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PART X

Estimated Income Distribution in
Three Surveys of Consumer Requirements

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1 USE OF INCOME DATA BY OFFICE OF CIVILIAN REQUIREMENTS

Income data were collected in three Surveys of Consumer Requirements¹ as an aid to interpreting the impact of demand upon the market for scarce consumer goods. The questions were not designed primarily to obtain an accurate picture of income distribution in the United States.

Even more significant than the actual income figure, therefore, was whether the family was receiving more or less income than before the war, or about the same. From the viewpoint of civilian supply the important question was the degree to which scarcity resulted from greater purchasing power as compared with actual need judged by peacetime purchasing.

Since a majority of the items about which questions were asked were relatively low-priced and were used at least to some extent by households at all income levels, a cross-tabulation made it possible to determine for each item whether most of the demand came from families whose income had gone up or from those whose income was just enough to cover new items and replacements. A comparison of the effects of income changes and of income levels on purchases (Tables 1 and 2)

TABLE 1
Effect of Changes in Family Income on Purchases of Scarce Goods
First Survey

	AV. NO. OF SCARCE ITEMS BOUGHT PER FAMILY	AV. NO. OF SCARCE ITEMS SOUGHT BUT NOT BOUGHT PER FAMILY	TOTAL
Families with:			
More money than before the war	5.4	2.6	8.0
About the same	4.0	2.1	6.1
Not as much	3.5	2.1	5.6

indicates clearly the role higher incomes played in the market for goods regarded as necessities rather than luxuries.

Another use of income data in evaluation of survey results by the Office of Civilian Requirements was a comparison between changes in income and buying experience by regions (Table 3). The Office of Civilian Requirements interpreted the fact that the highest average number of attempts to buy per

¹ The survey made in November 1943 covered textiles, clothing, durable goods, and miscellaneous household articles; that made in March 1944, chiefly textiles and clothing; that made in April 1944, chiefly durable goods and appliances. The data from the 1944 surveys have been added since this paper was presented at the Income Conference.

TABLE 2
Effect of Levels of Family Income on Purchases of Scarce Goods
First Survey

WEEKLY FAMILY INCOME	AV. NO. OF	AV. NO. OF	TOTAL
	SCARCE ITEMS BOUGHT PER FAMILY	SCARCE ITEMS SOUGHT BUT NOT BOUGHT PER FAMILY	
Under \$20	2.9	2.0	4.9
20-39	4.0	2.4	6.4
40-49	4.9	2.4	7.3
60-79	5.3	2.5	7.8
80 & more	5.3	2.4	7.7

family was in the South, although the median income in that region was the lowest of the four, to mean that when the market for clothing and household items expands, the chief factor is likely to be a shift of a considerable number of families from the lowest income groups to somewhat higher levels, rather than an increase in the number at considerably higher levels, such as occurred in the Far West.

TABLE 3
Purchases of Scarce Goods Compared with Present Family Income,
and Changes in Income, by Regions, First Survey

	NATIONAL	NORTH	MIDDLE	SOUTH	FAR WEST
	TOTAL	EAST	WEST		
Av. no. of scarce items bought per family	4.4	4.4	4.4	4.7	3.8
Av. no. of scarce items sought but not bought per family	2.3	1.7	2.2	2.7	2.9
Total scarce items sought & bought per family	6.7	6.1	6.6	7.4	6.7
Median weekly family income (nonfarm only)	\$44	\$48	\$43	\$38	\$51
TREND IN INCOME SINCE BEFORE THE WAR					
Families with:	(p e r c e n t a g e s)				
More money than before the war	38	33	38	37	48
About the same	40	41	41	41	31
Not as much	21	24	20	21	20
No response	1	2	1	1	1

2 NATIONAL INCOME DISTRIBUTION IN THE FIRST SURVEY

While the collection of income data was a secondary consideration in the first Survey of Consumer Requirements, the sampling method used is of considerable interest for research on income. The survey was conducted for the Office of Civilian Requirements by the Bureau of the Census on a new national sample

selected primarily for the Monthly Survey of the Labor Force. The sampling method differs from the one most commonly used in commercial surveys in that assignments were specific instead of on a basis of quotas for each interviewer; that is, enumerators were instructed to obtain responses from families in houses or apartments at definite locations and to make no substitutions. Usually, in commercial studies, enumerators are instructed merely to interview a given number of families in designated income, racial, age, and other specified groups.

