Measuring Income and Poverty in Four Surveys: An Overview

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Abstract

Policy makers use national surveys to paint a picture of the U.S. population along a variety of dimensions such as poverty status, receipt of program benefits, demographic characteristics and health insurance coverage. Inferences are drawn about need and eligibility for Federal programs based on estimates produced by these surveys. Findings are presented from research that develops comparable measures of income, family structure and poverty across four surveys. It examines whether the same picture of the U.S. population is presented by these surveys. The four surveys are the Annual Social and Demographic Supplement to the Current Population Survey, the Medical Expenditure Panel Survey Household Component, the National Health Interview Survey and the Survey of Income and Program Participation.

Key Words: Income, poverty, family structure, policy analysis , program benefits, health insurance coverage

1. Introduction and Summary

Policy makers use national surveys to paint a picture of the U.S. population along a variety of dimensions, such as demographic characteristics, poverty status, receipt of benefits from public programs, and health insurance. Inferences are drawn about need and eligibility for a range of Federal benefit and health programs based on sources and amounts of income, and the incidence of poverty, as estimated in National surveys.

If major surveys are equally successful in capturing income, then for the same time period, populations and income types, consistently defined income estimates and poverty rates across surveys should be highly similar – varying somewhat due to sampling error. If consistently defined income estimates differ significantly among surveys, then policy makers' conclusions can depend on which survey is used. It is important to understand whether variations in the results produced by different surveys are significant enough to imply different policy alternatives.

This paper constructs comparable measures of income and poverty and examines whether the same picture of the U.S. population is presented by four major Federal surveys: the Annual Social and Economic Supplement to the Current Population Survey (CPS), the Survey of Income and Program Participation (SIPP), the Medical Expenditure Panel Survey Household Component (MEPS), and the National Health Interview Survey (NHIS). Standard errors were not calculated, since when presenting the findings of policy analysis, point estimates are generally given without standard errors.

Each survey covers the civilian non-institutional population, although the surveys differ significantly in design, periodicity, income question detail and income data processing and post-processing. However, despite differences, estimates of total income can be constructed for the same time period and unit of analysis. This paper focuses on empirical estimates, that is, how quantitative results vary depending on the survey used. Analysis of the impact that specific survey differences have on empirical results is beyond the scope of this paper, but important differences are noted, and an Appendix provides some detail on survey design, methodology, and income measurement. Another study, funded by the Office of the Assistant Secretary for Planning and Evaluation, is systematically examining the quality of income data collected on eight surveys, including the four in this paper[4].

The number of persons with income, the dollar amounts and the amounts per person – person-level data – are compared among surveys for calendar year 2002. Comparisons are made for all persons, the poor and the elderly. Every attempt is made to construct comparable estimates, and unavoidable differences are noted on tables or in the text. However, it is not possible to adjust directly for one major difference, NHIS treatment of unmarried partners who pool resources as a family. Official poverty estimates do not treat unmarried partners as a family. Because NHIS asks only a "family income" amount, there is no person-level income data with which to construct family income for the family definition used in official poverty estimates, which come from CPS.

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[4]This project is being conducted by Mathematica Policy Research Inc., under Task Order HHSP23320600002T, "Assessing the Quality of Income Data Across Surveys".

This paper has four sections, starting with this introduction. The second section describes income amounts and recipiency for each income source and compares estimates of earners among surveys. The third section compares CPS and NHIS family definitions across the total population and for the poor. The last section summarizes findings and suggests some possible next steps. A longer version of the paper, that includes a section describing income amounts and recipiency for each income source for the poor and for the elderly, appendices that give the variables used for each income source for each survey, and that summarize survey differences in periodicity, question detail, recall interval, control totals and weighting, as well as definitional and other differences affecting income data, is available from the authors.

2. CY2002 Person-Level Income by Source

Three of the surveys, CPS, SIPP and MEPS, collect information on dollar amounts of income by source for each person in the survey. The fourth survey -- NHIS -- collects information on receipt of income from various sources for each person, but not the dollar amounts. As noted above, measures of income by source and income recipiency by source were constructed for calendar year 2002 as comparably as possible.

2.1 All Income For All Ages

Table 1 shows aggregate income by source and its' percent distribution by source for the three surveys collecting income amounts by source (and by person). There are large differences among the surveys in overall total income and total income by source for the same time period. SIPP has over seven hundred billion dollars less total income than CPS. This difference is more than accounted for by almost nine hundred billion dollars less wages and salaries in SIPP compared to CPS. SIPP has higher amounts of self-employment income, pensions, SSI and public assistance than CPS, and about half the property income. MEPS has somewhat lower aggregate income than CPS, but higher wages and salaries and SSI, and much lower self-employment income.

