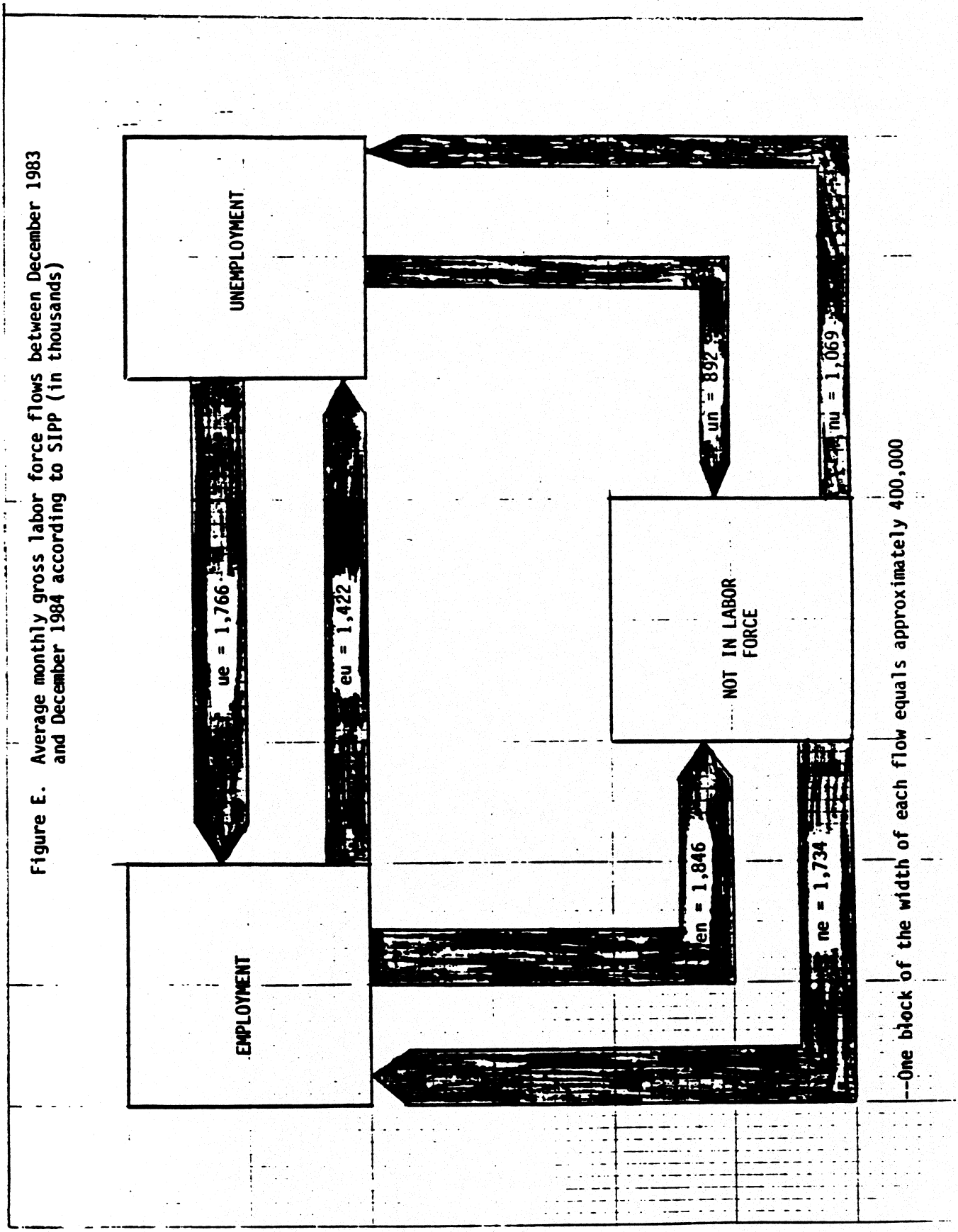


table below. The published CPS estimates of employment indicated that, on average, employment was growing by 271,000 persons a month during 1984, but the estimate of change derived from the flows showed a monthly decline, on average, of 138,000. Given the economic expansion that was underway

