Volume Title: The Personal Distribution of Income and Wealth

Volume Author/Editor: James D. Smith, ed.

Volume Publisher: NBER

Volume ISBN: 0-870-14268-2

Volume URL: http://www.nber.org/books/smit75-1

Publication Date: 1975

Chapter Title: The Bureau of Economic Analysis and Current Population Survey Size Distributions: Some Comparisons for 1964

Chapter Author: Edward C. Budd, Daniel B. Radner

Chapter URL: http://www.nber.org/chapters/c3761

Chapter pages in book: (p. 449 - 559)

CHAPTER 13

The Bureau of Economic Analysis and Current Population Survey Size Distributions: Some Comparisons for 1964

Edward C. Budd
Pennsylvania State University

and

Daniel B. Radner
U.S. Department of Commerce

The annual March income supplement of the Census Bureau's Current Population Survey (CPS) is perhaps the single most important source of information on a historical basis, as regards the distribution of money income by size and by detailed socioeconomic characteristics. Annual data have been published since 1944, although in more limited form for the earlier years. It is therefore important to understand what effect deficiencies and biases in the CPS have on the various types of socioeconomic or size distributions that are obtained from the Survey. In this paper, we attempt to present some measure of the degree of reliability of CPS distributions by comparing them with the recently completed estimates of the distribution of total money income (TMI) and family personal income (FPI) that we have prepared at the Bureau of Economic Analysis (BEA)[1] of the Department of Commerce.

The deficiencies and biases in the CPS referred to above are well-known and need only be mentioned here. Indeed, they tend to be characteristic of all field surveys containing income questions. Respondents make errors in filling out questionnaires or

[1] As of January 1, 1972, the Office of Business Economics (OBE) was redesignated the Bureau of Economic Analysis (BEA) and is referred to by the new name in this paper, even when the references are for earlier years.

in answering enumerators' questions and sometimes fail, or refuse, to answer the income questions at all, which results in relatively high income nonresponse rates, at least compared with other questions in the survey. For those who do respond, underreporting of income is a serious problem, averaging perhaps 9 to 15 percent, and much more for certain income types, such as interest and dividends. In addition, the receipt of some income types, particularly property income and certain transfers, is often not reported at all. As a result, the distributions produce estimates of average income which are too low and which fail to capture the precise shape of the income distribution, particularly its upper and lower tails.[2]

In the federal statistics program,[3] there are, of course, sources of information other than the CPS on income distribution. Some of them, such as the Decennial Census and the Consumer Expenditure Survey of the Bureau of Labor Statistics (BLS), suffer from response problems similar to those encountered in the CPS, and in addition are available only once a decade. For a number of reasons, administrative data, such as tax return data tabulated by the Internal Revenue Service (IRS) in its Statistics of Income, are usually unsuitable as size distributions themselves, although they may form an important input into the estimation of such distributions. An alternative series, available annually for about the same period as the CPS, is the Survey of Consumer Finances (SCF), sponsored and published by the Federal Reserve Board until 1959 and by the Survey Research Center of the University of Michigan since, although sample sizes for the Survey have not typically been large enough to permit the kind of detailed tabulations available from the CPS. Differences between the SCF and the CPS will not be examined here.[4]

[2] See Tables 6 (Steps 1 and 5) and 12 for the extent of underreporting by income type for 1964.

[3] For a more complete discussion, see T. Paul Schultz, *The Distribution of Personal Income*, prepared for the Subcommittee on Economic Statistics of the Joint Economic Committee, December 1964 (Washington, D.C., 1965), Chapter 3.

[4] See Selma Goldsmith, "The Relation of Census Income Distribution Statistics to Other Income Data," *An Appraisal of the 1950 Census Income Data*, Studies in Income and Wealth, Volume 23 (Princeton: Princeton University Press for NBER, 1958) pp. 83-91; see also in the same volume, M. G. Sirken, E. Scott Maynes, and J. E. Frechling, "The Survey of Consumer Finances and the Census Quality Check," pp. 127-68, for a study of

The BEA's old income distribution series was perhaps the closest competitor of the CPS for the years for which it was available—1944, 1946, 1947, and annually from 1950 to 1962—and a few words on the differences between the two series may be in order. For one thing, the BEA series used family personal income, derived from BEA's personal income estimates, as the income concept, rather than the Census's total money income. (The reconciliation between personal income, family personal income, and total money income for 1964 presented in Table I should give the reader some notion of the differences in the underlying income concepts, although it is relevant to the new, rather than the old, BEA concept of FPI.) More important was the difference in the underlying methodology. Rather than being based on a field survey, the BEA methods might be described as "synthetic": estimating the distribution from a wide variety of sources, including—besides field surveys such as the CPS—tax returns, other business and governmental administrative records, and the income type aggregates as contained in the National Income Accounts.

It would take us too far afield to give a full account of the old BEA methodology.[5] Suffice it to say that the distributions for nonfarm families, farm operator families, and unattached individuals were estimated separately, with the latter two based on benchmark distributions estimated for 1947. The nonfarm family distribution was estimated from individual tax returns by grouping individual earners into family units on the basis of the IRS-Census matching study for 1949. Non-taxable income types were then added on the basis of information drawn from a number of different sources, and families not in the tax return distribution were added on the basis of information drawn from field surveys, particularly the CPS. Reported incomes were then adjusted to agree with the BEA control totals for each income type.

Two points should be noted. First, because of the estimating

---

differences between survey work conducted by the Bureau of the Census and the Survey Research Center.

[5] Summaries of the old BEA methodology may be found in Selma Goldsmith, "Size Distribution of Personal Income," *Survey of Current Business,* April 1958, pp. 14-19; and Schultz, *Distribution of Personal Income,* pp. 49-56. For the methodology for earlier years, see *Income Distribution in the United States by Size, 1944-1950,* a supplement to the *Survey of Current Business,* 1953.

TABLE 1 Reconciliation Between Personal Income, Family Personal Income, and Total Money Income, 1964

(millions of dollars)

Personal Income		497,462
Less: Income of recipients not in CPS universe		15,571
Decedents	2,793	
Civilians overseas	453	
Military personnel on post and overseas	4,319	
Recipients other than consumer units	8,006	
Plus: Income of recipients in CPS universe, but not in Personal Income		129
Income of migratory workers	129	
Less: Income types excluded from Family Personal Income		16,342
Employer contributions to pension, health, and welfare funds	13,441	
Lump sum payments	2,733	
Auto depreciation reimbursement	168	
Plus: Income types excluded from Personal Income		4,879
Private pension and annuity payments	4,879	
Equals: Family Personal Income		470,557
Less: Imputed income		23,808
Imputed wages	1,788	
Imputed rent on owner-occupied nonfarm dwellings	10,153	
Imputed farm income	1,149	
Imputed interest income	10,718	
Plus: Personal contributions for social insurance		12,328
Equals: Total Money Income (CPS definition)		459,077

method, the old BEA series could not be broken down by type of income or by socioeconomic characteristics of the recipient units, aside from the three component distributions of the series referred to above (nonfarm families, farm operator families, and unattached individuals). The CPS still remained the only source of distributions by detailed demographic or economic characteristic. Second, largely because the BEA estimating procedure started with tax return data, it was impossible to reconcile the estimates with the CPS and to determine precisely the sources of the differences between the two series.

Those differences were quite significant, particularly in the bottom and top brackets of the corresponding distributions. In 1962, for example, the CPS showed over 5 million more families and unrelated individuals below $2,000 than did the BEA estimates; the number estimated by BEA to be above $15,000 was about 2 million more than that shown by the CPS.[6] These discrepancies were the source of some professional discussion and concern. Selma Goldsmith examined them in her paper at a Conference on Income and Wealth over sixteen years ago, and they were the subject of a report prepared by an interagency task force for the Office of Statistical Standards of the Bureau of the Budget in 1964 and of the study prepared by Paul Schultz in 1964 for the Joint Economic Committee.[7]

For the reason already mentioned, these studies were not overly successful in pinpointing the sources of the discrepancies. Too much emphasis, for example, appears to have been placed on differences in the income concept (TMI versus FPI); indeed, the task force report estimated that "nonmoney items account for a little less than one-half of the gap between the OBE and the CPS estimates of the number of families with income under $3,000.[8] Herman Miller was perhaps the first to use methods similar to those employed in this paper to analyze the differences for income year 1959.[9] For each consumer unit, he inflated separately each

[6] Schultz, *Distribution of Personal Income;* Helen H. Lamale, James D. Smith, and Jeanette Fitzwilliams, "Family Income Distribution Statistics Published by Federal Agencies," *The American Statistician* (February 1966): 18-23.

[7] Schultz, *Distribution of Personal Income,* pp. 58-68.

[8] Lamale, Smith, and Fitzwilliams, "Family Income Distribution Statistics," p. 21.

[9] Herman Miller, *Income Distribution in the United States,* a 1960 Census Monograph, (Washington, D.C., 1966), Appendix A, pp. 18-90. Miller's

income type in the CPS by the ratio of the money income control estimated from BEA data to the CPS aggregate, then summed the inflated income types for each observation and retabulated by size, to produce the distributions shown in column (2), as compared with the original CPS distributions in column (1) of Table 2. Imputed income types (wages, interest, rent, other) were then allocated in proportion to the corresponding money income types; for any given income type, the ratio of imputed plus money income to money income alone was used to inflate the amount of money income on each record, a blowup procedure identical to that used for TMI. Miller's results for FPI are shown in column (3), and can be compared with BEA's distribution for 1959 in column (4).

The results are interesting indeed. Miller's CPS blown up to FPI has only 5 percent more consumer units below $2,000 than BEA, and 5 percent fewer units below $4,000! Above $10,000, the number of units exceeds BEA's by 12 percent. Furthermore, nearly all of the change can be accounted for by the under-reporting of money income; the effect on the frequencies in each income bracket of going from the control amount of TMI to FPI is small indeed. This latter finding, incidentally, is consistent with our results for the new BEA series: in going from the original CPS distribution to BEA's distribution of FPI for 1964, only 14 percent of the change in the number of consumer units below $3,250, for example, is accounted for by allocating inputed income and deducting personal contributions for social insurance. The effect of the difference in the income concept on the two size distributions would appear to be minimal.

Some caution, however, should be exercised in interpreting Miller's results. The methods used in adjusting the CPS were relatively crude, and it is often difficult to follow particular steps from the description he gives. For example, Miller's adjusted CPS distribution reflects income in excess of the controls; as a consequence, he has too many high-income units and too few low-income ones. Social Security contributions of employees and imputed rent on owner-occupied dwellings were assigned in proportion to wages and salaries; it is difficult to believe that the distributional effects of these two types fully offset each other.

---

comparisons between the 1960 Census distributions and BEA are not examined here.

TABLE 2 Comparison of Current Population Survey and Bureau of Economic Analysis Estimates of the Size Distribution of Total Money Income (TMI) and Family Personal Income (FPI), Income Year 1959

(millions of units)

	All Consumer Units				*Families*				*Unrelated Individuals*			
		CPS Inflated to:				*CPS Inflated to:*				*CPS Inflated to:*		
Income Class	*Original CPS* (1)	*TMI Control* (2)	*FPI* (3)	*BEA (FPI)* (4)	*Original CPS* (1)	*TMI Control* (2)	*FPI* (3)	*BEA (FPI)* (4)	*Original CPS* (1)	*TMI Control* (2)	*FPI* (3)	*BEA (FPI)* (4)
Under $2,000	12.1	8.0	7.9	7.5	6.0	3.9	3.9	3.5	6.1	4.1	4.0	4.0
$2,000-$3,999	11.1	10.0	10.0	11.4	8.8	6.8	6.8	7.5	2.3	3.2	3.2	3.9
4,000- 5,999	12.6	12.0	11.9	12.4	11.2	10.2	10.1	10.6	1.4	1.8	1.8	1.8
6,000- 9,999	14.3	16.5	16.5	15.6	13.6	15.5	15.4	14.9	.7	1.0	1.1	.7
10,000-14,999	4.3			5.3	4.1			5.2	.2			.1
15,000-24,999	1.1	9.1	9.4	2.3	1.1	8.6	8.9	2.3	a	.5	.5	a
25,000 or over	.3			.8	.3			.8	a			a
Total	55.8	55.8	55.8	55.3	45.1	45.1	45.1	44.8	10.7	10.7	10.7	10.5
Addendum:												
$10,000 or over	5.7	9.1	9.4	8.4	5.5	8.6	8.9	8.3	.2	.5	.5	.1

SOURCES: Herman F. Miller, *Income Distribution in the United States.* A 1960 Census Monograph (Washington, D.C., 1966), Appendix A, p. 189. T. Paul Schultz, *The Distribution of Personal Income.* Prepared for the Subcommittee on Economic Statistics of the Joint Economic Committee, December 1964 (Washington, D.C., 1965), p. 63.

[a] Less than 50,000.

(Miller's blowup factor for wage income was 1.0003.) Further, the aggregative character of the income size brackets makes it difficult to determine what is happening at the extremes of the distribution, especially the upper tail. Finally, none of the discussion—a point true of the other authors as well—ran in terms of its effect on the relative distribution (in terms of the Lorenz curve).

The old BEA series was finally discontinued following publication of preliminary estimates for 1963, primarily because the benchmark studies on which it was based had become obsolete. It was simply not possible within the confines of the old methodology to take account of new data sources, particularly those becoming available on computer tape, and new estimating techniques, especially those involving the computer. When the old methodology was developed, the computer revolution had barely begun, and computer cards and tapes were not available outside of the agencies creating them. Therefore, the old methodology relied heavily on published tabulations and cross tabulations, necessitating interpolation within class intervals as items of income were added or deducted.

Consequently, in developing new methods for estimating the BEA series, we had several goals: (1) to use microdata files (computer tape files containing information for individual income recipient units or "records") rather than published tabulations by income size; (2) to preserve the demographic and economic information associated with the individual record so that the new series would be available by a variety of socioeconomic characteristics; (3) to permit a reconciliation with the CPS by starting with the CPS, rather than tax returns, as a base. This last objective necessitated the use of the same recipient unit base: families and unrelated individuals as of the date of the Current Population Survey (in this case, March 1965), rather than the "average" number (and their "average" composition) during the preceding calendar year, as obtains for recipient units in BLS's Consumer Expenditure Survey. Data that would permit such "reconstruction" of family units as they were constituted during the period for which income is measured are simply not available.

Work on the estimates for 1964 has now been completed. Presented here are these results and a comparison of them with the original March 1965 CPS. The next section gives a condensed version of the various steps in the estimation process and the effect of each step on the size distribution of consumer units, as

compared with earlier steps and with the original CPS. (Tables showing the distributions separately for families and unrelated individuals at each stage in the estimation process may be found in Appendix A.) Following this, we examine the differences between the CPS and the BEA series by socioeconomic characteristic and the sources of the differences, and show the effect of substituting BEA income estimates for those in the CPS on the composition of the poor.

ESTIMATION OF THE BEA SIZE DISTRIBUTION FOR 1964

In a broad sense, the new estimating procedure can be viewed as using the CPS as a base, then correcting the CPS income types, and adding income types not included in the CPS by the use of other information—primarily information contained in computer tape files. The latter included the 1964 IRS Tax Model of Individual Returns (TM), the 1963 IRS Taxpayer Compliance Measurement Program (TCMP), and the Federal Reserve Board's 1962 Survey of Financial Characteristics of Consumers (SFCC). Use was also made of tabulations from the 1960-61 BLS Consumer Expenditure Survey (CES), the 1966 and 1967 Surveys of Economic Opportunity of the Office of Economic Opportunity (OEO), the Survey of Consumer Finances, and the IRS Statistics of Income for various years, as well as of a few special hand tabulations from the Social Security Administration's three-way link study for 1963.

For the purpose of explanation, it is convenient to split our procedure into seven steps, all of which were performed using the individual observations in the microdata files. After making certain adjustments to the CPS file (Step 1), a record-by-record statistical match was made between the CPS and the TM (Step 2). This step produced corrections of several CPS income types and gave more detailed income-type breakdowns. TM income types were then corrected for audit by use of the TCMP (Step 3). A record-by-record statistical match between the merged CPS-TM file and the SFCC was then executed (Step 4), primarily to add information to the file for use in distributing most types of inputed income. Each money income type was then adjusted to the BEA control aggregate (Step 5), and imputed income types were estimated and added to the files (Step 6). Personal contributions for social insurance were then estimated and deducted (Step 7). The final result was a microdata file containing an estimate of FPI and its

components, as well as CPS socioeconomic information, for each observation.

Owing to limited space, it is not possible to furnish a complete account of the procedures used. The following sections are designed to give readers enough familiarity with the various steps so that they will be in some position to judge the quality of the final product.[10]

Step 1: Preliminary Adjustments to the CPS

The first adjustment consisted of inflating the CPS sample weights. Since use was made only of those CPS records which contained income information—three-quarters of the sample in the income year 1964—records in the three-quarters sample were reweighted so that tabulations of the income data would come up to the CPS universe. The reweighting procedure controlled for age, color, sex, family relationship, and farm-nonfarm residence.

The second adjustment required was the allocation of income amounts to nonrespondents to the income questions (NAs). The original Census allocation procedure had assigned to NAs only a total for unearned income, rather than for the four components, or "boxes," separately (Social Security benefits, property income, unemployment compensation and public assistance, and all other money income); and for the earnings allocation had resulted in too many inconsistencies between earnings amounts and work experience for individual records. We, therefore, redid the Census allocation, assigning to NAs (for the particular income types on which they were NA) the income amounts of a respondent

[10] In particular, we have omitted a discussion of the techniques used to adjust for the different weighting schemes in the files that were statistically matched in Steps 2 and 4, and in reassembling the file into family units after matching. In addition, the rationale underlying the procedures used at a number of points has not fully been developed. A more complete discussion, particularly of Steps 2, 3, and 4, is given in E. C. Budd, "The Creation of a Microdata File for Estimating the Size Distribution of Income," *The Review of Income and Wealth* (December 1971): 317-33. Step 2 is compared with the methods used in the Brookings match of the SEO and TM files for 1966 in E. C. Budd, "Comments," *Annals of Economic and Social Measurement* 1 (July 1972): 349-54. All the steps are described in more detail in E. C. Budd, D. B. Radner, and J. C. Hinrichs, "Size Distribution of Family Personal Income: Methodology and Estimates for 1964," Bureau of Economic Analysis Staff Paper No. 21, June 1973.

selected at random within approximately 1,500 narrowly specified cells. The latter were defined on the basis of family status, age, color, sex, and work experience last year, producing a matrix considerably more detailed than that used by the Bureau of the Census.

The primary effect of the latter adjustment was to improve the consistency between the socioeconomic characteristics of NAs and the incomes assigned to them. As can be seen by comparing the first two columns in Table 7 and the first two lines in Table 8, Step I had relatively little effect on the size distribution. The effect is most noticeable at the top (where the Bureau of the Census had an inordinate number of high income NAs), with the share of the top 1 percent being reduced by over 4 percent (.26 percentage points). The mean income of consumer units was actually reduced by $33 in this step.

Step 2: CPS-TM Match

The next step involved the establishment of a link between the CPS and the tax return data on a record-by-record basis. Since the option of an exact match—finding the exact returns filed by the individual units in the CPS file—was not open to us, we developed methods for statistically matching the CPS with a tax-return file, using for the latter the IRS's Tax Model, a 95,000 return subsample of the Statistics of Income file. Rather than locating the return the individual in the CPS *actually* filed in real life, the trick was to find among the returns in the TM a return *similar* to the one the person would be expected to have filed, the selection being based on information common to both the CPS and the tax-return data. Unlike the Brookings Match, however, a constraint was imposed that each return be used once and only once, so that the CPS file would represent exactly the tax-return universe after matching.[11]

In contrast to the wealth of socioeconomic information in the CPS, the amount on the tax return is, unfortunately, quite limited. Considerable reliance, therefore, had to be placed on the size and

[11] A more precise statement of this constraint would have to take account of the necessity for splitting matched records to allow for the different weighting schemes in the two files to be matched. See Budd, "Creation of a Microdata File," pp. 322-27, and *Annals of Economic and Social Measurement* 1 (July 1972):350-51.

presence of income types in the two files, with wages and salaries, self-employment income, and property income being used as linking variables betweeen the two data sources.

The records in the two files were first separated into six groups, based on the analogy between family status in the CPS and marital status of taxpayer in the TM, and the use of taxpayer exemptions to determine whether the taxpayer (or spouse) was age 65 or over. Since the initial family-status–age groups, as defined in Table 3, were analogous rather than exact, their definitions were modified to increase the comparability of records between the two groups, one consideration being the number of CPS units relative to the number of TM returns in the group, another being the degree of correspondence between the relative distributions of wage and salary income in each group in the two files. To give one example of such modification, separate returns with one taxpayer exemption were distributed among Groups 3, 5, and 6, rather than statistically matching them to convert them to "pseudo-joint" returns to be used in Groups 1 and 2.