In making up its sample, the Bureau of the Census selected 68 counties or pairs of counties whose populations closely represented the population of the United States as a whole. In these counties, every dwelling unit in blocks or sections representing the various communities was listed. Depending upon the number of interviews desired in each survey, every *n*th dwelling unit was designated to give a completely random selection of households in that block or section. The enumerators were instructed to call repeatedly within the week allotted for the survey until they were able to complete an interview with the family or individuals in each designated dwelling unit.

Among other advantages, discussed later, this method provides a check upon migration and automatically adjusts regional quotas by a greater or less number of noninterviews due to vacancies.

At the close of each interview two income questions were asked:

- 1) Do you and your family have more money coming in now than you did before the war, or not as much?

Boxes were provided for the interviewer to record the response as 'more', 'about the same', 'not as much', and 'no response'.

- 2) What was the total combined income of your family last week? If last week was out of the ordinary, what was the income for a typical week?

Responses were recorded by the interviewer in intervals of \$20 up to \$80, and above \$80.

If respondents hesitated about the amount, they were requested to indicate the interval in which the income would fall.

All families were asked the first question, but only nonfarm the second, since it is very difficult for farmers to estimate their net cash income. Accordingly, the 'more', 'same', and 'less' in-

formation concerns the 4,875 families who responded to this question, while the actual income figure applies only to 3,884 nonfarm families (Table 4).

TABLE 4

Weekly Nonfarm Family Income, National and Regional Distribution by Income Groups, First Survey

	NATIONAL TOTAL	NORTH EAST	MIDDLE WEST	SOUTH	FAR WEST
Number of replies	3,884	1,104	1,205	1,100	475
Percentage	100	100	100	100	100
Weekly Family Income					
Under \$20	15	10	15	24	10
20-39	28	26	31	29	22
40-59	32	36	33	26	32
60-79	14	16	13	12	17
80 & over	11	12	8	9	19
Median	\$44	\$48	\$43	\$38	\$51

Like most other income figures gathered by sampling, the median family income as reported in the first Survey of Consumer Requirements is clearly too low. The authors are indebted to Robinson Newcomb of the Statistics Division, War Production Board, for a computation indicating that on the basis of the percentage of families and individuals in each income group and a reasonable mean figure for each group, total income payments in November 1943 would be only \$5.8 billion, whereas actual income payments of the type presumably covered in the Survey were reported by the Department of Commerce to be about \$7.8 billion. The underestimation in the OCR survey was therefore apparently about 25 percent.

Nevertheless, the median income indicated by the first Survey is higher than the figure obtained in all except one of the sample surveys reporting income in 1943 from which we have been able to obtain comparable reports. That one, conducted by the Bureau of Agricultural Economics in October 1943 and using more detailed questions in an attempt to get full information about the income of each member of every household, showed a median nonfarm family income of \$51 per week.

3 SOME PROBLEMS OF ELICITING INCOME INFORMATION FROM HOUSEHOLDS

The figures on families interviewed in the first Survey of Con-

sumer Requirements correspond well enough with independent figures, including 1940 Census data, with respect to such check factors as households with electricity, of different racial composition, etc., to show that the sampling was satisfactory. The reason for the underestimate of income is therefore primarily inaccurate responses, not an unrepresentative sample. In this Survey the respondent was usually a housewife. When the total family income came from the wages or salary of the head of the household, the housewife could probably report it fairly accurately, but she was not likely to be so well informed or able to make an accurate report when there were other sources of income.