Table 1. Amount and Distribution of Income by Source

	Billions of Dollars			Percent Distribution by Source		
	CPS	SIPP	MEPS	CPS	SIPP	MEPS
Total	$6,529.9	$5,819.8	$6,364.5	100.0%	100.0%	100.0%
Wages and Salaries	5,073.0	4,181.8	5,179.9	77.7%	71.9%	81.4%
Self Employment	335.7	618.8	111.6	5.1%	10.6%	1.8%
Total Earnings	5,408.6	4,800.7	5,291.6	82.8%	82.5%	83.1%
Interest and Dividends	204.0	102.7	178.0	3.1%	1.8%	2.8%
IRAs[5]		31.8	65.6		0.5%	1.0%
Rents, Royalties and Estates	70.3	34.2	52.1	1.1%	0.6%	0.8%
Social Security	389.9	372.0	356.6	6.0%	6.4%	5.6%
Pensions	262.8	327.6	246.8	4.0%	5.6%	3.9%
SSI	25.9	34.0	39.2	0.4%	0.6%	0.6%
Public Assistance	6.4	9.4	5.3	0.1%	0.2%	0.1%
All Other	161.9	107.4	129.4	2.5%	1.8%	2.0%

Note: Total and detail in all tables exclude small negative amounts of self-employment and rental income; Social Security lines in all tables include Railroad Retirement

While aggregate income amounts vary significantly, the distribution by source is remarkably consistent. Earned income (wages and salaries and self-employment) dominates the picture, accounting for 83 percent of total income in each survey. Earned income's actual share varies less than one percentage point among the surveys, from 82.5 to 83.1 percent of total

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[5]CPS money income excludes lump sums, including irregular withdrawals from IRAs, that are included in SIPP and MEPS. A small amount ($3.3 billion) of IRA distributions were reported in the CPS but are excluded in this paper. Actual IRA distributions net of rollovers in CY2002 were $123.3 billion. (Bryant and Sailer (2006). "Accumulation and Distribution of Individual Retirement Arrangements, 2001-2002", *Statistics of Income Bulletin*, Spring, 2006. Internal Revenue Service, Washington, D.C.)

income. The surveys differ in the proportion of earnings attributable to self-employment as compared to wages and salaries -- SIPP shows the most self-employment earnings, at 10.6 percent of aggregate income, and MEPS the least, at 1.8 percent of aggregate income.

The remaining 17 percent of income in each survey is accounted for by Social Security (5.6 to 6.4 percent), other pensions (3.9 to 5.6 percent), property income[6] (2.4 to 4.2 percent), and means-tested SSI and public assistance (0.5 to 0.8 percent), as well as a range of other income sources (including Veterans benefits, Unemployment Insurance, Workers Compensation and child support) that together account for the balance (1.8 to 2.5 percent). SIPP has the highest shares for Social Security, other pensions, and public assistance, and the lowest shares for property income.

Tables 2 and 3 show unduplicated recipients, the recipiency rate – percent of the population with that income source – and the recipiency rate as a percent of the CPS recipiency rate by income source. CPS is used as a standard of comparison since it has the most widely-used income data and is the source of official poverty statistics. Table 3 also shows the average amount per recipient for each income source. In all tables the recipient numbers for any category count each person only once -- someone receiving income from more than one source in the category is counted as one person, although persons may be in multiple categories. Total persons with income and with earnings are also unduplicated.

There is greater disparity among the surveys in the number of recipients for each income source than in the percent distribution of income by source. Generally, the highest recipiency is found in SIPP, which collects the most detailed income data. The lowest recipiency is found in NHIS, which has the fewest questions about sources and types of income, and gets amounts only for earnings and total *family* income. The NHIS public use file has no imputed values for item non-response on recipiency questions, but item non-response rates are low and do not account for the difference.[7]

The main exception is wages and salaries, which MEPS finds received by 160.0 million persons compared to 141.3 and 143.0 million in SIPP and CPS, respectively. The other exception is IRA withdrawals, which MEPS estimates are received by more than twice as many persons as SIPP. The overall recipiency rates suggest SIPP is finding more sources of income per person than the other surveys.

Table 2. Unduplicated Recipients and Recipiency Rates by Income Source

	Millions of Persons				Percent with Income			
	CPS	SIPP	MEPS	NHIS	CPS	SIPP	MEPS	NHIS
Total With Income	201.5	208.7	202.4	196.5	70.5%	73.4%	71.1%	68.7%
Wages and Salaries	143.0	141.3	160.0	134.7	50.0%	49.7%	56.2%	47.1%
Self Employment	12.2	20.1	4.2	18.0	4.3%	7.1%	1.5%	6.3%
Total With Earnings	151.3	155.3	160.6	144.6	52.9%	54.6%	56.4%	50.6%
Interest and Dividends	102.2	132.9	87.8	64.9	35.7%	46.8%	30.9%	22.7%
IRAs		5.4	12.1			1.9%	4.3%	
Rents, Royalties and Estates	8.4	10.1	4.9		2.9%	3.6%	1.7%	
Social Security	40.0	44.3	37.5	39.2	14.0%	15.6%	13.2%	13.7%
Pensions	18.5	29.0	22.8	19.7	6.5%	10.2%	8.0%	6.9%
SSI	4.9	8.4	6.4	5.5	1.7%	3.0%	2.2%	1.9%
Public Assistance	2.2	3.4	1.8	3.3	0.8%	1.2%	0.6%	1.1%
All Other	27.2	31.8	21.5	15.9	9.5%	11.2%	7.5%	5.6%
Total Population	285.9	284.1	284.6	286.0				

[6]Property income consists of interest and dividends, and rents, royalties, and estates.