The next step was to select the nonfilers, i.e., those who were not to be given a tax return. Since our matching technique required that the (weighted) number of returns and the (weighted) number of CPS units to be assigned a return had to be identical in each of the six groups, the specification of the groups themselves

TABLE 3 Initial Family-Status–Age Groups

CPS Data	*TM Data*
A. Married couples living together	Joint and separate returns
Group 1: Under age 65	No age exemptions
Group 2: Age 65 or over	One or more age exemptions
B. Other family heads	Head of household, surviving spouse, and single returns with dependent exemption(s)
Group 3: Under age 65	No age exemption
Group 4: Age 65 or over	Age exemption
C. Other persons (i.e., other relatives and unrelated individuals)	Single returns with no dependents
Group 5: Under age 65	No age exemption
Group 6: Age 65 or over	Age exemption

in the preceding step determined the number of nonfilers in each group (i.e., the number in the CPS minus the number of tax returns). The actual procedure was to select those most likely to have filed, with nonfilers being the residual. The likelihood of filing was determined on the basis of the relationship of the CPS income the unit reported to the legal filing requirement, or the advantage to it of filing if not required to do so. Consideration was given to the size of wage income, the existence of property (rent or royalty) loss, the existence and size of self-employment income, and the size of "taxable" income (as nearly as it could be determined from the CPS). Space is lacking to describe the rules used, but it is worth noting that all those who ended up as nonfilers had CPS taxable incomes below IRS filing requirements.

Within each of the six groups, the matching of returns was carried out on the basis of the existence and size of wage and salary income, self-employment income, and property income. A scheme for the determination of cells in which matching took place and the order of matching within the cells is provided in Table 4. Primary importance in linking was given to wage income, since it is more consistently and more accurately reported in both sources than is self-employment income. The units were first ranked by size of wage income and separated into a number of wage rank classes (a total of 151 for all groups), with an equal number of frequencies from the two files in each class, although such frequencies varied from one wage class to the next. The basic idea behind the creation of wage rank classes was that CPS units and TM returns with approximately the same *rank* in the wage distribution should be matched with each other. It should be noted that the upper and lower dollar limits of any class in the two files did not necessarily coincide; indeed, in some classes, the dollar income ranges in the two files did not even overlap. This result is consistent with the fact that wage income is more fully reported on tax returns than in the CPS.

Self-employment income, although given a secondary role in the match, was not put aside entirely; it would have been left out of account in our matching procedure had we matched records simply by their rank in the wage distribution rather than setting up the wage rank classes described above and matching records within those classes, the procedure actually followed. Within each wage rank class, we separated CPS units and TM returns into four subclasses, based on whether the individual record contained only

TABLE 4 Matching Characteristics Used in the CPS-TM Match

Cell Classifications	*CPS Data Used*	*TM Data Used*
Family-status–age groups	{ Family relationship { Age	{ Marital status { Age exemptions
Wage classes	Rank in wage distribution	Rank in wage distribution
Self-employment income subclasses	Existence and type of self-employment income	Existence and type of self-employment income
Order for matching within subclass[a]	Size of self-employment income	Size of self-employment income
Size of self-employment income subdivisions[a]	Rank in self-employment income distirbution	Rank in self-employment income distribution
Order for matching within subdivision[a]	Size of property income	Size of property income

[a] Only applicable to some records; see text pp. 461 and 463 for explanation.

nonfarm self-employment income (Subclass 1), only farm self-employment (Subclass 2), both self-employment types (Subclass 3), or neither (Subclass 4).[12] About a quarter of the records in the first three subclasses, primarily those in wage rank classes with moderate or large amounts of wage income, were matched by their rank, when ranked from highest to lowest by size of self-employment income.

The remaining three-quarters of the records in wage rank classes with no, or smaller amounts of, wage income were further subdivided into a limited number of additional classes (or "subdivisions") based on size of self-employment income, by a method quite similar to that used in setting up the wage rank classes themselves. This was done to allow some role for the existence and size of property income in the matching of those records with self-employment income but with little or no wage income. Within the above subdivisions of Subclasses 1, 2, and 3, and all of Subclass 4, records were ranked by size of property income from highest to lowest, those with no such income being placed in random order. The records were then matched by their rank.

One result of the matching procedure was that those CPS units reporting property income tended to receive a tax return with a larger property income than the amount they reported in the CPS, and many more reporting "none" in the CPS received a tax return with property income than the opposite case. The percent of filers with TM property income compared with those reporting it in the CPS was significantly increased, particularly for those age 65 and over, as can be seen in Table 5.

From the CPS-TM merged file created by Step 2, we substituted the TM amount of wage and salary income, nonfarm self-employment income, and property income, for those units assigned a tax return ("filers"). The substitution also permitted us to break down the property income total into its components: interest, dividends, and rent. All other income types, and the entire incomes of nonfilers, were left unchanged at their CPS amounts in this step. The effect of these substitutions on the income aggregates is shown in the first two columns of Table 6. This step increased the mean income of the distribution by 8.2

[12] This discussion omits the step required to equalize CPS and TM frequencies in each of the four subclasses.

TABLE 5 Percent With Property Income Before and After Matching the CPS With the Tax Model

Group	*Number in Group (Thousands)*	*Percent With Property Income*	
		CPS[a]	*TM*
Married couples:			
(1) Under 65	36,046	32	46
(2) 65 and over	3,368	54	80
Other heads:			
(3) Under 65	3,810	23	28
(4) 65 and over	381	54	87
Other persons:			
(5) Under 65	19,452	18	30
(6) 65 and over	2,145	57	83
All groups:			
Under 65	59,308	27	40
65 and over	5,894	55	81

[a] Exclusive of nonfilers (those not assigned a tax return).

percent. Aggregate money income was raised from the 84 percent implicit in the original CPS to 91 percent of the BEA-TMI control.

The use of TM nonfarm self-employment income did lower the aggregate for that income type by $5.7 billion. Nevertheless, we felt that the tax return distribution, at least after the adjustment for audit in Step 3, better represented the distribution of that type. The same, unfortunately, cannot be said for the TM farm income distribution. The TM aggregate was $2.6 billion, compared with the CPS's $5.8 billion and a money income control of $10.8 billion (Table 12). A major problem with the tax data lies in the reporting of loss incomes: over a third of all Schedule F returns reported a farm loss in 1964, with aggregate losses of $2.1 billion, compared with positive farm income of $4.7 billion. In addition, the number of recipients was significantly lower in the tax return data than in the CPS. It was therefore decided to use the CPS farm income in our estimates.

The effect of Step 2 on the size distribution can be seen in Tables 7 and 8. The number with negative incomes was increased as a result of the larger number of business, partnership, and rent losses in the TM. While the rest of the size distribution was shifted upward, the effect was particularly noticeable in the upper tail

TABLE 6 Income Aggregates, 1964

(billion of dollars)

Income Type	Steps in Estimation Process				
	CPS Reallocated Reweighted (1)	*CPS-TM Before Audit* (2)	*CPS-TM After Audit* (3)	*Total Money Income* (5)	*Family Personal Income* (7)
Money income					
Wage and salary	297.7	323.9	324.3	324.9	324.9
Nonfarm self-employment	38.5	32.8	37.9	39.3	39.3
Farm self-employment	5.8	5.8	5.8	10.8	0.8
OASDI and railroad retirement	14.7	14.7	14.7	16.1	6.1
Property income	14.9	26.1	27.1	39.4	39.4
Interest		10.8	11.1	18.0	18.0
Dividends		12.6	12.8	14.4	14.4
Rent		2.7	3.2	7.0	7.0
Unemployment compensation and public assistance	4.3	4.3	4.3	6.6	6.6
CPS: all other money income	9.9	9.9	9.9	17.3	17.3
Royalties				0.9	0.9
Estate and trust income				3.7	3.7
Imputed income					23.8
Personal contributions for social insurance					(–) 12.3
Total Income	385.7	417.4	423.9	459.1	470.6

TABLE 7 Size Distributions of Total Income, 1964

(thousands of consumer units)

Size of Total Income	*CPS, Census Allocation*	*Steps in Estimation Process*					
		CPS, BEA Allocation (1)	*CPS-TM Before Audit (2)*	*CPS-TM After Audit (3)*	*Total Money Income (5)*	*Money and Imputed Income (6)*	*Family Personal Income (7)*
Loss	190	202	288	228	161	135	159
Zero	807	816	827	826	645	266	252
$1-$1,249	5,535	5,562	4,694	4,596	3,570	3,277	3,302
1,250- 3,249	10,936	10,898	10,372	10,185	9,363	8,962	9,320
3,250- 5,749	13,203	13,235	12,682	12,654	12,719	12,454	13,121
5,750- 8,249	12,528	12,581	12,392	12,380	12,499	12,242	12,229
8,250-10,249	6,854	6,822	7,228	7,309	7,653	7,820	7,775
10,250-15,749	7,249	7,229	8,129	8,307	9,140	10,003	9,311
15,750-24,749	1,947	1,898	2,302	2,385	2,824	3,268	3,013
24,750-49,749	502	513	757	788	1,017	1,126	1,076
49,750-98,749	45	56	141	153	206	237	233
98,750 and over	40	24	26	27	39	46	45
Total number	59,836	59,836	59,838	59,838	59,836	59,838	59,836
Mean (dollars)	6,476	6,443	6,974	7,085	7,673	8,071	7,865
Median (dollars)	5,595	5,580	5,940	6,019	6,407	6,682	6,459

TABLE 8 Share of Income for Selected Quantiles of Consumer Units, 1964

(percent)

Steps in Estimation Process:	*1-20*	*21-40*	*41-60*	*61-80*	*81-90*	*91-95*	*96-100*	*100*
CPS	3.43	10.35	17.30	24.80	16.56	10.34	17.22	6.05
(1) CPS reallocated	3.41	10.40	17.37	24.85	16.62	10.39	16.96	5.79
(2) CPS-TM	3.29	10.33	17.06	24.24	16.18	10.23	18.67	7.10
(3) CPS-TM after audit	3.47	10.37	16.99	24.12	16.09	10.19	18.77	7.18
(5) Total money income	3.93	10.67	16.70	23.48	15.66	10.01	19.55	7.79
(6) Money and imputed income	4.15	10.71	16.56	23.32	15.58	10.00	19.68	7.84
(7) Family personal income	4.20	10.63	16.44	23.22	15.55	10.00	19.96	8.01
Addendum: CPS inflated to total money income controls	3.72	10.59	16.87	23.98	16.06	10.24	18.54	6.99

where the number over $24,750 was increased by 56 percent.[13] Inequality in the relative distribution increased from Step 1 to Step 2, with the share of the top 1 percent rising by 23 percent (1.3 percentage points) and that of the bottom quintile falling by 3 percent (largely as a result of the increase in losses and the relative fall in the share of nonfilers).

Step 3: Audit Correction

The next step was to correct the TM income types for that part of underreporting on tax returns which would have been eliminated had each return been subject to audit. For this purpose, the sample of about 50,000 tax returns from the 1963 audit study of individual returns (TCMP) was used. This file contained, for each income type, the income amount reported by the taxpayer and the amount as corrected by the auditor. The correction factors were developed separately for eight groups of returns: joint and all other returns; under 65 and 65 or over; short and long form. Each income type was adjusted independently of the others.

In choosing a correction procedure, we had two important goals. The first was to preserve the same relationship between the size distribution of TM income before and after audit adjustment as existed between the before and after audit TCMP size distributions. For example, if the size distributions of a given income type in the TCMP before audit and TM before adjustment were the same, then the TM distribution after adjustment for audit should be identical to the after-audit TCMP distribution. The second was to minimize the distortion produced by the correction procedure in the relationships between CPS socioeconomic characteristics and the various income types. This second goal was important because, like the TM, the TCMP contained very little socioeconomic information.

The chosen procedure consisted of two parts: raising the (nonzero) amounts reported by taxpayers and assigning positive

[13] The size distribution data in Table 7 were tabulated in intervals, the limits of which were defined in terms of 250 and 750 for the last three digits, rather than 000 or 500. This was done so that the mean of any class interval would more nearly approximate its midpoint. Since respondents in the CPS tend to report their incomes rounded off to numbers the last three digits of which are 000 or 500, defining the intervals in terms of the same digits tends to produce a bunching of frequencies at the lower limit of the class interval. This phenomenon does not characterize reporting on tax returns.

amounts of particular income types to some taxpayers who did not report them. Only the first part will be described here. The correction of dividend income may be taken as an example. Returns containing dividend income both before and after audit in the TCMP were first ranked from highest to lowest by size of dividend income as reported by the taxpayer, and the aggregate amount of dividends reported by each percentile of this distribution was determined. Next, the same returns were reranked from highest to lowest by size of dividend income as corrected by the auditors, and the aggregate amount of dividends after audit was computed for each percentile. The ratio of aggregate dividends after audit to dividends before audit, computed separately for each percentile, provided the required correction ratios. Returns with dividend income in the TM were then ranked by size of dividend income from highest to lowest and grouped into percentiles. The appropriate TCMP correction ratios for dividend income were then applied to the dividend income reported by the returns in each percentile group. To minimize the effect of sampling variability for some income groups, the correction ratios were smoothed by combining percentiles into groups containing more than one percentile. The correction of income types which contained some negative amounts was more complex than the technique described above, although the same basic procedure was employed. The effect of the adjustment for the latter types was to change many of the reported losses to positive amounts.

The audit correction resulted in relatively minor changes in the distribution. The mean income was increased by \$111 or 1.6 percent; aggregate income was increased from 91 percent to 92.3 percent of the TMI control. Most of the \$6.5 billion increase in income was in business and partnership income, although rent experienced a substantial percentage increase. As can be seen from Table 7, the largest effect was on the loss group. In terms of the relative distribution in Table 8, the reduction in the loss group was reflected in a 5.5 percent increase in the share of the bottom quintile, from 3.29 to 3.47 percent.

Looking at Steps 2 and 3 together, as the effect of substituting audited tax returns for CPS reported amounts for wages and salaries, nonfarm self-employment income, and property income of filers, the net effect was to leave the share of the bottom two quintiles of the relative distribution unchanged and to increase the share of the top 5 percent (mostly the top 1 percent) at the

expense of the middle group (ranging from the forty-first to the ninety-fifth percentile). The mean dollar income of the top 1 percent was raised by over 36 percent; relative to the mean income of the distribution as a whole, it was raised by 24 percent.

Step 4: SFCC Match

The final merging operation in the methodology was the statistical match of our matched CPS-TM file with the Survey of Financial Characteristics of Consumers, a sample for income year 1962 of 2,557 consumer units stratified by income. The primary purpose of this match was to provide information by which income types not covered in the two basic files could be distributed among consumer units: home ownership and equity in owned home (to allocate imputed rent on owner-occupied dwellings); checking and savings accounts (imputed interest on such accounts); U.S. Savings Bonds (imputed interest on same); interest on state and local bonds; estate and trust income; and life insurance data (imputed interest on life insurance equity).

The characteristics used for matching were those which appeared to be most relevant to home and liquid-asset ownership: dollar income level; type of consumer unit (family or unrelated individual); age (6 age groups); color (white, nonwhite); and major source of earnings, used only for families (wage, farm and nonfarm self-employment, nonworker). Dollar income level rather than relative income position was used in order to account for the rise in real income from 1962 to 1964, since real income appeared to be the relevant variable for home ownership. For major source of earnings, SFCC data indicated that at any given income level, the self-employed had larger asset holdings than wage workers, and that the latter had larger holdings than nonworkers, with the possible exception of the age 65 and over group. Even with this small list of characteristics, some consolidation of cells was required because of the relatively large number of empty cells, partly a consequence of the SFCC sample design. Size of interest income was used as the matching variable within cells, or random order if records had no interest income.

Since no incomes were corrected or assigned in this step, there are no distributional effects to report, and the step is not indicated in Tables 6, 7, and 8.

Step 5: Adjustment of Money Income to BEA Control Totals

After audit adjustment, aggregate money income in our file was still $35.2 billion or 7.7 percent below the TMI control—varying from only .2 percent for wages and salaries to 54 percent for rent. (The discrepancy for each income type can be determined by comparing columns (3) and (5) in Table 6.) For most of the income types, a simple ratio technique was employed to inflate the income type to the control total. For types involving loss incomes, the "reciprocal ratio" technique described in the next section was used. This latter method assumes that losses were overreported in about the same proportion as gains were underreported.

Several exceptions to these ratio techniques should be noted. For rental income, in order to reduce the percent with a loss from the 30 percent shown by tax returns after audit to the approximately 10 percent shown by field surveys such as the SFCC, the CES, and the SEO, a constant dollar amount was added to each record following a reciprocal ratio blowup so that the sum of the two adjustments equaled the difference between the actual and the control amount. For farm income, the reported CPS amounts were inflated by a reciprocal ratio blowup to a money income control net of expenses on imputed farm income; those expenses were then added to each inflated money amount.

Although estate and trust income and state and local bond interest were included by definition in CPS property income, the substitution of TM dividends, rent, and interest for CPS property income for filers excluded, in effect, what little of these two types might have originally been included in the CPS. These two types were therefore drawn from the SFCC part of the merged file and adjusted to control totals by a simple ratio technique. While royalty income by definition was included in CPS "all other money income," it seems unlikely that much of it was actually reported. The royalty income amounts in the TM were used instead, a reciprocal ratio technique being employed to inflate them to the control.

The CPS amounts of unemployment compensation and public assistance (type 6 income) were brought up to control by increasing the number of recipients rather than by inflating reported amounts, since the number reporting receipt of these incomes types was substantially below the estimated control

number of recipients. The adjustments were carried out first for unemployment compensation, then for old age assistance, and finally for all other assistance. While space is lacking to describe the methods in detail, the general technique used was to divide the file in turn into cells based on socioeconomic characteristics most relevant to each of the three transfer types, compute the mean amount of type 6 income in that cell for those reporting it, and select at random a unit not reporting that type and assign it the mean amount for the cell from which it was drawn, repeating the process until the control total for that transfer type was met. The probability of selection for any nonreporting unit generally varied from cell to cell, depending on the proportion of units in the particular cell reporting that transfer type.

Since the purpose of Step 5 was to meet the TMI control, it is not surprising that the mean income for the distribution as a whole was increased by $588 or 8.3 percent. As can be seen from Table 7, the size distribution was shifted significantly upward. The number of consumer units below $1,250, for example, was reduced by 1.3 million, or 22 percent; those below $3,250, by 2.1 million, or 13 percent. On the other hand, those with $24,750 or more were increased by .3 million, or over 30 percent. The relative distribution in Table 8 showed substantial increases in the shares of the bottom quintile, from 3.47 to 3.93 percent, a 13 percent increase, and the top 1 percent, from 7.18 percent to 7.79 percent, an increase of 10 percent. The section of the distribution from the forty-first through the ninety-sixth percentiles experienced a decline in its share.[14]

It is useful at this point to summarize the net effect of the steps which adjusted the original CPS money income distribution to the TMI controls (Steps 1 through 5). Mean income was increased by $1,230 per consumer unit, or by 19 percent. All parts of the size distribution were shifted upward. The relative share of the bottom quintile was increased from 3.43 to 3.93 percent or by 15 percent; that of the top 1 percent, from 6.05 to 7.79 percent or by 29 percent. The second quintile and the ninety-seventh through ninety-ninth percentiles also gained, while the share of the forty-first through the ninety-sixth percentiles was reduced.

How would the results have been changed for the relative distribution of all consumer units had we blown up the income

[14] More detailed income shares than those found in Table 8 are given in Appendix A.

types in the original CPS to the TMI control by the use of a simple ratio technique, or a reciprocal ratio technique for income types containing negative amounts? This can be seen by comparing the last line in Table 8 with line (5) for TMI. The primary effect would have been to reduce the estimates of the shares of the bottom quintile and the top 1 percent and raise the estimates of shares for the intervening quantiles. The Lorenz curve derived by employing that technique would cut from below the Lorenz curve for our distribution of TMI; it has this property in common with the Lorenz curve for the original CPS distribution.

Step 6: Assignment of Imputed Income

The next step was to distribute imputed income, primarily using information from the SFCC portion of the merged file. Imputed rent on owner-occupied nonfarm dwellings was distributed in proportion to size of equity in owned home at a rate of just under 3 percent, derived by taking the ratio of the BEA nonfarm imputed rent control to the aggregate amount of equity in owned home as contained in the SFCC portion of the file. Imputed interest on checking and savings accounts was assigned in proportion to the amount of such deposits in the SFCC, with the assignment carried out separately for the two types of accounts. Accrued interest on U.S. Savings Bonds was allocated in proportion to holdings of those bonds as given in the SFCC. Imputed interest on equity in life insurance was distributed in proportion to our estimate from the SFCC of the "cash surrender values" of such policies. The latter were derived by computing the ratio of reported cash surrender value to reported face value of nonterm life insurance for six different age groups and applying these ratios to face value of nonterm life insurance for each unit reporting it. This method was preferable to using the cash surrender value actually reported in the individual record, partly because of the greater response error in reporting cash surrender value, and partly because so many units who reported face value were NA on cash surrender value.

Imputed farm income, assigned on the basis of information in the 1960-61 BLS Consumer Expenditure Survey, was allocated to all units with farm residence, even though some of these units did not report the receipt of farm self-employment income. In addition, as noted in the preceding section, operating expenses

associated with imputed income were allocated to the money income control as a constant proportion of net imputed income for those units reporting money farm income. The underlying assumption was that farmers deducted all cash expenses in reporting their cash incomes, without bothering to allocate such expenses between cash and imputed income. As indicated by evidence from the CES, the value of food and fuel consumed on farms allocated to individual units varied directly with size of family but was independent of family income. The amount of imputed net rent of farm dwellings assigned to individual units, on the other hand, varied directly with family income but was independent of family size.