When family income is derived from the proprietorship of a small store or business, from professional fees, or other irregular receipts, it is difficult for any member of the household to estimate typical weekly income on a net cash basis. Another difficulty arises from payroll deductions: unless detailed questions are asked, it is probable that the 'take-home' income may be reported instead of the gross income.

The Bureau of Agricultural Economics obtained, at about the same time, a higher median income figure than the first Survey of Consumer Requirements largely because the income of each member of the household was ascertained separately. The two methods applied to comparable samples a few weeks apart in the second and third Surveys of Consumer Requirements yielded similar discrepancies. In the second Survey, March 1944, the method used in the first was repeated among a new group of households, except that during the interview the respondent held the booklet in which the income brackets were printed. This reduced the number of nonresponses somewhat (from 11 percent of nonfarm respondents in the first Survey to 7 percent in the second) but did not affect the income distribution to any considerable degree.

In the third Survey, another sample of households, selected as in the first two, was questioned more fully about income. The number of earners in the family, the weekly income of each, and supplementary sources of income were recorded; total family income was taken as the sum of these separately recorded amounts. The more detailed questions had the effect of

increasing the number of incomplete replies to 16 percent of nonfarm families, but the income distribution was nevertheless more satisfactory. The median weekly income derived in this manner was \$50, almost the same as that from the Bureau of Agricultural Economics Survey. The results from the three surveys are compared in Table 5.

TABLE 5
Weekly Nonfarm Family Income, Distribution by Income Groups
First, Second, and Third Surveys

	FIRST SURVEY <i>November 1943</i> ^a	SECOND SURVEY <i>March 1944</i> ^b	THIRD SURVEY <i>April 1944</i> ^c
Number of replies	3,884	3,636	3,269
Percentage	100	100	100
Weekly family income			
Under \$20	15	15	14
20- 39	28	28	23
40- 59	32	30	27
60- 79	14	15	19
80- 99	11	12	8
100-149			7
150 & over			2
Median	\$44	\$45	\$50
Nonreports or incomplete reports (%)	11	7	16

^a Question: "What was the total combined income of your family last week? If last week was out of the ordinary, state for a typical week." Interviewer recorded by income groups.

^b Same question as above, but the respondent was shown a list of income groups and asked to select the appropriate one.

^c Replies to a series of questions.

It seems unlikely that a full report of family income can be obtained by interviews without going into detail to an impracticable extent. Moreover, the unascertained income is fairly sure to be chiefly in the higher brackets. This conclusion is confirmed by an analysis of the occupational classifications of the chief wage earner in families whose income was not ascertained in the first Survey of Consumer Requirements. The indication in Table 6 that a high proportion of the nonreported incomes were in the upper brackets is further confirmed by an analysis of a correlation between failure to report income and the rent paid (Table 7). Families in the upper income groups may be somewhat more reluctant to disclose income than those in the lower groups. However, the high percentage of families fail-

TABLE 6

Failure to Report Income by Families Grouped according to Occupation of Chief Wage Earner, First Survey

OCCUPATION OF CHIEF WAGE EARNER	NO. OF INTERVIEWS	REPORTING OCCUPATION BUT NOT FAMILY INCOME		MEDIAN WEEKLY FAMILY INCOME OF THOSE REPORTING
		No.	%	
Total reporting nonfarm occupations	4,236	474	11	\$44
Professional & semiprofessional	297	46	16	60
Proprietors, managers, & officials	429	78	18	59
Clerical, sales & kindred	475	65	14	47
Craftsmen, foremen, etc.	882	64	7	52
Operatives & kindred	910	51	6	46
Laborers (except farm)	278	22	8	34
Service workers	353	26	7	31
Others; no employed civilian head; housewife; army; etc.	612	122	20*	under 20

*The high proportion of failure to report is in this case due in part to some ambiguity in instructions relative to income from the Army and Navy personnel, who were excluded by definition from membership in the civilian household.

ing to report among professional and proprietary groups is probably due more to actual inability to give an accurate figure than to reluctance to give any information at all.

