Volume Title: Shares of Upper Income Groups in Income and Savings

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Volume Publisher: NBER

Volume ISBN: 0-87014-054-X

Volume URL: http://www.nber.org/books/kuzn53-1

Publication Date: 1953

Chapter Title: Statistical Determinants of Upper Income Shares

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Chapter URL: http://www.nber.org/chapters/c3058

Chapter pages in book: (p. 93 - 140)

Part II

Characteristics of Upper Income Groups

Chapter 4

Statistical Determinants of Upper Income Shares

Upper group shares of income depend upon the income unit selected; the scope of the income underlying the classification of units and the countrywide total; the number of sources of income and the relative amount the unit receives from each; and the length of the period for which we consider the relative income position of the unit. Some effects of income scope and the choice of unit were described in Part I. But it may be well to treat these and other statistical determinants more explicitly.

This chapter deals, as far as country- or statewide data permit, with the effects on upper group shares of the choice of income unit; the scope of income; the combination of income of various types; and the length of the period for which income is measured, i.e., the effects of short term mobility of income.

1 *Income Unit*

In Part I the shares of upper groups were calculated in a distribution of income by size in which tax returns, representing largely families and single persons, were reduced to a per capita basis, then treated as groups in the total or nonfarm population. The estimates measure approximately the shares of upper groups in a distribution in which the income units are persons or, in the case of families, bundles of persons.[1]

What is the effect of the choice of the income receiving unit upon our estimates? What would be the shares of upper percentage groups in a distribution among individual recipients classified by size of income? What would their shares be in a distribution among spending units if we did not reduce the income of each family unit to a per capita basis but classified families and single persons by income per spending unit? What would be the effect of classifying units not by per unit income or per capita income per unit but by income per some synthetic unit that would reflect differences among persons in their income needs?

[1] The family in this use is defined as a unit that pools its income for tax return purposes, which means, in the overwhelming proportion of cases, pooling for purposes of expenditures. The concept thus corresponds roughly to that of a spending or consuming unit. In a limited proportion of families, however, more than one tax return is filed.

These questions are answered by comparing three pairs of distributions: by income per recipient and per spending unit; by income per spending unit and by income per spending unit reduced to a per capita basis; and by income per spending unit and by income per spending unit reduced to a per 'equivalent adult' basis.

If the effects of the choice of the income unit alone are to be observed, the universe (i.e., the income, and the population) and the period covered must be identical in each pair of distributions. Thus each comparison involves a double classification of an identical amount of income received by an identical population. And the purpose is not, as it is in our technical analysis of income tax and other data, to adjust a distribution employing a given income unit so as to approximate that employing a different income unit, but rather, to keep the distributions based on different income units, and by studying the differences in the resulting shares, ascertain the effects of the income unit used.

a) *From recipient to spending unit*

The first relevant comparison is for Minnesota, 1938-39.[2] True, the data are for a single state; and, a more serious limitation, we can compare the distributions of recipients and spending units by earnings alone, not by total income. But earnings account for 87 percent of total income as defined by the Minnesota study, or about 92 percent of economic income; the data are based on a fairly complete statewide survey; and the published material permits analysis that is not feasible with more recent countrywide samples.[3]

In *Minnesota Analyses* an economic unit is defined as "one or more persons dependent upon a common or pooled income for the principal items of expense and usually living in the same residence" (p. 84). It

[2] In the income size distributions by F. R. Macaulay for 1918, W. I. King for 1921 and 1928, and A. J. Goldenthal for 1918-37 the recipient is the unit of classification. But we cannot use any of these earlier distributions because the corresponding distributions by income per spending unit are not given. This is not true of the Brookings distribution for 1929 where a classification by income per spending unit is available together with the distribution by income per recipient (*America's Capacity to Consume*, Washington, 1934, pp. 177-238). However, the former was derived from the latter, not from primary data.

[3] The Minnesota data are from *Analyses of Minnesota Incomes, 1938-39*, by R. G. Blakey, William Weinfeld, J. E. Dugan, and A. L. Hart (University of Minnesota Press, 1944) and *Minnesota Incomes, 1938-39*, Volumes I-III, prepared under the supervision of William Weinfeld (Minnesota Resources Commission, St. Paul, Minn., June 1942, litho.). The two sources are referred to below as *Minnesota Analyses* and *Minnesota Incomes*.

therefore corresponds to what we call a spending unit. The economic units numbered 872,500 (*ibid.*, p. 15) but of these only 797,900, the combined number of principal earners in families and among single persons, had earnings (*Minnesota Incomes*, II, Table 1). As the total number of earners (including supplementary) was 947,500, the number of earners per economic unit averaged 1.19 (Table 24, line 3, col. 3).

The top 5 and 10 percent of economic units have somewhat smaller shares in earnings than the top 5 and 10 percent of earners. But while upper group shares become smaller as we shift from the recipient to the spending unit, the reduction, at least as far as earnings and population in Minnesota, 1938-39, are concerned, is fairly small.

The average number of earners per economic unit is significantly larger among the top 5 and 10 percent groups of economic units than among the population as a whole (Table 24, line 3). If earnings per capita in these top groups equaled the statewide, the share of the top 5 percent of economic units would be 6.26 percent (5 percent multiplied by 1.49/1.19) and that of the top 10 percent, 12.52 percent. That the shares in line 2 are appreciably larger indicates that the proportion of top earners in the top economic units is higher than in all economic units. On the other hand, if all earners in the top economic units were top earners, the shares of the top groups of economic units would be much larger than in line 2. The top 5 percent of economic units would, on this assumption, include the top 7.5 percent of earners (5 percent multiplied by 1.49); and the share of the latter would be about 23 percent or somewhat higher, as compared with 17.1 percent in line 2, column 1. The size of the share of the top group of economic units is thus accounted for partly by the higher than average proportion of top earners, partly by the larger number of earners per unit. The closeness of the shares in lines 1 and 2 is explained by the offsetting effects of the higher than average number of earners per unit in the top groups of economic units, which tends to make the shares in line 2 larger than those in line 1, and the inclusion in the top groups of economic units of earners with earnings well below the top levels, which tends to make the shares in line 2 lower than those in line 1.

Better data for our analysis are the Census samples which include returns for about 12,000 households in 1947, 25,000 in 1948, and 15,000 in 1949; exclude members of the armed services and civilian personnel on military reservations, and institutional inmates, but otherwise attempt full coverage; limit reporting to money income; define a 'family' as "a group of two or more persons related by blood, marriage or adoption and residing together", and an 'individual not in family' as "a person who is not living with relatives"; and record receipts of income per person for all

Table 24

Shares of Top Groups in Arrays of Different Units, and Average Number per Unit or per Family, Various Samples

	SAMPLE AND UNIT	UNITS			FAMILIES		
		Top 5 percent (1)	Top 10 percent (2)	Total (3)	Top 5 percent (4)	Top 10 percent (5)	Total (6)
		A FROM RECIPIENT TO SPENDING UNIT					
I	*Minnesota, 1938-39*						
	Share of income in distribution of:						
1	Earners, by earnings per earner	17.7	27.9	100			
2	Economic units, by earnings per unit	17.1	27.2	100			
3	No. of earners per economic unit, in distribution in line 2	1.49	1.49	1.19			
II	*Census Sample*						
	1947						
	Share of income in distribution of:						
4	Recipients, by money income per recipient	19.6	30.2	100	19.0	29.5	100
5	Spending units, by money income per unit	16.4	28.6	100	15.1	26.3	100
6	No. of recipients per spending unit, in distribution in line 5	1.93	2.02	1.40[1.51]	1.95	2.05	1.48[1.64]
	1948						
	Share of income in distribution of:						
7	Recipients, by money income per recipient	18.7	29.2	100	18.6	29.2	100
8	Spending units, by money income per unit	16.2	27.8	100	15.0	25.8	100
	1949						
	Share of income in distribution of:						
9	Recipients, by money income per recipient	18.2	29.0	100	18.1	28.8	100
10	Spending units, by money income per unit	16.5	27.5	100	15.4	25.9	100

I	*Minnesota, 1938-39*						
	Share of income in distribution of:						
11	Economic units, by total income per unit	17.8	27.9	100	17.3	27.0	100
12	Persons, by per capita income per economic unit	19.4	30.8	100	19.5	30.4	100
	No. of persons per economic unit						
13	In distribution in line 11	3.97	3.90	3.12	4.08	3.97	3.66
14	In distribution in line 12	1.78	1.88	3.12	2.47	2.55	3.66
II	*Consumer Purchases Study, 1935-36*						
	Share of income in distribution of:						
15	Spending units, by total income per unit	26.7	36.4	100	26.7	36.2	100
16	Persons, by per capita income per spending unit	30.1	41.4	100	28.6	39.3	100
	No. of persons per spending unit						
17	In distribution in line 15	3.51	3.74	3.19	4.03	4.02	3.94
18	In distribution in line 16	1.58	1.79	3.19	2.97	2.78	3.94
III	*Survey of Spending and Saving in Wartime, 1941*						
	Share of income in distribution of:						
19	Spending units, by money income per unit	20.8	30.1	100	20.7	29.4	100
20	Persons, by per capita income per spending unit	19.5	30.6	100	19.4	30.4	100
	No. of persons per spending unit						
21	In distribution in line 19	4.34	4.06	3.27	4.46	4.15	3.62
22	In distribution in line 20	2.55	2.27	3.27	2.90	2.86	3.62
IV	*Census Sample, Averages for 1944, 1945-49 (5 years)*						
	Share of income in distribution of:						
23	Spending units, by money income per unit	16.7	28.2	100	15.5	26.4	100
24	Persons, by per capita income per spending unit	17.9	29.1	100	17.3	28.3	100
25	No. of years in which annual share underlying line 24 exceeds that underlying line 23	5	5		5	5	
	No. of persons per spending unit						
26	In distribution in line 23	4.02	3.98	3.13	4.10	4.08	3.58
27	In distribution in line 24	1.88	2.09	3.13	2.51	2.64	3.58

Table 24, Part B (From Spending Unit to Person), continued:

	SAMPLE AND UNIT	UNITS Top 5 percent (1)	UNITS Top 10 percent (2)	UNITS Total (3)	FAMILIES Top 5 percent (4)	FAMILIES Top 10 percent (5)	FAMILIES Total (6)
28	No. of years in which line 26 annual entry underlying col. 1 and 2 exceeds that underlying col. 3; or col. 4 & 5 compared with col. 6	5	5		5	5	
29	No. of years in which line 27 annual entry underlying col. 1 and 2 is less than that underlying col. 3; or col. 4 & 5 compared with col. 6	5	5		5	5	
V	*Survey of Consumer Finances, Averages for 1945-50 (6 years)*						
	Share of income in distribution of:						
30	Spending units, by money income per unit	20.8	30.5	100			
31	Persons, by per capita income per spending unit	20.9	32.7	100			
32	No. of years in which annual share underlying line 31 exceeds that underlying line 30	2	6				
	No. of persons per spending unit						
33	In distribution in line 30	3.29	3.25	2.86			
34	In distribution in line 31	2.11	1.94	2.86			
35	No. of years in which line 33 annual entry underlying col. 1 & 2 exceeds that underlying col. 3	6	6				
36	No. of years in which line 34 annual entry underlying col. 1 & 2 is less than that underlying col. 3	6	6				
	C FROM SPENDING UNIT TO EQUIVALENT ADULT						
	Selected Sample for 1941 (nonfarm)						
	Share of income in distribution of:						
37	Spending units, by money income per unit	19.5[21.2]	29.6[30.2]	100			
38	Equivalent adults, by money income per equivalent adult	18.4[18.9]	28.2[29.8]	100			
	No. of equivalent adults per spending unit						
39	In distribution in line 37	3.57	3.37	2.50			
40	In distribution in line 38	2.04	2.09	2.50			

Notes to Table 24

Line

1 Calculated from *Minnesota Analyses,* Table 4, p. 38. Fractional earners are not included. "Adding in the fractional earners has only a negligible effect on the form of the distribution. No single level is changed by more than 0.1 percent" (*ibid.,* p. 37).

2 Calculated from *ibid.,* Table XVI, pp. 114-5.

3 Ratio of individual earners, including fractional, to economic units, calculated from the distributions in *Minnesota Incomes,* II, Table 14, pp. 104-5. The line setting off the top 5 or 10 percent of units in their distribution by total income per unit is drawn through the distribution of earners classified by total income per unit, both distributions being cut at the same point in the income scale. The ratio of the number of earners to the number of units above the given partition line is then computed.

4, 7, 9 Calculated from the distribution of all income recipients (*Census Report, 1947,* Table 14, p. 23; *1948,* Table 11, p. 22; and *1949,* Table 15, p. 29), the distribution of income recipients in families (*ibid.,* Table 16, p. 24, Table 13, p. 24, and Table 18, p. 31, respectively), and the average income for each income class (see text).