Imputed wage income was distributed by size of mean money wages to all workers with less than $5,000 in money wages in six groups for weeks worked, two for work status (full- or part-time), and three for occupational groups (36 cells in all). Farm workers, domestic servants, and several types of commercial and service employees were the occupational groups assigned amounts.

Since imputed income is only 5 percent of TMI, its inclusion did not have a major impact on the distribution. The mean income of consumer units was increased by about $400, and frequencies were shifted upward in the size distribution (columns (5) and (6) of Table 7). The most noticeable effects, at least in terms of the percentage change in frequencies, were on the upper and lower brackets, particularly the loss and no income groups. Similarly, in the relative distribution in Table 8, the share of the bottom quintile was increased by .22 percentage points or 6 percent; that of the top 5 percent by .13 percentage points or less than 1 percent. The shares of the intervening quantiles were reduced by small amounts. These changes can be attributed to the fact that the lower income groups receive most of the imputed farm and wage income, with the major share of imputed nonfarm rent and interest accruing to those with higher incomes. These latter two imputed income types are important to aged units as well, some of whom, at least, are in the bottom part of the distribution.

Step 7: Family Personal Income

The estimation of personal contributions for social insurance was the final step in deriving the distribution of FPI. They were estimated on the basis of statutory contribution rates and

information on work experience and earnings contained in the individual records. Contributions of the self-employed were taken virtually without change from the TM. Employee contributions to Old-Age, Survivors, and Disability Insurance (OASDI) were assigned at the legal rate of 3.625 percent up to the $4,800 limit for workers in private jobs likely to have been covered by the program. Since it was impossible to determine, in the case of state and local government workers, which ones were covered by OASDI, their total contributions (i.e., OASDI plus contributions to their particular retirement programs) were assigned in proportion to their wage income, with no upper limit. Contributions to federal civilian retirement programs were allocated to federal employees by taking the legal contribution rate of 6.5 percent of their wage income. Contributions to railroad retirement insurance were assigned to railroad employees on the basis of the rate and the income limit in effect at that time.

Since social insurance contributions were deducted to obtain FPI, frequencies were shifted down income size brackets in going from money plus imputed income (column (6) of Table 7) to FPI (column (7)), the mean income of the distribution being lowered by the mean amount of such contributions ($206 per consumer unit, or 2.6 percent of FPI). The shares of the bottom quintile and the top 5 percent were increased by small amounts—.05 and .38 percentage points respectively—with the shares of intervening quantiles slightly reduced. This effect on the relative distribution is easy to understand, since wage income is a considerably less important income type to the upper and lower tails of the distribution than for the middle groups, and social insurance contributions are associated primarily with wage income. The wage cutoff for OASDI also contributed to this effect. Again, an intersection of the Lorenz curves for money plus imputed income and for FPI is implied, with the latter cutting the former from above.

In summary, our entire adjustment procedure, in going from the original CPS distribution of consumer units by size of money income to BEA's distribution of size of FPI, resulted in a rise in the mean income of consumer units of close to $1,400 or over 21 percent, a substantial upward shift in the size distribution, and significant shifts in the relative distribution in favor of the upper and lower tails at the expense of the middle groups. The mean income of the bottom quintile relative to that of the distribution

as a whole, for example, was increased by over 22 percent; the relative mean incomes of the top 5 and the top 1 percent were raised by 16 and 32 percent respectively.

DIFFERENCES BETWEEN CPS AND BEA BY SOCIOECONOMIC CHARACTERISTICS

This section examines differences by socioeconomic characteristic between the BEA and CPS estimates. In the interests of brevity, the comparisons will be restricted to the mean incomes of several subgroups of consumer units, although a complete discussion would have to take account of differences in the shapes of the CPS and BEA relative distributions by socioeconomic characteristic,[15] as well as of a greater number of socioeconomic groups. CPS published means will first be compared with BEA mean amounts of TMI and FPI and the differences will be summarized. Then, the causes of these differences will be examined, along with the implications of various correction techniques. The socioeconomic characteristics (SECs) used as breakdowns will be age, color, sex, residence (farm and nonfarm), and work experience. These are merely examples; others could also have been used. In the case of families, these SECs refer to the head of the family.

Although the reasons for the differences between the CPS and BEA means will be analyzed later in this section, a few general comments about these comparisons may prove useful at the outset. Wage and salary income plays a dominant role in analyzing differences between the BEA and CPS estimates. On the average, the amounts of wage and salary income were increased less than other income types in the process of adjusting from CPS to BEA amounts. Therefore, a socioeconomic group (SEG) which received a large proportion of its income in the form of wages and salaries would have a relatively small differential between its CPS and BEA mean amounts of total money income; on the other hand, one with a large proportion of its income in nonwage income types (e.g., transfer payments) would have a relatively large differential.

[15] Mean incomes by socioeconomic characteristics for families and unrelated individuals separately appear in Appendix B, along with size distributions and Lorenz curves of consumer units by socioeconomic characteristics.

The adjustment from TMI to FPI was the net result of additions of imputed income and subtractions of personal contributions for social insurance. Groups relying primarily on earnings have relatively large amounts of personal contributions and, therefore, tend to have small, or even negative, adjustments from TMI to FPI. Groups with large asset holdings receive large amounts of imputed income, and therefore tend to have large differences between TMI and FPI. While these factors represent tendencies and will not be valid in every case, they should be kept in mind when examining the differences summarized below.

The relationship between age and total income was significantly altered by the adjustments from CPS to TMI and FPI. A comparison of mean incomes for each of six age groups shows a definite pattern: after the lowest age group, the differences between CPS and BEA become more pronounced as age increases (Table 9). These differences are dominated by the relatively small correction in wage and salary income referred to above. The increases from CPS to TMI range from 8.9 percent in the 25-34 age group to 36.3 percent in the 65 or over age group. The large correction in the top age group resulted from the relatively minor role played by wage and salary income and the importance of property income, which was significantly underreported in the aggregate in the CPS. The relatively good reporting of OASDI benefits kept the correction for that age group from being even higher.

The differences by age between CPS and FPI are even more pronounced. The increases range from 8.1 percent for the 25-34

TABLE 9 Mean Incomes of Consumer Units, by Age, 1964

		BEA Total Money Income		*BEA Family Personal Income*	
Age	*CPS*	*Mean*	*Ratio to CPS*	*Mean*	*Ratio to CPS*
14-24	$4,280	$4,779	1.117	$4,693	1.096
25-34	6,772	7,372	1.089	7,323	1.081
35-44	7,988	9,108	1.140	9,210	1.153
45-54	8,128	9,380	1.154	9,621	1.184
55-64	6,746	7,929	1.175	8,279	1.227
65 or over	3,980	5,424	1.363	5,843	1.468
All ages	6,569	7,673	1.168	7,865	1.197

age group to 46.8 percent for the 65 or over group. The differences between the FPI and TMI correction ratios result from the fact that the importance of imputed income increases with age, while the importance of personal contributions for social insurance declines. It is interesting to note that for the two age groups under age 35, mean TMI exceeded mean FPI, implying that for these two age groups total personal contributions for social insurance exceeded total imputed income.

The adjustment differences by color are not as striking as those by age. The ratio of nonwhite to white mean income fell from .599 for CPS to .581 for TMI and .571 for FPI (Table 10). The decline from the CPS ratio to the TMI ratio resulted primarily from the greater importance for white units of property income, which had a large correction factor. The decline from the TMI ratio to the FPI ratio primarily reflected the relative concentration of imputed income in white units and the larger role of personal contributions for nonwhites.

The relationship between sex and income was changed significantly. When interpreting these results, however, it should be remembered that the "female" category refers to female unrelated individuals and families headed by females, not all female workers or income recipients. The large correction in transfer payments, and especially in property income, which is an important source of income for female unrelated individuals (many of whom are aged), accounts for the substantial increase in the ratio of female to male income, from .446 in CPS to .509 for TMI and .518 for FPI (Table 10).

The differences by residence are also large. The ratio of the mean of units with farm residence to the mean of units with nonfarm residence rose from .653 for CPS to .849 for TMI and .887 for FPI (Table 10). This large increase was primarily the result of the substantial correction to farm self-employment income, since most, although not all, farm income is received by farm residents. The inclusion of imputed farm income accounted for the increase from the TMI ratio to the FPI ratio.

Work-experience groups also showed differences in adjustment. These differences can be attributed primarily to the relative proportion of total income accounted for by wage and salary income or transfer payments. Units headed by nonworkers, many of whom were retired, had the largest adjustment, 38.9 percent from CPS to TMI and 48.0 percent from CPS to FPI (Table 11).

TABLE 10 Mean Incomes of Consumer Units, by Color, Sex, Residence, and Type of Unit, 1964

		BEA Total Money Income		*BEA Family Personal Income*	
	CPS	*Mean*	*Ratio to CPS*	*Mean*	*Ratio to CPS*
Color:					
White	$6,864	$8,032	1.170	$8,242	1.201
Nonwhite	4,113	4,663	1.134	4,708	1.145
Ratio of nonwhite to white	.599	.581		.571	
Sex:					
Male	$7,417	$8,546	1.152	$8,741	1.179
Female	3,307	4,347	1.314	4,528	1.369
Ratio of female to male	.446	.509		.518	
Residence:					
Nonfarm	$6,707	$7,740	1.154	$7,916	1.180
Farm	4,380	6,570	1.500	7,023	1.603
Ratio of farm to nonfarm	.653	.849		.887	
Type of unit:					
Families	$7,438	$8,631	1.160	$8,838	1.188
Unrelated individuals	3,122	3,874	1.241	4,006	1.283
Ratio of unrelated individuals to families	.420	.449		.453	

TABLE 11 Mean Income of Consumer Units, by Work Experience of Head, 1964

Work Experience of Head	*CPS*	*BEA Total Money Income*		*BEA Family Personal Income*	
		Mean	*Ratio to CPS*	*Mean*	*Ratio to CPS*
Nonworker	$3,270	$4,543	1.389	$4,838	1.480
Full-time, full-year worker	8,280	9,361	1.131	9,532	1.151
Other	4,951	5,952	1.202	6,102	1.232
All units	6,569	7,673	1.168	7,865	1.197

This large correction reflects the importance of transfer payments and property income in the income of that group. Units headed by full-time, full-year workers received an adjustment from CPS to TMI of only 13.1 percent, and from CPS to FPI an adjustment of 15.1 percent.

The reasons for the differences described above must be analyzed in more detail.[16] In particular, there are several possible sources of bias in the CPS—aggregate underreporting, biases in the relative distributions, and biases in the numbers of recipients of specific income types—and they are likely to have differential effects on the mean incomes of SEGs. These three types of bias can occur in any or all specific income types, and the combination of these specific income type biases can produce bias in the size distribution of total income. We will be concerned primarily with correction of the errors in individual income types, making only a brief examination of the effects resulting from combining these types into total income. The three sources of bias and some possible correction techniques will be discussed in turn, followed by a brief examination of their relationship to the BEA estimates.

As noted in an earlier section, using the aggregate amounts in the National Income Accounts (adjusted for definitional differences) as the standard of comparison, the estimates of aggregate income of all seven income types in the CPS are too low. The deficiencies vary according to type of income, ranging from 2

[16] The ensuing discussion is restricted to money income and does not cover the effects of differences between TMI and FPI.

percent for nonfarm self-employment income[17] to 66 percent for property income, as shown in Table 12. The effect of aggregate underreporting on the mean total incomes of SEGs can be seen most easily if we assume initially that the number of recipients of each income type in the CPS is correct and that the same correction ratio is applied to each CPS amount of any given income type. It is clear that under these assumptions, the relative distribution of each income type (as measured by the Lorenz curve) would be unchanged after correction for each SEG and for all consumer units taken together.

If it were true that the correction ratios for all income types were identical (say, c), then the ratio of the mean total incomes of any pair of SEGs and the relative distribution of total income would be unchanged after correction for underreporting. In this case, correcting the types individually would be equivalent to correcting total income by c, which obviously would leave the relative positions of SEGs unchanged.

If, however, these correction ratios vary by income type (say c_i for type i), as they do in column (4) of Table 12, then the relative positions of SEGs can be altered by the application of the c_i if the composition of total income by income type in the unadjusted CPS differs among the SEGs. Of course, we know that composition does differ among SEGs, as shown in Table 13 for CPS income. (Table 14 shows the composition of Family Personal Income.) It is clear that SEGs which receive large proportions of their total income in income types which have large correction factors will be better off relative to other SEGs after correction.

The effect of the simple ratio adjustment on the mean total income of various SEGs is shown in columns (2) and (3) of Tables 15, 16, and 17. A comparison of these means with those from the unadjusted CPS and BEA TMI (Tables 9, 10, and 11) shows that the simple ratio adjustment and the BEA TMI means are quite similar, the major exceptions being farm residents and the age groups, especially the 65 and over group. The mean for farm residents produced by the simple ratio adjustment is significantly lower than the BEA TMI estimate because of the special treatment

[17] The BEA procedure for allocation of income to nonrespondents produced a nonfarm self-employment income aggregate substantially higher than the estimate derived using the Census procedure. The BEA aggregate was used in Table 12; if the Census aggregate had been used instead, the deficiency would have been roughly 10 percent rather than 2 percent.

TABLE 12 Income Aggregates and Correction Ratios, 1964

(billions of dollars)

Money Income Type	*CPS*[a] *(1)*	*BEA Money Income Control Totals (2)*	*CPS as Proportion of BEA (1) ÷ (2) (3)*	*Simple Correction Ratio (2) ÷ (1) (4)*	*Reciprocal Ratio* [b] *(5)*
1. Wage and salary	297.7	324.9	.92	1.09	1.09
2. Nonfarm self-employment	38.5	39.4	.98	1.02	1.02 0.98
3. Farm self-employment	5.8	10.8	.54	1.87	1.75 0.57
4. OASDI and railroad retirement	14.7	16.1	.91	1.10	1.10
5. Property income (interest, dividends, rent, and royalties)	14.9	43.9	.34	2.96	2.93 0.34
6. Unemployment compensation and public assistance	4.3	6.6	.65	1.56	1.56
7. All other money income	9.9	17.3	.57	1.75	1.75 0.57

[a] Using BEA weights and allocation of income to nonrespondents.

[b] See p. 481 for explanation.

TABLE 13 Composition of CPS Total Money Income[a] of Consumer Units, 1964

(percent)

	W&S (1)	*NFSE* (2)	*Farm* (3)	*Prop.* (4)	*UC&PA* (5)	*Other* (6)
Age:						
14-24	93.8	2.2	0.4	0.4	1.3	1.9
25-34	89.0	6.4	1.1	0.9	1.2	1.5
35-44	81.3	12.1	1.6	1.6	0.8	2.6
45-54	81.0	10.8	1.6	3.1	0.8	2.7
55-64	74.4	12.1	1.8	5.8	0.9	5.1
65 or over	36.2	8.7	1.7	14.4	2.6	36.4
Color:						
White	76.7	10.4	1.6	4.0	0.9	6.4
Nonwhite	84.1	3.4	0.4	1.8	4.4	5.9
Sex:						
Male	78.7	10.7	1.6	3.3	0.7	5.0
Female	63.9	3.5	0.8	9.0	4.2	18.5
Residence:						
Farm	49.0	5.3	31.3	5.6	1.1	7.6
Nonfarm	78.3	10.2	0.3	3.8	1.1	6.3
All units	77.2	10.0	1.5	3.9	1.1	6.4

NOTE:
W&S = Wages and Salaries
NFSE = Nonfarm Self-Employment Income
Farm = Farm Self-Employment Income
Prop. = Property Income
UC&PA = Unemployment Compensation and Public Assistance
Other = OASDI, Railroad Retirement, and CPS "all other money income"

[a] Using BEA weights and allocation of income to nonrespondents.

of expenses on imputed farm income in the BEA estimates. The differences by age groups result from one of the sources of error inherent in the simple ratio technique: the fewer the number of income types which are corrected separately, the lower the accuracy of the adjustment. Although Table 12 lists seven income types and correction ratios, because of data problems types (4) and (7) were corrected jointly in the simple ratio estimates shown

TABLE 14 Composition of Bureau of Economic Analysis Family Personal Income of Consumer Units, 1964

(percent)

	W&S (1)	*NFSE* (2)	*Farm* (3)	*Prop.* (4)	*UC&PA* (5)	*Other* (6)	*Imputed* (7)	*PCSI*[a] (8)
Age:								
14-24	92.8	1.8	0.7	1.6	2.1	2.9	1.8	3.6
25-34	86.1	6.2	1.7	3.0	1.6	2.1	2.5	3.1
35-44	75.8	11.1	2.5	5.1	1.1	3.4	3.9	2.8
45-54	74.2	9.2	2.6	7.1	1.1	3.3	5.3	2.8
55-64	65.3	9.2	2.8	11.6	1.2	5.7	6.8	2.6
65 and over	27.2	5.6	2.1	27.0	2.2	28.7	8.4	1.2
Color:								
White	68.3	8.7	2.4	9.8	1.2	7.1	5.1	2.6
Nonwhite	80.3	2.8	0.7	3.3	5.1	6.8	4.5	3.5
Sex:								
Male	71.3	9.2	2.5	8.2	1.0	5.6	4.9	2.7
Female	52.2	2.5	1.1	18.0	4.1	18.1	6.2	2.2

Residence:								
Farm	34.1	4.5	36.7	10.8	1.4	6.0	8.5	2.1
Nonfarm	70.9	8.6	0.4	9.3	1.4	7.2	4.9	2.6
Work experience:								
Nonworker	27.9	1.5	1.2	25.1	4.5	33.7	7.3	1.2
Full-time, full-year worker	76.7	10.1	2.6	6.5	0.4	1.9	4.6	2.8
Other	67.2	5.8	1.9	9.5	3.5	9.5	5.3	2.8
All units	69.0	8.4	2.3	9.3	1.4	7.1	5.1	2.6

NOTE:
W&S = Wages and Salaries
NFSE = Nonfarm Self-Employment Income
Farm = Farm Self-Employment Income
Prop. = Property Income
UC&PA = Unemployment Compensation and Public Assistance
Other = OASDI, Railroad Retirement, and CPS "all other money income"
Imputed = Imputed Income
PCSI = Personal Contributions for Social Insurance

[a] All figures in this column are to be subtracted from preceding columns. The sum of all rows equals Family Personal Income, Detail does not necessarily add to 100 percent because of rounding.

TABLE 15 Mean Incomes of Consumer Units by Age, 1964

		Simple Ratio Adjustment		*Reciprocal Ratio Adjustment*	
Age	*CPS (1)*	*Mean (2)*	*Ratio to CPS (3)*	*Mean (4)*	*Ratio to CPS (5)*
14-24	$4,280	$4,720	1.103	$4,746	1.109
25-34	6,772	7,368	1.088	7,387	1.091
35-44	7,988	8,904	1.115	8,942	1.119
45-54	8,128	9,314	1.146	9,348	1.150
55-64	6,746	8,074	1.197	8,096	1.200
65 or over	3,980	5,652	1.420	5,470	1.374
All ages	6,569	7,673	1.168	7,673	1.168

in Tables 15, 16, and 17 by using a weighted correction ratio (1.36) applied to the sum of the two income types.[18] This method assumes that the ratio between types (4) and (7) is the same for all SEGs (type (4) is 60 percent of the sum of the two). However, type (4) (OASDI and railroad retirement benefits) is highly concentrated in the 65 and over age group, constituting perhaps 80 percent of the sum of the two for that group. The 80 percent figure implies a weighted correction ratio of 1.23 (rather than 1.36) and results in a mean total income $180 lower than the amount shown in Table 15. The means for the other age groups, with the possible exception of the 55-64 group, would be slightly higher if the two types were corrected independently. This inaccuracy therefore accounts for most of the differences between the simple ratio and BEA TMI estimates of mean incomes by age.

Next, we relaxed the assumption of an unchanged relative distribution and tried a slightly modified form of simple inflation to correct for underreporting. The simple ratio adjustment has the unhappy property of increasing the absolute value of negative as well as positive reported incomes, with a consequent increase in reported losses. While very little is known about the biases in reported negative incomes, especially in the CPS, it seems unlikely that their algebraic value would be overreported, as the simple

[18] This ratio was derived by summing the two BEA amounts ($16.1 billion and $17.3 billion) and dividing that sum by the sum of the two CPS amounts ($14.7 billion and $9.9 billion).

TABLE 16 Mean Incomes of Consumer Units, by Color, Sex, and Residence, 1964

		Simple Ratio Adjustment		*Reciprocal Ratio Adjustment*	
	CPS *(1)*	*Mean* *(2)*	*Ratio to CPS* *(3)*	*Mean* *(4)*	*Ratio to CPS* *(5)*
Color:					
White	$6,864	$8,029	1.170	$8,030	1.170
Nonwhite	4,113	4,649	1.130	4,651	1.131
Ratio of nonwhite to white	.599	.579		.579	
Sex:					
Male	7,417	8,546	1.152	8,549	1.153
Female	3,307	4,318	1.306	4,319	1.306
Ratio of female to male	.446	.505		.505	
Residence:					
Nonfarm	6,707	7,755	1.156	7,760	1.157
Farm	4,380	6,225	1.421	6,194	1.414
Ratio of farm to nonfarm	.653	.803		.798	
Type of unit:					
Families	7,438	NA	NA	8,598	1.156
Unrelated individuals	3,122	NA	NA	3,990	1.278
Ratio of unrelated individuals to families	.420	NA	NA	.464	

NA = Not available.