TABLE 7

Failure to Report Income by Families Grouped according to Rent Level, First Survey

MONTHLY RENT OR RENTAL VALUE	NO. OF INTERVIEWS	REPORTING RENT BUT NOT FAMILY INCOME		MEDIAN WEEKLY FAMILY INCOME OF THOSE REPORTING
		No.	%	
Total reporting rent or rental value	4,154	368	9	\$44
Under \$20	1,108	53	5	28
20-39	1,693	132	8	44
40-59	895	108	12	56
60 & over	458	75	16	75

In the third Survey, sources of income other than wages, salaries, and fees were recorded. The high proportion of non-reports of *amounts* by those reporting *sources* suggests an understatement of income from dividends, interest, etc. (Table 8).

In a national sample of 5,000 families—or even 25,000—it is improbable that families in the higher income groups will be

TABLE 8

Nonreports of Amount of Income from Sources other than Earnings
by Source, Nonfarm Families, Third Survey

	% OF SAMPLE REPORTING SOURCE ^a	% OF THOSE REPORTING SOURCE BUT NOT AMOUNT OF INCOME FROM IT
Source other than earnings	33	15
Army-Navy allotments	10	9
Rent, lodgers	12	12
Pensions, insurance	8	14
Dividends, interest	4	42
Other specified sources ^b	5	46

^a Because of those reporting more than one source, the sum of the percentages reporting specified sources is greater than 33 percent, the percentage reporting some source other than earnings.

^b Money sent home by children, alimony, royalties, garden and dairy products in nonfarm households, etc.

accurately represented. All figures, except the median, will be distorted in some degree if the sample happens to include a multi-millionaire, or not to include any very rich family. To cite a parallel case, an 128,000 acre ranch in New Mexico accounted for about one-fourth of the acreage of all farms in the sample used by the Bureau of the Census for a recent farm survey conducted for the Office of Civilian Requirements.

The third Survey provides convincing evidence that the specific assignment method of sampling, with callbacks, is preferable to a quota-control method in obtaining income data (Table 9). There is evidently a significant systematic difference between the median income of families easy to interview and those found at home only on the second, third, or later visit. This is not surprising, especially under present conditions of full employment, since the household where it is difficult to find someone at home is more likely to have both a husband and wife and perhaps other members employed.

Use of both the callback method and separate questions with respect to the income of each household member is especially desirable to obtain accurate reports from households that include lodgers or other income-receiving individuals not members of the immediate family.

TABLE 9

Weekly Urban Family Income, Distribution by Income Groups
determined from First, Second, and Later Interviews,
Families, First Survey

	I N T E R V I E W E D O N			ALL INTERVIEWS
	First Call	Second Call	Third or Later Call	
No. of families reporting	1,854	658	425	2,937
Percentage	100	100	100	100
Weekly family income				
Under \$20	13.2	11.5	11.6	12.6
20-39	27.9	27.7	21.4	26.9
40-59	33.2	31.2	30.6	32.4
60-79	15.1	15.5	19.5	15.8
80 & over	10.6	14.1	16.9	12.3
	25.7	29.6	36.4	28.1
Median	\$45	\$47	\$51	\$47
Nonreports or incomplete reports (%)	11	9	9	10

4 RENTAL VALUE AND INCOME

Under normal conditions there is a fairly high correlation between rent paid (or the rental value of an owner-occupied house) and income. If conditions had been normal in November 1943, rental value would probably have been sufficient for the purposes of the Office of Civilian Requirements; but when incomes are fluctuating, rental value is not an adequate guide, especially in areas of rent control and congestion. Families able to afford better living quarters either cannot find them or prefer to save or spend more on goods than pay higher rents, while families with less income tend to reduce their standard of living in other ways before moving to cheaper quarters.