5, 8, 10 Calculated from the distribution of spending units and their income, for which see Appendix 6, Section E. Basic data for 1949 are from *Census Report, 1949,* Table 3, p. 21.

6 Calculated from the distribution underlying line 5 and the distribution of recipients classified by total income per spending unit estimated by the method described in the text, note 6. See notes to line 3 for procedure by which the ratios are calculated. As indicated in note 6, these ratios are lower than the actual which are available only for the complete sample (see bracketed entries in col. 3 and 6, computed from the totals underlying lines 4 and 5).

11 Columns 1 and 2 calculated from *Minnesota Analyses,* Table 29, p. 89; columns 4 and 5, from *Minnesota Incomes,* I, Table 9, p. 26.

12 Columns 1 and 2 calculated from *ibid.,* II, Table 55, p. 341; columns 4 and 5, from *ibid.,* II, Table 57, p. 348.

13 Columns 1-3 calculated from the distributions in *ibid.,* I, Table 6, p. 13; columns 4-6, from the distributions in *ibid.,* I, Table 9, p. 26. For the procedure see the notes to line 3.

14 Columns 1-3 calculated from the distributions in *ibid.,* II, Table 55, p. 341; columns 4-6, from the distributions in *ibid.,* II, Table 57, p. 348. The procedure parallels that outlined in the notes to line 3.

15 Calculated from the distribution of spending units and their income derived from Appendix 6, Section A.

16 Calculated from the distribution of persons and their income by the procedure outlined in Appendix 6, Section A.

17 Calculated from the distribution underlying line 15 and the distribution of persons classified by income per unit derived from Appendix 6, Section A. For the procedure see notes to line 3.

18 Calculated from the distribution underlying line 16 and the distribution of spending units classified by per capita income per unit derived from Appendix 6, Section A. The procedure parallels that outlined in the notes to line 3.

19 Calculated from the distribution of spending units and their income derived from Appendix 6, Section D.

20 Calculated from the distribution of persons and their income by the procedure outlined in Appendix 6, Section D.

Notes to Table 24 concluded:

Line	
21	Calculated from the distribution underlying line 19 and the distribution of persons classified by income per unit derived from Appendix 6, Section D. For the procedure see notes to line 3.
22	Calculated from the distribution underlying line 20 and the distribution of spending units classified by per capita income per unit derived from Appendix 6, Section D. The procedure parallels that outlined in the notes to line 3.
23	Averages of annual percentages calculated from the distribution of spending units and their income, for which see Appendix 6, Section E. Basic data for 1949 are from *Census Report, 1949,* Table 3, p. 21.
24	Averages of annual percentages calculated from the distribution of persons and their income by the procedure outlined in Appendix 6, Section E. For source of 1949 basic data, see notes to line 23.
26	Calculated annually from the distributions underlying line 23 and the distribution of persons classified by income per unit, for which see Appendix 6, Section E. For source of 1949 basic data, see notes to line 23. For the procedure see notes to line 3.
27	Calculated annually from the distributions underlying line 24 and the distribution of spending units classified by per capita income per unit, for which see Appendix 6, Section E. For source of 1949 basic data see notes to line 23. The procedure parallels that outlined in the notes to line 3.
30	Averages of annual percentages calculated from the distribution of spending units and their income, for which see Appendix 6, Section F. Basic data for 1949 and 1950 are from the 1950 and 1951 Surveys of Consumer Finances, Part III (*Federal Reserve Bulletin,* Aug. 1950 and 1951, respectively) with supplementary data from George Katona of the Survey Research Center, University of Michigan.
31	Averages of annual percentages calculated from the distribution of persons and their income by the procedure outlined in Appendix 6, Section F. For source of 1949 and 1950 basic data, see notes to line 30.
33	Calculated annually from the distributions underlying line 30 and the distribution of persons classified by income per unit, for which see Appendix 6, Section F. For source of 1949 and 1950 basic data, see notes to line 30. For the procedure see notes to line 3.
34	Calculated annually from the distributions underlying line 31 and the distribution of spending units classified by per capita income per unit, for which see Appendix 6, Section F. For source of 1949 and 1950 basic data, see notes to line 30. The procedure parallels that outlined in the notes to line 3.
37, 38, nonbracketed entries	Calculated from William Vickrey (*Studies in Income and Wealth, Volume Ten,* NBER, 1947), Table 7, p. 282, and Table 6, p. 281, respectively.
37, bracketed entries	Calculated from the distribution of nonfarm units and their income derived from Appendix 6, Section D.
38, bracketed entries	Calculated from the distribution of persons in nonfarm units and their income derived from Appendix 6, Section D.
39	Calculated from the distributions of schedules and of equivalent adults, both classified by money income per family group, *Studies in Income and Wealth, Volume Ten,* Table 3, p. 278. For the procedure see notes to line 3.
40	Calculated from the distributions of equivalent adults and of schedules, both classified by income per equivalent adult, *ibid.,* Table 1, p. 276. The procedure parallels that outlined in the notes to line 3.

persons 14 and older.[4] The number of recipients and of families and single persons are distributed by money income classes. Distributions of receipts including property incomes are shown for 68.3 million persons in 1947, 70.1 million in 1948, and 71.8 million in 1949, corresponding to distributions for 45.3, 46.7, and 48.0 million spending units (families and single persons) respectively, or an average of 1.5 income recipients per spending unit each year.

Before these data can be used, one important step must be taken: average income must be assigned to each income class, no such averages being given in the published data. In the analysis that follows we assign to each income class in the Census tabulations the arithmetic mean of its lower and upper value, e.g., to the $500-1,000 class, a value of $750; to the bottom open-end class (less than $500), an average income of $200; and to the top open-end class ($10,000 and over), an average income of $12,500. The average values assigned to the classes in the distributions of recipients and of families and single persons were the same.[5]

The top 5 and 10 percent of spending units, arrayed by money income per unit, have appreciably smaller shares than the top 5 and 10 percent of income recipients, arrayed by money income per recipient (col. 1 and 2, lines 4 and 5, 7 and 8, 9 and 10). This difference, observed in each of the three years, is even greater when we confine the comparison to families (col. 4 and 5, lines 4 and 5, 7 and 8, 9 and 10). And since the Census samples are better for the purpose of this analysis than the Minnesota data, it is legitimate to infer that, in general, the top groups in a distribution of recipients are likely to have significantly larger shares than the top groups in a distribution of spending units.

[4] This information and all subsequent tabular material relating to the Census samples for these years are from *Income of Families and Persons in the United States: 1947, 1948,* and *1949,* Bureau of the Census, Current Population Reports, Series P-60, No. 5, February 7, 1949, No. 6, February 14, 1950, and No. 7, February 18, 1951, respectively (referred to subsequently as *Census Report, 1947, 1948,* and *1949*). The family as thus defined may be larger than the genuine spending unit, since it may include two couples who reside together, whose husbands or wives may be related but who may not be pooling their incomes and expenses. According to estimates made in connection with the 1948 Survey of Consumer Finances, there were, at the beginning of 1948, 42.0 million families and single persons, and 48.4 million spending units (*Federal Reserve Bulletin,* June 1948, p. 655). One may view the Census number for 1947, 45.3 million families and individuals, as a fairly close approximation to spending units.

[5] An alternative set of assigned average incomes – the same for the bottom open-end class, the geometric mean of class limits for all closed class intervals, and $25,000 for the top open-end class – produces somewhat different shares. But as the general results of the comparisons for the different income units are not significantly affected, we refrain from complicating the discussion by presenting these alternative estimates.

This reduction in the shares of the top groups as we shift from the recipient to the spending unit may be due to one or both of two factors: (i) there may be fewer recipients per spending unit in the top groups than the average; (ii) in forming spending units, recipients of large and small incomes may combine, and such departure from positive association among incomes narrows the range of the distribution among spending units and hence reduces the share of its top groups. Of these two factors it is the second that operates. There are more recipients per spending unit in the top groups than the average for all groups. Evidence to this effect relating to the average number of earners per top economic unit in Minnesota has already been noted. Likewise, the 1947 Census data, which permit only a rough approximation, yield an average of 1.93 recipients per unit in the top 5 percent of spending units, 2.02 in the top 10 percent, and only 1.40 per spending unit for the total population. Similarly, the average number of recipients per top family spending unit is larger than that for all families (Table 24, line 6).[6] Clearly, the association between large and small incomes in the combination of recipients into spending units must be of sufficient weight to overcome the effects of more recipients per unit in the top groups of spending units. Indeed, such nonpositive association (it need not be strictly negative) is implicit in the very distinction we usually make between primary or principal, and secondary or supplementary income recipients. This distinction could not be made if there were a widespread tendency for a small (large) income to combine with an equally small (large) income, i.e., if recipients within a spending unit tended to have equal incomes.

b) *From spending unit to person*

Since spending units may range from a single person to a large family, inequality in the distribution of income among them may be due in part to differences in their size and hence in the number of potential earners

[6] We have in *Census Report, 1947* a distribution of families and single persons by number of paid workers (Table 9, p. 20). Units with no paid workers are also shown. Assuming that each of the latter is represented by one income recipient, and that the average number of paid workers in families with 3 or more earners is 3.45 (as derived from *ibid.*, Tables 9 and 17) we can calculate the average number of recipients per unit for units classified by total income. This calculation yields a smaller number of recipients than the true (as revealed by an average of 1.40 per spending unit compared with the true average, 1.51). But this qualification does not affect the validity of the main showing, namely, that the number of recipients per unit in the top groups of spending units is well above the average. Similar calculations for 1948 and 1949 do not yield consistent estimates of the number of earners for families with 3 or more earners, and cannot, therefore, be used in the present connection.

or other income recipients per unit. Furthermore, the adequacy of income is to be judged, in part, in terms of the number who depend on it. We therefore adjust the distribution of spending units to allow for the number of persons, i.e., reduce it to a per capita basis, and compare the adjusted distribution with the unadjusted.

As in other comparisons, we need data for the same population and income, distributed, on the one hand, by total income per spending unit and, on the other, by per capita income per spending unit. Ideally, such a comparison requires that the original data for each spending unit be classified twice. But only the Minnesota data have been; for all other sample studies we had to approximate the classification of spending units by per capita income by converting and rearraying (see App. 6). However, the approximations are sufficiently good to qualify the comparisons in Table 24 in only minor ways.

The comparisons in lines 11-36 that bear upon income shares are all of a type that is only one of four possible with different combinations of the population unit used in the array and the income on which the array is based. These four types of comparison, possible for either total population or family population alone, are given in the outline on page 106. In analyzing upper group shares in Part I our interest was in the second term of these comparisons, and we used lines A2 and D2 whenever possible, substituting lines B2 and C2 elsewhere as approximations. Our interest here is in the comparison itself, and for this purpose that under A in the tabular outline is the one given in Table 24, since it reveals most clearly the effects of shifting the unit of classification from a spending unit to a person inasmuch as neither underlying distribution involves any damping.

Neither the sign nor the size of the difference in income shares in lines 11-36 is arithmetically predetermined. True, in the conversion to a per capita basis, some spending units that ranked high in the scale of total income per unit move down because the number of persons in them is larger than the average; and some spending units that ranked low move up because the number in them is smaller than the average. But such reshuffling of spending units may produce a distribution of income among persons that is either less unequal, yielding a smaller share for the upper groups, or more unequal, yielding a larger share for the upper groups.

The comparisons tend to show, with some though not complete unanimity, that the upper percentage bands in a distribution of persons classified by per capita income per spending unit have shares larger than those of the corresponding bands of spending units classified by total income per spending unit. This is true of the comparison for Minnesota for 1938-39, statistically the most adequate since it does not involve any

Population Unit Used in the Array	*Income Size Used as Basis of Array*	*Income Shares Related to Ordinal Groups of:*	*Characteristics of Resulting Distribution*
	A		
1 Spending units	Income per spending unit	Spending units	Full
2 Persons	Per capita income per spending unit	Persons	Full
	B		
1 Spending units	Per capita income per spending unit	Spending units	Damped
2 Persons	Income per spending unit	Persons	Damped
	C		
1 Spending units	Income per spending unit	Spending units	Full
2 Persons	Income per spending unit	Persons	Damped
	D		
1 Spending units	Per capita income per spending unit	Spending units	Damped
2 Persons	Per capita income per spending unit	Persons	Full

approximations; of that for 1935-36; and of those for each of the five years covered by the Census data. For the 1941 sample data, and for four out of the six years covered in the Surveys of Consumer Finances, the share of the top 5 percent of persons classified by per capita income per spending unit is slightly smaller than that of spending units classified by income per unit. But when the comparison is extended to the top 10 percent, the result is reversed, becoming fully consistent with the evidence for other years and other samples.