Average Monthly Net Changes in Labor Force Status, December 1983 to December 1984

	CPS According to:		SIPP According to:	
	Stocks	Flows	Stocks	Flows
Employment	271,000	-138,000	304,000	232,000
Unemployment	-85,000	-172,000	-151,000	-167,000
Not in labor force	-4,000	310,000	24,000	-65,000

in this period, there is no doubt as to which estimate was reflecting reality more accurately. The same is true in the case of unemployment. Although the estimate of change here has the right sign as the published estimate would indicate, it is considerably larger than what was reported (-85,000 vs. -172,000). And last, a large inconsistency exists in the not in the labor force category.

As would be expected, the SIPP net changes derived from the flow data and those obtained through the special monthly estimation are less inconsistent. The difference in the employment change is less than 100,000, the difference in the unemployment change is negligible, and while the changes in the not in the labor force group have different signs, the absolute difference is less than 100,000.

As was mentioned at the outset, a lot of research has been conducted on how to adjust the CPS gross flow data. Hogue and Flaim (1985) summarized the research presented at the joint Bureau of the Census and Bureau of Labor

Statistics conference. In one of their charts they show average monthly flows out of unemployment during 1982 estimated by three sets of researchers, after they had adjusted the CPS labor force flow data. Each found the flows out of unemployment to employment and not in the labor force to be smaller than was the case with the unadjusted CPS data--a result similar to what we have found in SIPP. Table 2 shows the results of one set of researchers --Poterba and Summers (1985)--for 1981 compared to the situation as recorded in SIPP and CPS for 1984.

So what does the SIPP gross labor force flows tell us about labor market developments in 1984? First, employment growth was fueled by a similar number of persons leaving the ranks of the unemployed and persons moving directly into jobs from outside the labor force. Second, the significant reduction in unemployment during 1984 was accomplished more as a result of persons finding jobs than unemployed workers leaving the labor force. And third, while flows of persons between labor force statuses were large, they might not have been as large as originally thought.

Flows by age and sex. Tables 3 through 7 summarize the average monthly CPS and SIPP gross flows between December 1983 and December 1984 by age and sex groups. In each group examined--both sexes 16 to 19, both sexes 20 to 24, men 25 to 54, and both sexes 55 and over--gross labor force flows were smaller in SIPP, on average, than in the CPS. The largest differences were found in movements involving either entering or exiting the not in the labor force group (i.e., ne, en, un, and nu).

Table 2. Average monthly distribution of persons in month t - 1 by their labor force status in month t between December 1983 and December 1984 according to CPS and SIPP and the adjusted CPS data for 1981 according to Poterba and Summers (in percent)

Status in month t - 1	Total	Status in month t: Employment	Unemployment	Not in LF
CPS -1984				
Employment	100.0	95.2	1.7	3.1
Unemployment	100.0	24.2	55.2	20.6
Not in LF	100.0	4.5	2.9	92.6
SIPP -1984				
Employment	100.0	96.9	1.4	1.8
Unemployment	100.0	17.4	73.8	8.8
Not in LF	100.0	2.8	1.7	95.4
Adjusted CPS--Poterba and Summers -1981				
Employment	100.0	98.1	1.3	0.6
Unemployment	100.0	18.0	72.9	9.1
Not in LF	100.0	0.3	1.4	98.2

Table 3. Average monthly gross labor force flows between December 1983 and December 1984 according to CPS and SIPP--BOTH SEXES, AGE 16 to 19 (in thousands)

Status in month t - 1	Total	Status in month t: Employment	Status in month t: Unemployment	Status in month t: Not in LF
CPS				
Total	14,225	6,334	1,426	6,466
Employment	6,286	5,273	274	738
Unemployment	1,459	364	637	458
Not in LF	6,480	696	514	5,269
SIPP				
Total	14,685	6,204	1,883	6,598
Employment	6.034	5,423	209	402
Unemployment	1,895	320	1,331	244
Not in LF	6.756	461	343	5,952