The median rent or rental value in the first Survey increases directly with family income, but three families in the top income group occupied dwellings with the lowest rental value, and one family in the lowest income group occupied a dwelling with the highest rental value (Table 10). While these extremes may be due to interviewing or coding errors, Table 10 shows clearly that there is often little correspondence between income and rent or rental value. Moreover, there was an almost complete lack of correlation between purchases of, and attempts to purchase, items included in the survey, and rent or rental value of the dwellings occupied by the families that were in the market for the items surveyed. The average number of items

families with the lowest rent or rental value attempted to buy is actually higher than the average for the families with the highest rent or rental value (Table 11).

TABLE 10

Weekly Family Income, Distribution by Families Grouped according to Rent Level, First Survey

No. of families reporting	NO. OF FAMILIES REPORTING	MONTHLY RENT OR RENTAL VALUE									
		Under \$10	\$10-19	\$20-29	\$30-39	\$40-49	\$50-59	\$60-69	\$70-79	\$80-89	\$90-99
3,786	3,786	308	747	840	721	509	278	167	96	38	82
Weekly family income											
Under \$20	573	159	202	127	50	22	8	2	2		1
20-39	1,044	106	295	298	185	92	38	17	9	2	2
40-59	1,200	36	178	290	310	211	89	49	25	3	9
60-79	546	4	49	85	115	121	77	49	27	8	11
80 & over	423	3	23	40	61	63	66	50	33	25	59
Median	\$45	Under \$20	\$32	\$40	\$48	\$53	\$61	\$66	\$69	\$80	Over \$80

Table 2, on the other hand, shows some correlation between income and attempts to purchase. But the correlation between income and rent or rental value is so low as to indicate that the two measures cannot be used interchangeably in relation to buying behavior. The Survey results therefore suggest also that under present conditions extreme caution should be exercised in any attempt to derive income from rent or rental value.

TABLE 11

Purchases of Scarce Goods by Families Grouped according to Rent Level First Survey

MONTHLY RENT OR RENTAL VALUE	AV. NO. OF SCARCE ITEMS BOUGHT PER FAMILY	AV. NO. OF SCARCE ITEMS SOUGHT BUT NOT BOUGHT PER FAMILY	TOTAL
Under \$10	4.3	2.7	7.0
10-19	4.3	2.4	6.7
20-29	4.2	2.3	6.5
30-39	4.4	2.3	6.7
40-49	4.3	2.0	6.3
50-59	4.4	2.1	6.5
60-69	4.2	2.0	6.2
70 & over	4.0	2.1	6.1

5 NATIONAL NONFARM INCOME IN THE THIRD SURVEY

Because in the third Survey income from earnings and from other sources was reported separately, it is possible to derive values to compare with Department of Commerce estimates for both income payments based on earnings and income from other sources.

To make the Survey estimates comparable with those of the Department of Commerce, the kinds of income not expected to be reported in the Survey were adjusted. The following items are reported in the Department of Commerce estimates but not by respondents in the Surveys:

- 1 Salaries and wages in kind
- 2 Salaries and wages received by the armed forces and not sent to civilians
- 3 Entrepreneurial income from farms
- 4 General relief payments in kind
- 5 Interest payments to savings institutions, banks, etc., not received by individuals
- 6 Interest payments to members of the armed forces and inmates of institutions
- 7 Dividends, rents, and royalties to members of the armed forces and inmates of institutions

When corrected for the above items, total income payments for April 1944 reported by the Department of Commerce, \$12,489 million,² becomes \$10,164 million, of which \$7,819 is from earnings, as defined in the Survey, and \$2,345 million from other sources (including allotments to civilians from military personnel). The figures comparable with the Survey are these figures reduced to a weekly basis; that is, \$1,800 million income from earnings and \$550 million income from other sources.³

Two methods of estimating aggregate income from the third Survey are presented below. In the first (Table 12) the mean of \$61 per week reported for households with a chief earner was multiplied by the total number of earning families estimated from the sample. An adjustment was made for the smaller earnings of secondary families (resident maids, lodgers,

² *Survey of Current Business*, June 1944.