Why should the share of the top group increase as we shift from a distribution of spending units classified by income per unit to a distribution of persons classified by per capita income per spending unit? It must be that many spending units at high levels of income per unit have a small number of persons each. In the conversion to a per capita basis, these spending units ascend to a range higher in the relative scale than when classified by income per unit. Conversely, there must be many spending units at low levels of income per unit, with a large number of persons each; and in the conversion to a per capita basis, they descend even lower,

extending the range of the distribution. In other words, because of the nonpositive association between size of income and number of persons per unit, the conversion to a per capita basis makes the range of the income distribution among persons wider than that among spending units.

The increase in upper group shares resulting from the conversion of a distribution by total income per spending unit to a distribution by per capita income per unit is minor, however, compared with the extent of the reshuffling process entailed. The magnitude of the latter is clearly indicated by the large difference in the average size of the top groups of each distribution compared (lines 13 and 14, 17 and 18, 21 and 22, 26 and 27, 33 and 34). In each comparison, whether for all spending units or for families alone, the number of persons per unit in the upper groups is much smaller in the distribution based on per capita income per unit than in that based on income per unit. As may be seen in the tables in Appendix 6, conversion to the basis of income per capita causes a large proportion of single persons and small families to move from the lower levels they occupy when classified by total income per spending unit to much higher levels on the scale of per capita income. There is necessarily an offsetting downward movement of large spending units with large total income whose per capita income is small. Since size of spending unit, judged by the number of persons in it, is associated with other economic and social characteristics, the difference in the composition of the top groups in the two distributions is of considerable analytical significance.

c) *From spending unit to 'equivalent adult'*

If the adjustment for the number of persons in a spending unit is designed to yield a better approximation to the real economic status of the persons in the unit, one could argue that a still better approximation might be obtained by taking into account the age and sex of the persons in the unit, if not other characteristics. The conversion should therefore be to some synthetic unit that represents equivalent magnitudes in terms of need, productive performance, or some other criterion.

Desirable as such an approach may be, we cannot pursue it, first, because of lack of agreement concerning what is in fact an equivalent unit independent of income status itself; second, because of lack of data and difficulty in carrying through such refined conversions with the available data. Yet by way of illustration we describe one experiment, that by William Vickrey, using the original returns of the Survey of Spending and Saving in Wartime for 1941.[7]

[7] See his Resource Distribution Patterns and the Classification of Families, *Studies in Income and Wealth, Volume Ten* (NBER, 1947), pp. 266-97.

Mr. Vickrey used 925 original schedules for rural nonfarm units and 1,222 for urban units, weighting them respectively 1 and 2 in the combined distributions. While the urban and nonfarm samples were thereby covered quite completely, farm units were excluded, and the weighting of urban and rural nonfarm groups differed from that followed in the Survey. It is the latter factor that perhaps explains why the shares of the top 5 and 10 percent groups based on the published distribution of spending units differ from the shares in Mr. Vickrey's distribution by total income per unit (cf. bracketed and nonbracketed entries in Table 24, col. 1 and 2, line 37).

The conversion to equivalent adults was as follows (pp. 274-5).

"Persons over 20 years of age were counted as 'equivalent adults' if they worked more than 34 weeks during the year; as 0.9 of an equivalent adult if they worked 12 to 34 weeks, and 0.8 if they worked less than 12 weeks. Persons between 16 and 20 were counted as 1 if they worked more than 34 weeks, 0.8 if they worked 12 to 34 weeks, and 0.7 if they worked less than 12 weeks. Children aged 11 to 15 were counted as 0.5; children aged 6 to 10, as 0.4; and children under 6 years old, as 0.3. In addition, for the first child under 15, 0.2 was added to the total as an allowance for the initial expenses involved in setting up a household with accommodations for a child, expenses that in general are not duplicated for additional children . . . The number of 'equivalent adults' in each family was computed according to the above scheme, and the income . . . divided by this figure, to obtain the income . . . per equivalent adult."

It is from the distribution based upon the conversion to a per equivalent adult basis that we got for line 38 of Table 24, nonbracketed figures, the shares of the top 5 and 10 percent in the population of equivalent adults, arrayed by income per equivalent adult calculated for each spending unit. The nonbracketed figures in line 37 are those derived from the distributions of spending units by income per unit as used by Mr. Vickrey. The bracketed figures (lines 37 and 38) are the shares of the top percentage bands of spending units and of persons arrayed by total and per capita income per spending unit respectively, for the nonfarm sector of the 1941 sample as shown in the originally published data.

In Mr. Vickrey's procedure the difference between the number of persons and of equivalent adults was influenced chiefly by the relative proportion of young children, and less importantly, by the extent of nonparticipation in income earning activity by adults. The shares of both the top 5 and 10 percent of equivalent adults are distinctly smaller than those of spending units (lines 37 and 38, col. 1 and 2, nonbracketed entries). Hence, in the conversion, certain units that were high in the array by total income per unit must have dropped substantially because the number of equivalent adults in them was well above the average; and the compensa-

tory upward movement of units with fewer than the average number of equivalent adults was not sufficient to restore the relative advantage of the top 5 or 10 percent. The extent of reshuffling of units involved in the conversion from the distribution by income per unit to that by income per equivalent adult is indicated by the sharp reduction in the number of equivalent adults per unit in the top groups (cf. lines 39 and 40): whereas in the distribution by total income per unit the number of equivalent adults per unit at the top levels is significantly larger than the average, in the distribution by income per equivalent adult it is significantly smaller than the average.

The results of the conversion to income per equivalent adult, as far as changes in upper group shares are concerned, are not dissimilar to those yielded by the conversion to income per person (lines 37 and 38, bracketed entries): the latter also reduces the shares of the top 5 and 10 percent groups.[8] Yet there may be a significant difference in the reshuffling process due to such conversions. In other words, the personal composition of the top group of spending units arrayed by per capita income per unit may well differ from that of the top group of equivalent adults arrayed by per equivalent adult income per spending unit. Any further analysis of the 'equivalent unit' problem will have to await additional exploration, and more important, analysis of the entire distribution.

d) *Concluding comments*

In conclusion, it may be useful to attempt a brief summary of the major points touched upon.

i The choice of the proper unit is beset with difficulties if we deal with a distribution of total income rather than some narrowly defined category of earned income; and if, as is inevitable in dealing with total income, we are concerned largely with the bearing of income shares upon the uses of income. The recipient unit does not meet our needs, for the reasons indicated in Chapter 1, the major being that there may be a wide difference between it and a spending or consuming unit. The spending or consuming unit gives rise to other difficulties: the pooling of incomes may vary in scope with respect to different types of use (e.g., as between expenditures on food and extraordinary outlays such as the purchase of a house or the expenses of a prolonged sickness); and spending units differ rather widely with respect to their size and needs. Reduction to a per capita basis is obviously a rough adjustment, but the only practicable one. A truly satis-

[8] In this conversion to income per person the results for the top 10 percent (but not the top 5 percent) differ from those for the top 10 percent for the total sample (see lines 19 and 20, col. 2). This may well be due to the exclusion of the farm population from the bracketed entries in lines 37 and 38.

factory solution could perhaps be attained with richer data, and particularly by dint of analysis directed at some specific use for which the income distribution is intended.

ii As far as upper group shares are concerned, the sample data indicate that, generally, they are larger in the distribution by income per recipient than by total income per spending unit; and larger in the distribution among persons (by per capita income per spending unit) than among spending units (by total income per unit). Yet the differences in upper group shares thus revealed are, on the whole, small — at least for the top 5 or 10 percent group in the years covered by the sample data.

iii Much more significant are the differences in the personal composition of the upper income groups in the distributions that employ different units. As we shift from recipient to spending unit, or from spending unit to person, substantial reshuffling occurs: units at the top of one distribution may be considerably below the top of another, and vice versa. Study of the factors that determine differences in income shares among different groups is thus vitally affected by the choice of the unit, since it governs in some degree the social and other characteristics of the groups at various levels of the distribution.

2 *Income Scope*

As mentioned above, upper group shares are affected by what is included in the income used as the basis for arraying by size. The inclusion of imputed rent reduces them because its weight in the income of the upper groups is much smaller than in the income of the lower groups; and the inclusion of the excess of gains over losses from sales of assets has the opposite effect because it is relatively so much more important in the income of the upper groups. One could generalize that the addition of any item to the income base will increase or diminish the shares of upper groups as the item is of greater or smaller relative weight in their incomes than in the incomes of lower groups. This proposition must be true unless the item added is so large compared with items already included as to cause a significant rearraying of units.

The analysis that follows is purely illustrative, and is not intended to add much to the observation just made. Rather, it attempts to indicate the effects of alternative definitions of income scope that are common and do not materially modify the income totals.

a) *Total and money income*

The distinction between total and money income due to the inclusion of income in kind in the former has become of special practical interest in recent years because in the current sample studies (Census Bureau and

Surveys of Consumer Finances) coverage is confined to money income. It is thus important to observe the effects on upper group shares of excluding income in kind. These effects can be studied for nonfarm groups in the Minnesota data, and for all groups in the Survey of Spending and Saving in Wartime for 1941 (Table 25, lines 1-15). In neither case did it seem advisable to observe groups below the top 5 percent.[9]

While the comparisons in Table 25, Part A, are of total and money income, the classification for each pair of distributions is by one income base, not, as it should be, by two. Thus in Section I shares in total and money income are calculated from distributions by total income; and in Section II, from distributions by money income. The use of total income as a base does not affect the shares of upper groups in total income but may reduce the range and shares in money income. The use of money income as a base does not affect the shares of upper groups in money income but may reduce the range and shares in total income.

It is therefore significant that in both Sections I and II, upper group shares in total income are smaller than in money income. Thus, omission of nonmoney income consistently increases the percentage share of the top 5 percent — a clear indication that income in kind is of much less relative weight for upper than for lower income groups. Were income in kind a constant proportion of money income at all levels, the shares in lines 2, 5, 8, 11, and 14 would be identical with those in lines 1, 4, 7, 10, and 13. If all income in kind were received by the lower 95 percent, the share of the top 5 percent group in lines 2, 5, 8, 11, and 14 would be 18.9, 17.8, 23.5, 18.4, and 25.8 percent respectively. The actual shares tend to be nearer those resulting from the second than from the first assumption.

That the weight of income in kind in total income is much less for the top 5 percent than for the total population is shown by the ratios in lines 3, 6, 9, 12, and 15 calculated from the data underlying the shares. The relative increase in the top group's share resulting from the exclusion of income in kind equals the relative excess of the ratio in column 4 over that in column 1.

Contrasting the changes in upper group shares in Table 25, Part A, with those in Table 24 we see that while the conversion from spending units

[9] Margaret G. Reid analyzes the problem of evaluating nonmoney income and the effect different bases of evaluation have on the distribution of total income (Distribution of Nonmoney Income, *Studies in Income and Wealth, Volume Thirteen*, NBER, 1951, pp. 124-85). Table 25 is derived from the published data without any of the adjustments Miss Reid uses. The broad results are the same; and we thought it best to retain the distributions as they have been used in other chapters of this study.

Table 25

Percentage Shares of Upper Groups in Different Concepts of Income
Various Samples or Tax Data

		Share of Given Percentage Band			
		Top 5 (1)	2nd-5th (2)	Top 1 (3)	Total (4)
	A TOTAL AND MONEY INCOME				
I	*Minnesota, 1938-39: Economic Units Classified by Total Income*				
	URBAN UNITS				
1	Share in total income	17.8			100
2	Share in money income	18.4			100
3	Ratio: total to money income	1.03			1.06
	RURAL NONFARM UNITS				
4	Share in total income	16.0			100
5	Share in money income	17.3			100
6	Ratio: total to money income	1.02			1.11
II	*Survey of Spending and Saving in Wartime, 1941: Spending Units Classified by Money Income*				
	URBAN UNITS				
7	Share in total income	22.0			100
8	Share in money income	22.7			100
9	Ratio: total to money income	1.04			1.07
	RURAL NONFARM UNITS				
10	Share in total income	15.7			100
11	Share in money income	17.3			100
12	Ratio: total to money income	1.06			1.17
	FARM UNITS				
13	Share in total income	17.8			100
14	Share in money income	23.3			100
15	Ratio: total to money income	1.11			1.45
	B TOTAL AND ECONOMIC INCOME				
	Minnesota, 1938-39: Economic Units Classified by Total Income				
16	Share in total income	17.8	10.8	7.0	100
17	Share in economic income	18.0	11.4	6.6	100
18	Ratio: total to economic income	1.05	1.01	1.13	1.06
	C TOTAL INCOME AND NET INCOME, TAX DEFINITION				
	Delaware State Tax Returns				
	1936				
19	Share in total income, returns by total income	48.0	12.2	35.8	100
20	Share in net income, returns by net income	45.7	13.0	32.7	100
21	Ratio: total to net income	1.19	1.06	1.24	1.13
	1937				
22	Share in total income, returns by total income	44.4	12.4	32.0	100
23	Share in net income, returns by net income	37.0	13.3	23.7	100
24	Ratio: total to net income	1.44	1.12	1.62	1.20

Table 25, Part C (Total Income and Net Income, Tax Definition) concluded:

		Share of Given Percentage Band			
		Top 5 (1)	2nd-5th (2)	Top 1 (3)	Total (4)
	1938				
25	Share in total income, returns by total income	39.6	13.2	26.4	100
26	Share in net income, returns by net income	34.6	13.5	21.1	100
27	Ratio: total to net income	1.31	1.12	1.43	1.14

Line

1, 4
Col. 1 Calculated from *Minnesota Incomes,* I, Table 2, p. 2, and Table 6, p. 14. For urban, data for communities of 100,000 and over and 2,500-24,999 are combined.