FLOW COMPARISONS

	Inflows	-	Outflows	=	Change
Employment	ue + ne		eu + en		
CPS	364 + 696		274 + 738		48
SIPP	320 + 461		209 + 402		170
Unemployment	eu + nu		ue + un		
CPS	274 + 514		364 + 458		-34
SIPP	209 + 343		320 + 244		-12
Not in LF	en + un		ne + nu		
CPS	738 + 458		696 + 514		-14
SIPP	402 + 244		461 + 343		-158

Table 4. Average monthly gross labor force flows between December 1983 and December 1984 according to CPS and SIPP--BOTH SEXES, AGE 20 to 24 (in thousands)

Status in month t - 1	Total	Status in month t: Employment	Unemployment	Not in LF
CPS				
Total	19,751	13,598	1,704	4,449
Employment	13,581	12,661	385	535
Unemployment	1,765	464	956	345
Not in LF	4,405	473	363	3,569
SIPP				
Total	20,778	14,228	2,129	4,421
Employment	14,150	13,460	319	372
Unemployment	2,161	401	1,585	175
Not in LF	4,467	368	224	3,874

FLOW COMPARISONS

	Inflows	-	Outflows	=	Change
Employment	ue + ne		eu + en		
CPS	464 + 473		385 + 535		17
SIPP	401 + 368		319 + 372		78
Unemployment	eu + nu		ue + un		
CPS	385 + 363		464 + 345		-61
SIPP	319 + 224		401 + 175		-33
Not in LF	en + un		ne + nu		
CPS	535 + 345		473 + 363		44
SIPP	372 + 175		368 + 224		-45

Table 5. Average monthly gross labor force flows between December 1983 and December 1984 according to CPS and SIPP--MEN 25 to 54 (in thousands)

Status in month t - 1	Total	Status in month t: Employment	Unemployment	Not in LF
CPS				
Total	45,042	39,972	2,400	2,669
Employment	39,988	39,060	620	307
Unemployment	2,421	638	1,536	247
Not in LF	2,632	274	244	2,116
SIPP				
Total	45,423	40,013	2,816	2,595
Employment	39,953	39,298	480	174
Unemployment	2,893	554	2,220	119
Not in LF	2,577	160	115	2,302

FLOW COMPARISONS

	Inflows	-	Outflows	=	Change
Employment	ue + ne		eu + en		
CPS	638 + 274		624 + 307		-15
SIPP	554 + 160		480 + 174		60
Unemployment	eu + nu		ue + un		
CPS	620 + 244		638 + 247		-21
SIPP	480 + 115		554 + 119		-78
Not in LF	en + un		ne + nu		
CPS	307 + 247		274 + 244		36
SIPP	174 + 119		160 + 115		18

Table 6. Average monthly gross labor force flows between December 1983 and December 1984 according to CPS and SIPP--WOMEN 25 to 54 (in thousands)

Status in month t - 1	Total	Status in month t: Employment	Unemployment	Not in LF
CPS				
Total	47,498	30,336	1,975	15,186
Employment	30,358	29,027	349	981
Unemployment	2,038	431	1,082	526
Not in LF	15,102	878	543	13,680
SIPP				
Total	47,325	30,178	2,405	14,742
Employment	30,147	29,298	316	532
Unemployment	2,413	384	1,784	263
Not in LF	14,748	496	305	13,947

FLOW COMPARISONS

	Inflows	-	Outflows	=	Change
Employment	ue + ne		eu + en		
CPS	431 + 878		349 + 981		-21
SIPP	384 + 496		316 + 532		32
Unemployment	eu + nu		ue + un		
CPS	349 + 543		431 + 526		-65
SIPP	316 + 305		384 + 263		-26
Not in LF	en + un		ne + nu		
CPS	981 + 526		878 + 543		86
SIPP	532 + 263		496 + 305		-6

Table 7. Average monthly gross labor force flows between December 1983 and December 1984 according to CPS and SIPP--BOTH SEXES, AGE 55 AND OVER (in thousands)