[7] Weighted item non-response rates in NHIS for adults range from 2.6 percent for wages and salaries to 4.2 percent for "all other" income sources, except for interest and dividends, which have item non-response rates of about seven percent.

The lower dollar aggregates in SIPP, combined with its higher recipiency rates, result in SIPP having the lowest amounts of income per recipient for all income, and for almost all sources of income. Average amounts per recipient are highest in CPS and lowest in SIPP for total income, wages and salaries and Social Security. Average amounts per recipient are highest in MEPS and lowest in SIPP for property income, SSI and public assistance. SIPP has the highest self-employment income per recipient, and CPS has the highest pension income per recipient. Both CPS and MEPS find about twice as much other income per recipient as SIPP, and close to three times as much property income as SIPP.

Table 3. Relative Recipiency Rates and Average Amounts Received by Source

	Recipiency Rates as Percent of CPS Recipiency Rate			Average Amount Per Recipient		
	SIPP	MEPS	NHIS	CPS	SIPP	MEPS
Total With Income	104.2%	100.9%	97.5%	$32,399	$27,891	$31,444
Wages and Salaries	99.4%	112.4%	94.2%	35,482	29,604	32,380
Self Employment	165.6%	35.0%	147.6%	27,576	30,714	26,311
Total With Earnings	103.3%	106.7%	95.6%	35,757	30,920	32,950
Interest and Dividends	131.0%	86.4%	63.5%	1,997	772	2,027
IRAs					5,909	5,415
Rents, Royalties and Estates	121.6%	58.5%		8,380	3,371	10,670
Social Security	111.5%	94.0%	98.0%	9,740	8,391	9,519
Pensions	158.0%	123.7%	106.8%	14,219	11,293	10,844
SSI	172.8%	131.4%	112.7%	5,295	4,047	6,118
Public Assistance	156.6%	82.7%	151.1%	2,974	2,807	2,980
All Other	117.7%	79.4%	58.4%	5,944	3,377	6,023

2.2. Income for Persons 18 or Older

The surveys differ in their treatment of the income of persons under 18. To determine the impact of these differences, the tables above were repeated for the adult population, excluding some 73 million children. Virtually no change occurred in aggregate income amounts, percent distribution of income by source, or relative recipiency rates for any of the surveys; and total income, earnings, and wages and salaries per recipient increased only 1.5 to 2.6 percent. However, recipients and recipiency rates changed more sharply.

Table 4 shows the result of restricting the universe to adults. In CPS, SIPP and MEPS, persons with any income decreased 4.3 to 5.8 million, compared to 9.2 million in NHIS. In CPS, SIPP and MEPS, persons with wages and salaries and the total with earnings decreased 2.7 to 4.0 million, in contrast to no change in the NHIS, which asks earnings only for persons 18 or over. In CPS, SIPP and MEPS, recipients decreased less than one million for all other income sources except interest and dividends. In NHIS, recipients decreased over a million for Social Security and public assistance, and four million for "all other" income.[8]

When the universe is restricted to adults, overall income recipiency rates increase 19.2 to 22.5 percentage points, to 87.9 percent in NHIS, and 92.4 to 96.0 percent in CPS, MEPS and SIPP. The largest increases in recipiency are in wages and salaries (15.3 to 18.0 percentage points), any earnings (16.6 to 18.0 percentage points), and interest and dividends (6.7 to 14.7 percentage points). Recipiency of other income sources increased by lesser amounts in all surveys, with recipiency of public assistance decreasing slightly in NHIS.

The picture of income recipiency that emerges for adults thus differs substantially from that for persons of all ages. Nonetheless, the highest recipiency is still found in SIPP, and the lowest in NHIS, except for wages and salaries, earnings, and IRA withdrawals. MEPS has 157.8 million adults with earnings, compared to 151.2 and 147.8 million in SIPP and CPS,

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[8]Mostly (3.8 of 4.0 million) child support, which the NHIS treats as income of the child.

and 144.6 million in NHIS. MEPS also estimates more than twice as many adults as SIPP had income from IRA withdrawals. Overall recipiency rates still suggest SIPP is finding more sources of income per person than the other surveys.