TABLE 17 Mean Income of Consumer Units, by Work Experience of Head, 1964

		Simple Ratio Adjustment		*Reciprocal Ratio Adjustment*	
Work Experience of Head	*CPS (1)*	*Mean (2)*	*Ratio to CPS (3)*	*Mean (4)*	*Ratio to CPS (5)*
Nonworker	$3,270	$4,431	1.355	NA	NA
Full-time, full-year worker	8,280	9,319	1.125	NA	NA
Other	4,951	5,873	1.186	NA	NA

NA = Not available.

ratio adjustment would imply. In the modified form (the "reciprocal ratio" adjustment), in the case of income types which could be negative, different correction ratios were applied to positive and negative amounts. For the four (out of the seven) CPS income types containing negative amounts (nonfarm self-employment, farm self-employment, property, and all other money income), the inflated CPS amounts were derived by applying to the negative amounts the reciprocal of the correction factor applied to positive amounts. The following equation was solved to obtain the factor for each income type i:

$$c_i P_i + (1/c_i)(-N_i) = T_i, \tag{1}$$

where c_i is the correction factor applied to positive amounts, P_i is the CPS aggregate amount of positive income, N_i is the absolute value of the CPS aggregate amount of negative income, and T_i is the BEA control aggregate.[19] It is interesting to note that this method of correction will not leave the Lorenz curve of the income type unchanged if N_i is unequal to zero. If N_i is equal to zero (i.e., type (i) is nonnegative), then equation 1 reduces to the following equation:

$$c_i P_i = T_i, \text{ or } c_i = T_i/P_i, \tag{2}$$

[19] The specific form of equation 1 is somewhat arbitrary, since very little is known about the relationship between underreporting of positive and negative amounts.

and the Lorenz curve is unchanged after correction.[20] The reciprocal ratio adjustment factors derived using equation 1 are shown in column (5) of Table 12.

Columns (4) and (5) of Tables 15 and 16 show the results of the reciprocal ratio adjustment. These results are not significantly different from those produced by the simple ratio adjustment, with the exception of the 65 and over age group. The upward bias in the simple ratio estimate for that group has already been discussed. Since types (4) and (7) were corrected separately in the reciprocal ratio adjustment, that bias was not present in those estimates. These remarks apply, of course, only to differences between the means; the size and relative distributions would show greater differences.

Changes in the ratios of mean total incomes of SEGs can also be produced by altering the overall relative distributions of individual income types and of total income, although these changes would not be expected to be as large as those produced by inflating to control totals. This point can be illustrated by considering total money income. Assume that there is an initial total money income distribution (CPS) and a more accurate distribution (TM) to which the CPS distribution will be made to conform, and that both distributions contain the same number of recipients and the same aggregate amount of money income. Under these assumptions, any differences between the CPS and TM distributions must be due to differences in the relative distributions.

The correction procedure will transform the CPS distribution into the TM distribution. This transformation can be viewed as the application of a correction factor to the total money income amount for each observation in the CPS. Since the CPS and TM relative distributions differ, it is clear that all observations in the CPS cannot receive the same correction factor. The problem is choosing the correction factor to be applied to each CPS observation, given the constraint that after correction the CPS

[20] The simple ratio correction can be represented by the following equation:

$$c_i^*(P_i - N_i) = T_i, \text{ or } c_i^* = T_i/(P_i - N_i).$$

$(P_i - N_i)$ is merely the CPS aggregate before adjustment and therefore c_i^* is the ratio of the BEA control total to the CPS reported aggregate. It is clear that in this case the Lorenz curve is unchanged.

distribution must be identical to the TM distribution. The choice of these correction factors can affect the ratios between the mean incomes of subgroups (SEGs) of the CPS distribution after correction.

A simple example will clarify the point. Suppose we have a universe consisting of three recipient units, with CPS and TM total money income distributions as shown below:

CPS Unit	*CPS Income*	*TM Income*
A	$ 2,000	$ 1,000
B	3,000	3,000
C	5,000	6,000
All units	$10,000	$10,000

If we assume that each of the three CPS units constitutes a different SEG, then it is clear that the ratios of the incomes of the SEGs cannot remain unchanged after the CPS distribution has been transformed into the TM. The problem of correction can be put very simply in the context of this example: Which one of the three TM amounts should be assigned to CPS unit A, which to B, and which to C, given the constraint that each TM amount can be used once and only once?

An exact match between the CPS and TM would give an unequivocal answer to this question, for it would show, for each CPS unit, the TM return that unit actually filed. We would therefore know the TM income amount associated with each of the three CPS units.

If an exact match between the CPS and TM is not available, then assumptions about the relationship between CPS and TM total money income must be made. These assumptions should be consistent with exact match information which exists for data sources similar to the CPS and TM.[21] One possible assumption is a random relation between CPS and TM incomes; this corresponds to drawing TM amounts at random, without replacement. Existing exact match information does not support this hypothesis.

A more reasonable assumption is that the rank in the distribution is the same in the CPS and TM. That is, the highest

[21] The 1950 and 1960 Census-IRS matches and the Social Security Administration's link study are examples of existing exact matches.

CPS unit (C) would be assigned the highest TM amount ($6,000), and so on. Such a "rank ratio" procedure produces different correction ratios for different units, as shown below, although the rank of each unit in the distribution is not altered.

CPS Unit (1)	*CPS Income* (2)	*TM Income* (3)	*Rank Ratio* (3) ÷ (2) (4)
A	$2,000	$1,000	0.5
B	3,000	3,000	1.0
C	5,000	6,000	1.2

While preserving rank is a reasonable assumption in the absence of any exact match information, the results of exact matches suggest that ranks are changed to some extent. While there tends to be a strong correlation in the ranks, it is substantially less than one.

One way of preserving a correlation of less than one in the ranks is to create subsets of observations in the ranked distribution. This may be called the "modified rank ratio" technique. Assume that we have one hundred observations in both the CPS and TM, ranked by size of total money income. We then create ten rank subsets of ten observations each in each distribution. For example, the top would consist of the ten highest amounts in the CPS and the ten highest amounts in the TM. Then, within each of these subsets, a TM amount would be drawn (without replacement) for each of the ten CPS units. Using this method, rank would be preserved only for the subset as a whole; within the subset the relationship between CPS and TM incomes would be random. It follows that within a given subset, the relationship between SEGs and TM incomes would also be random. Correction ratios can differ among rank subsets, but within any given rank subset, the SEG to which a unit belongs does not affect the size of the TM income assigned to it.

At this point, it may be useful to relate the rank ratio correction to the simple ratio and reciprocal ratio adjustments which were discussed in relation to the adjustment of amounts of aggregate income. This may be done by examining the effects of applying each type of correction to amounts of total income. When applied to such amounts, the simple ratio adjustment leaves the relative distribution and the ratios of mean incomes of all

SEGs unchanged. The reciprocal ratio adjustment, on the other hand, changes the overall relative distribution slightly, although it leaves unchanged the relative distributions of positive and negative amounts taken separately. Using the reciprocal ratio adjustment, the ratios of the means of SEGs will be changed to the extent that the ratio of positive to negative aggregate total income differs among SEGs. In contrast, the rank ratio correction changes the relative distributions of both positive and negative amounts, as well as the relative distribution of all amounts. The ratios of the means of SEGs can be changed even if the ratio of positive to negative total income is identical for all SEGs.

Correcting differences in the numbers of recipients of specific income types can also change the relationship between mean incomes of SEGs. Once again, we will use the CPS and TM as examples to illustrate the point, assuming that the TM number of recipients is more accurate. If the TM contains more recipients (assuming that nonfilers have previously been excluded), then some CPS units which reported zero amounts must be assigned nonzero amounts. The choice of the particular units to receive amounts can affect the relationships among the mean incomes of different SEGs. When possible, the assignments are made on the basis of outside information. If no such information is available, the additional units in the CPS to be assigned amounts could be chosen randomly. Random selection would increase the proportion receiving the income type by a greater percentage for a SEG which had a low proportion initially receiving it than for a group with a high initial proportion. If the same amounts were assigned to units in both groups, then the mean for (all units in) the group with the lower proportion receiving it would rise more than the mean for the group with the higher proportion.

In the cells in the actual CPS-TM match, the TM number of recipients of property income generally exceeded the CPS number. As a result, a substantial number of CPS units reporting zero property income were assigned a TM amount. By assumption, all CPS units with zero property income in a given cell had the same probability of being assigned a nonzero TM amount, regardless of the SEGs to which they belonged. This could lead to changes in the ratios of mean incomes of SEGs through differential increases in the proportions of recipients of property income.

If such effects are not acceptable, an alternative is to constrain the percentage increase in the proportion of recipients to be the

same for all relevant SEGs. Thus, if the TM shows 1.5 times the number of recipients shown by the CPS, the number of recipients in each SEG after assignment would be 1.5 times the original number. However, problems arise when the limit of 100 percent of recipients is approached. If the TM were to show 1.5 times the number in the CPS and the initial proportion of recipients in a given SEG were above two-thirds, the percentage after assignment would have to exceed 100 percent for that SEG. If the SEGs are defined in considerable detail, this can be a serious problem.

Correction becomes much more complex when the relationships among different income types are taken into account. One assumption would be to correct each income type independently—an assumption made in the simple ratio and reciprocal ratio methods discussed above. (The rank ratio or modified rank ratio method could also be applied to each income type independently.) At the other extreme, all types could be corrected jointly. One way of doing the latter for types contained in the IRS data would be, for a given CPS unit, to replace the CPS income amounts with amounts from the same tax return for the relevant income types. This, indeed, is what was done in our statistical match between the CPS and TM. Taking all the types from the same tax return will not preserve the rank of the recipient unit in the distribution of each income type, although it does have the advantage of approximating the results of an exact match by retaining a correlation among the ranks. If all types are taken from the same return, the obvious problem is to decide how that return should be chosen. This selection process was described in an earlier section of this paper, and we will merely comment here on the assumptions regarding SEGs.

SEGs played only a minor role in the choice of tax returns in the CPS-TM match. Family status (husband-wife couple, other family head, or other person) and age (under 65, 65 or over) were the only SECs used directly. The assumption was that SEGs made no difference within each of the most narrowly defined linking classifications. In other words, given the group, wage class, subclass, subdivision (if any), and rank of the appropriate income type in its distribution, a unit would have the same expected TM income regardless of the SEG to which it belonged.

Finally, we will relate briefly the major steps in the BEA adjustment procedure to the discussion of correction techniques in this section. All steps, of course, increased the aggregate amount

of income. The CPS-TM match combined elements of transformations into more accurate relative distributions with changes in the numbers of recipients. As noted above, joint correction of the income types was used in that step. The audit correction was basically a rank ratio procedure, although some changes in the numbers of recipients were also made. For most income types, adjusting to the BEA money income controls consisted of a reciprocal ratio adjustment, although the technique was modified for rent and farm self-employment income. For unemployment compensation and public assistance, the adjustment was made entirely by increasing the number of recipients, in most cases using the constrained assignment within SEGs described earlier.

To summarize, we have shown in this section that correcting the CPS for underreporting by means of either the simple or reciprocal ratio technique produces mean total money incomes of SEGs very similar to those obtained from the BEA adjustment procedure. We can, therefore, conclude that correcting relative distributions and changing the numbers of recipients of specific income types, both of which were done in the BEA procedure, either offset each other or had very little impact on the mean incomes of SEGs. They did, however, affect the relative distributions of total money income of SEGs.

COMPOSITION OF THE POOR

In this section, we will examine differences in the composition of the poor as estimated from CPS and BEA income data, holding the total number of poor consumer units approximately constant. Because of the rather arbitrary nature of the Social Security Administration (SSA)—or any other—poverty line, it seems more appropriate to emphasize differences in the composition of a given number of poor, produced by moving from the CPS to the BEA distributions, rather than differences in their total numbers.[22] Approximate estimates of changes in composition were obtained

[22] Using BEA TMI and the uninflated SSA line, 5.076 million families and 3.919 million unrelated individuals would be classified as poor. Preliminary estimates of changes in the total number of poor units were presented in E. C. Budd and D. B. Radner, "The OBE Size Distribution Series: Methods and Tentative Results for 1964," *American Economic Review, Papers and Proceedings* (May 1969):445-46.

by raising the revised 1964 SSA poverty lines by 19 percent (Table 18)—a figure which represents the percent by which the BEA total money income control exceeds the CPS money income amount—and recomputing the number of poor units on the basis of their BEA money incomes.[23] Simply recomputing the number of units without at the same time adjusting the poverty lines would fail to allow for the fact that the poverty income cutoffs themselves cannot be determined independently of the adequacy of income reporting.

We have confined our calculations to total money income (TMI) rather than using family personal income (FPI), since employing a different income concept would clearly require some recasting of the definition of the poor and the corresponding poverty cutoffs. For example, the poverty lines as defined by the SSA contain a differential between farm and nonfarm residents, reflecting, in part, the receipt of imputed farm income by the former. Since nonmoney farm income is included in family personal income, the

[23] The revised uninflated poverty lines were derived from the U.S. Bureau of the Census, *Current Population Reports,* Series P-23, No. 28, August 12, 1969, "Revision in Poverty Statistics, 1959 to 1968," Table C; and Mollie Orshansky, "Counting the Poor: Another Look at the Poverty Profile," *Social Security Bulletin* 28 (January 1965), Table E.

TABLE 18 Inflated Poverty Lines, 1964

(dollars)

	Nonfarm		*Farm*	
Type of Unit	*Male*	*Female*	*Male*	*Female*
1 member				
Under 65	1,990	1,840	1,692	1,564
65 or over	1,785	1,767	1,517	1,502
2 members				
Head under 65	2,492	2,383	2,118	2,026
Head 65 or over	2,232	2,227	1,897	1,893
3 members	2,962	2,836	2,518	2,409
4 members	3,777	3,752	3,210	3,190
5 members	4,446	4,403	3,779	3,743
6 members	4,995	4,971	4,246	4,226
7 or more members	6,153	6,032	5,230	5,127

SSA nonfarm-farm differential would no longer be valid. Similar arguments can be applied to other imputed income types. In studying changes in the composition of the poor, therefore, we believe that it is more meaningful to base the comparisons on money income rather than on family personal income and to confine our adjustment of the SSA lines to the underreporting of money income.

Raising each of the 36 poverty lines by 19 percent and using BEA TMI did not, in fact, leave the number of poor consumer units unchanged. The number declined from 12.2 million, using the SSA lines and CPS incomes, to 11.6 million, using the inflated lines and BEA TMI–a fall of 5.2 percent. Thus, the relative changes in socioeconomic groups must be measured against that overall decline. One way of examining the changes in SEGs is to look at changes in the percentage composition of the total number of poor consumer units. This method is useful for large groups but tends to hide significant changes in groups which constitute only a small percentage of the total poor. Another method is to look at the change in the proportion of the group who are below the poverty line; when using this method, the overall decline of 5.2 percent must be kept in mind and used as a basis of comparison. A third method is to examine the overall decline in terms of the change in the number of units below the line. All three of these techniques will be used here. Table 19 shows the number of consumer units below the poverty line in the two cases for various SEGs.

The most significant change in the four classifications shown in Table 19 occurred in the farm residence group. The number of poor units in that group fell 29.6 percent, from 10.4 percent to 7.7 percent of total poor units. This decline was a direct result of the large difference in total farm money income in the two estimates. Unrelated individuals showed a much sharper decline than families, 10.4 percent as opposed to 1.5 percent. This difference was primarily the result of the large role of unearned income types in the total income of unrelated individuals relative to families. For the same reason, units headed by nonworkers showed a greater decline than those headed by workers–8.3 percent as compared to 2.4 percent. The smallest difference in the categories shown in Table 19 occurred in the white-nonwhite breakdown. Units headed by whites fell 5.6 percent, while those headed by nonwhites fell only 3.9 percent. This was the only one

TABLE 19 Consumer Units Below the Poverty Line,[a] 1964

(thousands)

Group	CPS		BEA TMI		Change in Number of Units (3)–(1) (5)	Percent Change (5)÷(1) (6)
	Number of Units (1)	Proportion of Total (2)	Number of Units (3)	Proportion of Total (4)		
White	9,422	.770	8,894	.767	−528	−5.6
Nonwhite	2,816	.230	2,705	.233	−111	−3.9
Nonworker	5,852	.478	5,368	.463	−484	−8.3
Worker	6,387	.522	6,231	.537	−156	−2.4
Farm	1,269	.104	894	.077	−375	−29.6
Nonfarm	10,969	.896	10,705	.923	−264	−2.4
Families	7,137	.583	7,030	.606	−107	−1.5
Unrelated individuals	5,102	.417	4,569	.394	−533	−10.4
All units	12,238	1.000	11,599	1.000	−639	−5.2

[a] Using inflated poverty lines to compute the BEA numbers of poor units.

TABLE 20 Percent Below the Poverty Line,[a] 1964

	Families		*Unrelated Individuals*		*Consumer Units*	
Socioeconomic Groups	*CPS*	*BEA*	*CPS*	*BEA*	*CPS*	*BEA*
All units	14.9	14.7	42.3	37.9	20.4	19.4
Age:						
14-24	18.6	18.4	39.6	38.7	24.7	24.4
25-34	15.6	16.4	19.1	17.3	15.9	16.5
35-44	13.3	13.5	22.3	20.1	14.2	14.1
45-54	10.3	10.1	32.0	27.2	13.1	12.3
55-64	13.4	12.0	37.1	29.6	19.3	16.4
65 or over	24.0	23.0	59.6	54.9	38.5	36.0
Residence:						
Nonfarm	13.6	14.1	42.0	37.7	19.5	19.0
Farm	34.7	23.7	53.5	44.0	36.7	25.8
Work experience:						
Nonworker	34.8	32.8	69.1	62.0	48.0	44.0
Under 65	40.8	37.8	72.0	61.7	49.1	44.1
65 or over	30.0	28.8	68.1	62.2	47.3	43.9

Full-time, full-year	7.3	7.8	14.8	13.8	8.3	8.5
Other	23.9	22.9	41.0	35.8	28.0	26.0
Family type-color-sex:						
Husband-wife couple	12.1	12.6				
White	10.2	10.7	NA	NA	NA	NA
Nonwhite	33.1	33.8				
Other	33.9	28.8				
White	27.3	22.5	40.2	35.6	36.1	31.5
Male	17.0	12.0	29.1	26.4	26.5	23.4
Female	30.0	25.3	46.5	40.8	40.4	31.2
Nonwhite	58.8	52.7	55.8	52.2	57.1	52.4
Male	32.9	33.4	45.2	42.7	43.2	41.2
Female	62.5	55.4	66.8	62.1	64.3	58.2
Family size:						
2	15.2	14.0				
3 or 4	10.4	10.1	NA	NA	NA	NA
5 or 6	15.9	16.7				
7 or more	36.5	38.3				

NA = Not applicable.

[a]Using inflated poverty lines to compute the BEA numbers of poor units.

TABLE 21 Families and Unrelated Individuals Below the Poverty Line,[a] 1964
(thousands)

Socioeconomic Group	Families				Unrelated Individuals			
	CPS		BEA		CPS		BEA	
	Number of Units	Percentage of Total Poor Units	Number of Units	Percentage of Total Poor Units	Number of Units	Percentage of Total Poor Units	Number of Units	Percentage of Total Poor Units
All units	7,137	100.0	7,030	100.0	5,102	100.0	4,569	100.0
Age:								
14-24	539	7.6	535	7.6	477	9.3	466	10.2
25-34	1,439	20.2	1,514	21.5	198	3.9	180	3.9
35-44	1,484	20.8	1,503	21.4	260	5.1	234	5.1
45-54	1,058	14.8	1,038	14.8	496	9.7	421	9.2
55-64	1,001	14.0	893	12.7	923	18.1	738	16.2
65 or over	1,616	22.6	1,548	22.0	2,748	53.9	2,531	55.4
Residence:								
Nonfarm	6,064	85.0	6,297	89.6	4,906	96.2	4,408	96.5
Farm	1,073	15.0	733	10.4	196	3.8	161	3.5

Work Experience:								
Nonworker	2,622	36.7	2,468	35.1	3,230	63.3	2,900	63.5
Under 65	1,372	19.2	1,269	18.1	873	17.1	748	16.4
65 or over	1,250	17.5	1,199	17.1	2,357	46.2	2,152	47.1
Full-time, full-year	2,263	31.7	2,404	34.2	656	12.9	608	13.3
Other	2,252	31.6	2,158	30.7	1,216	23.8	1,062	23.2
Family type-color-sex:								
Husband-wife couple	5,047	70.7	5,252	74.7				
White	3,902	54.7	4,081	58.1	NA	NA	NA	NA
Nonwhite	1,145	16.0	1,171	16.7				
Other	2,089	29.3	1,779	25.3	NA	NA	NA	NA
White	1,333	18.7	1,101	15.7	4,187	82.1		
Male	174	2.4	123	1.7	1,094	21.4		
Female	1,159	16.2	978	13.9	3,093	60.6		
Nonwhite	756	10.6	678	9.6	915	17.9		
Male	53	0.7	54	0.8	378	7.4		
Female	703	9.9	624	8.9	537	10.5		
Family Size:								
2	2,368	33.2	2,184	31.1				
3 or 4	1,995	28.0	1,943	27.6	NA	NA	NA	NA
5 or 6	1,513	21.2	1,581	22.5				
7 or more	1,261	17.7	1,321	18.8				

NA = Not applicable or not available.