Status in month t - 1	Total	Status in month t: Employment	Unemployment	Not in LF
CPS				
Total	49,867	14,646	659	34,560
Employment	14,812	13,978	128	706
Unemployment	652	121	387	143
Not in LF	34,401	545	145	3,374
SIPP				
Total	48,313	14,497	764	33,051
Employment	14,606	14,142	98	366
Unemployment	782	106	585	91
Not in LF	32,925	249	82	32,595

FLOW COMPARISONS

	Inflows	-	Outflows	=	Change
Employment	ue + ne		eu + en		
CPS	121 + 545		128 + 706		-168
SIPP	106 + 249		98 + 366		-109
Unemployment	eu + nu		ue + un		
CPS	128 + 145		121 + 143		9
SIPP	98 + 82		106 + 91		-17
Not in LF	en + un		ne + nu		
CPS	706 + 143		545 + 145		159
SIPP	366 + 91		249 + 82		126

Although flows are smaller in SIPP than in the CPS, labor force turnover is still greatest among the young and women, and it is the smallest for men age 25 to 54 and older persons. The largest flows for teenagers were between employment and not in the labor force and vice versa. For men age 25 to 54 the largest flows were between employment and unemployment, but for women of the same age and older persons the largest flows were between not in the labor force and employment.

Statistical Problems With SIPP Gross Labor Force Flows

Net changes in labor force statuses calculated from SIPP flows are more consistent with the net changes in SIPP stocks than is the case in the CPS, but statistical problems no doubt exist in the SIPP flow data. While the problems with the CPS flow data have been known for many years (Hogue, 1985), this is obviously not true with the data from SIPP. In this section we discuss some of these statistical problems beginning with the least serious and proceeding to the most serious.

Perhaps the least problematic is the matching of microrecords. The efficient linking of these records from one wave of interviewing to another is imperative since SIPP is a longitudinal survey. The following information is used in the linking procedure: the primary sampling unit (PSU), the segment number, serial number, person number, and the person's entry identification number. More detail on the linking of records is contained in the SIPP Users' Guide (U.S. Bureau of the Census, 1987). In the CPS, matching is more complicated since the

sample is composed of household addresses.

SIPP sample members who miss an interview or physically move their residence create problems. Household sample loss amounted to almost 20 percent by the end of the period under study. To compensate for this a noninterview adjustment procedure is used in weighting the data. Although some households and persons simply refuse to take part in the survey, an effort is made to follow those cooperating sample members who move. The general rule is that an original sample person will be followed for subsequent interviews if he or she has moved within 100 miles of a SIPP PSU and/or can be reached by telephone. Imputation is used to compensate for individual nonresponse and nonresponse to specific questions.

Response error is a problem common to all household surveys and it includes a variety of specific problems such as questionnaire effects, recall bias, telescoping, time-in-sample effects, poorly informed proxy respondents, interviewers' errors, processing errors, and so on. Clearly, errors involving recall are more likely to be a problem in SIPP than CPS. Respondents are required to think back over four months about the jobs they held and/or the periods of jobseeking and layoff. Although this may not be difficult for persons with steady jobs, for those with a weak attachment to the job market, recall errors may be quite common, especially as one moves further back in time.

Another specific response error that relates to the length of the reference period in SIPP concerns telescoping, or the misplacement of events (e.g., a spell of job search, a layoff) in time. Events can be mistakenly reported to have occurred outside the reference period (external telescoping) or mistakenly shifted forward or backward within the reference period (internal telescoping).

Time-in-sample may also produce statistical problems. The number of times respondents are interviewed may affect respondents' answers. They may learn the fastest way to get through the interview and, therefore, provide incorrect answers. This may be a greater problem for SIPP because the questionnaire is much longer and deals with the sensitive and complex topics of income and income transfer programs (such as Food Stamps) of the Federal government.