Table 4. Unduplicated Adult Recipients and Recipiency Rates by Income Source

	Millions of Adults (Age 18 and Over)				Percent with Income			
	CPS	SIPP	MEPS	N HIS	CPS	SIPP	MEPS	NHIS
Total With Income	196.5	202.9	198.1	187.3	92.4%	96.0%	93.5%	87.9%
Wages and Salaries	139.7	137.4	157.2	134.7	65.7%	65.0%	74.2%	63.2%
Self Employment	12.0	20.0	4.2	18.0	5.7%	9.5%	2.0%	8.4%
Total With Earnings	147.8	151.2	157.8	144.6	69.5%	71.6%	74.5%	67.9%
Interest and Dividends	100.0	129.9	87.1	62.5	47.0%	61.5%	41.1%	29.3%
IRAs		5.4	12.1			2.5%	5.7%	
Rents, Royalties and Estates	8.4	10.1	4.9		3.9%	4.8%	2.3%	
Social Security	39.6	44.3	37.3	38.1	18.6%	20.9%	17.6%	17.9%
Pensions	18.5	29.0	22.8	19.6	8.7%	13.7%	10.7%	9.2%
SSI	4.8	8.1	5.5	4.7	2.3%	3.8%	2.6%	2.2%
Public Assistance	2.1	3.3	1.7	1.8	1.0%	1.6%	0.8%	0.9%
All Other	26.9	31.6	21.3	11.8	12.7%	14.9%	10.0%	5.6%
Total Adult Population	212.6	211.4	211.9	213.0				

2.3 Composition of Earnings

All four surveys find earned income to be the dominant component – 83 percent – of aggregate income in the United States, and wages and salaries to be the single most important income source for adults. As shown above in Table 4, three surveys -- CPS, SIPP and NHIS – find relatively similar numbers of adult wage earners in 2002, from 134.7 to 139.7 million. However, MEPS has 157.2 million adults reporting wage and salary income, 17.5 million more than CPS, which is the official source of national employment and labor force data. There is a mirror image difference in adults with self-employment income. Three surveys -- CPS, SIPP and NHIS – find fairly significant numbers of self-employed adults in 2002, ranging from 12.0 to 20.0 million, while MEPS has only 4.2 million. Adults whose self-employment is the sole source of earnings show a similar pattern -- CPS, SIPP and NHIS have 7.9 to 13.8 million, compared to 620 thousand in MEPS. MEPS appears to be an outlier both in the total number of employed adults and in the composition – wages and salaries versus self-employment – of their earnings.

When these findings were shared with MEPS staff, they advised that the wage and salary income variable on the public use file (despite its name) reflected *both* wage and salary and self-employment earnings. They suggested reclassifying earned income based on data in the JOBS file, which is a separate research file with a record for each job mentioned in each interview and/or on employment status on the public use file. However, since the employment status variables on the public use file classify only the current main job and do not allow for multiple jobs or a combination of wages and salaries *and* self-employment, this approach proved less than useful.

An identifier match was performed to merge data from the public use and JOBS files in order to determine whether an improved estimate of wage and salary recipiency could be constructed. However, the suggested reclassification of wages and salaries based on JOBS data was not in fact possible because persons reporting earned income on the public use file were sometimes not the same individuals as those with JOBS file records of employment, and because large numbers both worked for others and were self-employed. There is no way to assign income amounts to persons with employment in JOBS but no reported earnings. There also is no way to split wage income into wages and salaries and self-employment for persons who both worked for others and were self-employed in JOBS, but reported only wages. Additional uncertainty about use of JOBS data results from the fact that the identifier match found over 6 million people reporting earned income, mostly wages, on the public use file who had no employment records in the JOBS file. The differences in covered population would preclude

valid comparisons of income by source.

Table 5 shows persons in MEPS classified by whether they reported earnings and/or had JOBS employment records, and age. Some 6.6 million persons had reported earnings on the public use file (MEPS income) and no JOBS employment records, and another 2.6 million had employment records but no earnings. This is over 9 million persons in one but not the other file -- either with earned income but no employment records, or with employment records but no earned income – in addition to 154 million persons in both files. Taken together, MEPS finds over 163 million unduplicated persons all ages reporting earnings and/or a job, compared to 151 million in CPS, or 155 million in SIPP. Thus after taking JOBS file data into account, MEPS provides a picture of the employed population even more at variance from CPS, SIPP and NHIS than the picture based on income data in the public use file alone.

Table 5. Unduplicated Persons With Earnings in MEPS by Age

Millions of Persons	Under 18	18 to 64	65 and Older	Total
In Both MEPS Income and JOBS Data	2.4	146.1	5.7	154.2
Only in MEPS Income Data	0.4	2.8	3.4	6.6
Only in MEPS JOBS Data	0.6	1.6	0.5	2.6
Total	3.3	150.5	9.6	163.4

Restricting the comparisons to adults has little impact on the findings. There are two million adults who report no earned income but have JOBS employment records and over six million adults with average annual earnings of $16,277 who have no JOBS employment records[9]. This gives a total of 160.1 million adults who reported earnings and/or were identified as employed in MEPS, compared to 144.6 to 151.2 million in CPS, SIPP and NHIS..

Table 6 shows adults classified by type of employment -- whether only wages and salaries, only self-employment, or both -- and whether earnings were reported. No attempt has been made to reclassify reported earned income or impute earnings based on JOBS data. The employment status variable included at staff recommendation is on the public use file and is based on JOBS data. It shows substantially the same pattern as JOBS data, but only describes the current main job and does not allow for multiple jobs or a combination of wages and salaries and self-employment. Apparently it has not been used to edit the income data, with which it has significant inconsistencies.