2, 5
Col. 1 Calculated from *ibid.,* II, Table 19, p. 160.

3, 6
Col. 1 & 4 Ratio of total income underlying line 1 or 4 to money income underlying line 2 or 5.

7, 10, 13
Col. 1 Calculated from the distribution of units and their income (see App. 6, Sec. D). Units are arrayed by per unit income.

8, 11, 14
Col. 1 Calculated from the distribution of units and the per unit money income (see App. 6, Sec. D). For classes for which there is no entry in the source, estimates paralleling those for line 7, 10, or 13 are used.

9, 12, 15
Col. 1 & 4 Ratio of total income underlying line 7, 10, or 13 to money income underlying line 8, 11, or 14.

16
Col. 1-3 See notes to Table 24, line 11.

17
Col. 1-3 From the distribution of economic units and their total income as shown in *Minnesota Analyses,* Table 29, p. 89, are subtracted, respectively, the economic units receiving noneconomic income alone (*Minnesota Incomes,* II, Table 28, p. 213) and the amounts of noneconomic income comprising refunds from cooperatives, unemployment compensation, benefits, pensions, annuities, regular contributions for support, other gifts, lump sum payments, other income (*ibid.,* II, Table 27, pp. 204-7) and direct relief (*ibid.,* II, Table 32, p. 234). Units having no economic income are re-entered at the zero income level. From the resulting distribution of units and income the shares for the upper groups are calculated.

18
Col. 1-4 Ratio of total income underlying line 16 to economic income underlying line 17.

19, 20, 22, 23, 25, 26
Col. 1-3 To the full year returns by total and by net income classes as shown in *Delaware Income Statistics* (University of Delaware, Bureau of Economic and Business Research, 1941, litho.), I, Table 5, pp. 101-9, is assigned the average income for the given class. For the classes $1,000 and under, and $25,000 and over, the actual total income per return is computed from *ibid.,* Table 1. For the other classes the arithmetic mean of the upper and lower levels is used. Returns with zero income are excluded. From the resulting distribution of returns and income the shares for the upper groups are calculated.

21, 24, 27
Col. 1-4 Calculated from the absolute amounts underlying the shares.

to persons or equivalent adults affects the shares of upper groups only moderately, reshuffling is widespread and the change in the personal composition of these groups is quite substantial. In the change in income scope, however, relatively minor additions or exclusions seem to have fairly full effect on upper group shares; but in Table 25 there is no reshuffling and it would have been quite small even if we had used two income bases. Indeed, this negative association between the change in the shares and reshuffling is to be expected: reshuffling may have a compensating effect on the shares, since an adjustment that sends a unit down the array brings up another unit which partly cancels the effect of the reduction, and an adjustment that does not send a unit down will have full effect in reducing the share of the given ordinal class, i.e., corresponding percentage band.

b) *Total and economic income*

It is not uncommon in sample studies, particularly those undertaken in connection with family expenditures, to include in income various items that do not flow from the unit's economic activity: direct relief, gifts, benefits, other contributions for support, lump sum payments, etc. The Minnesota data for 1938-39 are sufficiently detailed for us to compare at least approximately a distribution by income including all these noneconomic receipts and by income confined to receipts from economic activity proper. Economic income includes wages and salaries, entrepreneurial income, interest, dividends, net rents and royalties, imputed rent, and net profit or loss from nonowner operated business. These payments or receipts account for $1.11 billion in a $1.18 billion total. The remainder includes direct relief (work relief is classified under wages and salaries), refunds from cooperatives, unemployment compensation, benefits, pensions, annuities, regular contributions for support, lump sum payments (inheritances, insurance settlements, and the like), other gifts, and other income. Of the $70 million of noneconomic income, direct relief amounts to $25 million; unemployment compensation, benefits, pensions, and annuities to about $20 million; contributions and gifts to about $11 million; and lump sum payments to somewhat over $13 million (*Minnesota Analyses,* p. 86).

In lines 16 and 17 we study the comparison for the top 1 as well as for the top 5 percent. But again both total and economic income are classified by one base – total income (except for the few returns having noneconomic income alone, entered at the zero level in the distribution of economic income). We would expect this income base to make the share of the top group in economic income smaller than in total income. Yet while the share of the top 1 percent is smaller in economic than in total income, that of the top 5 percent – and particularly that of the 2nd-5th percentage band – is larger.

This finding is confirmed by line 18 which shows that the noneconomic receipts that distinguish total from economic income are a larger proportion of total income for the top 1 percent than for all units, and a much smaller proportion for the 2nd-5th percentage band. The puzzle is resolved when we observe that of the noneconomic receipts, excluded when we pass from line 16 to line 17, some are to be associated largely with a high income position, at least in the given year (e.g., lump sum payments),[10] and some with a low income position (e.g., direct relief, gifts, contributions for support). Hence, omission of noneconomic items may reduce the share of the top 1 percent by excluding large lump sum payments, and the shares of groups at the bottom of the distribution, by excluding transfer payments. This reduction of shares at the upper and lower ranges naturally raises the shares of groups in the intermediate ranges.

The findings for Minnesota suggest that, in general, noneconomic income is of two rather distinct categories: one, usually associated with very low levels of economic income, consists of relief, retirement, and gift or support types; the other is either customary only at very high income levels or comes in such large chunks as to raise automatically the recipient units to a high current income position. The effect of these two categories on upper group shares is naturally different, and not necessarily of the same sign for the several upper percentage bands.

c) *Total income and net income, tax definition*

This comparison requires a body of tax returns that accounts for all or almost all of the population of an area, classified by bases comparable with our economic income, on the one hand, and with net income, tax definition, on the other. Only the Delaware state tax returns for 1936-38 permit such a comparison. All other tax return data are for a small fraction of total population, fail to classify returns by two income bases, or are unsatisfactory in both respects.

The Delaware tax data account for somewhat over 80 percent of the state's population 21 years and older (this estimate includes returns with no income but does not allow for possible dependents over 21 years).[11] One may assume that the tax returns cover almost 80 percent of total income originating in the state, an assumption roughly confirmed by comparing the total income reported on them (source cited in note 11, Table F, p. xxxiii) with Department of Commerce estimates of the state's income

[10] This is confirmed by *Minnesota Incomes,* II, Table 27, p. 206: almost half of all lump sum payments are received by units in the $5,000 and over income class, the highest in the Minnesota distributions.

[11] *Delaware Income Statistics* (University of Delaware, Bureau of Economic and Business Research, 1941, litho.), I, Table G, pp. xxxiv-vii.

payments (*Survey of Current Business,* July 1942, p. 24).

Total income excludes capital gains and includes all types we classify under economic income. Net income includes capital gains and allows for deductions of interest and taxes paid, capital losses, and contributions. For the three years the net excess of total over net income is approximately 16 percent of the latter. But the gross difference – more relevant for judging the comparison – is bigger, averaging over 26 percent of the smaller total. From tax returns covering the full year and published in a double classification – by total and by net income classes – we estimated the shares of the upper percentage bands, after assigning to each income class its mid-value (Table 25, lines 19 and 20, 22 and 23, 25 and 26).

The share of the top 1 percent is distinctly smaller in the classification by net income, obviously because of the differential impact of tax and contribution deductions which are heavier on the top income classes and outweigh the opposite effect of the inclusion of capital gains. This difference persists for the share of the top 5 percent only because the top 1 percent dominates it. For the 2nd-5th percentage band the share in the distribution by net income is slightly larger than in that by total income. These findings are confirmed by lines 21, 24, and 27 which show that the items excluded in passing from total to net income are a larger proportion of the total income for the top 1 and 5 percent than for the total tax return population, and a smaller proportion for the 2nd-5th percentage band.

Temporal changes in the share of the top 1 percent are more conspicuous and prompt in the distribution of net income. For example, the share in column 3 declines from 32.7 percent in 1936 to 21.1 in 1938 – more than a third – most of the decline occurring between 1936 and 1937; its share in total income declines from 35.8 to 26.4 percent – or only about a quarter – and considerably more than half this decline occurs between 1937 and 1938. Because the top 1 percent dominates the top 5 percent, the differences in the behavior of the former's share in total and in net income characterize also the latter's share. They do not hold for the 2nd-5th percentage band whose share increases from 1936 to 1938, that in total income exceeding that in net income.

Total income per return rose slightly, from $2,160 in 1936 to $2,232 in 1937, then declined to $1,919 in 1938; net income was $1,907, $1,863, and $1,677 respectively. The over-all decline in net income per return from 1936 to 1938 is not much different from that in total income per return: about 12 and 11 percent respectively. The differences between changes in upper group shares in the distributions by total and net income can be attributed only in small part to differences in the movement of total and net income per return for the whole tax return population: they must

be due chiefly to differences in the extent and timing of the impact of the combination of capital gains with the loss, tax, and contribution deductions on the several upper income groups as compared with their impact on the total tax return population.

While the Delaware distributions show unusually high shares for the top 1 and 5 percent and cover only a brief period, one conclusion seems justified: for the top brackets, where capital gains and losses, taxes, and contributions may be large, the level of shares in net income is likely to be lower than in total income, and short term fluctuations associated with business cycles are likely to be more prominent and prompt.

3 *Combination of Income Types*

Is combination of incomes of several types more prevalent among upper income groups than among the total population? If it is, is it important in accounting for the excess of upper group per capita income over per capita income for the country as a whole? We cannot answer either question precisely with the existing data, but we can draw inferences from several bodies of evidence.

a) *Extent of combination: top group and all tax returns*

Federal tax returns for 1936, Wisconsin state tax returns for 1929, 1935, and 1936, and Delaware state tax returns for 1936-38 are classified by source and by number of sources as well as by total income in one or another variant of that total. We can, therefore, compare the relative frequency of single and multi-type income returns in the upper brackets and in the tax return population at large.

The data published for the three sets of returns do not distinguish the same number of types of income or even the same types: e.g., Wisconsin, but neither the federal government nor Delaware, reports withdrawals from inventories for own use. Moreover, some types of income reported, such as capital gains, are not considered economic income by us. We attempted to adjust the federal sample by combining related types that were reported separately, e.g., business with partnership income, and interest, from whatever source, with fiduciary income; by omitting gains and losses from sales of assets; and by reclassifying returns whose sources we had combined or omitted. The published data for Wisconsin and Delaware did not admit of such detailed adjustment.

While, consequently, the three sets of data in Table 26 are not fully comparable, they unmistakably agree concerning some aspects of combination. First, the proportion of multi-type returns is much larger among upper brackets than among all returns. In all three samples the proportion of returns with three or more income types is over a half at the upper

Table 26

Extent of Combination of Income Types, Top Group of Returns and All Returns, Various Tax Data

Type of Return and of Income Reported	Federal Tax Returns 1936		Wisconsin State Tax Returns Av. for 1929, 1935, 1936		Delaware State Tax Returns[a] Av. for 1936-38	
	Top 6.5		*Top 4.8*		*Top 2.4*	
	Percent (1)	*Total* (2)	*Percent* (3)	*Total* (4)	*Percent* (5)	*Total* (6)
A Percentage Distribution of Returns by Number of Income Types Reported						
1 Single type	15.0	57.0	18.5	60.8	8.9	74.3
2 Two type	28.5	24.2	24.5	23.5	30.7	16.2
3 Three or more type	56.5	18.8	57.0	15.8	60.4	9.5
B Percentage Distribution of Returns between Pure and Mixed by Type of Income Reported[b]						
Wages & salaries						
4 Pure	11.1	59.8	22.4	70.1	9.7	79.0
5 Mixed	88.9	40.2	77.6	29.9	90.3	21.0
Business & partnership income						
6 Pure	16.0	45.5	20.4	38.0	19.6	62.6
7 Mixed	84.0	54.5	79.6	62.0	80.4	37.4
Rent						
8 Pure	1.9	4.7	1.7	8.6	0.1	15.7
9 Mixed	98.1	95.3	98.3	91.4	99.9	84.3
Interest						
10 Pure	4.5	4.7	0.4	6.8	0.1	8.0
11 Mixed	95.5	95.3	99.6	93.2	99.9	92.0
Dividends						
12 Pure	2.5	3.1	0.7	3.8	2.0	5.8
13 Mixed	97.5	96.9	99.3	96.2	98.0	94.2
C Percentage Distribution of Pure Returns by Type of Income Reported						
14 Wages & salaries	42.5	80.6	69.3	88.2	56.1	84.1
15 Business & partnership income	29.3	15.1	26.6	8.6	24.4	10.9
16 Rent	1.9	0.9	1.1	1.0	0.2	1.5
17 Interest (incl. fiduciary income)	13.6	1.9	1.5	1.4	6.0	1.7
18 Dividends	11.4	1.3	0.9	0.5	13.0	0.9
19 Other	1.3	0.3	0.6	0.3	0.2	0.9
D Percentage Distribution of Mixed Returns by Type of Income Reported, excluding 'Other'[b]						
20 Wages & salaries	25.8	32.0	38.5	39.7	28.2	32.3
21 Business & partnership income	11.7	10.7	15.4	17.1	4.4	8.6
22 Rent	7.3	10.3	5.6	11.9	9.6	11.9
23 Interest (incl. fiduciary income)	21.6	23.2	13.6	15.9	24.0	26.0
24 Dividends	33.6	23.8	27.0	15.5	33.9	21.3

levels (the levels having been drawn at different percentage lines to allow for area-to-area differences in the proportion of the population covered by tax returns and to approximate the top 1 to 2 percent of the given area's total population); it is much less than a quarter for the total tax return population. The federal and Wisconsin returns represent only small proportions of the total population of the country and state respectively; consequently, even columns 2 and 4 are for income levels higher than for the total population of the areas. Had we data on the latter, the proportion of single type returns would be higher than it is in columns 2 and 4; and that of double or multi-type returns lower. It is significant that the Delaware data, the most inclusive of the three in respect of population coverage, have the highest proportion of single type returns (col. 6).[12]