[a]Using inflated poverty lines to compute the BEA numbers of poor units.

of the four categories in which the group with a higher proportion of its units classified as poor had a relative increase in the number of poor; nonworkers, farm residents, and unrelated individuals all showed relative declines. However, this change in the white-nonwhite ratio was extremely small and not significantly different from zero, although it can be said that, in contrast to the other three groups mentioned above, there was no decline in the nonwhite share of the total poor. These changes in different groups can, of course, be closely related. For example, since many unrelated individuals are nonworkers, it is not surprising that both groups experienced similar declines.

Changes in the composition of the poor for more detailed socioeconomic breakdowns are presented in Tables 20 and 21. The age distribution of poor families, based on the age of the head, showed a shift away from the older age groups. The work-experience groups for families showed a significant change in the relationships among the groups. The number of poor families headed by a full-time, full-year worker increased slightly, while all other families, including those headed by a nonworker, declined. Roughly the same pattern was observed for unrelated individuals, although for that group the number of full-time, full-year working poor did decline slightly. This shift toward fully employed workers can be explained by the relatively small correction factors applied to wage and salary income, which is, of course, the dominant income source for such workers (and their families). Looking at the family-size breakdown, there was a shift in the number of poor from smaller families (four persons or less) to larger ones (five or more).

The changes by family type, color, and sex are of particular interest. Although the number of poor families as a whole declined by 1.5 percent, the number of families headed by a husband-wife couple rose 4.0 percent. This increase was characteristic of both white families, which rose 4.6 percent, and nonwhite families, which rose 2.3 percent. In contrast, families not headed by a husband-wife couple ("other families") fell 14.9 percent—17.4 percent for whites, and 10.3 percent for nonwhites. This large decline is related to the importance of transfer payments as an income source for those families. The changes in "other families" by color and sex are also worth noting. "Other families" headed by white males fell by 29.6 percent, while those headed by white females fell only 15.7 percent. However, the estimates for white

males are subject to a large degree of error due to the small number of poor units involved. The same caution is appropriate when interpreting the change in "other families" headed by nonwhite males, which showed a rise of 1.3 percent. Nonwhite females, a larger group, showed an 11.3 percent fall.

For unrelated individuals, the four color-sex groups all showed declines. Keeping in mind the 10.4 percent decline for all unrelated individuals, whites fell 11.3 percent, with males falling 9.0 percent and females, 12.1 percent. Nonwhites, on the other hand, declined only 6.3 percent, with males falling 5.5 percent and females, 6.9 percent.

These comparisons are perhaps sufficient to show that the composition of the poor—by whatever standards their overall number is determined—is dependent on the pattern of income underreporting in the data source used, as well as on the shapes of the distributions of the various income types themselves. Those whose primary source of income is wages and salaries, for example, evidence a relative rise in numbers; those relying more heavily on such types as farm income, property income, and transfer payments experience a relative decline in the number of poor units.

APPENDIX A

TABLE A.1 Size Distributions of Total Income of Families, 1964
(thousands of families)

Size of Total Income	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Loss	165	175	240	188	133	125
Zero	205	206	217	216	129	60
$1-$1,249	1,854	1,879	1,560	1,490	1,015	854
1,250- 3,249	7,317	7,336	6,675	6,508	5,609	5,279
3,250- 5,749	10,812	10,767	10,151	10,100	9,913	10,140
5,750- 8,249	11,366	11,447	11,056	11,037	11,122	10,979
8,250-10,249	6,585	6,555	6,868	6,937	7,167	7,279
10,250-15,749	7,075	7,044	7,902	8,070	8,787	8,886
15,750-24,749	1,855	1,817	2,225	2,304	2,735	2,917
24,750-49,749	470	480	729	760	942	1,001
49,750-98,749	43	54	133	143	192	218
98,750 or over	33	19	23	25	35	41
Total	47,779	47,779	47,779	47,779	47,779	47,779
Mean income (dollars)	7,335	7,303	7,897	8,025	8,631	8,838
Median income (dollars)	6,500	6,500	6,860	6,947	7,306	7,354

NOTE:
Columns:
1. CPS, Census allocation and BEA weights
2. CPS, BEA allocation
3. CPS-TM Match
4. CPS-TM Match, after audit
5. BEA Total Money Income
6. BEA Family Personal Income

TABLE A.2 Size Distributions of Total Income of Unrelated Individuals, 1964

(thousands of unrelated individuals)

Size of Total Income	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Loss	25	27	46	37	28	34
Zero	602	610	610	610	517	192
$1-$1,249	3,681	3,681	3,133	3,105	2,555	2,448
1,250- 3,249	3,619	3,563	3,696	3,676	3,754	4,041
3,250- 5,749	2,391	2,468	2,533	2,555	2,806	2,981
5,750- 8,249	1,162	1,134	1,334	1,343	1,378	1,250
8,250-10,249	269	267	361	372	485	496
10,250-15,749	174	185	226	237	353	425
15,750-24,749	92	81	79	81	89	97
24,750-49,749	32	33	27	28	75	74
49,750-98,749	2	2	8	9	14	15
98,750 or over	8	5	3	3	4	4
Total	12,057	12,057	12,057	12,057	12,057	12,057
Mean income (dollars)	3,072	3,035	3,316	3,358	3,874	4,006
Median income (dollars)	1,979	1,980	2,284	2,322	2,635	2,761

NOTE:
Columns:
1. CPS, Census allocation and BEA weights
2. CPS, BEA allocation
3. CPS-TM Match
4. CPS-TM Match, after audit
5. BEA Total Money Income
6. BEA Family Personal Income

TABLE A.3 Income Shares of Families, 1964

(percent of aggregate income)

Percentiles	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1- 20	5.13	5.09	4.87	5.09	5.61	5.83
21- 40	12.01	12.04	11.82	11.83	11.96	11.84
41- 60	17.69	17.74	17.39	17.32	16.97	16.73
61- 80	24.01	24.04	23.44	23.30	22.72	22.48
81- 90	15.56	15.63	15.29	15.20	14.88	14.78
91- 95	9.66	9.69	9.61	9.57	9.47	9.51
96-100	15.94	15.77	17.58	17.69	18.39	18.83
100	5.59	5.38	6.63	6.70	7.25	7.47

NOTE:
Columns:
1. CPS, Census allocation and BEA weights
2. CPS, BEA allocation
3. CPS-TM Match
4. CPS-TM Match, after audit
5. BEA Total Money Income
6. BEA Family Personal Income

TABLE A.4 Income Shares of Unrelated Individuals, 1964

(percent of aggregate income)

Percentiles	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1- 20	2.45	2.46	2.40	2.53	2.82	3.19
21- 40	7.13	7.22	7.35	7.31	7.45	7.99
41- 60	12.80	13.03	13.87	13.89	13.85	14.00
61- 80	24.46	24.95	24.70	24.65	23.49	22.86
81- 90	18.37	18.54	18.25	18.15	17.10	16.57
91- 95	11.99	12.12	11.67	11.61	11.21	11.23
96-100	22.80	21.68	21.75	21.86	24.08	24.16
100	9.24	8.15	8.87	8.96	11.12	11.14

NOTE:
Columns:
1. CPS, Census allocation and BEA weights
2. CPS, BEA allocation
3. CPS-TM Match
4. CPS-TM Match, after audit
5. BEA Total Money Income
6. BEA Family Personal Income

TABLE A.5 Detailed Income Shares of Consumer Units, 1964

(percent of aggregate income)

Percentiles	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1- 5	0.10	0.09	−0.08	0.06	0.21	0.27
6- 10	0.74	0.74	0.74	0.75	0.83	0.90
11- 15	1.08	1.08	1.10	1.11	1.23	1.32
16- 20	1.51	1.50	1.53	1.55	1.66	1.71
21- 25	1.91	1.92	1.95	1.96	2.08	2.12
26- 30	2.36	2.37	2.38	2.39	2.47	2.48
31- 35	2.83	2.83	2.79	2.80	2.87	2.83
36- 40	3.25	3.28	3.21	3.22	3.25	3.20
41- 45	3.71	3.72	3.64	3.63	3.61	3.57
46- 50	4.10	4.12	4.06	4.05	3.99	3.93
51- 55	4.54	4.55	4.47	4.45	4.36	4.28
56- 60	4.95	4.98	4.89	4.86	4.74	4.66
61- 65	5.42	5.43	5.31	5.29	5.16	5.10
66- 70	5.90	5.91	5.77	5.74	5.60	5.54
71- 75	6.41	6.42	6.28	6.25	6.08	6.01
76- 80	7.07	7.09	6.88	6.84	6.64	6.57
81- 85	7.79	7.81	7.59	7.55	7.34	7.29
86- 90	8.77	8.81	8.59	8.54	8.32	8.26
91- 95	10.34	10.39	10.23	10.19	10.01	10.00
96-100	17.22	16.96	18.67	18.77	19.55	19.96
96	2.39	2.39	2.39	2.39	2.37	2.40
97	2.57	2.58	2.60	2.59	2.61	2.64
98	2.87	2.87	2.94	2.95	3.01	3.03
99	3.34	3.33	3.64	3.66	3.77	3.88
100	6.05	5.79	7.10	7.18	7.79	8.01

NOTE:
Columns:
1. CPS, Census allocation and BEA weights
2. CPS, BEA allocation
3. CPS-TM Match
4. CPS-TM Match, after audit
5. BEA Total Money Income
6. BEA Family Personal Income

TABLE A.6 Detailed Income Shares of Families, 1964
(percent of aggregate income)

Percentiles	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1- 5	0.36	0.34	0.15	0.31	0.50	0.58
6- 10	1.15	1.14	1.13	1.15	1.27	1.34
11- 15	1.60	1.59	1.58	1.61	1.73	1.77
16- 20	2.02	2.02	2.01	2.02	2.11	2.14
21- 25	2.42	2.42	2.39	2.40	2.49	2.47
26- 30	2.82	2.83	2.78	2.79	2.84	2.81
31- 35	3.22	3.23	3.15	3.15	3.16	3.13
36- 40	3.55	3.56	3.50	3.49	3.47	3.43
41- 45	3.92	3.93	3.85	3.84	3.78	3.72
46- 50	4.23	4.26	4.18	4.16	4.08	4.01
51- 55	4.61	4.61	4.51	4.49	4.39	4.33
56- 60	4.93	4.94	4.85	4.83	4.72	4.67
61- 65	5.32	5.33	5.22	5.19	5.06	5.01
66- 70	5.73	5.73	5.61	5.58	5.45	5.37
71- 75	6.22	6.23	6.05	6.01	5.86	5.79
76- 80	6.74	6.75	6.56	6.52	6.35	6.31
81- 85	7.33	7.36	7.20	7.16	6.99	6.94
86- 90	8.23	8.27	8.09	8.04	7.89	7.84
91- 95	9.66	9.69	9.61	9.57	9.47	9.51
96-100	15.94	15.77	17.58	17.69	18.39	18.83
96	2.21	2.22	2.24	2.24	2.24	2.27
97	2.39	2.40	2.45	2.46	2.48	2.50
98	2.66	2.68	2.80	2.79	2.85	2.89
99	3.09	3.09	3.46	3.50	3.57	3.70
100	5.59	5.38	6.63	6.70	7.25	7.47

NOTE:
Columns:
1. CPS, Census allocation and BEA weights
2. CPS, BEA allocation
3. CPS-TM Match
4. CPS-TM Match, after audit
5. BEA Total Money Income
6. BEA Family Personal Income

TABLE A.7 Detailed Income Shares of Unrelated Individuals, 1964

(percent of aggregate income)

Percentiles	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1- 5	−0.13	−0.15	−0.31	−0.20	−0.08	−0.02
6- 10	0.40	0.43	0.46	0.48	0.63	0.74
11- 15	0.94	0.94	0.99	0.99	1.02	1.12
16- 20	1.24	1.24	1.26	1.26	1.25	1.35
21- 25	1.45	1.47	1.48	1.46	1.46	1.57
26- 30	1.66	1.69	1.69	1.69	1.71	1.84
31- 35	1.89	1.90	1.94	1.93	1.96	2.13
36- 40	2.13	2.16	2.24	2.23	2.32	2.45
41- 45	2.46	2.51	2.64	2.64	2.72	2.82
46- 50	2.94	2.99	3.17	3.17	3.16	3.22
51- 55	3.41	3.46	3.74	3.75	3.69	3.71
56- 60	3.99	4.07	4.32	4.33	4.28	4.25
61- 65	4.76	4.88	4.99	5.00	4.89	4.81
66- 70	5.63	5.77	5.75	5.75	5.52	5.38
71- 75	6.57	6.68	6.54	6.52	6.15	5.98
76- 80	7.50	7.62	7.42	7.38	6.93	6.69
81- 85	8.49	8.59	8.49	8.43	7.90	7.65
86- 90	9.88	9.95	9.77	9.72	9.20	8.92
91- 95	11.99	12.12	11.67	11.61	11.21	11.23
96-100	22.80	21.68	21.75	21.86	24.08	24.16
96	2.73	2.76	2.68	2.68	2.63	2.67
97	3.01	3.07	2.92	2.91	2.88	2.91
98	3.41	3.43	3.25	3.26	3.30	3.29
99	4.41	4.27	4.03	4.05	4.15	4.15
100	9.24	8.15	8.87	8.96	11.12	11.14

NOTE:

Columns:
1. CPS, Census allocation and BEA weights
2. CPS, BEA allocation
3. CPS-TM Match
4. CPS-TM Match, after audit
5. BEA Total Money Income
6. BEA Family Personal Income

APPENDIX B

The CPS size distributions and mean amounts in Tables B.7-B.21 are based upon CPS income with BEA allocation of income to nonrespondents. Therefore these means are not consistent with those in Tables B.1-B.6 which incorporate the Census allocation to nonrespondents.

TABLE B.1 Mean Incomes of Families, by Age (1964)

		BEA Total Money Income		*BEA Family Personal Income*	
Age	*CPS*	*Mean*	*Ratio to CPS*	*Mean*	*Ratio to CPS*
14-24	$4,975	$5,575	1.121	$5,467	1.099
25-34	6,987	7,634	1.093	7,590	1.086
35-44	8,323	9,532	1.145	9,650	1.159
45-54	8,760	10,129	1.156	10,396	1.187
55-64	7,866	9,166	1.165	9,573	1.217
65 or over	5,269	6,940	1.317	7,461	1.416
All ages	7,438	8,631	1.160	8,838	1.188

TABLE B.2 Mean Incomes of Unrelated Individuals, by Age (1964)

		BEA Total Money Income		*BEA Family Personal Income*	
Age	*CPS*	*Mean*	*Ratio to CPS*	*Mean*	*Ratio to CPS*
14-24	$2,588	$2,860	1.105	$2,826	1.092
25-34	4,855	5,035	1.037	4,936	1.017
35-44	4,783	5,058	1.057	5,011	1.048
45-54	3,938	4,388	1.114	4,461	1.133
55-64	3,373	4,222	1.252	4,401	1.305
65 or over	2,101	3,218	1.532	3,486	1.659
All ages	3,122	3,874	1.241	4,006	1.283

TABLE B.3 Mean Incomes of Families, by Color, Sex, and Residence (1964)

		BEA Total Money Income		*BEA Family Personal Income*	
	CPS	*Mean*	*Ratio to CPS*	*Mean*	*Ratio to CPS*
Color:					
White	$7,732	$8,984	1.162	$9,208	1.191
Nonwhite	4,772	5,438	1.140	5,484	1.149
Ratio, nonwhite to white	.617	.605		.596	
Sex:					
Male	7,776	8,970	1.154	9,178	1.180
Female	4,468	5,721	1.280	5,921	1.325
Ratio, female to male	.575	.638		.645	
Residence:					
Nonfarm	7,634	8,743	1.145	8,932	1.170
Farm	4,670	7,012	1.501	7,491	1.604
Ratio, farm to nonfarm	.612	.802		.839	

TABLE B.4 Mean Incomes of Unrelated Individuals, by Color, Sex, and Residence (1964)

		BEA Total Money Income		*BEA Family Personal Income*	
	CPS	*Mean*	*Ratio to CPS*	*Mean*	*Ratio to CPS*
Color:					
White	$3,272	$4,103	1.254	$4,250	1.299
Nonwhite	2,205	2,421	1.098	2,463	1.117
Ratio, nonwhite to white	.674	.590		.580	
Sex:					
Male	4,080	4,595	1.126	4,671	1.145
Female	2,527	3,429	1.357	3,596	1.423
Ratio, female to male	.619	.746		.770	
Residence:					
Nonfarm	3,158	3,906	1.237	4,036	1.278
Farm	1,983	2,838	1.431	3,071	1.549
Ratio, farm to nonfarm	.628	.727		.761	

TABLE B.5 Mean Incomes of Families, by Work Experience of Head (1964)

		BEA Total Money Income		*BEA Family Personal Income*	
Work Experience of Head	*CPS*	*Mean*	*Ratio to CPS*	*Mean*	*Ratio to CPS*
Nonworker	$4,208	$5,639	1.340	$5,983	1.422
Full-time, full-year	8,739	9,933	1.137	10,121	1.158
Other	5,762	6,762	1.174	6,923	1.201
All families	7,438	8,631	1.160	8,838	1.188

TABLE B.6 Mean Incomes of Unrelated Individuals, by Work Experience (1964)

		BEA Total Money Income		*BEA Family Personal Income*	
Work Experience of Head	*CPS*	*Mean*	*Ratio to CPS*	*Mean*	*Ratio to CPS*
Nonworker	$1,760	$2,777	1.578	$2,995	1.702
Full-time, full-year	5,078	5,369	1.057	5,420	1.067
Other	2,355	3,375	1.433	3,494	1.484
All unrelated individuals	3,122	3,874	1.241	4,006	1.283

TABLE B.7 Size Distribution of Total Income of Consumer Units, Age of Head 14-24

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	3	.07	2	.05	2	.05
Zero	209	5.09	177	4.31	60	1.46
$1-$1,249	442	10.77	295	7.19	397	9.67
1,250- 3,249	895	21.80	830	20.22	843	20.54
3,250- 5,749	1,492	36.35	1,436	34.98	1,511	36.81
5,750- 8,249	721	17.56	900	21.92	847	20.63
8,250-10,249	248	6.04	312	7.60	314	7.65
10,250-15,749	86	2.10	139	3.39	116	2.83
15,750-24,749	5	.12	10	.24	10	.24
24,750-49,749	5	.12	2	.05	2	.05
49,750-98,749	0	.00	2	.05	2	.05
98,750 or over	0	.00	0[a]	.00	0[a]	.00
Total	4,105	100.00	4,105	100.00	4,105	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−1	−.01	0[b]	.00	0[b]	.00
Zero	0	.00	0	.00	0	.00
$1-$1,249	271	1.55	200	1.02	201	1.04
1,250- 3,249	2,118	12.14	2,002	10.20	2,009	10.43
3,250- 5,749	6,656	38.15	6,420	32.72	6,695	34.75
5,750- 8,249	4,883	27.98	6,102	31.10	5,740	29.80
8,250-10,249	2,240	12.84	2,839	14.47	2,826	14.67
10,250-15,749	986	5.65	1,655	8.44	1,386	7.19
15,750-24,749	89	.51	178	.91	181	.94
24,750-49,749	210	1.20	85	.43	85	.44
49,750-98,749	0	.00	120	.61	123	.64
98,750 or over	0	.00	19	.10	19	.10
Total	17,449	100.00	19,619	100.00	19,264	100.00
Mean amount (dollars)	4,251		4,779		4,693	

[a] Less than 500 units but greater than zero.
[b] Rounds to zero.