Table 6. Unduplicated Adults by Type of Employment and Whether Earnings Reported

Millions of Persons	CPS	SIPP	MEPS Income Data	MEPS Employ't Status	MEPS JOBS File	NHIS
Employed Adults Reporting Earnings	147.8	151.2	157.8	151.7	151.8	144.6
Wages and Salaries Only	135.7	131.3	153.6	131.1	127.7	126.6
Self Employment Only	8.2	13.9	0.6	20.6	16.5	9.9
Both Wages/Salaries and Self Employment	3.9	6.1	3.6		7.6	8.1
Employed Adults Not Reporting Earnings			0	1.6	2.0	
Wages and Salaries Only			0	1.4	1.8	
Self Employment Only			0	0.1	0.2	
Both Wages/Salaries and Self Employment			0		0.0	

Note: MEPS employment status variables classify the current main job only; coding does not allow for multiple jobs or both wages and salaries and self-employment

In CPS, SIPP and NHIS, screeners and edits make it virtually impossible for a person to have employment but no earnings

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[9]More than half of adults reporting earnings but not employment were 65 or over, and their average reported earnings were lower – by about a third -- than those elderly who reported employment.

(with the minor exceptions of unpaid family workers and self-employed with losses) or to have earnings without employment. However, this is not the case in MEPS.

3. CY2002 Family Definitions and Poverty Status

Poverty status is determined by comparing family income to a set of poverty thresholds that vary with family size, age of the householder (for one and two-person families), and number of children. Differences in how well income is measured affect poverty status directly, by changing the income amounts that are summed to family income for comparison to the poverty thresholds. Differences in family definitions affect poverty status in two ways. Changing who is considered part of a family can change family size. More importantly, if the persons being included or excluded from the family have income, changing who is in the family can change which persons' income is included in family income and whether family members are counted as poor.

Two of the surveys -- CPS and SIPP -- use the CPS family definition employed in official poverty counts. Under this definition, a family consists of persons related by blood or marriage. The third survey -- NHIS -- uses a broader definition that treats unmarried couples (of the same or opposite sex) who pool resources as a family, and includes foster children. MEPS, the fourth survey, uses the NHIS definition but also constructs CPS families to use in calculating person and family weights.

Additional differences must also be taken into account in order to present findings that are analytically comparable across surveys. First, the MEPS public use file includes 6.3 million persons in 3.5 million families of "undefined size" that lack data for one or more family members[10]. Tables 7 through 10 exclude these MEPS families of "undefined size". Later, in Table 11, these families of "undefined size" are reintroduced to permit appropriate comparisons of the demographic characteristics of the poor.

Second, family weights for families of size one (single individuals) in MEPS produce a significantly different population count[11] than the person weights for these same cases. Differences in MEPS family counts under person and family weights result from post-stratification of families (see Appendix B) as well as from the difference between person and family universes in MEPS.[12] For accurate comparisons, all persons and families by family size in Tables 7 through 10 are calculated using person weights for each survey.

3.1. Differences in Overall Family Counts

Table 7 shows persons and families, by family size, for both CPS and NHIS family definitions in the four surveys. Under the broader NHIS definition, there are fewer families of larger average size. The greatest differences are for one and two-person families, which account for about 40 percent of all persons (38.6 percent in NHIS to 42.7 percent in MEPS). Single persons decrease 7.1 million between the two definitions in MEPS, 9.3 million if NHIS is compared to SIPP, and 11.2 million when compared to CPS. Persons in families of two increase 2.7 million between the two definitions in MEPS, 7.4 million when NHIS is compared to SIPP, and 5.1 million from NHIS to CPS. Detailed tabulations (not shown) found the NHIS definition added 5.5 million unmarried adults either to other single persons to create families, or to existing related families, in both MEPS and in NHIS.

Regardless of the family definition used in comparing surveys, the largest differences remain the number of single individuals. Comparing counts under the CPS family definition, MEPS has more single persons than SIPP or CPS, despite the exclusion of 2.0 million singles in families of "undefined size". Comparing counts under the NHIS family definition, MEPS has more singles than NHIS, (again despite the excluded 2.0 million), even though the NHIS treats as singles close to one million students living in college dormitories who are included in the parental family in CPS, SIPP and MEPS.

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[10] There are data for these 6.3 million persons, but not for one or more other family members; in fact, 3 million persons with data are in families with no data for the family reference person. The number and income of the 6.3 million persons can be determined but not the size or income of the complete family. MEPS public use file poverty status for these persons does not and cannot take into account family members with no data, and is based only on the family members present on the file.

[11] The differences are 3.0 million under the CPS family definition and 2.7 million under the NHIS.

[12] In MEPS, only original sample persons have person weights, not move-ins joining MEPS families after sample selection. Both have NHIS-type family weights, and most have CPS-type family weights, except move-ins not related by blood or marriage. As measured by family weights, there are 10.4 million in the CPS-type family and 13.0 million in the NHIS-type family universes who are not in the person universe. In addition, the 6.4 million original sample persons in families of "undefined size" have no family weights, so are in the person but not family universe.