Second, as we distinguish between pure, i.e., single type, and mixed, i.e., two or more type, returns by the type reported, we find that the proportion of mixed returns is invariably higher in the upper brackets than

[12] And this after the exclusion of returns that report no income. When we include them and recalculate column 6, the results are: no income, 14.1 percent; one type, 63.8 percent; two types, 13.9 percent; three or more types, 8.1 percent. Single type returns and those with no income account for 77.9 percent of the total.

Notes to Table 26

[a] Excluding no-source returns.

[b] Wisconsin entries in Parts B and D are based upon 1936 data alone.

The classification in Parts B and D for Wisconsin and Delaware is affected by lack of a complete classification of multi-source returns by type of income reported on them. Only the two major sources for Wisconsin and the major combinations for Delaware are fully distinguished. Hence the percentages of 'pure' returns (lines 4, 6, 8, 10, and 12) are somewhat overstated, and those of 'mixed' understated. However, the error is too small to affect the general conclusions.

Column

1, 2 Calculated from *Statistics of Income Supplement Compiled from Income Tax Returns for 1936:* Individual Incomes, Section III, Tables 1-3. Returns are shown by size of total income and by single source and by combined sources. For greater conformity with our classifications, the number of sources was adjusted: income from business and from partnerships was treated as one source instead of two; interest, taxable government interest, and fiduciary income, one instead of three; and income from capital gains, zero instead of one. A return was included in each type of payment indicated as a source.

3, 4 Calculated from *Wisconsin Individual Income Tax Statistics* (Wisconsin Tax Commission, 1939, litho.), *Patterns of Income, 1929 and 1935,* pp. A1-4, A18-21, and *1936 Income,* Vol. IV A, pp. 28-30. For Parts C and D value of merchandise was combined with business and partnership income. For Part C fiduciary income was combined with interest, and royalties and capital gains with 'other'.

5, 6 Calculated from *Delaware Income Statistics,* I, Table 7.1. As the combination of partnership income with other types was not indicated, business income, Parts B and D, excludes partnership income.

among all returns. For example, if all returns on which wages and salaries appear are classified into pure and mixed, the proportion of the mixed is higher in the upper brackets than among all returns – which means a wider extent of combination of income types.

Third, the proportions of pure and mixed returns within each type category reveal also the differences among the several types of income in the extent to which some tend to be combined. Of all federal returns for 1936 on which wages and salaries appeared, they were the sole source of income on almost 60 percent, and were combined with other types on the other 40 percent; of all those on which dividends appeared, on the contrary, they were the sole source on only 3 percent (col. 2, lines 4, 5, and 10). In general, wages and salaries, and business and partnership income tend to be single source types, constituting the sole type in a large proportion of the returns on which they appear; each of the three property income types, however, is the sole source on only a small proportion of the returns on which it appears. The chief reason is that many persons receive mere driblets of property income, which are auxiliary to their main income; and the number of such persons is large relative to those who receive a given type of property income alone. Another reason is that investors tend to own both stocks and bonds, and those who own real estate tend to possess other interest- or dividend-yielding investments; hence, combinations of one property income type with another are frequent.

Fourth, the differences in the composition of income by type between the upper income groups and the total population observed in Part I are reflected also in the percentage distribution of returns by the types of income reported on them, whether the returns are pure or mixed (lines 14-24). The differences in the percentage distribution of returns are not as large as in the percentage distribution of income, and especially in the case of mixed returns they tend to be rather small. Nevertheless, they occur very consistently. The only significant divergence between the distributions of pure and mixed returns is that the proportion of interest and rent returns is smaller among mixed returns for upper return groups than among those for all return groups – an obvious reflection of the greater relative frequency of these income types as auxiliary sources among the masses of lower income recipients than among those in the upper brackets. The divergence would have been more marked had the comparison been between upper and lower return groups instead of between upper return groups and all return groups.

b) *Effect of combination on share of top group*

Are the large incomes at the upper levels of the distribution due, at least

in part, to a combination of amounts, each possibly small, representing several types? Does combination contribute significantly to the large receipts at upper income levels? As the answer can be found most directly in the Wisconsin and Delaware state income tax data, we consider them before turning to the federal data.

For all Wisconsin income tax returns for 1929, 1935, and 1936 we have distributions of several types of income by the amount received by each of the many units who received the given type. We can, therefore, determine for each type what proportion of the total reported on all returns was received by the top classes, i.e., the recipients of the largest amounts of each type, the number being always set at roughly 5 percent of the total number of Wisconsin returns. Thus, from the size distribution of wages and salaries for 1929, we ascertained the total wages and salaries reported by the top 23,948 returns, being roughly 5 percent of all returns filed in Wisconsin in that year, not 5 percent of those that reported wages and salaries; then calculated the percentage this amount constituted of total wages and salaries reported on all Wisconsin returns, 20.8. It is an average of this percentage for 1929, and the corresponding percentages for 1935 and 1936 that is entered in Table 27, column 2, line 1. The percentage of all business and partnership income reported on all Wisconsin returns that was received by the top 23,948 returns in the size distribution of partnership and business income for 1929 is 62.4 percent, which, averaged with the corresponding figures for 1935 and 1936, yields column 2, line 2, and so on, through line 6.

Let us now assume the combination most favorable to raising the income received by the top group: each return in the top group would report income of all types and maximum amounts of each, i.e., each of the 23,948 top returns for 1929 would report all six types of income (lines 1-6) and the amounts for each would be the 23,948 largest reported for each type. To calculate the share of the top 23,948 returns in total income, defined as the sum of the six types, we weighted their shares in the given types (those for 1929 underlying lines 1-6, col. 2) by the percentage of total income accounted for by the given type (calculated from all Wisconsin income tax returns for 1929), and added. The resulting figure for 1929 is 38.3 percent, which, averaged with the corresponding figures for 1935 and 1936, yields line 7 of column 2.[13]

Under exactly the opposite assumption, no combination at upper income levels, i.e., that the top 23,948 returns for 1929 are all single type, we set

[13] The percentages in Table 27 are of the amounts received by the tax return population, not by the total population of Wisconsin or of Delaware. For purposes of the analysis of the effects of combination, this qualification is not significant.

Table 27

Effect of Combination of Income Types and of Inequality of Size Distribution within Each Type on Share of Top Group of Returns in Total Income, Wisconsin and Delaware State Tax Returns

		% Distribution of Income on All Returns by Type (1)	% Share in Total of Each Type Received by Top Group: *Assumption 1 (full combination of types at top)* (2)	*Assumption 2 (no combination of types at top)* (3)	*Actual* (4)
A	WISCONSIN, APPROXIMATELY TOP 5 PERCENT, AVERAGES FOR 1929, 1935, 1936				
1	Wages & salaries	70.6	20.6	15.6	16.0
2	Business & partnership income	14.0	65.2	29.1	31.4
3	Rent	2.4	84.7	12.4	21.3
4	Interest	4.5	84.0	26.8	43.8
5	Dividends	5.9	93.7	61.3	76.1
6	Other	2.6	76.0	18.1	26.2
7	Total	100.0	36.7	20.8	23.5
	B DELAWARE, TOP 2-3 PERCENT, AVERAGES FOR 1936-38				
8	Wages & salaries	58.8	21.4	16.1	17.5
9	Business & partnership income	9.6	57.5	23.4	26.6
10	Rent	2.0	74.1	8.4	21.2
11	Interest (incl. fiduciary income)	10.1	92.4	74.2	81.6
12	Dividends	19.1	95.4	83.9	89.8
13	Other	0.5	99.6	5.8	24.6
14	Total	100.0	47.7	35.7	39.0

Column

Lines 1-7

1 Averages of percentages for 1929, 1935, and 1936 derived from the distribution of total income in *Wisconsin Individual Income Tax Statistics, 1929 Income, 1935 Income,* and *1936 Income,* I, Table 2. Business and partnership income were combined; fiduciary income, royalties, and value of merchandise were included with 'all other income'; capital gains were omitted.

2, 3 Averages of percentages for 1929, 1935, and 1936. Those for 1929 and 1935 were calculated from *Wisconsin Individual Income Tax Statistics, Patterns of Income, 1929 and 1935,* Table 2 for each year; those for 1936 from *ibid., 1936 Income,* IV A, pp. 17-8. For comparability with 1936, fiduciary income, value of merchandise, and royalties were combined with 'all other income' in 1929 and 1935. Business and professional profits were combined with partnership profits. The procedures are described in the text.

4 From the source indicated for column 1, by the procedures described in the text.

Lines 8-14

1 Averages of percentages for each year, 1936-38, derived from the distribution of the sum of the types of payment, excluding loss items, available by size classifications in *Delaware Income Statistics,* I, Table 6.

2, 3 Averages of percentages for each year, 1936-38, derived from the source indicated for column 1, by methods described in the text.

4 Averages of percentages for each year, 1936-38, derived from *ibid.,* Table 1, by methods described in the text.

off in each of the six income type distributions all returns in the highest bracket, all in the next to the highest, and so on, until, counting each return separately, we reached the desired total, 23,948. We know how many of these returns were taken from the upper levels of the size distribution of wages and salaries; how many from the upper levels of the distribution of dividends, and so on. We then determined the absolute amounts of each type reported on these top 23,948 returns; and hence the percentages these amounts constituted of all income of that type reported by the total tax return population. The averages of these percentages for the three years are entered in column 3, lines 1-6. Weighting the annual percentages by the proportion of each type in total income reported on all Wisconsin returns for each year and adding, we get for each year the share of the top 5 percent group of returns in total income. The average for the three years is entered in column 3, line 7.

On the assumption that its entire income is of a single type, the share of the top 5 percent group of returns is only 20.8 percent; on the assumption of maximum combination, it is 36.7 percent. The difference represents the maximum contribution that combination can make to the share of the top 5 percent of returns in total income. From columns 2 and 3, lines 1-6, we can see in which income types the shift in the assumption produces the most marked change. The relative drop in the shares of wages and salaries and of dividends from column 2 to column 3 is only a quarter and a third respectively; the drop in the shares of rent and of interest is, on the contrary, quite large. In other words, the assumption of maximum combination adds to the income of upper groups amounts of wages and salaries and of dividends that are only moderate fractions of the amounts already included, even without assuming any combination; in the case of rent and interest it adds amounts that are very large compared with the amounts assigned on the assumption that the entire income is of one type.

But what was the actual effect of combination at the upper levels of the Wisconsin tax returns? In the distributions for 1929, 1935, and 1936 where returns are classified by 'income bracket' income, the nearest approximation to total income that can be found in the published data, we set off the top 23,948 returns, then determined what proportions they received of wages and salaries, dividends, etc. reported on all Wisconsin returns. Their share in total income was then calculated, either directly or by weighting the shares in the given types; the averages of the calculations for the three years are entered in column 4, lines 1-7.

The averages in Part B of Table 27 for Delaware state tax data are calculated upon the same assumptions.

Both Parts A and B show that the contribution of combination to the

percentage share of the top income group in total income is consistently quite moderate, indeed minor. Had all income been of a single type, the share of the top group in Wisconsin in 1929, 1935, and 1936 would have been 20.8 percent of total income; actually it was 23.5 percent; with maximum combination it would have been 36.7 percent. Thus, of the maximum possible contribution of combination, 15.9 percentage points, there was, in fact, only 2.7 percentage points. In Delaware the effect of combination is only slightly greater, amounting to an addition of 3.3 percentage points of total income – to raise the share of the top group of returns from 35.7 to 39 percent.