³ The authors will be glad to give further details concerning the adjustments made in arriving at these figures.

TABLE 12
Weekly Nonfarm Family Income from Earnings and Other Sources
Third Survey

No. of families reporting	ASSUMED MIDPOINT	INCOME FROM EARNINGS, WAGES, SALARIES, FEES (BEFORE BOND & TAX DEDUCTIONS) ^a		INCOME FROM SOURCES OTHER THAN EARNINGS ^b	
		No.	%	No.	%
Weekly family income		2,752	100.0	1,101	100.0
\$1- 9	7	51	1.9	569	51.7
10- 19	15	125	4.5	308	28.0
20- 29	25	251	9.1	133	12.1
30- 39	35	393	14.3	42	3.8
40- 59	50	832	30.2	25	2.3
60- 79	70	596	21.7	9	.8
80- 99	89	234	8.5	8	.7
100-149	120	220	8.0	3	.3
150 & over	300	50	1.8	4	.3
Median			\$53		Under \$10
Mean			\$61		\$16
No. of primary nonfarm families with stated source ^c			28,000,000		10,000,000
Weekly income, primary families			\$1,700,000,000		\$160,000,000
Weekly income, secondary families ^d			\$50,000,000		\$5,000,000
Total weekly income, primary & secondary families			\$1,750,000,000		\$165,000,000
Department of Commerce estimate ^e			\$1,800,000,000		\$550,000,000

^a The number of replies used as a base for percentages is the number reporting both earned income and the amount earned.

^b The number of replies used as a base for percentages is the number reporting both income from sources other than earnings and the amounts from these sources.

^c Based on a total of 33,000,000 primary nonfarm families, as defined in the Survey; of these, 85 percent have wage earners, and 30 percent have income from other sources.

^d Estimate based on results of second Survey of Consumer Requirements, which showed secondary families to be 5 percent of primary families, and to receive an average of 60 percent of the weekly income of primary families.

^e Details on derivation available from the authors.

etc.), not enumerated in the Survey. The total, \$1,750 million from earnings, compares favorably with the \$1,800 million derived from Department of Commerce estimates. Income from other sources as reported in the Survey is \$165 million, considerably below the \$550 million reported by the Department of Commerce.

The total yielded by the second method (Table 13)—the average weekly income per wage earner multiplied by the number of persons in the labor force, as determined from the

TABLE 13
Weekly Income from Earnings, Nonagricultural Workers
Third Survey

Mean weekly income: nonfarm families with employed members	\$61
Employed members per family	1.37
Mean earnings per employed member	\$44.50
Total nonfarm members of the labor force*	44,560,000
Total weekly income	\$2,000,000,000
Department of Commerce estimate	\$1,800,000,000

**Monthly Report on the Labor Force*, Bureau of the Census, April 1944.

*Monthly Report on the Labor Force*⁴—is very close to the Department of Commerce estimate. It is perhaps an overestimate on the basis of the Survey data, since it assumes that earnings of workers who are not heads of households are as high as the average of all earners in households whose head is employed.

In any case, it appears from Tables 12 and 13 that the earnings reported in the Survey are in substantial agreement with Department of Commerce figures on payments to individuals in the form of wages and salaries. The underestimation that remains is that of income from other sources.

6 PROPOSAL

The survey method tends to understate total income. If, however, questioning about income is by individual earner, the total for salaries and earnings of nonfarm workers can be obtained with sufficient precision to make the distribution by size fairly reliable.

The fact that other sources of income are frequently reported even when the amount is not suggests the possibility of introducing correction factors based on known elements, such as interest and dividend payments, so that, through combining survey with other data, dependable estimates of family income distribution may be derived.

⁴The values cannot be derived from the third Survey itself, because members of the household who were not members of the primary family were not interviewed; and members of farm families employed in nonfarm occupations are not recorded separately.