All of these response problems probably have less of an impact on SIPP's aggregate labor force flows than on the CPS's, again, because of the unique survey designs in both. Previous research on SIPP has shown that month-to-month changes in income and labor force status are much greater when they are based on two interviews than when they are based on only one interview (Burkhead and Coder, 1985); Ryscavage and Short, 1985). As was shown, one-fourth of SIPP's gross change estimates come from two interviews and three-fourths from one interview. In contrast, all of the CPS gross flow estimates are derived from two interviews. Given the tendency for a greater amount of change in status to be reported from two interviews than from one, it is possible that in SIPP we have both an overestimate and underestimate of change being reported which tends to "dampen" the aggregate flow data. This possibility has been hinted at by Census Bureau statisticians regarding the gross change data in the Food Stamp program derived from SIPP (Singh, Weidman, and Shapiro, 1986). Whether or not this is true with the SIPP gross labor force flow data awaits corroboration.

Conclusion

This paper has presented estimates of gross labor force flows from SIPP for 1984 and compared them to the flow data derived through the CPS. As would be expected given the survey design of SIPP, its flows were generally smaller than those from the CPS, and more consistent with the net changes in its stock estimates than was the case with CPS flows and stocks. The quality of the SIPP flows, however, requires further investigation, specifically the affect of response error on them. In addition, it would be useful to observe SIPP gross labor force flows in another phase of the business cycle. Nevertheless, SIPP may become an important source of data for researchers involved in the study of labor force dynamics.

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APPENDIX A. Replicating the CPS Reference Period in SIPP

The SIPP labor force questions cover an 18 week period, or approximately four months. The questions begin by inquiring of respondents whether or not they had a job or business at any time during the four month reference period. If no job or business was held, respondents are then asked if they had looked for work or were on layoff at any time during the reference period. If they were, they are asked to identify, with the aid of a calendar, the specific weeks.

For persons who said they did have a job or business, additional questions are asked if they had a job or business in each week of the reference period. If they say they did they are asked if they were absent from their job at any time and for what reason. Again, specific weeks would be identified if they had been absent.

Respondents who said they did not have a job or business in each week of the reference period are then asked in which weeks they did have jobs or businesses--and if they had been absent and for what reason. They are then further asked whether or not in the weeks they did not have a job or business if they had looked for work or were on layoff. A calendar is also used in helping to answer these questions.

The first step in replicating the CPS reference period in SIPP was to determine which week in each month of the year contained the 12th. Once those weeks were identified for December 1983 to December 1984, we looked at individual microrecords to see if in that week of each month whether or not a person had a job. If the person had a job and was not absent without pay that week because of a layoff or a new job beginning in 30 days, they were classified as "employed."

Those persons with a job and absent without pay because of the above two reasons were classified as "unemployed."

It is possible that for persons who had jobs but said they were absent from them, a misclassification in labor force status could occur in the replication procedure. This is because while the specific week in which the job absence occurred is identified, the reason for the absence in that week may not necessarily apply. In the SIPP questionnaire only the main reason is sought for the job absence and it could very well be that for a worker who had been absent for a number of weeks, two or more reasons may apply (e.g., on layoff and on vacation). As was mentioned, the reason for the absence in the week of the 12th is critical for determining some workers labor force status classification.

For those persons who did not have a job in the week of the 12th, we checked to see of they had looked or were on layoff and were also available to accept a job. If so, they were classified as "unemployed." We also checked each of the three weeks prior to the week of the 12th to see if a person had looked for work, and if they had, those persons were classified as "unemployed" as well.

Persons not classified as either employed or unemployed in the week of the 12th were classified as "not in the labor force."