Thus, even though combination is much more widespread among upper income brackets than among lower – as evidenced by Table 26 for exactly the same Wisconsin and Delaware data as underlie Table 27 – upper bracket shares are not increased much. There are three possible reasons. First, though multi-type incomes are more common at upper income levels, maximum combination is limited even for the top returns. This can be seen from the more detailed data for Delaware underlying Table 26 which classify returns by the number of types up to seven (the total number of types distinguished is eight). Of the top group of returns, less than a twelfth reported five or more types. Second, the combination of several types on a single return may lift it to the upper levels, even though the amount of each type is moderate; on the other hand, income of one type, though in a fairly large amount, may place a return below the line that divides upper incomes from lower. Combination may thus affect the personal composition of the top group of returns; but it does not necessarily increase its share in total income. And we may surmise that even its effect on the composition of upper groups is fairly limited, certainly as far as the combination of service with property incomes is concerned: relatively few returns reporting moderate amounts of wages or salaries or of business-partnership income are raised into upper brackets by the addition of moderate amounts of property incomes. However, the combination of several types of property income is more likely. The third, and probably most important, reason is that most returns with multi-type income usually report large amounts of only one type, so that an increase in the number of types means only a relatively moderate increase in their total income. According to lines 1-6 and 8-13, the basic types are wages and salaries, business and partnership income, and dividends; the auxiliary types, rent, interest, and 'other' income. Combination raises the share of the top group of returns primarily in rent and interest; and fails to do so, to any great extent, in the income types that weigh heavily in the total – wages and salaries, business and partnership income, and dividends – particularly

the first two. Being thus limited largely to auxiliary types of income, combination can affect the total income of the upper brackets only moderately. The data are consistent with all three reasons cited; only by conjecture can we assign more weight to the first and third.

A somewhat less direct treatment of federal tax returns yields results resembling those of Table 27, though less conclusive. In view of the importance of federal data in our study, it seemed worth while to present their analysis here.

For 1927-34 *Statistics of Income* reports wages and salaries, business profits, dividends, and rents and royalties by size classes for all returns with net income, tax definition, of $5,000 and over. We cannot use the data on business profits since they exclude loss items and cover income from business alone, not the combined income from business and partnership used in our analysis. But for each of the other three types we can observe how many returns report receipts of $5,000 or more, which would place the recipient in the over $5,000 class even if he did not receive income of any other type; and we can also establish what proportion of countrywide wages and salaries, rent, and dividends is distributed in these relatively large chunks (Table 28).

On the average, returns with net income of $5,000 or more account for the top 1.5 percent of the population. In toto, they receive on the average 8.3 percent of countrywide wages and salaries. Over a third do not receive any wages or salaries; a sixth receive less than $5,000 in wages and salaries; but almost half, and hence about half of the population represented on them (about 0.7 percent of total population), receive wages and salaries of $5,000 or more. If we can assume that all who receive wages and salaries in these amounts are represented on returns with net income of $5,000 or more, we can infer that of countrywide wages and salaries about 7.5 percent is distributed in amounts large enough to lift the recipient and his dependents to upper income brackets.[14]

The share of the top income group in countrywide wages and salaries is almost all accounted for by inequality in the size distribution of that type, i.e., by the fact that of total wages and salaries about 8 percent is distributed in amounts large enough to lift the recipient and his dependents to upper income levels. The picture for dividends is similar. While the 1.5 percent of the population represented on returns with net income of $5,000 or more receives 65.8 percent of countrywide dividends, the group of

[14] Actually, some recipients of $5,000 or more in wages and salaries may not be represented on returns with net income of $5,000 or more, because allowable deductions would reduce the net income, tax definition, below $5,000. The proportion of such omissions may, however, be assumed to be relatively small.

Table 28

Distribution of Shares of Top Income Group in Various Income Types among Shares of Large, Small, and No Receipts
Based on Returns with Net Income, Tax Definition, of $5,000 and Over; Averages for 1927-1934

		Total Income (1)	Wages & Salaries (2)	Rent (3)	Dividends (4)
		(percentages of countrywide totals)			
1	Proportion of total pop. represented on all returns with net income of $5,000 & over	1.53	1.53	1.53	1.53
2	Share of given income type received by pop. in line 1	15.51	8.26	21.71	65.84
3	Proportion of pop. on returns with net income of $5,000 & over not receiving given type	0	0.58	1.19	0.62
4	Share of given type received by pop. in line 3	0	0	0	0
5	Proportion of pop. on returns with net income of $5,000 & over receiving less than $5,000 of given type	0	0.24	0.29	0.67
6	Share of given type received by pop. in line 5	0	0.64	7.43	9.03
7	Proportion of pop. on returns with net income of $5,000 & over receiving $5,000 & over of given type	1.53	0.71	0.05	0.24
8	Share of given type received by pop. in line 7	15.51	7.61	14.28	56.81

Line

1 Average of the annual percentages, 1927-34, of the total population (Table 69, col. 5) constituted by the population on all returns with net income of $5,000 and over, estimated by multiplying the number of returns (*Statistics of Income, 1934*, Part I, pp. 29-31) by the average number of persons per return for all returns (Table 69, col. 4).

2 Averages of the annual percentages, 1927-34, of the countrywide total of the given type (Table 114, Part A) constituted by the amount of that type reported on returns with net income of $5,000 and over (*Statistics of Income, 1934*, Part 1, pp. 29-31).

3 Annual percentages, 1927-34, of the total population constituted by the population on returns with net income of $5,000 and over receiving the given type, were estimated by the procedure indicated for line 1, using the number of returns in *Statistics of Income* (*1927*, p. 10; *1928*, p. 11; *1929*, p. 11; *1930*, p. 13; *1931*, pp. 13-4; *1932*, p. 14; *1933*, pp. 13-4; *1934*, p. 13). The difference between line 1 and the average of these percentages is the proportion not receiving the given type.

5 Line 1 minus lines 3 and 7.

6 Line 2 minus lines 4 and 8.

7 Averages of the annual percentages, 1927-34, of the total population constituted by the population on returns receiving $5,000 and over of the given type. The procedure is that indicated for line 1, the source, that for line 3.

8 Averages of the annual percentages, 1927-34, of the countrywide total of the given type (Table 114, Part A) constituted by the amount of that type reported on returns underlying line 7.

returns reporting $5,000 or more of dividends receives 57 percent. Here again, the share of the top income group in dividends is in large degree attributable to an unequal distribution of dividends, i.e., to the fact that a large proportion is paid out in a few big chunks.

The picture for rents and royalties is different. Here, as much as a third of the total reported on returns with net income of $5,000 or more is received in amounts of less than $5,000, and only two-thirds in amounts of $5,000 or more. A sizeable proportion of the countrywide total is thus distributed in small amounts to upper income groups who receive also other types of income — amounts that in themselves are too small to lift the recipient and his dependents to upper income levels.

The evidence of Table 28, with respect to the degree to which the share of wages and salaries and of dividends received by the top income group is attributable primarily to the inequality of the size distribution within each of these two income types and only secondarily to combination of types, and the somewhat different showing for rent are in complete accord with the more direct analysis in Table 27. The three types of income in Table 28 do not add to total income, and no measures corresponding to line 7 or 14 of Table 27 are possible. But even without such direct calculation, it is evident that here also the effect of combination on the share of the top group in total income is quite limited.

c) *Effect of combination on shares of groups below the top*

Is the limited effect of combination on the total income of the top group true also of the groups below the top? One might think at first that the answer is predetermined, since multi-type incomes are more common among the very top brackets than among those just below. In view of the small contribution of combination to the relative income advantage of the former, could not one infer that its contribution to the relative income advantage of groups below the top would be even more negligible?

This question is, however, not so easily answered. First, while combination is less prevalent among the groups below the top than among the top group, it does occur. Second, in these groups multi-type incomes may not be as dominated by any one type. Hence, if the several types tend to be equal, the contribution of combination to the relative income advantage of groups below the top might well be greater than that observed in Table 27. At any rate, it seemed worth while to extend the analysis to two groups just below the top (Table 29).

Only the Wisconsin and Delaware data were used since the federal data are not suitable. The groups were chosen in such a way that the first group below the top contained about twice as many returns as the top group; and

Table 29

Effect of Combination of Income Types and of Inequality of Size Distribution within Each Type on Shares of Upper Groups of Returns in Total Income, Wisconsin and Delaware State Tax Returns

		% Distribution of Income on All Returns by Type (1)	% Share in Total of Each Type Received by Given Group: TOP GROUP Assumption 1 (2)	TOP GROUP Assumption 2 (3)	TOP GROUP Actual (4)	1ST GROUP FROM TOP Assumption 1 (5)	1ST GROUP FROM TOP Assumption 2 (6)	1ST GROUP FROM TOP Actual (7)	2ND GROUP FROM TOP Assumption 1 (8)	2ND GROUP FROM TOP Assumption 2 (9)	2ND GROUP FROM TOP Actual (10)
	A WISCONSIN, AVERAGES FOR 1929, 1935, 1936										
1	Wages & salaries	70.6	20.6	15.6	16.0	19.4	17.1	16.9	26.4	24.9	25.1
2	Business & partnership income	14.0	65.2	29.1	31.4	33.8	19.0	20.3	1.0	17.2	17.9
3	Rent	2.4	84.7	12.4	21.3	15.3	7.5	15.0	0.0	7.3	17.2
4	Interest	4.5	84.0	26.8	43.8	14.3	9.9	14.6	1.7	8.5	12.0
5	Dividends	5.9	93.7	61.3	76.1	5.7	7.1	8.8	0.7	4.5	5.3
6	Other	2.6	76.0	18.1	26.2	24.0	4.9	13.3	0.0	4.0	17.1
7	Total	100.0	36.7	20.8	23.5	20.5	15.9	16.6	19.0	21.0	21.9
	B DELAWARE, AVERAGES FOR 1936-38										
8	Wages & salaries	58.8	21.4	16.1	17.5	13.8	12.7	12.5	18.9	17.7	17.6
9	Business & partnership income	9.6	57.5	23.4	26.6	32.6	15.1	16.1	9.9	15.6	16.3
10	Rent	2.0	74.1	8.4	21.2	25.4	9.2	16.3	0.4	7.8	17.7
11	Interest (incl. fiduciary income)	10.1	92.4	74.2	81.6	6.4	5.8	6.0	1.2	2.8	3.7
12	Dividends	19.1	95.4	83.9	89.8	4.2	4.5	4.5	0.4	2.5	2.3
13	Other	0.5	99.6	5.8	24.6	0.4	5.9	18.2	0.0	4.3	14.4
14	Total	100.0	47.7	35.7	39.0	13.1	10.5	10.7	12.3	12.7	13.0

Derived from the sources and by the methods indicated for the top group in Table 27. Number of returns in each group in each year:

	WISCONSIN 1929	1935	1936	DELAWARE 1936	1937	1938
Top group	23,948	18,454	24,380	1,910	2,144	1,920
1st group from top	50,828	38,067	49,985	4,163	3,894	4,115
2nd group from top	104,730	72,321	91,489	8,488	8,558	7,759
All returns	476,173	425,481	{ 441,341 (for Assumptions 1 & 2) { 443,350 (actual)	84,296	86,224	84,226

the second from the top, about twice as many as the group just above it, i.e., about four times as many as the top group. Thus, about 5 percent of Wisconsin returns were included in the top group; about 10 in the next to the top; and about 20 in the second from the top. The corresponding percentages for Delaware were about 2.5, 5, and 10 respectively. The second from the top group thus carries us well below the upper groups distinguished in the federal data. Since the groups covered in Table 27 represent the top 1-2 percent of the total population, those in Table 29 represent roughly the 2nd-5th and the 6th-10th percentage band respectively.

The results indicate that combination contributes even less to the relative income advantage of groups just below the top than to the top. In both Wisconsin and Delaware the difference between the share based on Assumption 2, no combination, and the share actually received is less than 1 percent of total income. And were we to extend the analysis downward, the contribution of combination would obviously become even smaller, finally disappearing except possibly at the very low income brackets associated with retirement or unemployment where total receipts may be made up of small payments from several sources.

As we extend the analysis downward, the estimates assuming maximum combination soon run into a condition where all of a given income type is absorbed by a small top group and none remains for the next group. This is true of practically all types except wages and salaries. In other words, under Assumption 1 all the receipts from these types are already accounted for in the three upper groups and none remains for the groups below them (the sum of columns 2, 5, and 8 in each of lines 2-6 and 9-13 is 100 percent or close to it). Hence, below a certain fairly high income level, Assumption 1 yields smaller shares in these types than either Assumption 2 or actual combination. Consequently, for these groups below the top even the share in total income is smaller under the assumption of maximum combination than under Assumption 2 or actual combination (see, e.g., lines 7 and 14, col. 8-10).