TABLE B.8 Size Distribution of Total Income of Consumer Units, Age of Head 25-34

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	17	.17	10	.10	12	.12
Zero	114	1.11	72	.70	30	.29
$1-$1,249	355	3.45	175	1.70	203	1.97
1,250- 3,249	1,179	11.46	1,009	9.81	1,024	9.95
3,250- 5,749	2,784	27.06	2,485	24.16	2,616	25.43
5,750- 8,249	3,076	29.90	2,977	28.94	2,887	28.06
8,250-10,249	1,557	15.14	1,802	17.52	1,798	17.48
10,250-15,749	1,018	9.90	1,428	13.88	1,387	13.48
15,750-24,749	160	1.56	266	2.59	264	2.57
24,750-49,749	28	.27	54	.52	57	.55
49,750-98,749	0	.00	8	.08	9	.09
98,759 or over	0	.00	1	.01	1	.01
Total	10,287	100.00	10,287	100.00	10,287	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	–47	–.07	–46	–.06	–43	–.06
Zero	0	.00	0	.00	0	.00
$1-$1,249	282	.42	134	.18	130	.17
1,250- 3,249	2,826	4.18	2,412	3.18	2,455	3.26
3,250- 5,749	12,752	18.86	11,435	15.08	12,011	15.94
5,750- 8,249	21,370	31.61	20,713	27.31	20,027	26.58
8,250-10,249	14,339	21.21	16,556	21.83	16,464	21.85
10,250-15,749	12,358	18.28	17,266	22.77	16,789	22.29
15,750-24,749	2,887	4.27	4,925	6.49	4,915	6.52
24,750-49,749	847	1.25	1,792	2.36	1,885	2.50
49,750-98,749	0	.00	503	.66	550	.73
98,750 or over	0	.00	150	.20	153	.20
Total	67,613	100.00	75,839	100.00	75,335	100.00
Mean amount (dollars)	6,572		7,372		7,323	

TABLE B.9 Size Distribution of Total Income of Consumer Units, Age of Head 35-44

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	32	.26	26	.21	28	.23
Zero	101	.82	86	.70	68	.55
$1-$1,249	403	3.28	254	2.07	245	1.99
1,250- 3,249	1,227	9.98	954	7.76	935	7.60
3,250- 5,749	2,554	20.77	2,283	18.56	2,354	19.14
5,750- 8,249	3,241	26.35	2,998	24.38	2,923	23.77
8,250-10,249	1,943	15.80	2,016	16.39	2,037	16.56
10,250-15,749	2,141	17.41	2,636	21.43	2,611	21.23
15,750-24,749	524	4.26	697	5.67	737	5.99
24,750-49,749	118	.96	292	2.37	300	2.44
49,750-98,749	11	.09	50	.41	55	.45
98,750 or over	2	.02	6	.05	7	.06
Total	12,299	100.00	12,299	100.00	12,299	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−64	−.07	−38	−.03	−34	−.03
Zero	0	.00	0	.00	0	.00
$1-$1,249	285	.30	195	.17	182	.16
1,250- 3,249	2,789	2.89	2,249	2.01	2,190	1.93
3,250- 5,749	11,741	12.17	10,435	9.32	10,753	9.49
5,750- 8,249	22,567	23.40	20,971	18.72	20,399	18.01
8,250-10,249	17,989	18.65	18,575	16.58	18,791	16.59
10,250-15,749	26,483	27.46	32,494	29.01	32,126	28.36
15,750-24,749	9,997	10.36	13,320	11.89	14,150	12.49
24,750-49,749	3,578	3.71	9,377	8.37	9,821	8.67
49,750-98,749	795	.82	3,242	2.89	3,565	3.15
98,750 or over	292	.30	1,195	1.07	1,337	1.18
Total	96,452	100.00	112,015	100.00	113,279	100.00
Mean amount (dollars)	7,842		9,108		9,210	

TABLE B.10 Size Distribution of Total Income of Consumer Units, Age of Head 45-54

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	56	.47	46	.39	50	.42
Zero	145	1.22	128	1.08	51	.43
$1-$1,249	596	5.02	329	2.77	363	3.06
1,250- 3,249	1,374	11.58	1,183	9.97	1,155	9.74
3,250- 5,749	2,255	19.01	2,077	17.51	2,031	17.12
5,750- 8,249	2,702	22.78	2,446	20.62	2,416	20.37
8,250-10,249	1,618	13.64	1,696	14.30	1,713	14.44
10,250-15,749	2,289	19.30	2,665	22.46	2,714	22.88
15,750-24,749	648	5.46	934	7.87	985	8.30
24,750-49,749	159	1.34	305	2.57	324	2.73
49,750-98,749	11	.09	44	.37	51	.43
98,750 or over	10	.08	9	.08	10	.08
Total	11,863	100.00	11,863	100.00	11,863	100.00

B. Dollar Totals

Size of Total Income	*Current Population Survey*		*Total Money Income*		*Family Personal Income*	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−163	−.17	−89	−.08	−83	−.07
Zero	0	.00	0	.00	0	.00
$1-$1,249	475	.50	266	.24	250	.22
1,250- 3,249	3,146	3.32	2,726	2.45	2,682	2.35
3,250- 5,749	10,407	10.97	9,509	8.55	9,305	8.15
5,750- 8,249	18,915	19.94	17,236	15.49	16,942	14.84
8,250-10,249	15,020	15.83	15,643	14.06	15,747	13.80
10,250-15,749	28,433	29.97	33,219	29.85	34,073	29.85
15,750-24,749	12,146	12.80	17,492	15.72	18,489	16.20
24,750-49,749	4,816	5.08	9,959	8.95	10,756	9.42
49,750-98,749	639	.67	2,814	2.53	3,304	2.89
98,750 or over	1,049	1.11	2,495	2.24	2,672	2.34
Total	94,882	100.00	111,270	100.00	114,135	100.00
Mean amount (dollars)	7,998		9,380		9,621	

TABLE B.11 Size Distribution of Total Income of Consumer Units, Age of Head 55-64

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	69	.69	61	.61	53	.53
Zero	110	1.11	96	.96	31	.31
$1-$1,249	1,057	10.62	587	5.90	526	5.29
1,250- 3,249	1,824	18.33	1,658	16.66	1,616	16.24
3,250- 5,749	2,186	21.97	2,110	21.21	2,124	21.35
5,750- 8,249	1,928	19.38	1,910	19.20	1,842	18.51
8,250-10,249	1,014	10.19	1,160	11.66	1,215	12.21
10,250-15,749	1,245	12.51	1,525	15.33	1,611	16.19
15,750-24,749	380	3.82	596	5.99	663	6.66
24,750-49,749	107	1.08	184	1.85	195	1.96
49,750-98,749	21	.21	56	.56	65	.65
98,750 or over	10	.10	8	.08	11	.11
Total	9,950	100.00	9,950	100.00	9,950	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−211	−.32	−184	−.23	−166	−.20
Zero	0	.00	0	.00	0	.00
$1-$1,249	817	1.24	474	.60	399	.48
1,250- 3,249	4,123	6.27	3,781	4.79	3,700	4.49
3,250- 5,749	9,753	14.83	9,399	11.91	9,375	11.38
5,750- 8,249	13,354	20.31	13,278	16.83	12,754	15.48
8,250-10,249	9,381	14.27	10,689	13.55	11,226	13.63
10,250-15,749	15,589	23.71	18,935	24.00	19,949	24.22
15,750-24,749	7,081	10.77	11,166	14.15	12,564	15.25
24,750-49,749	3,343	5.08	6,184	7.84	6,527	7.92
49,750-98,749	1,385	2.11	3,569	4.52	4,132	5.02
98,750 or over	1,138	1.73	1,606	2.04	1,921	2.33
Total	65,753	100.00	78,897	100.00	82,381	100.00
Mean amount (dollars)	6,608		7,929		8,279	

TABLE B.12 Size Distribution of Total Income of Consumer Units, Age of Head 65 or Over

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	25	.22	15	.13	14	.12
Zero	137	1.21	87	.77	12	.11
$1-$1,249	2,709	23.91	1,930	17.03	1,569	13.85
1,250- 3,249	4,400	38.83	3,728	32.90	3,746	33.06
3,250- 5,749	1,964	17.33	2,328	20.55	2,485	21.93
5,750- 8,249	914	8.07	1,268	11.19	1,313	11.59
8,250-10,249	442	3.90	667	5.89	698	6.16
10,250-15,749	450	3.97	748	6.60	873	7.70
15,750-24,749	181	1.60	321	2.83	354	3.12
24,750-49,749	96	.85	180	1.59	200	1.77
49,750-98,749	12	.11	46	.41	51	.45
98,750 or over	2	.02	14	.12	17	.15
Total	11,331	100.00	11,331	100.00	11,331	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	–45	–.10	–82	–.13	–72	–.11
Zero	0	.00	0	.00	0	.00
$1-$1,249	2,314	5.33	1,684	2.74	1,372	2.07
1,250- 3,249	9,208	21.23	7,785	12.67	7,951	12.01
3,250- 5,749	8,523	19.65	10,231	16.65	10,841	16.38
5,750- 8,249	6,270	14.45	8,728	14.20	8,952	13.52
8,250-10,249	4,087	9.42	6,115	9.95	6,429	9.71
10,250-15,749	5,603	12.92	9,313	15.15	10,798	16.31
15,750-24,749	3,341	7.70	6,071	9.88	6,811	10.29
24,750-49,749	3,023	6.97	5,783	9.41	6,493	9.81
49,750-98,749	820	1.89	3,094	5.03	3,567	5.39
98,750 or over	233	.54	2,742	4.46	3,064	4.63
Total	43,376	100.00	61,464	100.00	66,204	100.00
Mean amount (dollars)	3,828		5,424		5,843	

TABLE B.13 Size of Distribution of Total Income of Consumer Units, White

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	186	.35	152	.28	148	.28
Zero	695	1.30	554	1.04	221	.41
$1-$1,249	4,330	8.10	2,760	5.16	2,573	4.81
1,250- 3,249	8,967	16.78	7,578	14.18	7,458	13.95
3,250- 5,749	11,623	21.75	10,820	20.24	11,174	20.91
5,750- 8,249	11,761	22.00	11,548	21.61	11,295	21.13
8,250-10,249	6,510	12.18	7,285	13.63	7,356	13.76
10,250-15,749	6,949	13.00	8,764	16.40	8,959	16.76
15,750-24,749	1,844	3.45	2,746	5.14	2,933	5.49
24,750-49,749	506	.95	998	1.87	1,056	1.98
49,750-98,749	56	.10	204	.38	230	.43
98,750 or over	22	.04	39	.07	45	.08
Total	53,448	100.00	53,448	100.00	53,448	100.00

B. Dollar Totals

Size of Total Income	*Current Population Survey*		*Total Money Income*		*Family Personal Income*	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−504	−.14	−415	−.10	−376	−.09
Zero	0	.00	0	.00	0	.00
$1-$1,249	3,478	.97	2,282	.53	1,955	.44
1,250- 3,249	19,875	5.52	16,932	3.94	16,782	3.81
3,250- 5,749	52,805	14.67	49,113	11.44	50,494	11.46
5,750- 8,249	81,771	22.72	80,497	18.75	78,452	17.81
8,250-10,249	60,210	16.73	67,037	15.61	67,629	15.35
10,250-15,749	86,076	23.91	108,310	25.23	110,895	25.17
15,750-24,749	34,523	9.59	51,700	12.04	55,605	12.62
24,750-49,749	15,556	4.32	32,556	7.58	34,935	7.93
49,750-98,749	3,640	1.01	13,205	3.08	15,096	3.43
98,750 or over	2,502	.70	8,108	1.89	9,061	2.06
Total	359,930	100.00	429,323	100.00	440,526	100.00
Mean amount (dollars)	6,734		8,032		8,242	

TABLE B.14 Size Distribution of Total Income of Consumer Units, Nonwhite

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	16	.25	9	.14	11	.17
Zero	121	1.89	91	1.42	31	.49
$1-$1,249	1,232	19.29	809	12.66	729	11.41
1,250- 3,249	1,932	30.24	1,784	27.93	1,862	29.15
3,250- 5,749	1,612	25.23	1,899	29.73	1,947	30.48
5,750- 8,249	820	12.84	951	14.89	934	14.62
8,250-10,249	312	4.88	368	5.76	419	6.56
10,250-15,749	280	4.38	376	5.89	352	5.51
15,750-24,749	54	.85	78	1.22	81	1.27
24,750-49,749	7	.11	20	.31	20	.31
49,750-98,749	0	.00	2	.03	2	.03
98,750 or over	2	.03	0[a]	.00	0[a]	.00
Total	6,388	100.00	6,388	100.00	6,388	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−30	−.12	−27	−.09	−25	−.08
Zero	0	.00	0	.00	0	.00
$1-$1,249	965	3.77	672	2.26	579	1.93
1,250- 3,249	4,336	16.94	4,024	13.51	4,204	13.98
3,250- 5,749	7,027	27.45	8,315	27.92	8,486	28.22
5,750- 8,249	5,588	21.83	6,533	21.94	6,361	21.15
8,250-10,249	2,846	11.12	3,381	11.35	3,854	12.82
10,250-15,749	3,376	13.19	4,570	15.34	4,227	14.06
15,750-24,749	1,018	3.98	1,453	4.88	1,503	5.00
24,750-49,749	260	1.02	624	2.10	633	2.11
49,750-98,749	0	.00	138	.46	144	.48
98,750 or over	211	.82	100	.34	105	.35
Total	25,596	100.00	29,783	100.00	30,071	100.00
Mean amount (dollars)	4,007		4,663		4,708	

[a] Less than 500 units but greater than zero.

TABLE B.15 Size Distribution of Total Income of Consumer Units, Male Head

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	188	.40	145	.31	146	.31
Zero	227	.48	189	.40	59	.12
$1-$1,249	2,275	4.80	1,331	2.81	1,199	2.53
1,250- 3,249	7,018	14.81	5,751	12.13	5,497	11.60
3,250- 5,749	10,503	22.16	9,583	20.22	9,878	20.84
5,750- 8,249	11,443	24.14	11,005	23.22	10,775	22.74
8,250-10,249	6,469	13.65	7,078	14.93	7,163	15.11
10,250-15,749	6,874	14.50	8,470	17.87	8,588	18.12
15,750-24,749	1,828	3.86	2,671	5.64	2,832	5.98
24,750-49,749	492	1.04	942	1.99	995	2.10
49,750-98,749	56	.12	194	.41	220	.46
98,750 or over	22	.05	36	.08	42	.09
Total	47,393	100.00	47,393	100.00	47,393	100.00

B. Dollar Totals

Size of Total Income	*Current Population Survey*		*Total Money Income*		*Family Personal Income*	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	–488	–.14	–429	–.11	–391	–.09
Zero	0	.00	0	.00	0	.00
$1-$1,249	1,846	.53	1,082	.27	914	.22
1,250- 3,249	15,973	4.63	13,344	3.29	12,865	3.11
3,250- 5,749	47,797	13.85	43,603	10.77	44,721	10.80
5,750- 8,249	79,571	23.05	76,827	18.97	74,939	18.09
8,250-10,249	59,792	17.32	65,149	16.09	65,869	15.90
10,250-15,749	85,080	24.65	104,634	25.83	106,221	25.64
15,750-24,749	34,259	9.92	50,311	12.42	53,747	12.97
24,750-49,749	15,237	4.41	30,719	7.58	32,860	7.93
49,750-98,749	3,640	1.05	12,553	3.10	14,386	3.47
98,750 or over	2,479	.72	7,223	1.78	8,128	1.96
Total	345,184	100.00	405,014	100.00	414,259	100.00
Mean amount (dollars)	7,283		8,546		8,741	

TABLE B.16 Size Distribution of Total Income of Consumer Units, Female Head

A. Number of Units

Size of Total Income	*Current Population Survey*		*Total Money Income*		*Family Personal Income*	
	Number of Units (Thousands)	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	14	.11	16	.13	13	.10
Zero	590	4.74	457	3.67	193	1.55
$1-$1,249	3,287	26.42	2,239	17.99	2,103	16.90
1,250- 3,249	3,880	31.18	3,611	29.02	3,823	30.72
3,250- 5,749	2,733	21.96	3,136	25.20	3,243	26.06
5,750- 8,249	1,138	9.15	1,494	12.01	1,454	11.69
8,250-10,249	353	2.84	576	4.63	612	4.92
10,250-15,749	355	2.85	669	5.38	723	5.81
15,750-24,749	71	.57	153	1.23	181	1.45
24,750-49,749	21	.17	75	.60	81	.65
49,750-98,749	0	.00	12	.10	13	.10
98,750 or over	2	.02	3	.02	3	.02
Total	12,443	100.00	12,443	100.00	12,443	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−46	−.11	−13	−.02	−11	−.02
Zero	0	.00	0	.00	0	.00
$1-$1,249	2,597	6.44	1,872	3.46	1,620	2.88
1,250- 3,249	8,238	20.42	7,612	14.07	8,121	14.41
3,250- 5,749	12,035	29.83	13,825	25.56	14,258	25.31
5,750- 8,249	7,789	19.31	10,203	18.86	9,874	17.53
8,250-10,249	3,265	8.09	5,269	9.74	5,614	9.96
10,250-15,749	4,372	10.84	8,247	15.25	8,901	15.80
15,750-24,749	1,282	3.18	2,841	5.25	3,361	5.97
24,750-49,749	579	1.44	2,461	4.55	2,707	4.80
49,750-98,749	0	.00	790	1.46	854	1.52
98,750 or over	233	.58	985	1.82	1,038	1.84
Total	40,342	100.00	54,092	100.00	56,338	100.00
Mean amount (dollars)	3,242		4,347		4,528	

TABLE B.17 Size Distribution of Total Income of Consumer Units, Nonfarm Residence

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	107	.19	98	.17	109	.19
Zero	797	1.41	626	1.11	252	.45
$1-$1,249	4,980	8.83	3,316	5.88	3,094	5.49
1,250- 3,249	9,808	17.40	8,578	15.22	8,589	15.24
3,250- 5,749	12,480	22.14	11,856	21.03	12,251	21.73
5,750- 8,249	12,110	21.48	11,940	21.18	11,629	20.63
8,250-10,249	6,630	11.76	7,345	13.03	7,446	13.21
10,250-15,749	7,045	12.50	8,741	15.51	8,868	15.73
15,750-24,749	1,840	3.26	2,675	4.75	2,854	5.06
24,750-49,749	499	.89	964	1.71	1,018	1.81
49,750-98,749	56	.10	198	.35	221	.39
98,750 or over	24	.04	38	.07	44	.08
Total	56,375	100.00	56,375	100.00	56,375	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−308	−.08	−347	−.08	−324	−.07
Zero	0	.00	0	.00	0	.00
$1-$1,249	4,022	1.08	2,765	.63	2,382	.53
1,250- 3,249	21,789	5.88	19,128	4.38	19,256	4.31
3,250- 5,749	56,519	15.24	53,624	12.29	55,136	12.35
5,750- 8,249	84,146	22.69	83,175	19.06	80,670	18.08
8,250-10,249	61,269	16.52	67,611	15.49	68,472	15.34
10,250-15,749	87,194	23.52	107,950	24.74	109,600	24.56
15,750-24,749	34,431	9.29	50,310	11.53	54,033	12.11
24,750-49,749	15,377	4.15	31,454	7.21	33,716	7.55
49,750-98,749	3,640	.98	12,815	2.94	14,528	3.26
98,750 or over	2,713	.73	7,887	1.81	8,824	1.98
Total	370,790	100.00	436,370	100.00	446,293	100.00
Mean amount (dollars)	6,577		7,740		7,916	

TABLE B.18 Size Distribution of Total Income of Consumer Units, Farm Residence

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	95	2.74	62	1.79	50	1.44
Zero	19	.55	19	.55	0	.00
$1-$1,249	582	16.82	254	7.34	209	6.04
1,250- 3,249	1,090	31.49	785	22.68	730	21.09
3,250- 5,749	756	21.84	863	24.93	870	25.14
5,750- 8,249	471	13.61	560	16.18	600	17.34
8,250-10,249	192	5.55	308	8.90	329	9.51
10,250-15,749	184	5.32	399	11.53	444	12.83
15,750-24,749	59	1.70	149	4.31	159	4.59
24,750-49,749	14	.40	53	1.53	57	1.65
49,750-98,749	0	.00	8	.23	12	.35
98,750 or over	0	.00	1	.03	1	.03
Total	3,461	100.00	3,461	100.00	3,461	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−226	−1.53	−95	−.42	−78	−.32
Zero	0	.00	0	.00	0	.00
$1- 1,249	421	2.86	190	.84	152	.63
1,250- 3,249	2,421	16.43	1,828	8.04	1,731	7.12
3,250- 5,749	3,313	22.48	3,804	16.73	3,843	15.81
5,750- 8,249	3,213	21.80	3,855	16.96	4,143	17.05
8,250-10,249	1,787	12.13	2,807	12.35	3,011	12.39
10,250-15,749	2,259	15.33	4,931	21.69	5,521	22.72
15,750-24,749	1,110	7.53	2,843	12.50	3,076	12.66
24,750-49,749	440	2.99	1,726	7.59	1,851	7.62
49,750-98,749	0	.00	527	2.32	713	2.93
98,750 or over	0	.00	321	1.41	342	1.41
Total	14,736	100.00	22,736	100.00	24,304	100.00
Mean amount (dollars)	4,258		6,570		7,023	

TABLE B.19 Size Distribution of Total Income of Consumer Units, Nonworker

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	14	.11	13	.11	26	.21
Zero	530	4.34	385	3.16	129	1.06
$1-$1,249	3,181	26.07	2,241	18.37	2,066	16.93
1,250- 3,249	4,542	37.22	3,960	32.45	4,045	33.15
3,250- 5,749	2,181	17.87	2,641	21.64	2,774	22.73
5,750- 8,249	885	7.25	1,311	10.74	1,332	10.92
8,250-10,249	395	3.24	622	5.10	673	5.52
10,250-15,749	359	2.94	698	5.72	773	6.34
15,750-24,749	78	.64	203	1.66	245	2.01
24,750-49,749	33	.27	94	.77	101	.83
49,750-98,749	2	.02	27	.22	29	.24
98,750 or over	2	.02	7	.06	9	.07
Total	12,202	100.00	12,202	100.00	12,202	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−25	−.06	−85	−.15	−80	−.14
Zero	0	.00	0	.00	0	.00
$1-$1,249	2,642	6.86	1,916	3.46	1,639	2.78
1,250- 3,249	9,507	24.69	8,187	14.77	8,485	14.37
3,250- 5,749	9,439	24.51	11,560	20.85	12,069	20.44
5,750- 8,249	6,062	15.74	8,987	16.21	9,049	15.33
8,250-10,249	3,622	9.41	5,713	10.31	6,188	10.48
10,250-15,749	4,375	11.36	8,677	15.65	9,570	16.21
15,750-24,749	1,480	3.84	3,793	6.84	4,661	7.90
24,750-49,749	1,061	2.76	2,976	5.37	3,296	5.58
49,750-98,749	117	.30	1,840	3.32	2,098	3.55
98,750 or over	233	.61	1,869	3.37	2,061	3.49
Total	38,511	100.00	55,431	100.00	59,035	100.00
Mean amount (dollars)	3,156		4,543		4,838	