Table 7. Persons and Families by Family Size, Total Population

Family Size	Families in Millions					Persons in Millions				
	CPS Family			NHIS Family		CPS Family			NHIS Family	
	CPS	SIPP	MEPS	MEPS	NHIS	CPS	SIPP	MEPS	MEPS	N HIS
Total	124.9	122.1	124.6	119.9	117.7	285.9	284.1	278.3	278.3	286.0
One	47.8	45.9	50.5	43.4	36.6	47.8	45.9	50.5	43.4	36.6
Two	34.4	33.3	33.8	35.1	36.9	68.8	66.5	67.6	70.3	73.9
Three	17.2	17.0	15.8	16.2	17.8	51.6	51.0	47.4	48.5	53.4
Four	15.3	15.0	14.7	15.0	15.5	61.4	60.1	58.6	59.8	62.1
Five	6.7	7.2	6.5	6.8	6.9	33.4	36.0	32.7	33.8	34.7
Six Plus	3.5	3.7	3.2	3.4	3.8	23.0	24.6	21.4	22.5	25.3

Notes: 1. Family sizes calculated from persons, using person weights, by family size
2. Excludes families of "undefined size" in MEPS

Table 8 shows percent distributions of the counts of persons and families in Table 7, to provide clearer comparisons given that total persons range from 278 to 286 million. Findings are unchanged – the NHIS family definition reduces singles, and increases couples and larger families.

Table 8. Distribution of Persons and Families by Family Size, Total Population

Family Size	Percent of Families					Percent of Persons				
	CPS Family			NHIS Family		CPS Family			NHIS Family	
	CPS	SIPP	MEPS	MEPS	NHIS	CPS	SIPP	MEPS	MEPS	NHIS
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
One	38.2%	37.6%	40.6%	36.2%	31.1%	16.7%	16.2%	18.2%	15.6%	12.8%
Two	27.5%	27.2%	27.1%	29.3%	31.4%	24.1%	23.4%	24.3%	25.2%	25.8%
Three Plus	34.2%	35.2%	32.3%	34.4%	37.5%	59.2%	60.4%	57.6%	59.1%	61.4%

Notes: 1. Family sizes calculated from persons, using person weights, by family size
2. Excludes families of "undefined size" in MEPS

The impact of alternative family definitions on the number, size and composition of families in the overall population leads to a further question, What is their impact on the number, size and composition of families below the poverty threshold? Table 9 shows poor persons[13] and families, by family size, for both CPS and NHIS family definitions in the four surveys. These comparisons are complicated by the fact that the accuracy of income measurement and the amount of income reported varies among the surveys, with the result that surveys using the same family definition nonetheless find different numbers of persons and families below the poverty threshold. Nonetheless, compared to the CPS family definition, the NHIS definition produces fewer poor families of larger average size. Specifically, the NHIS has one million fewer poor families than the CPS, although it has four million more poor persons.

Holding income measurement constant and comparing the two alternative family definitions in MEPS, single poor persons decrease 1.5 million, poor persons in families of two to four decrease 1.3 million and poor persons in larger families increase by 65 thousand.[14] In NHIS, despite the much higher total count of poor, there are 1.8 million fewer single poor persons than in SIPP, and 2.6 million fewer than in CPS, with correspondingly higher counts of poor persons in larger families. Detailed tabulations (not shown) found that over 80 percent of unmarried partners included in families by the NHIS definition have

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[13] Counts of poor include a small number of unrelated children under 15 in CPS (616,000) and SIPP. MEPS and NHIS exclude unrelated minors, under 18 except in three States, from the universe.

[14] MEPS counts exclude 2.3 million persons in 1.4 million families of "undefined size" who are coded (or calculated) to be below the poverty threshold on the public use file.

earnings. In MEPS, they increased family income as well as size, resulting in fewer poor. This suggests that the high count of poor in NHIS does not result from the broader family definition being used, and in fact would be still higher, if the CPS family definition were used when family income is ascertained.

Table 9. Persons and Families in Poverty by Family Size

| Family Size | Families in Millions | | | | | Persons in Millions | | | | |
| | CPS Family | | | NHIS Family | | CPS Family | | | NHIS Family | |
	CPS	SIPP	MEPS	MEPS	NHIS	CPS	SIPP	MEPS	MEPS	NHIS
Total	17.6	16.3	16.0	14.1	16.6	35.2	33.8	32.8	30.0	39.2
One	10.2	9.4	8.8	7.3	7.6	10.2	9.4	8.8	7.3	7.6
Two	2.8	2.4	3.1	2.9	3.2	5.7	4.9	6.2	5.8	6.4
Three	1.6	1.5	1.4	1.3	1.8	4.8	4.6	4.3	3.8	5.5
Four	1.5	1.3	1.2	1.1	1.9	5.9	5.1	4.9	4.5	7.5
Five	0.8	0.9	0.8	0.8	1.0	4.2	4.7	4.0	4.0	5.2
Six Plus	0.7	0.7	0.7	0.7	1.0	4.4	5.0	4.6	4.6	7.0

Notes: 1. Family sizes calculated from persons, using person weights, by family size
2. Excludes families of "undefined size" in MEPS

Table 10 shows percent distributions of the counts of persons and families in Table 7, to provide clearer comparisons given that total poor persons range from 30 to 39 million.