The inequality of distribution within upper groups is magnified by assuming maximum combination, so that there is substantially more inequality under Assumption 1 than under 2 or in actual combination. In the Wisconsin data the range of the share in total income from the top group to the second from the top is, allowing for the fact that the latter has four times as many returns as the former, from 36.7 to 4.8 percent on Assumption 1 — almost eightfold; 20.8 to 5.2 percent on Assumption 2; and 23.5 to 5.5 percent in actuality. The corresponding figures for Delaware range from 47.7 to 3.1, 35.7 to 3.2, and 39.0 to 3.25 percent respectively. The assumption of maximum combination, if realized, would thus

markedly accentuate the inequality of distribution among the upper income groups themselves. In actual combination the accentuation of inequality due to differences in combination is limited (cf. the shares based on Assumption 2 with those actually received).

d) *Implications*

While combination of income of various types, so common among the upper groups, is of limited effect on their income level, it does contribute, at least in small part, to the excess of their per capita income over that of the rest of the population, i.e., to inter-inequality. Likewise, as far as there are gradations within the upper groups themselves with respect to the prevalence of combination and consequently in its effects on their income levels, it does contribute, if in small part, to intra-top inequality.

As remarked in Chapter 1, receipt of income of several types may have the advantage of stabilizing the total income flow over time inasmuch as a decline in the yield from one source may be compensated at least in part, if not fully offset, by an increase (or stability, or a smaller decline) in the yield from other sources. In other words, units at upper levels may not suffer as much from the reduction or complete cessation of one type as units that depend upon a single type. And what is obviously even more important, the receipt of property incomes of diverse types in addition to service incomes betokens the possession of tradeable assets, i.e., reserves, that persons heavily or exclusively dependent upon service incomes may not have.

The fact that within the upper brackets the few units that derive their high incomes from property sources alone receive the bulk of all property income bespeaks an even greater concentration in ownership of property than was revealed by the type of income structure in Chapter 1. As was seen in Table 3, the top 1 percent of the population received during 1919-38 as much as two-thirds of all dividends paid to individuals. We can therefore infer that it may have owned a corresponding proportion of all dividend-yielding securities in the hands of individuals. And the preceding sections have shown that a large proportion of all dividends received by the top 1 percent went to a small fraction of its units, the fraction that derived all or an overwhelming share of its total income from dividends alone. Hence a small fraction of the top 1 percent group may well have received as much as half of all dividends going to individuals. A similar inference is suggested for interest and rent, although no such marked concentration is indicated. Furthermore, recipients of large dividends appeared to be distinct from large holders of interest-yielding assets; and those that held most interest-yielding assets, from those holding rent-

yielding assets. There was thus a distinctive class structure among the small fraction of the top group that depended upon property incomes alone and that therefore formed the dominant ownership group for the country as a whole.[15]

This last inference must, however, be severely qualified in two respects. First, in the underlying data, units are classified by their current year income, and a unit classified at a high income level in a given year because it received a large chunk of dividends in that year may not be at the same relative level a few years later. Hence, the grouping of the units is not by fixed status. Second, all the data just analyzed relate to years prior to 1939, before the recent decline in the proportion of property incomes in total income receipts and in upper group shares. Data are not available to indicate the extent to which these recent shifts in the type structure and size distribution of income modify our inferences with respect to the effects of combination or to the structuring of upper groups by dependence upon various types of income.

4 *Mobility into and out of Upper Income Groups*

a) *Evidence*

In the procedure by which upper group shares are estimated in Part I, a unit's place in the distribution is determined by its current year income. But since receipts during any one year may be appreciably increased or diminished by transitory factors, classification by its current year income may significantly over- or understate the unit's income status. If the unit's receipts are chiefly from business, an unusually prosperous year may raise it to a notch on the income scale it may not enjoy for scores of years to come; or an unusually poor year may place it at a level far below that to which it is accustomed. Dividends, rents and royalties, even wages and salaries are sensitive to short term fluctuations in economic conditions at large and to the fortunes of specific individuals or families.

This means that in a size distribution of income in which units are classified by income for the current year rather than for a longer period, each income class may contain units that are likely to move out of it immediately, and may exclude units that are likely to move into it shortly and

[15] It would have been interesting to calculate the proportion of countrywide property income of various types received by the small fraction within the top 1 percent group depending upon those types alone. Such a computation could be made, however, only for the Delaware state tax data, since tax returns for other states do not yield complete state totals of property incomes; nor do federal tax returns yield complete national totals. But the income structure of Delaware is so unlike the national that the figures, however striking, would be quite misleading. (They would, obviously, show a really exceptional concentration of property holdings.)

perhaps stay in it for years to come. Such mobility into and out of an income class is probably relatively most important at the ends of the distribution. The top income classes may have a large proportion of units that rose to a height unusual for them thanks to some exceptionally favorable turn of fortune; and the lowest income classes may include a large proportion of units that fell to a level unusual for them owing to some exceptionally ill turn of fortune. As has been repeatedly observed, in consequence of this influence of transitory factors on the size distribution of income in any given year, tracing the distribution for earlier or later years by size classes of the given year invariably reveals that the shares of upper groups tend to decline and those of lower groups to rise – a regression of the extremes to the mean of the total distribution.[16]

We are less interested in the existence of such regression, which has been established over and over again, than in its extent and duration. There are several samples for which the published data permit us to observe the degree to which it affects the position of upper income classes; how long it lasts counting from a given initial or terminal year; the dispersion of the units in an upper income class in a given year among income classes in following or preceding years; and the effects of each income type on the regression of class means.

That the income advantage of an upper group of a given year sharply diminishes, judged by its relative position in following or earlier years, is evident in Table 30. Tracing a group that is at the top of the distribution in a given year, we find that the ratio of its average income to the average income of the entire distribution declines as we pass from that year to succeeding or preceding years. In other words, the relative advantage of an upper group selected on the basis of its income in a given year is enhanced by purely transitory factors.

The notable aspects of Table 30, however, lie in the apparently definite limits of the size and duration of the regression. Disregarding the 1914-19 federal sample because of the peculiarities of its selection,[17] we find that the other samples segregate the top group on one and the same principle: its income position, judged by its income in a base year either at the beginning or end of the period. For all these samples the regression of the top group's mean, i.e., the decline in its ratio to the mean of the entire sample,

[16] For a discussion of the transitory factors in the income size distribution, the consequent regression to the mean, and an attempt to isolate the effects of these factors, see Milton Friedman and Simon Kuznets, *Income from Independent Professional Practice* (NBER, 1945), Ch. 7 and its Appendix, pp. 300-64.

[17] Returns were selected that reported a certain absolute net income for any year of the period, regardless of the net income in the other years.

Table 30

Regression of Top Income Group Mean Expressed as Relative of Mean for Entire Distribution, Various Samples

	Sample	% of Units in Top Income Group (1)	Initial or Terminal Year *Date* (2)	*Ratio* (3)	Ratio in Given Year from Beginning or End of Period *1st* (4)	*2nd* (5)	*3rd* (6)	*4th* (7)	*5th* (8)	*6th* (9)	*7th* (10)	*8th* (11)
	Federal sample of 1,240 returns, 1914-19,											
1	initial year base	4.6	1914	8.3	5.5	4.7	5.0	4.4	4.7			
2	terminal year base	4.5	1919	6.8	4.3	4.2	3.6	5.2	5.2			
3	Federal sample of 4,063 returns, 1916-24, initial year base	3.0	1916	8.6	7.5	6.7	6.4	5.9	6.2	6.0	6.3	6.4
	Financial Survey of Urban Housing, av. for 33 cities, 1929-33,											
4	initial year base	5.0	1929	4.07				3.28				
5	terminal year base	5.0	1933	4.07				3.26				
	Wisconsin sample of 13,184 returns, 1929-35,											
6	initial year base	4.9	1929	4.62	3.78	3.31	3.04	2.81	3.21	3.08		
7	terminal year base	3.5	1935	4.96	4.59	3.93	3.91	3.94	4.11	4.22		

Line

1 Calculated from *Statistics of Income, 1919,* pp. 30-2; ratio of the arithmetic mean net income of top 57 returns to that of all returns.

2 Calculated from *ibid.;* ratio of the arithmetic mean net income of top 56 returns to that of all returns.

3 Calculated from *Special Investigation of the Bureau of Internal Revenue,* Senate Document, 69th Congress, 1st Session (submitted Feb. 1926), Report 27, Part 2, pp. 11-16; ratio of the arithmetic mean economic income of top 121 returns to that of all returns.

4, 5 Calculated from Mendershausen, *Changes in Income Distribution During the Great Depression* (NBER, 1946), Appendix B. The ratio of the arithmetic mean income of top 5 percent of families to that of all families is computed for each city, then the results for the 33 cities averaged.

6 Calculated from *Wisconsin Individual Income Tax Statistics: Changes in Income of Identical Taxpayers, 1929-1935,* Tables 3.01-3.06; ratio of the arithmetic mean net taxable income of returns of $5,000 and over to that of all returns.

7 Calculated from *ibid.,* Tables 3.07-3.12; ratio of the arithmetic mean net taxable income of returns of $4,000 and over to that of all returns.

is surprisingly similar, ranging from a fifth to a third, falling little below the former and exceeding the latter only negligibly. While such similarity may be purely accidental, one may legitimately attribute significance to the fact that the regression still leaves the top group of a given year at a great relative advantage over the rest of the distribution. A loss of income advantage there is, but the top group of a given year tends to keep its sizeable relative advantage for quite a number of years.

Limited in its quantitative effects, the process of regression appears to be limited in duration also. In the three samples that cover a long period (from 5 to 8 years, counting from the first year after the base year), it ceases well before the end of the period. Indeed, in none of the three samples does it continue beyond the fourth year following or preceding the base year. The association between the regression and the cyclical fluctuations in average income and in the relative importance of the various types may be at least a partial explanation. If it is, the fact that no cyclical contraction or expansion during the period covered exceeded five years may well explain why the regression does not last longer.

Regression of group means is accompanied by dispersion of the units belonging to an upper income group in a given year among several groups in the following or preceding years. As the transitory factors contributing to their relative income advantage vanish, some units that profited greatly from them in a given year descend in the income scale and other units take their places. The extent of such dispersion is shown in Table 31, the evidence being confined to the movement from or into an upper income group of a given base year.

Here again the data not only confirm the dispersion but also indicate that it is narrow. In the two samples that cover a long period (the federal sample of 537 returns and the Wisconsin sample of identical returns) the dispersion continues only through the second and fourth year respectively, and is then succeeded by a return of concentration. Again only a limited proportion of the top units of a given year are substantially lower in the income scale in other years. In the federal sample the proportion of the units in the top group (Group I) in 1922 that had previously been in the upper half of the distribution (Groups I and II) was not much below 60 percent in any of the preceding six years. In the Wisconsin sample the proportion of units in the top group that remained in the upper quarter of the distribution was never less than 67 percent, or two-thirds.[18] For the

[18] Frank A. Hanna's analysis of the sample of identical returns for Wisconsin, 1929-35, corroborates our conclusions concerning the brief duration and limited extent of dispersion from the base year. He measures its persistence by coefficients of correlation (see *Analysis of Wisconsin Income*, NBER, 1948, Table 15, p. 232).

(concluded on page 136)

Table 31

Dispersion of Units in Top Income Group of a Given Year among Groups of Following or Preceding Years, Various Samples

	Group in Descending Order of Income Size	% Distribution of All Units (1)	Initial or Terminal Year *Date* (2)	*% of Units in Given Group* (3)	% Distribution of Group I by Other Groups in Given Year from Beginning or End of Period *1st* (4)	*2nd* (5)	*3rd* (6)	*4th* (7)	*5th* (8)	*6th* (9)
	A Federal Sample of 537 Returns, 1916-22, Terminal Year Base									
1	Group I	12.5	1922	100.0	40.3	29.9	31.3	32.8	34.3	44.8
2	Group II	30.0	1922	0.0	23.9	29.9	28.4	26.9	31.3	19.4
3	Group III	19.4	1922	0.0	9.0	9.0	14.9	13.4	13.4	17.9
4	Group IV	38.2	1922	0.0	26.9	31.3	25.4	26.9	20.9	17.9
	B Financial Survey of Urban Housing, Average for 33 Cities, 1929-33, Initial Year Base									
5	Top 5 percent	5.0	1929	100.0				52.2		
6	Top 50 percent	50.0	1929	100.0				75.2		
	C Wisconsin Sample of 13,184 Returns, 1929-35, Initial Year Base									
7	Group I	4.9	1929	100.0	67.2	57.3	46.1	42.0	45.9	45.6
8	Group II	19.7	1929	0.0	19.2	19.3	20.7	24.6	24.3	27.2
9	Group III	75.4	1929	0.0	13.6	23.3	33.2	33.4	29.8	27.2
	D Delaware, 73,341 Returns, 1937-38, Initial Year Base									
10	Group I	5.1	1937	100.0	83.1					
11	Group II	5.5	1937	0.0	11.6					
12	Group III	21.5	1937	0.0	3.7					
13	Group IV	23.4	1937	0.0	1.0					
14	Group V	20.4	1937	0.0	0.3					
15	Group VI	24.0	1937	0.0	0.3					

Line

1-4 Calculated from *Statistics of Income, 1922*, pp. 14-5. Group I covers the top 67 returns; Group II, the next 161 returns; Group III, the next 104 returns; and Group IV, the lowest 205 returns. For each year from 1922 back to 1916 the lower limit of net income for each group is determined by the position of the lowest return in the given group in relation to its position within the published net income class, it being assumed that the proportion of income shifted from the published income class into the given income group is the same as the proportion of returns shifted. The returns in Group I of 1922 are then traced to their position in other years with respect to the limits just determined.