TABLE B.20 Size Distribution of Total Income of Consumer Units, Full-Time, Full-Year Worker

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	152	.43	115	.33	100	.28
Zero	139	.39	132	.37	76	.22
$1-$1,249	835	2.37	462	1.31	423	1.20
1,250- 3,249	2,934	8.32	2,407	6.83	2,311	6.56
3,250- 5,749	7,848	22.27	6,703	19.02	6,922	19.64
5,750- 8,249	9,656	27.40	8,982	25.48	8,690	24.65
8,250-10,249	5,435	15.42	5,861	16.63	5,902	16.74
10,250-15,749	6,107	17.33	7,259	20.59	7,297	20.70
15,750-24,749	1,640	4.65	2,323	6.59	2,455	6.97
24,750-49,749	425	1.21	808	2.29	850	2.41
49,750-98,749	53	.15	164	.47	186	.53
98,750 or over	22	.06	29	.08	34	.10
Total	35,247	100.00	35,247	100.00	35,247	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey: Amount of Income (Millions of Dollars)	Current Population Survey: Percent	Total Money Income: Amount of Income (Millions of Dollars)	Total Money Income: Percent	Family Personal Income: Amount of Income (Millions of Dollars)	Family Personal Income: Percent
Loss	−402	−.14	−221	−.07	−196	−.06
Zero	0	.00	0	.00	0	.00
$1-$1,249	648	.23	353	.11	291	.09
1,250- 3,249	7,077	2.47	5,896	1.79	5,671	1.69
3,250- 5,749	36,207	12.63	30,897	9.36	31,798	9.46
5,750- 8,249	67,236	23.45	62,808	19.04	60,599	18.04
8,250-10,249	50,350	17.56	53,944	16.35	54,282	16.16
10,250-15,749	75,780	26.43	89,810	27.22	90,432	26.92
15,750-24,749	30,687	10.70	43,698	13.24	46,435	13.82
24,750-49,749	13,103	4.57	26,410	8.00	28,130	8.37
49,750-98,749	3,523	1.23	10,588	3.21	12,047	3.59
98,750 or over	2,479	.86	5,762	1.75	6,482	1.93
Total	286,688	100.00	329,946	100.00	335,971	100.00
Mean amount (dollars)	8,134		9,361		9,532	

TABLE B.21 Size Distribution of Total Income of Consumer Units, Other Work Experience

	A. Number of Units					
	Current Population Survey		*Total Money Income*		*Family Personal Income*	
Size of Total Income	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*	*Number of Units (Thousands)*	*Percent*
Loss	36	.29	33	.27	33	.27
Zero	147	1.19	128	1.03	46	.37
$1-$1,249	1,546	12.48	867	7.00	814	6.57
1,250- 3,249	3,422	27.63	2,995	24.18	2,963	23.92
3,250- 5,749	3,206	25.88	3,375	27.25	3,426	27.66
5,750- 8,249	2,040	16.47	2,206	17.81	2,206	17.81
8,250-10,249	991	8.00	1,170	9.45	1,199	9.68
10,250-15,749	762	6.15	1,182	9.54	1,241	10.02
15,750-24,749	181	1.46	297	2.40	314	2.53
24,750-49,749	56	.45	116	.94	125	1.01
49,750-98,749	0	.00	15	.12	17	.14
98,750 or over	0	.00	3	.02	3	.02
Total	12,387	100.00	12,387	100.00	12,387	100.00

B. Dollar Totals

Size of Total Income	Current Population Survey		Total Money Income		Family Personal Income	
	Amount of Income (Millions of Dollars)	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*	*Amount of Income (Millions of Dollars)*	*Percent*
Loss	−106	−.18	−136	−.18	−125	−.17
Zero	0	.00	0	.00	0	.00
$1-$1,249	1,153	1.91	685	.93	604	.80
1,250- 3,249	7,627	12.64	6,873	9.32	6,830	9.04
3,250- 5,749	14,186	23.52	14,971	20.31	15,113	19.99
5,750- 8,249	14,061	23.31	15,235	20.66	15,164	20.06
8,250-10,249	9,084	15.06	10,761	14.60	11,013	14.57
10,250-15,749	9,297	15.41	14,394	19.52	15,120	20.00
15,750-24,749	3,373	5.59	5,661	7.68	6,014	7.96
24,750-49,749	1,653	2.74	3,794	5.15	4,142	5.48
49,750-98,749	0	.00	914	1.24	1,095	1.45
98,750 or over	0	.00	577	.78	623	.82
Total	60,327	100.00	73,729	100.00	75,591	100.00
Mean amount (dollars)	4,870		5,952		6,102	