Table B-1. Monthly labor force status estimates (not seasonally adjusted) according to CPS and SIPP between December 1983 and December 1984 (in thousands)

Month	Employment	Unemployment	Not in LF
CPS			
December 1983	102,803	8,992	63,326
January 1984	101,270	9,755	64,508
February 1984	101,961	9,407	64,311
March 1984	102,770	9,057	63,996
April 1984	103,628	8,525	63,817
May 1984	105,096	8,154	62,873
June 1984	106,812	8,582	60,891
July 1984	107,484	8.714	60,242
August 1984	106,694	8,382	61,507
September 1984	105,792	8,051	62,920
October 1984	106,262	7,989	62,706
November 1984	106,246	7,869	63,020
December 1984	106,049	7,978	63,278
SIPP			
December 1983	103,056	11,402	61,671
January 1984	102,481	11,769	62,310
February 1984	103,462	11,293	61,928
March 1984	104,359	10,678	61,773
April 1984	104,907	9,985	62,067
May 1984	105,180	9,929	61,951
June 1984	106,767	10,089	60,401
July 1984	107,230	9,902	60,222
August 1984	106,611	9,743	61,183
September 1984	106,363	9,417	61,953
October 1984	106,585	9,177	62,189
November 1984	106,693	9,082	62,325
December 1984	106,705	9,584	61,957

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October 1984	106,585	9,177	62,189
November 1984	106,693	9,082	62,325
December 1984	106,705	9,584	61,957

Table B-2. Monthly gross labor force flows between December 1983 to December 1984 according to CPS and SIPP (in thousands)

Previous month	Current month: Total	Employment	Unemployment	Not in LF
CPS				
Dec. 1983-Jan. 1984				
Total	175,533	101,800	9,199	64,534
Employment	103,679	97,876	2,268	3,535
Unemployment	8,618	1,610	5,183	1,825
Not in LF	63,236	2,314	1,748	59,174
Jan. 1984-Feb. 1984				
Total	175,679	101,735	9,164	64,781
Employment	101,447	96,920	1,822	2,705
Unemployment	9,486	2,217	5,478	1,791
Not in LF	64,746	2,598	1,864	60,285
Feb. 1984-Mar. 1984				
Total	175,824	102,658	8,585	64,581
Employment	102,278	98,217	1,535	2,526
Unemployment	9,061	2,009	5,318	1,733
Not in LF	64,485	2,432	1,732	60,322
Mar. 1984-Apr. 1984				
Total	175,969	103,594	8,261	64,114
Employment	103,003	99,044	1,366	2,593
Unemployment	8,943	2,178	5,054	1,711
Not in LF	64,023	2,372	1,841	59,810
Apr. 1984-May 1984				
Total	176,122	104,947	7,936	63,339
Employment	104,166	99,926	1,462	2,778
Unemployment	8,228	2,036	4,601	1,592
Not in LF	63,728	2,985	1,773	58,969
May 1984-Jun. 1984				
Total	176,284	106,431	8,121	61,732
Employment	105,421	99,841	1,857	3,722
Unemployment	7,787	2,250	4,013	1,525
Not in LF	63,076	4,340	2,251	56,485
Jun. 1984-Jul. 1984				
Total	176,439	107,459	8,222	60,757
Employment	107,237	102,010	1,855	3,372
Unemployment	8,292	2,219	4,407	1,665
Not in LF	60,910	3,230	1,960	55,720

Table B-2. Continued.

Previous month	Current month: Total	Employment	Unemployment	Not in LF
Jul. 1984-Aug. 1984				
Total	176,583	106,414	7,994	62,176
Employment	107,428	101,163	2,029	4,236
Unemployment	8,423	2,310	4,241	1,872
Not in LF	60,732	2,941	1,724	56,068
Aug. 1984-Sept. 1984				
Total	176,763	105,558	7,619	63,586
Employment	106,701	100,212	1,787	4,702
Unemployment	7,920	2,080	4,092	1,748
Not in LF	62,142	3,266	1,740	57,136
Sept. 1984-Oct. 1984				
Total	176,956	105,918	7,669	63,369
Employment	105,835	101,071	1,726	3,037
Unemployment	7,785	2,003	4,093	1,690
Not in LF	63,336	2,844	1,850	58,642
Oct. 1984-Nov. 1984				
Total	177,135	106,152	7,611	63,374
Employment	106,626	101,525	1,828	3,273
Unemployment	7,803	1.877	4,110	1,817
Not in LF	62,706	2,750	1,673	58,284
Nov. 1984-Dec. 1984				
Total	177,306	105,979	7,691	63,636
Employment	106,484	102,208	1,549	2,727
Unemployment	7,686	1,435	4,604	1,647
Not in LF	63,136	2,336	1,538	59,262
SIPP				
Dec. 1983-Jan. 1984				
Total	176,129	102,243	11,732	62,310
Employment	103,056	99,190	1,830	2,036
Unemployment	11,402	1,533	8,780	1,089
Not in LF	61,671	1,521	1,122	59,029
Jan. 1984-Feb. 1984				
Total	176,018	103,086	11,228	61,705
Employment	102,247	99,555	1,314	1,378
Unemployment	11,697	2,101	8,710	886
Not in LF	62,074	1,429	1,204	59,441