5, 6 Calculated from Mendershausen, *op. cit.*, Appendix B and Table 28: the proportion of the top 5 or 50 percent of families in 1929 remaining in either the top 5 percent or the class above the median in 1933.

7-9 Calculated from *Wisconsin Individual Income Tax Statistics: Changes in Income of Identical Taxpayers, 1929-1935*, Tables 3.01-3.06; Group I covers the top 647 returns; Group II, the next 2,595 returns; and Group III, the lowest 9,942 returns. For each year the net income limits of each group are determined by the procedure outlined in the notes to lines 1-4. The returns in Group I of 1929 are then traced to their position in other years with respect to these net income limits.

10-15 Calculated from *Delaware Income Statistics*, I, 137-9 (equivalent marital status data). Group I covers the top 3,734 returns; Group II, the next 4,039; Group III, the next 15,777; Group IV, the next 17,197; Group V, the next 14,957; and Group VI, the lowest 17,637.

city distributions during a period marked by an extremely severe contraction, over half of the families that were in the top 5 percent were still there four years later. And in the Delaware sample, for which a very detailed group distribution is feasible but that unfortunately covers only two years, well over eight-tenths of the units that were in the top 5 percent (Group I) in 1937 were still there in 1938. In short, study of the relative income level of its units in earlier or later years reveals mobility out of the top group of a given year; but at least during the periods covered by the samples, such mobility is limited in the sense that quite a large proportion of the units are still at the top a few years later, and a large proportion of those that move remain fairly high in the scale.[19]

The last, and perhaps most interesting, aspect of mobility is the effect of each income type on the regression of top group means (Table 32). Of the three samples for which it can be studied, the 1914-19 federal sample is disregarded because it rather exaggerates the effect, owing to the peculiar principle of its selection. But in character the effect is quite similar to that revealed by the larger federal sample used.

We omit each income type in turn from total income or whatever variant of that total is used in the sample distribution, then observe the regression of the top group mean. Comparison of the latter with the regression of the mean when the given type is included reveals the effect of excluding the type.

The omission of wages and salaries raises the ratio of the top group mean to that of the total distribution in the base year – for the obvious

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Note 18 concluded:

These coefficients for economic income with 1929 as the base year decline to 0.64 in 1933, then rise to 0.65 and 0.69 in 1934 and 1935 respectively. The cessation of the decline in 1933 and the fairly high level at which the correlation remains even in the lowest year are consistent with our conclusions. The same measures with 1935 as the base show, on the whole, a higher correlation, but there is not as definite a reversal of the downward movement before the terminal year.

[19] The evidence of the samples may be biased in favor of showing less mobility than actually exists. In selecting identical units for several years, collectors and compilers of data must omit those that drop out because of death, change in status, and disappearance or reduction of income to a point where reporting may not be expected. It is the omission of units in this last category that causes the mobility of the sample to be less than it is in reality. One may doubt, however, that if the process is studied for the very top group in a distribution, as it is in Table 31, the effect of such omissions can be significant. Such omissions affect somewhat more the regression of the group mean; but even here, because of the distance the units would have to descend in order to slip out of the reported distribution completely, the effect on the mean of the top income group of a given year would tend to be minor.

Table 32

Effect of the Several Income Types upon Regression of Top Income Group Mean, Two Samples

	Income	% of Total Income Omitted: *Top Income Group* (1)	% of Total Income Omitted: *All Returns* (2)	Initial or Terminal Year: *Date* (3)	Initial or Terminal Year: *Ratio* (4)	Ratio in Given Year from Beginning or End of Period: *1st* (5)	*2nd* (6)	*3rd* (7)	*4th* (8)	*5th* (9)	*6th* (10)	*7th* (11)	*8th* (12)
	A Federal Sample of 4,063 Returns, 1916-24, Initial Year Base												
1	Total income	0.0	0.0	1916	8.6	7.5	6.7	6.4	5.9	6.2	6.0	6.3	6.4
2	Excl. salaries, wages, etc.	2.0	6.4	1916	9.0	8.1	7.3	7.0	6.5	7.0	6.6	6.9	7.0
3	Excl. business & partnership profits	29.5	32.9	1916	9.0	8.2	7.8	7.4	6.6	6.7	6.5	6.8	6.6
4	Excl. service incomes	31.5	39.4	1916	9.7	9.1	8.7	8.4	7.5	7.7	7.3	7.6	7.4
5	Excl. rents & royalties	2.3	2.8	1916	8.6	7.5	6.7	6.4	5.8	6.1	6.0	6.2	6.3
6	Excl. interest (taxable)	8.4	9.1	1916	8.7	7.4	6.6	6.5	6.0	6.3	6.1	6.4	6.5
7	Excl. dividends	36.8	47.9	1916	7.1	4.7	4.3	3.8	3.2	3.7	3.8	3.4	4.1
8	Excl. property incomes	67.6	59.8	1916	6.9	3.2	2.4	2.5	1.5	1.6	2.6	1.9	3.2
	B Wisconsin Sample of 13,184 Returns, 1929-35												
	Initial Year Base												
9	Total income, net taxable	0.0	0.0	1929	4.62	3.78	3.31	3.04	2.81	3.21	3.08		
10	Income excl. wages & salaries	44.9	74.6	1929	10.03	7.76	6.97	6.18	4.75	6.65	6.38		
	Terminal Year Base												
11	Total income, net taxable	0.0	0.0	1935	4.96	4.59	3.93	3.91	3.94	4.11	4.22		
12	Income excl. wages & salaries	58.5	79.8	1935	10.17	8.42	5.88	7.15	7.42	7.92	7.79		

Line

1-8 Calculated from *Special Investigation of the Bureau of Internal Revenue,* pp. 11-16; ratio of the arithmetic mean income (total or excluding given income type) of top 121 returns to that of all returns.

9, 10 Calculated from *Wisconsin Individual Income Tax Statistics: Changes in Income of Identical Taxpayers, 1929-1935,* Tables 3.01-3.06; ratio of the arithmetic mean net taxable income (total or excluding wages and salaries) of returns of $5,000 and over to that of all returns.

11, 12 Calculated from *ibid.,* Tables 3.07-3.12; ratio of the arithmetic mean net taxable income (total or excluding wages and salaries) of returns of $4,000 and over to that of all returns.

reason that wages and salaries are more equally distributed than all other income types together. The effect is small in the case of the federal sample because of the small weight of wages and salaries in the total income of the whole sample; large in the case of the Wisconsin data because the item accounts for such a large proportion of the total income of that sample.

The regression of the top group mean for the highly selective federal sample and for the more comprehensive Wisconsin sample is affected differently by the omission of the wage-salary item. In the federal sample the ratio for total income including the wage-salary item declines from 8.6 in 1916 to 5.9 in 1920, more than 30 percent; when the wage-salary item is excluded, from 9.0 to 6.5, somewhat less than 30 percent. The reduction in the regression indicates that for the federal sample as a whole the wage-salary item is somewhat more variable than all other income types together. Since we deal here with exceedingly large incomes, where the salary item is mostly managerial compensation and where the sum total of other receipts is dominated by the relatively stable property incomes (interest and dividends), this is not surprising. In the Wisconsin sample the effect is opposite whether regression is measured forward from 1929 or backward from 1935: the percentage drop in the ratio is increased by excluding wages and salaries – from 39 to 53 percent in the former case; from 21 to 42 in the latter. Here the wage-salary item is definitely less variable because the top group is of wider coverage than the entire federal sample, and because in the residual of other income types, i.e., other than wages and salaries, the highly variable business and partnership profits are important.

For tracing the effects of other income types we have the federal sample alone, but although it consists of rather large incomes the findings may well be typical of other distributions. Business and partnership profits are more equally distributed than the sum total of other incomes; and their removal raises the relative advantage of the top group in the base year from 8.6 to 9.0. The effect on regression is somewhat similar to that of the wage-salary item: exclusion reduces regression – as was to be expected for this volatile item. The exclusion of dividends reduces markedly the income advantage of the top group in 1916, and increases the regression markedly. This means that dividends, being unequally distributed, contribute greatly to the relative income advantage of the top group, and are a relatively more stable source than other income types. Interest (only taxable is included here) and rents appear to be distributed about as equally (or unequally) as all other income types taken together; and their receipts by the top group appear to regress in about the same proportion as do its receipts of all other types combined. Hence the exclusion of either

of these two income types has little effect upon the ratios for 1916 or their relative decline due to regression.

Combining the showing for wages and salaries from the Wisconsin sample with that for other types of income from the federal sample would probably give a reliable picture of the direction if not the size of the effects of the several types upon the regression of upper income group means. Exclusion of wages and salaries or of dividends would tend to accentuate their regression; exclusion of business and partnership income, to reduce it. In other words, salaries and dividends constitute a less variable part of the income of upper groups than of the distribution as a whole; business and partnership profits are more variable for the upper groups of a given year than for the rest of the distribution – more subject to inflation by transitory factors. Interest and rent do not seem to have as severe an effect, i.e., the variable and transitory elements are about the same as characterize the sum total of the other three major income types.

b) *Mobility and share of top income group*

Clearly the measures of inequality in the distribution of income between the upper and lower groups used in Part I are exaggerated by classifying units by their current year income. The relative income advantage of an upper group in a given year is enhanced by transitory factors which may vanish in the following year or did not exist in the preceding year. By how much does the relative income advantage of an upper group in a given year have to be reduced to be interpreted as that of an upper group selected on the basis of income status characterizing a longer period?

The data permit only a crude guess, and even that is limited to the consideration of a period not much longer than five to seven years. By and large, in any sizeable sample the regression of means for a group corresponding to the top 1 percent involves a maximum reduction of not more than half of the relative income excess in the base year; and for a group that corresponds to the top 5 percent it would range from a quarter to a third. This means that if the top 1 percent in a given year receives about 15 percent of total income, its share 5 or 7 years earlier or later would be not less than 8 percent and presumably average about 12 percent for the period. The corresponding figures for the top 5 percent, assuming that it receives 30 percent of total income in the base year, would be a minimum of 20 percent and probably average about 25 percent for the period.

These average shares for a long period for a group that happens to constitute the top 1 or 5 percent of the population in a given year are not the same as the shares that would be derived from a distribution of units classified by their income status in which each unit is arrayed by its

average income for a long period, say, a decade. The income of the top group in a distribution of units by their *given* year income is too large in that it includes the transitory gains of units that are also in the top group on the basis of their income status; and too small in that it includes units whose income status is below that of units in the top group but who are raised to the top levels by transitory factors. By holding the composition of a given year's top group constant, as we do when we study the regression of means, we correct the distribution for the excesses over the income status distribution; we do not correct it for the deficiencies. Hence, in a true distribution by income status, upper group shares may be larger than those suggested in the preceding paragraph. In that sense the level of the share of an upper group for a given year compared with that for a preceding or following year may be a minimum estimate of the share of the corresponding group in a true distribution by income status.

A check on this conclusion may be found in Hanna's *Analysis of Wisconsin Income* (Tables 11 and 12). The top 5 percent of families in the distribution classified by the single year income (1929, 1930) receives 23.3 percent of total income (p. 206); the top 5 percent of families in the distribution classified by the two-year income (1929 plus 1930), about 21 percent; and the top 5 percent of families in the distribution classified by the three-year income (1929 plus 1930 plus 1931), about 20 percent (p. 210). As expected, distribution by income for a three-year period yields a smaller share for the top 5 percent than that for a single year. Is the decline appreciably different from that in the regression of the mean of the top group for a given year? In Table 30, line 6, the ratio of the per return income for the top group (corresponding roughly to the top 5 percent of returns) to the per return income for the entire sample drops from 4.62 in 1929 to 3.31 in 1931, over a quarter. But the average ratio for 1929-31 is 3.90, about 15 percent less than the ratio for 1929. Thus the effects of conversion to income status and of regression of means for a given base year are about the same. In the light of the sample data, one may suggest that in passing from a distribution by size of income in a given year to a distribution by income status for five years to a decade, the share of the top 1 percent of the former should be cut about a fifth; and that of the top 5 percent, about a seventh.