Table 10. Distribution of Persons and Families in Poverty by Family Size

| Family Size | Percent of Poor Families | | | | | Percent of Poor Persons | | | | |
| | CPS Family | | | NHIS Family | | CPS Family | | | NHIS Family | |
	CPS	SIPP	MEPS	MEPS	NHIS	CPS	SIPP	MEPS	MEPS	NHIS
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
One	58.0%	57.6%	54.9%	52.1%	46.0%	29.1%	27.8%	26.9%	24.4%	19.5%
Two	16.1%	14.9%	19.3%	20.4%	19.2%	16.1%	14.4%	18.9%	19.2%	16.3%
Three Plus	25.9%	27.5%	25.8%	27.5%	34.8%	54.8%	57.8%	54.2%	56.4%	64.2%

Notes: 1. Family sizes calculated from persons, using person weights, by family size
2. Excludes families of "undefined size" in MEPS

3.2. Differences in the Poverty Population

Table 11 shows poor persons[15] and poverty rates, by demographic sub-groups, for both CPS and NHIS family definitions in the four surveys. As was the case with Table 9, these comparisons are complicated by the differences in income reporting that result in surveys with the same family definition finding different numbers of poor persons. As noted above, MEPS data in Table 11 (and subsequent tables) contain all persons on the MEPS public use file. These include 2.3 million poor persons in families of "undefined size", 36 percent of all persons in families of "undefined size" on the public use file. Their inclusion is required for appropriate comparisons of demographic characteristics, since they are included when MEPS demographics and poverty rates are post-stratified to match the CPS.

Table 11 shows that the decline in numbers of poor persons and poverty rates resulting from use of the broader NHIS family definition is not spread evenly across demographic groups. Comparing the definitions in the same survey, that is, using the same income data, gives the clearest illustration. In MEPS, the NHIS family definition decreases the number of poor persons by 2.8 million, of which 1.1 million are males and 1.7 million are females. Children in poverty decrease by 1.3 million and

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[15] Again, counts of poor include a small number of unrelated children under 15 in CPS (616,000) and SIPP. MEPS and NHIS exclude unrelated minors, under 18 except in three States, from the universe.

non-aged adults by 1.5 million, while elderly poor change by less than ten thousand.[16] Compared to CPS, NHIS finds an additional 4.0 million persons in poverty, and 5.4 million more than SIPP. The additional poor in NHIS counts are more likely to be male, Hispanic or non-aged adults, as compared to female, white or Black, or children. For one group, the elderly, there is virtually no difference between counts of poor in CPS, NHIS or under either family definition in MEPS, although SIPP finds fewer poor elderly than other surveys.

The patterns for poverty rates reflect those for numbers of poor. In MEPS, use of the broader NHIS definition lowers the overall poverty rate by almost a percentage point, and results in lower poverty rates for all groups except the elderly. The poverty rates decrease most for females, Hispanics and Blacks, and children, decreases less for males, whites and non-aged adults and do not change for the elderly. NHIS poverty rates are higher than in any other survey overall and for each demographic group (except for Blacks in SIPP), but not uniformly so. NHIS poverty rates compared to other surveys increase less for elderly, females, children and Blacks, and more for males, Hispanics, whites and non-aged adults.

Looking at counts of poor and poverty rates across surveys, SIPP has the smallest count of poor and the lowest overall poverty rate using the CPS family definition. Poverty rates in SIPP are relatively higher for women, children and Blacks, and relatively lower for males, Hispanics and the elderly. There are 1.4 million fewer poor in SIPP than in the CPS, 1.1 million fewer males and 1.4 million fewer non-aged adults, but more children and Hispanics. The counts and poverty rates in MEPS are virtually the same as those in CPS, a result MEPS guarantees by re-weighting the public use file to match CPS poverty rates for CPS-defined families by age, sex, and race/ethnicity.[17] The NHIS finds 4.0 million more poor than the CPS, almost evenly split between male and female. Almost half of the additional poor in the NHIS compared to CPS are Hispanic, and almost all (80 percent) are non-aged adults. Less than 100 thousand are elderly.

Table 11. Characteristics of Poor and Poverty Rates, CY2002

| | Persons in Millions | | | | | Poverty Rate | | | | |
| | CPS | S IPP | MEPS | | NHIS | CPS | SIPP | MEPS | | NHIS |
			CPS Family	NHIS Family				CPS Family	NHIS Family	
All Poor	35.2	33.8	35.1	32.3	39.2	12.3%	11.9%	12.3%	11.4%	13.7%
Male	15.5	14.5	15.4	14.3	17.6	11.1%	10.4%	11.1%	10.3%	12.6%
Female	19.7	19.3	19.7	18.0	21.6	13.5%	13.3%	13.5%	12.3%	14.7%
White	15.8	15.5	15.7	14.3	17.8	8.1%	7.9%	8.1%	7.4%	9.0%
Black	8.4	8.7	8.5	8.0	8.8	24.3%	25.4%	24.8%	23.4%	24.9%
Hispanic	8.7	7.8	8.7	8.0	10.6	22.1%	20.4%	22.3%	20.4%	26.8%
Under 18	12.7	13.3	12.7	11.4	13.5	17.4%	18.2%	17.4%	15.7%	18.5%
18 to 64	18.9	17.5	18.7	17.3	22.1	10.6%	9.8%	10.5%	9.7%	12.3%
65 and Over	3.6	3.1	3.7	3.6	3.7	10.4%	9.0%	10.7%	10.7%	10.7%