Table B-2. Continued.

Previous month	Total	Current month: Employment	Current month: Unemployment	Current month: Not in LF
Sept. 1984-Oct. 1984				
Total	176,959	106,036	9,119	61,805
Employment	105,858	102,861	1,301	1,696
Unemployment	9,393	1,615	6,874	904
Not in LF	61,708	1,559	943	59,205
Oct. 1984-Nov. 1984				
Total	176,970	106,011	9,012	61,948
Employment	105,932	102,842	1,530	1,560
Unemployment	9,121	1,731	6,689	702
Not in LF	61,917	1,439	793	59,686
Nov. 1984-Dec. 1984				
Total	176,897	105,909	9,457	61,531
Employment	105,995	103,114	1,623	1,259
Unemployment	9,057	1,260	6,919	878
Not in LF	61,845	1,535	915	59,395

Table B-2. Continued.

Previous month	Current month: Total	Employment	Unemployment	Not in LF
Feb. 1984-Mar. 1984				
Total	176,342	104,092	10,653	61,597
Employment	103,167	100,842	1,026	1,299
Unemployment	11,310	1,837	8,500	973
Not in LF	61,865	1,413	1,126	59,326
Mar. 1984-Apr. 1984				
Total	176,489	104,666	9,938	61,886
Employment	104,113	101,531	1,133	1,450
Unemployment	10,658	1,780	7,913	966
Not in LF	61,718	1,356	892	59,470
Apr. 1984-May. 1984				
Total	176,463	104,797	9,906	61,760
Employment	104,532	101,702	1,292	1,537
Unemployment	9,986	1,706	7,426	853
Not in LF	61,945	1,389	1,187	59,369
May 1984-Jun. 1984				
Total	176,542	106,319	10,050	60,173
Employment	104,991	101,224	1,450	2,317
Unemployment	9,887	2,075	7,011	800
Not in LF	61,664	3,021	1,588	57,056
Jun. 1984-Jul. 1984				
Total	176,328	106,608	9,829	59,891
Employment	106,141	102,751	1,397	1,993
Unemployment	10,056	1,825	7,302	929
Not in LF	60,131	2,031	1,130	56,969
Jul. 1984-Aug. 1984				
Total	176,617	106,611	9,680	60,901
Employment	106,778	102,385	1,650	2,744
Unemployment	9,771	1,813	7,067	891
Not in LF	60,067	1,839	963	57,265
Aug. 1984-Sept. 1984				
Total	176,542	105,646	9,353	61,542
Employment	105,863	101,456	1,518	2,889
Unemployment	9,612	1,913	6,869	831
Not in LF	61,066	2,277	967	57,822

Table B-2. Continued.

Previous month	Current month			
	Total	Employment	Unemployment	Not in LF
Sept. 1984-Oct. 1984				
Total	176,959	106,036	9,119	61,805
Employment	105,858	102,861	1,301	1,696
Unemployment	9,393	1,615	6,874	904
Not in LF	61,708	1,559	943	59,205
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Not in LF	61,865	1,413	1,126	59,326
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Unemployment	9,986	1,706	7,426	853
Not in LF	61,945	1,389	1,187	59,369
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Employment	105,863	101,456	1,518	2,889
Unemployment	9,612	1,913	6,869	831
Not in LF	61,066	2,277	967	57,822