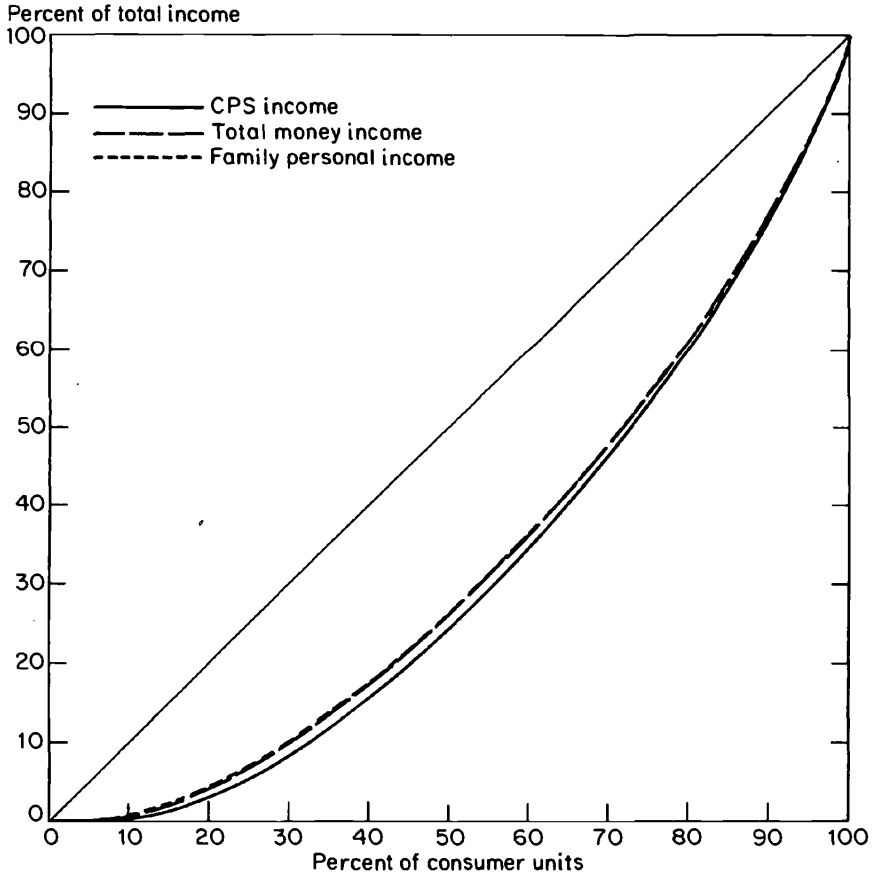

CHART B.1: Lorenz Curve of All Consumer Units: Age of Head 14-24

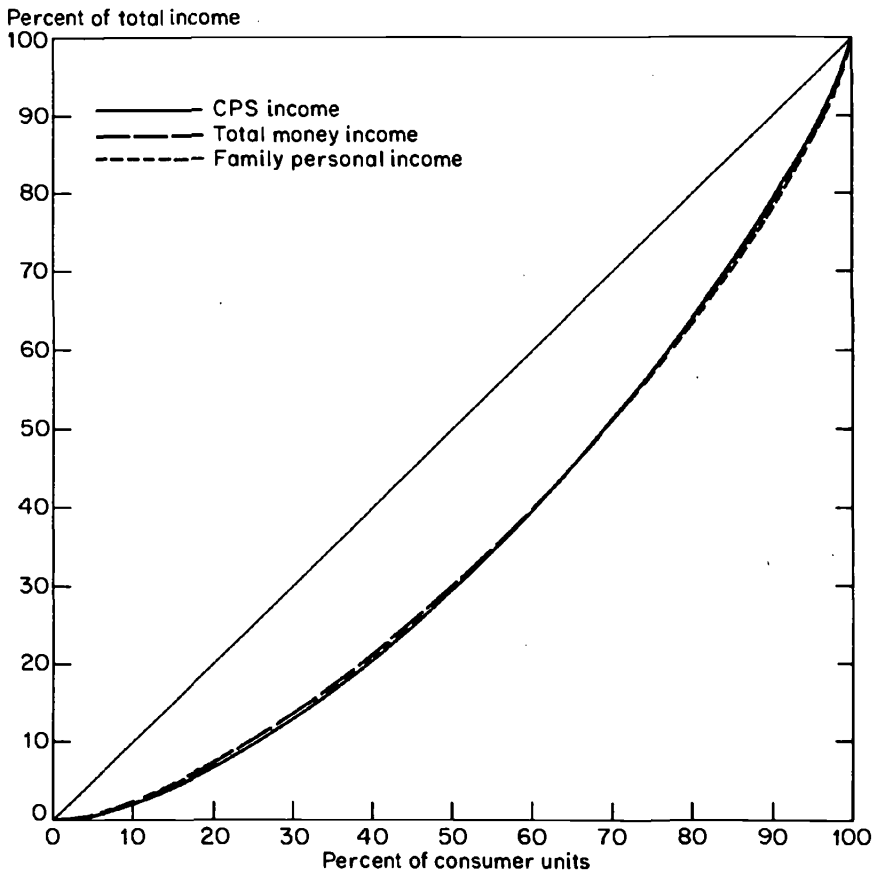

CHART B.2: Lorenz Curve of All Consumer Units: Age of Head 25-34

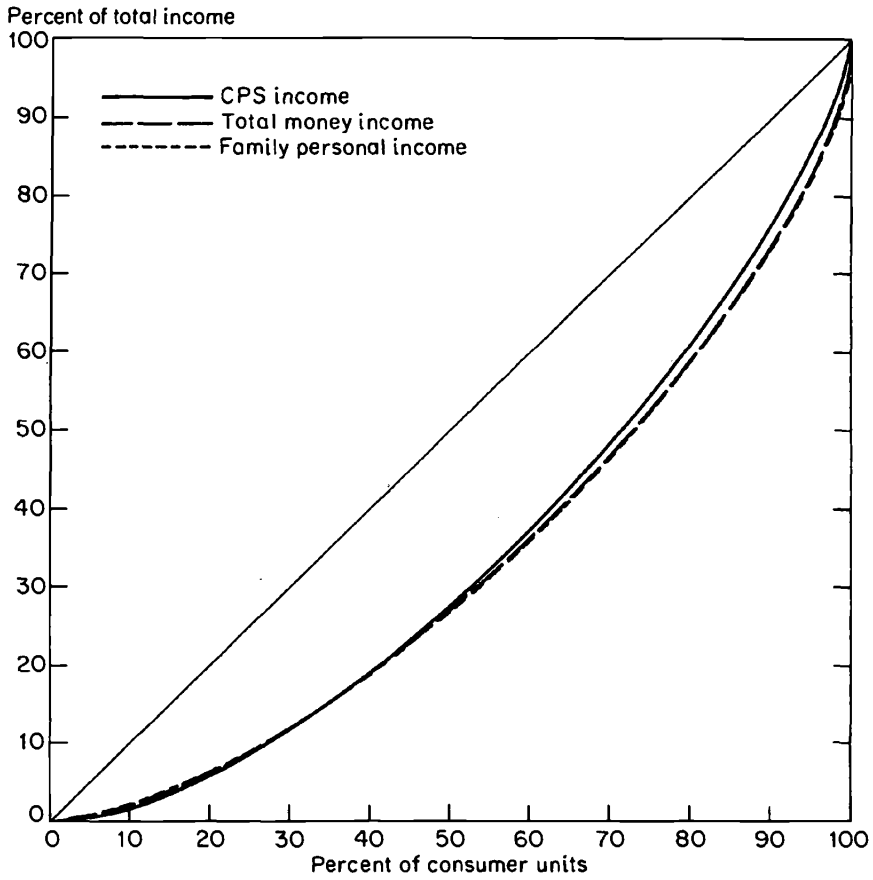

CHART B.3: Lorenz Curve of All Consumer Units: Age of Head 35-44

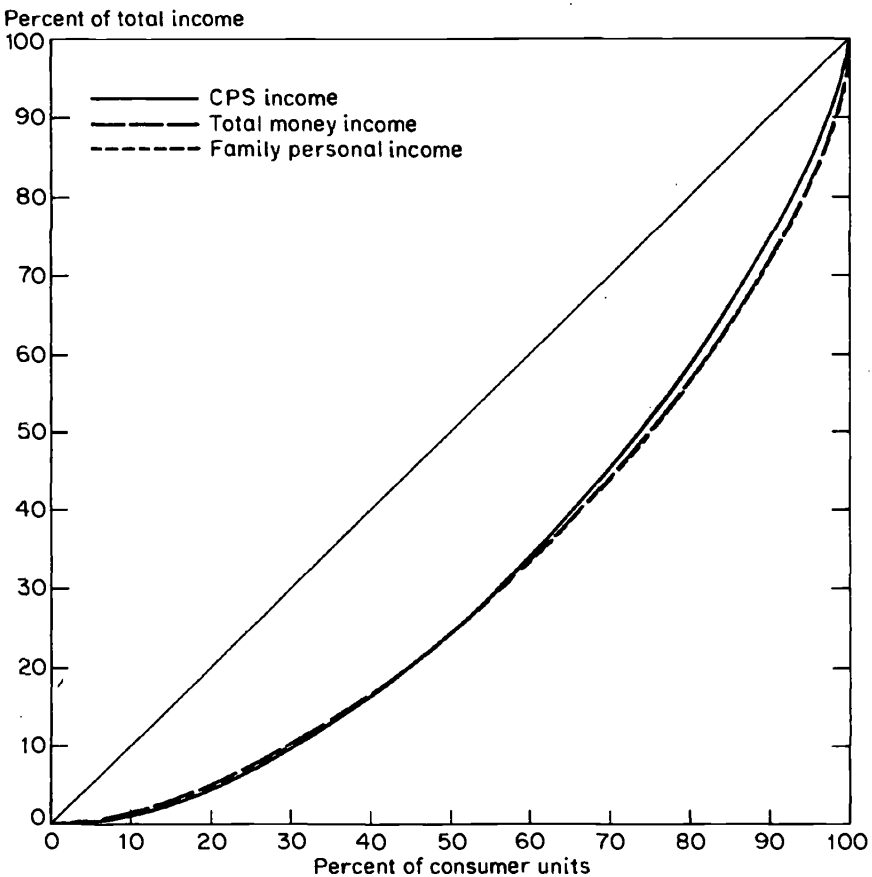

CHART B.4: Lorenz Curve of All Consumer Units: Age of Head 45-54

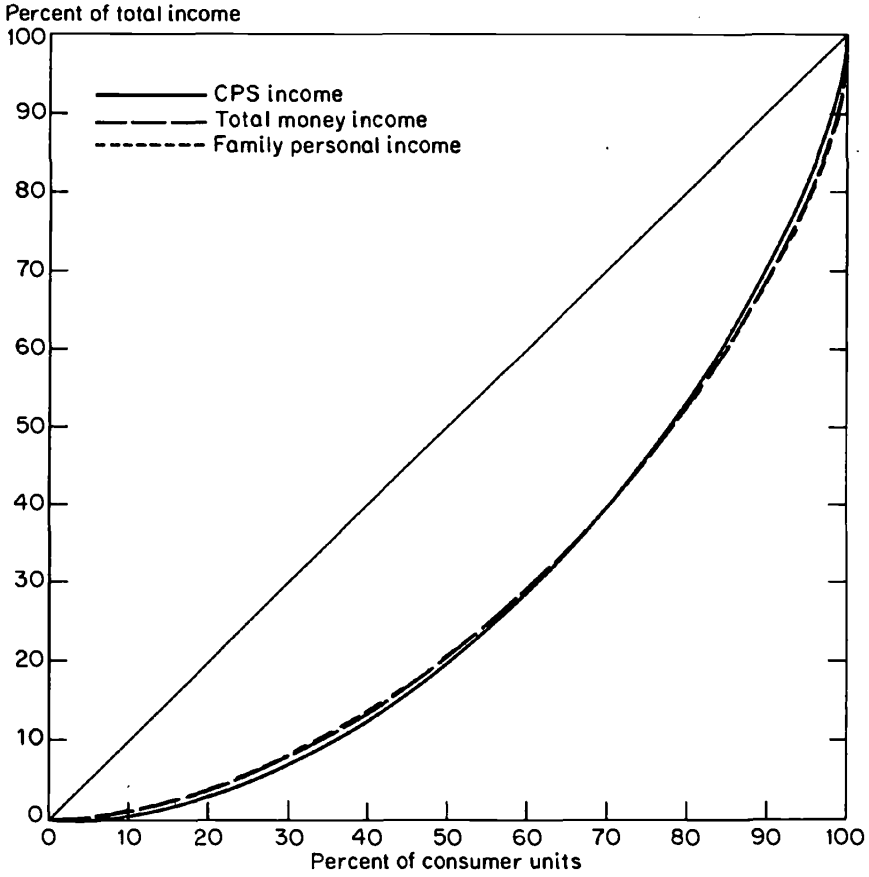

CHART B.5: Lorenz Curve of All Consumer Units: Age of Head 55-64

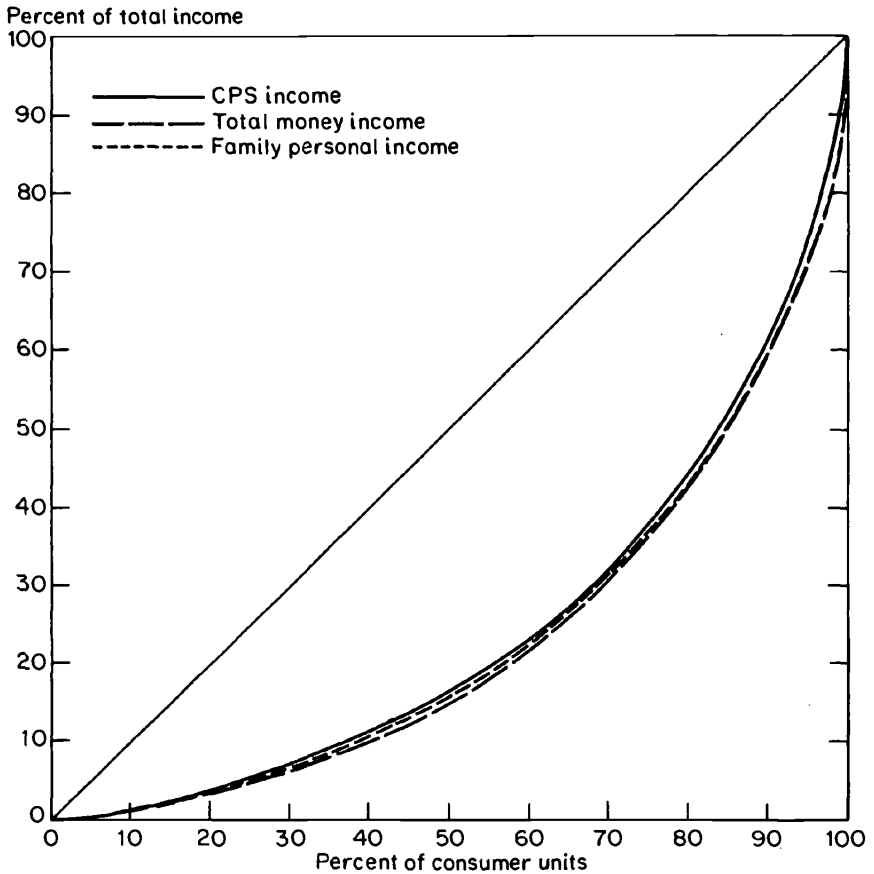

CHART B.6: Lorenz Curve of All Consumer Units: Age of Head 65 or Over

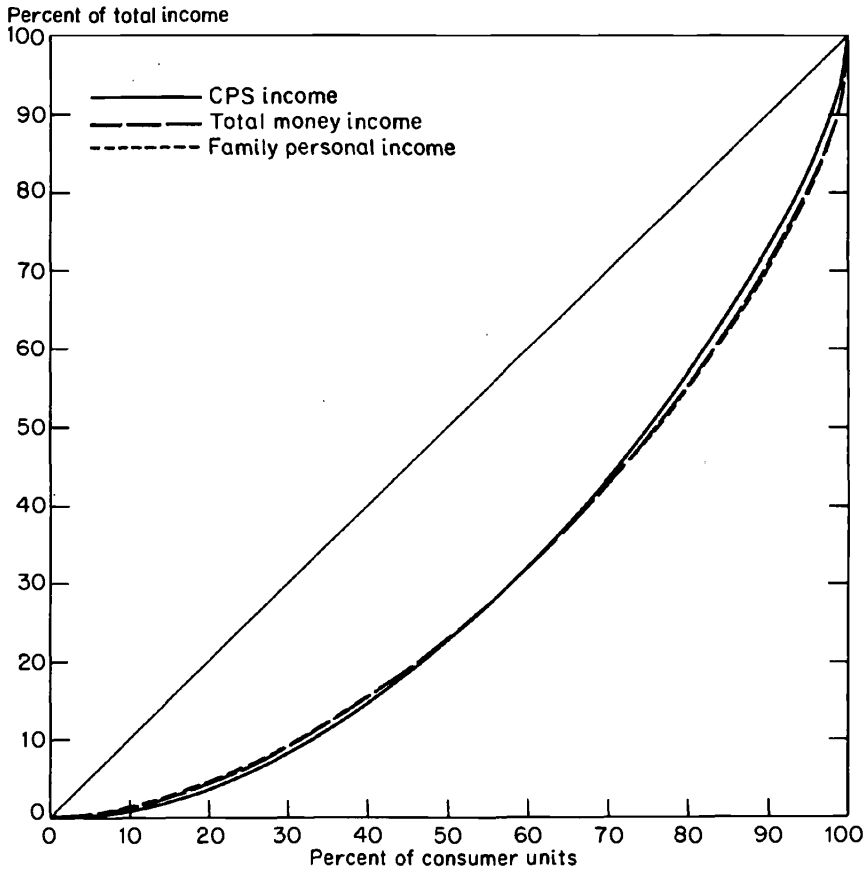

CHART B.7: Lorenz Curve of All Consumer Units: White

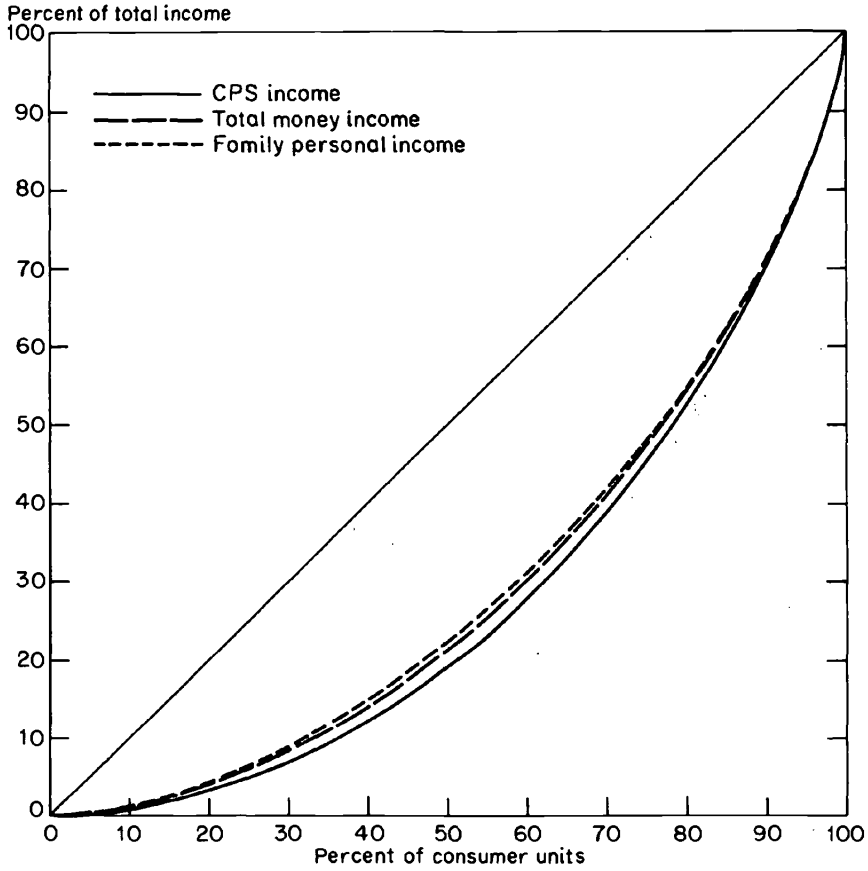

CHART B.8: Lorenz Curve of All Consumer Units: Nonwhite

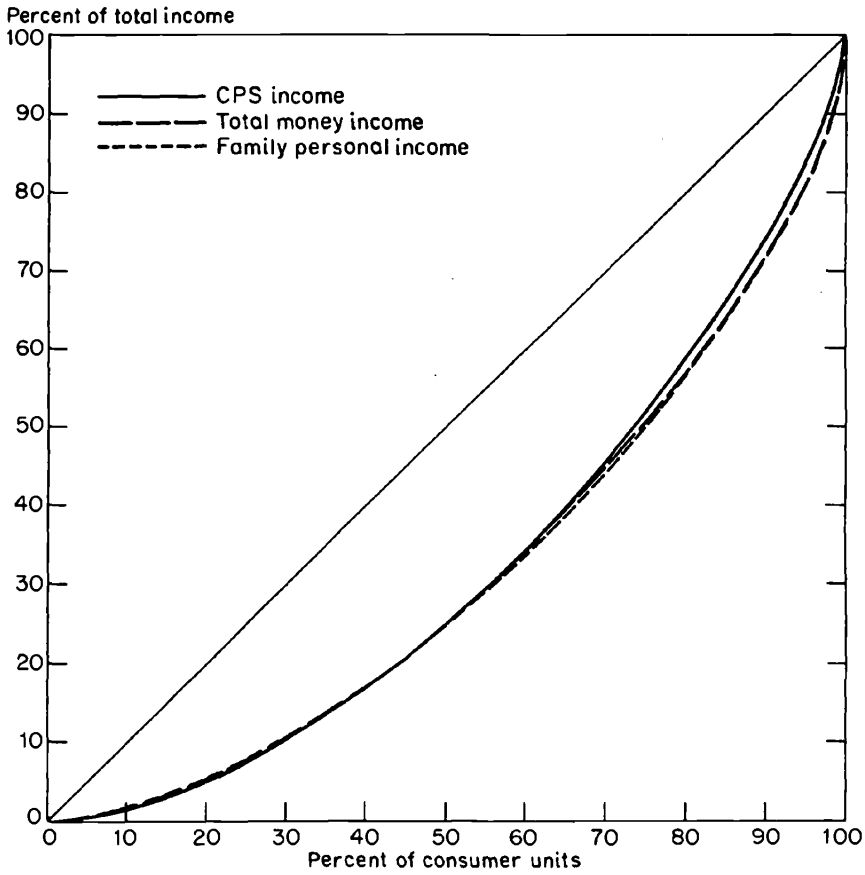

CHART B.9: Lorenz Curve of All Consumer Units: Males Head

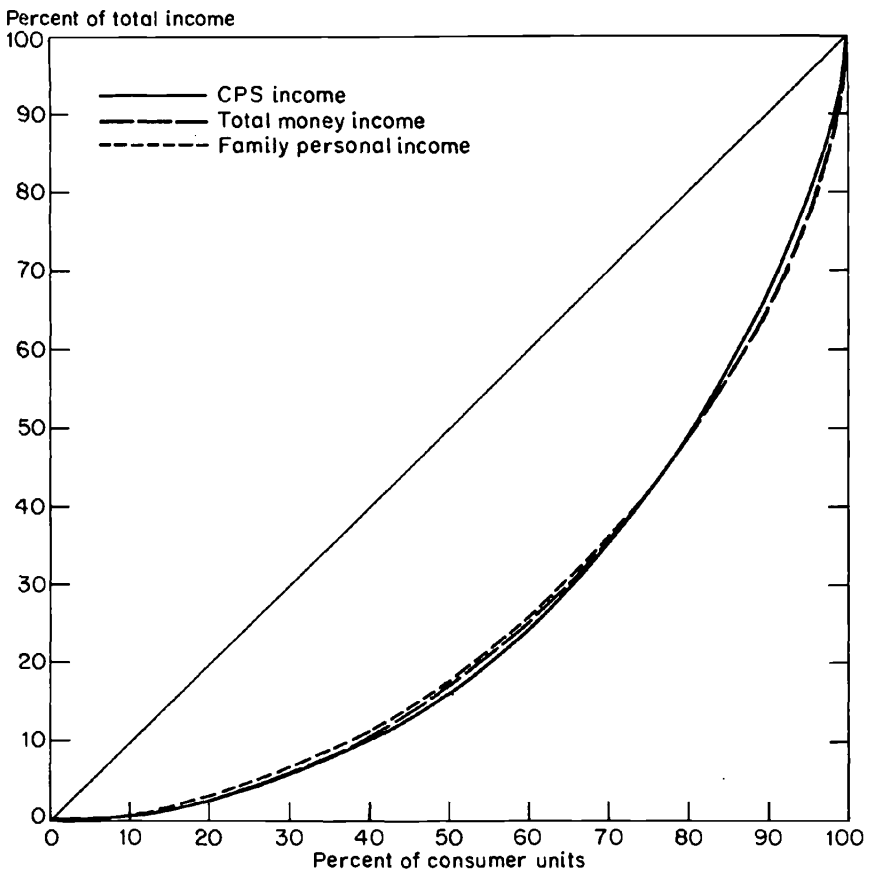

CHART B.10: Lorenz Curve of All Consumer Units: Female Head

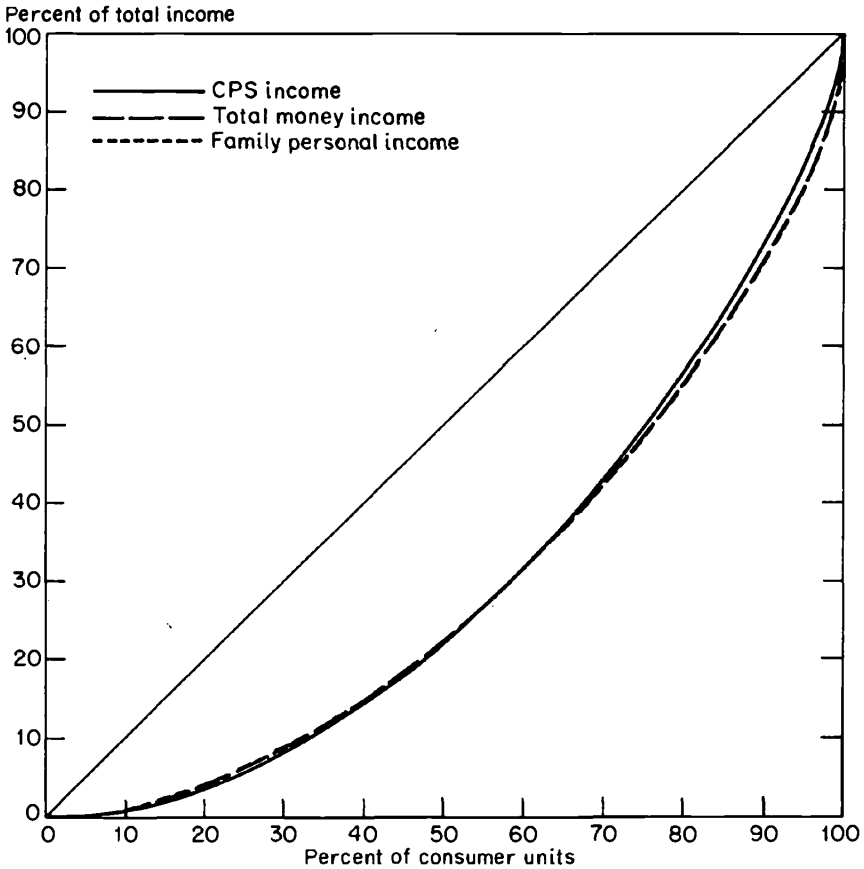

CHART B.11: Lorenz Curve of All Consumer Units: Nonfarm Residence

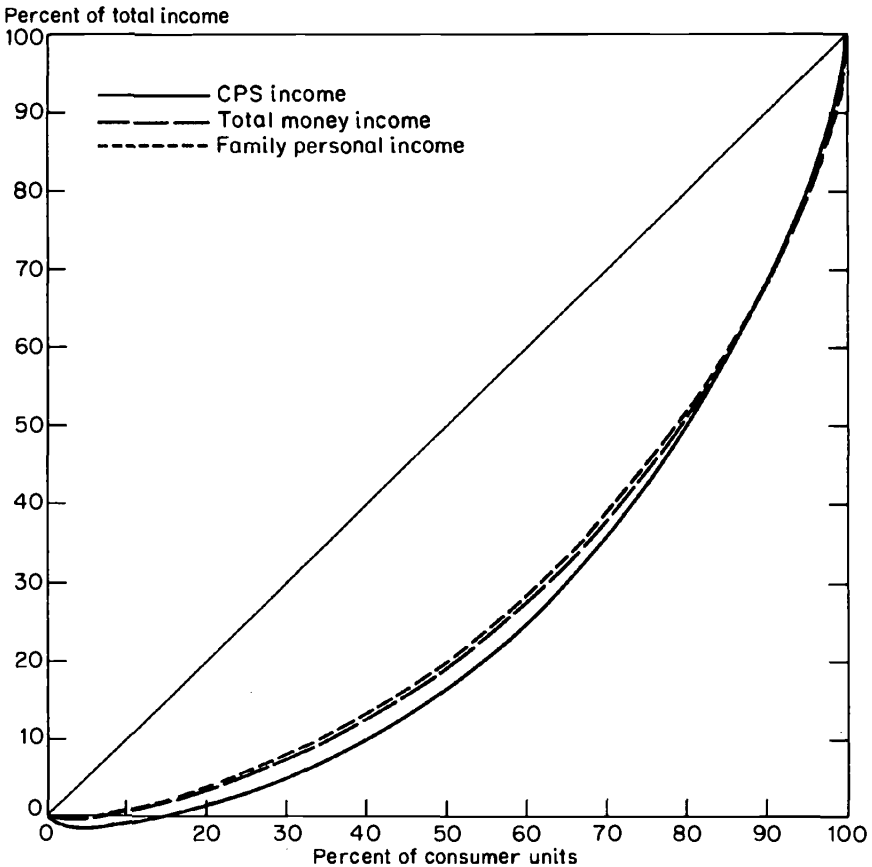

CHART B.12: Lorenz Curve of All Consumer Units: Farm Residence

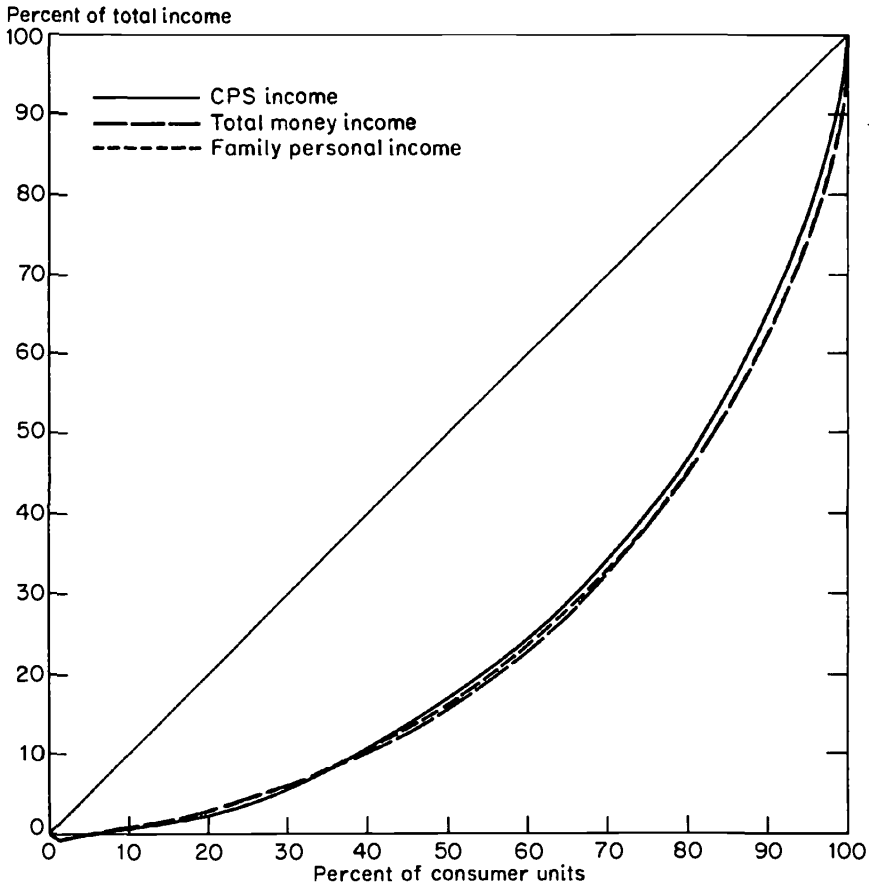

CHART B.13: Lorenz Curve of All Consumer Units: Nonworker

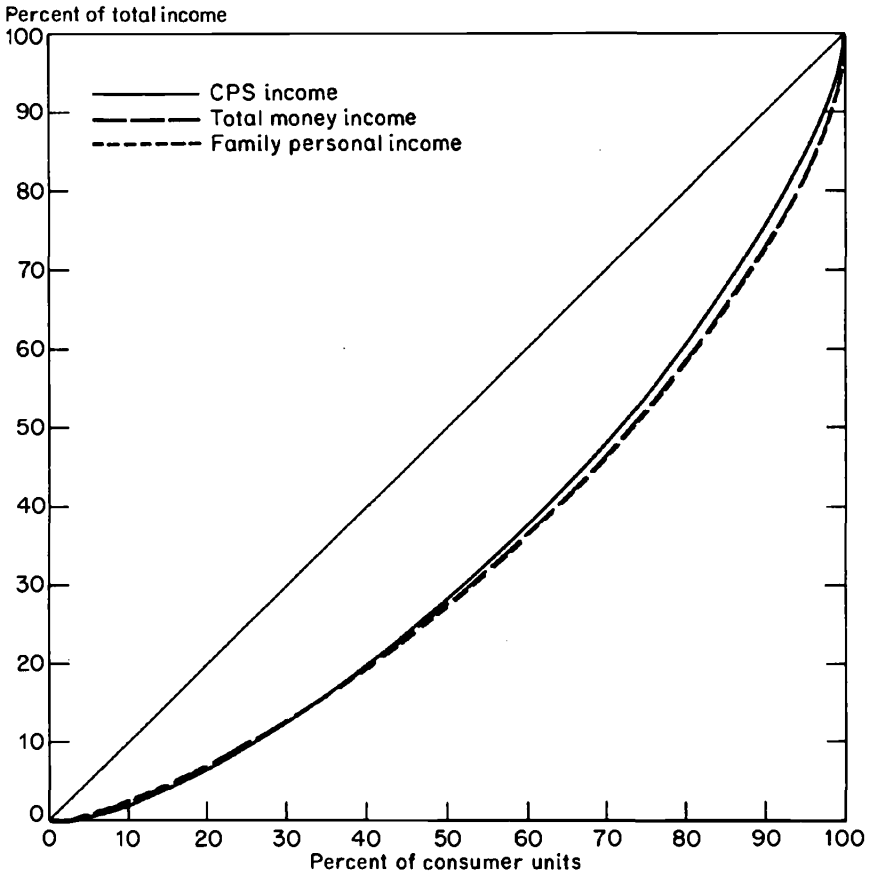

CHART B.14: Lorenz Curve of All Consumer Units: Full-Time, Full-Year Worker

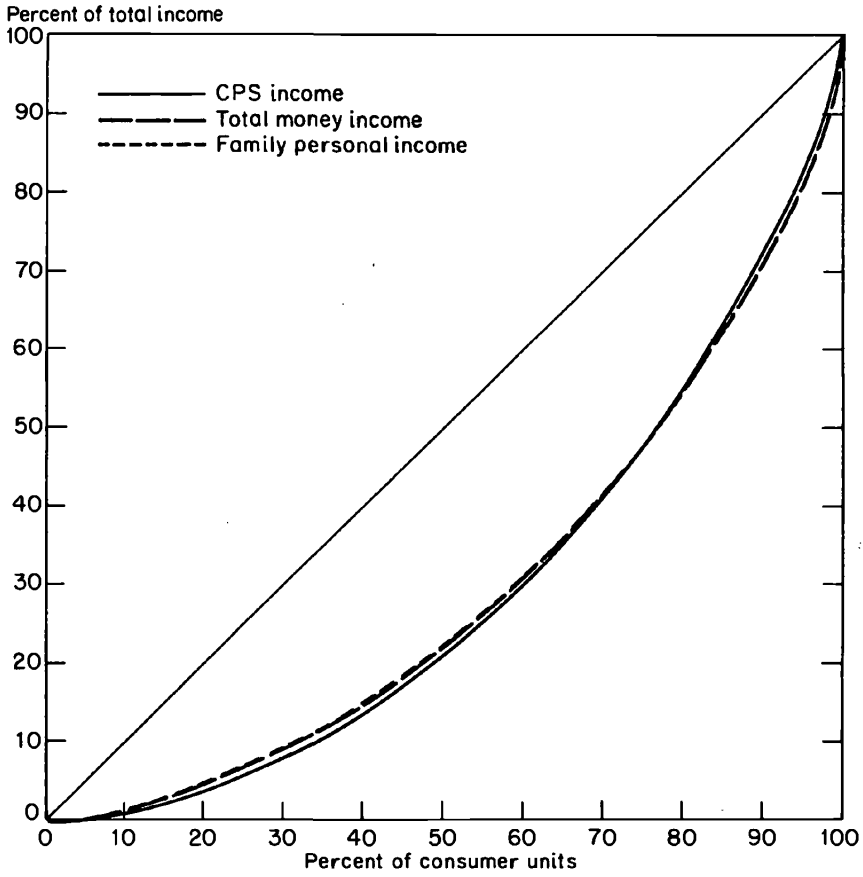

CHART B.15: Lorenz Curve of All Consumer Units: Other Work Experience