Notes: 1. The three race/ethnicity categories are mutually exclusive but non-exhaustive, that is, lines for White and Black exclude Hispanics and the three categories do not include other minority groups
2. Includes families of "undefined size" in MEPS

4. Conclusions

In evaluating policy options, analysts must be aware of the strengths and weaknesses of potential or alternative sources of estimates. Indeed, this study finds that measures of income and income recipiency vary substantially among the surveys even

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[16] From 3,658,000 under the CPS family definition to 3,648,792 under the broader NHIS definition.

[17] Poverty status was independently calculated for all persons based on family income and size, and matched poverty codes on the public use files for CPS and SIPP but not MEPS. The MEPS algorithm for poverty status apparently bases family size and income on persons ever in the family, including those deceased, rather than those present December 31. As a result, MEPS and CPS poverty rates do not quite match, although MEPS person weights are adjusted to match CPS poverty rates,

when comparable estimates of family income in 2002 are constructed for each survey. Policy analysts also have a responsibility to inform policy officials of the impact that alternative sources of estimates are likely to have on findings and consequent policy options due to differences in income measures and other survey characteristics.

At the same time, policy analysts may not be able to use the surveys with the best income data because other essential data are not also collected by those surveys. If detailed health data is needed, the CPS – the official source of income and poverty statistics -- cannot be used. Similarly, policy analysis for many Federal programs frequently requires information on *each* person in a family in order to calculate eligibility of units that are smaller than the family. Without this information, "what-if" scenarios looking at persons who are eligible but not participating, or who would become eligible if the program is changed, cannot be constructed. The NHIS cannot be used for such analysis since it lacks person-level income data; has family income measured only as a range; and uses a definition of "marriage" not currently in use for any Federally-funded transfer programs.

The different survey definitions of a family have significant impacts on estimates of family size, family income and poverty rates, all of which are important for policy analysis. The broader NHIS family definition used in MEPS and NHIS greatly reduces estimates of single persons, increases family size and income, and appears to reduce the number of persons in poverty at a given level of income reporting. Policy analysis based on either of those surveys must be sensitive to the choice of family definition. Also, as discussed in the paper, additional issues arise in developing comparable poverty estimates for MEPS that need to be resolved.

While there are large differences among the surveys in estimates of total income and income by source for the U.S. population for this time period, the distribution by source is remarkably consistent. At the same time, the surveys provide sharply different counts of adults with earnings – wages and salaries and self employment -- the most important source of income for adults in the United States. There are even greater differences among the survey estimates of the number with wages and salaries. Examination of populations important for policy purposes also finds very different pictures of target populations. The size and demographic composition of the poverty population as well as its sources of income (not shown here) varies considerably among surveys. Tabulations for the elderly (not shown here), find much more variation in income by source than the population as a whole -- the relative importance of retirement and earned income varies sharply among surveys. For the elderly, income sources and impact on retirement decisions and well-being after retirement are critical policy concerns.

Earnings account for 83 percent of all income, and atypical patterns naturally raise questions. MEPS income and JOBS data taken together find over 163 million unduplicated persons all ages (160 million adults) reporting earnings and/or a job, compared to 151 million all ages (148 million adults) in CPS, or 155 million all ages (151 million adults) in SIPP. These large differences in employment require an explanation, especially given that the principal focus of the CPS is National employment and labor force data, for which it is the official source.

CPS, SIPP and NHIS have screeners and edits that make it impossible (with minor exceptions) for a person to have employment but no earnings or to have earnings without employment. This is not the case in MEPS, which has 6.6 million persons with reported earned income but no employment record and 2.6 million persons with employment records but no reported earnings (and no imputed earnings). For another 25 million persons, the source of earnings – wages and salaries or self-employment – differs between the public use file income data and their type of employment in JOBS file records. Clearly increased attention to editing of MEPS employment and earned income data for consistency would enhance data quality and utility.

Different estimates of the poverty rates of important demographic groups suggest that design, estimated costs and estimated impacts of policy options for assisting low income populations would vary depending on the survey used**.** For example, program interventions involving a primarily Hispanic population must deal with cultural and language issues that would not apply to other populations. SIPP tends to have the lowest poverty rates, suggesting that it is more successful than the other surveys in capturing income at the lower end of the income distribution. This presumably reflects the greater detail of its' income questions, which were designed by policy analysts to improve income information about low income persons. SIPP is therefore likely to yield the lowest cost estimates, whereas NHIS has significantly higher poverty rates, except for children and Blacks, and is likely to yield quite different results.

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