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Comparisons with Other Estimates

WERE there no controversial questions concerning the scope of national income and its components, and were the data for the various parts of the countrywide totals complete and accurate, estimates, even when prepared by different investigators, would necessarily be identical. An investigator would not need to compare his estimates with those of others or to juxtapose the results of his most recent and previous efforts. But since national income investigators still disagree on many issues of inclusion and evaluation, and since data are still inadequate, varying in this respect from year to year, it is incumbent upon a student of national income who presents a new set of estimates to compare them with such others as merit scrutiny and can be analyzed.

In this chapter we compare our most recent estimates, designated as 'present NBER' or 'our', with three other sets: (1) the preliminary estimates published in *National Income and Capital Formation, 1919-1935* (National Bureau of Economic Research, 1937) (designated as 'preliminary NBER'); (2) the estimates currently published by the Department of Commerce (designated as 'D of C'); (3) the estimates published in *National Income and Its Purchasing Power*, by W. I. King (designated as 'King'). The purpose of the first comparison is to indicate briefly the chief changes in scope and basis of estimation made since our preliminary estimates were completed four years ago. In a sense, it is the least important of the

three comparisons, since the present estimates replace those published in *National Income and Capital Formation* and render them obsolete. But it is useful in revealing the extent of revisions that accretion of data and experience can cause, and suggesting the extent of revisions to which the present estimates may be subject in the future. The second comparison shows the major respects in which the present NBER estimates differ from the most widely used current estimates and suggests the magnitudes of the discrepancies to be taken into account in splicing them to ours back to 1919. The third comparison indicates similarly the major differences in scope and basis of King's and the present NBER sets, and should be helpful in any attempt to use the two as one continuous series back to 1909.

The comparisons are not exhaustive in the sense that the difference in every cell is accounted for to the last million dollars. To do so would involve us in details of differences, changes, and revisions that result from minor and gradual accretion of data. The attempt here is to indicate and to account for only the salient points of difference.

1 Preliminary Estimates in National Income and Capital Formation, 1919-1935

National income and aggregate payments to individuals, as published in preliminary form in *National Income and Capital Formation*, and as they appear in this report, are compared in Table 77. The preliminary estimates of national income are smaller in every year. While the relative discrepancy is not large, amounting at its greatest to less than 8 per cent of the present estimate and averaging about 3 per cent, the shortage is sufficient to call for analysis.

Aggregate payments to individuals differ less, and the last column of Table 77 indicates clearly that changes in net savings made by recent revisions are much greater relative to the total than those in aggregate payments. Accumulation of data and development in the theoretical treatment of national in-

come thus affect much more conspicuously the controversial and obscure area of savings of enterprises than income payments, the concept of which is more definite and the data for which are less open to improvement.

TABLE 77

National Income and Aggregate Payments to Individuals
Preliminary and Present NBER Estimates Compared
1919-1935 (millions of dollars).

	NATIONAL INCOME			AGG. PAY. EXCL. ENTREP. SAVINGS			DIF. IN NET SAVINGS
	Prelim. NBER	Present NBER	(1 - 2)	Prelim. NBER	Present NBER	(4 - 5)	(3 - 6)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1919	59,926	64,208	-4,277	57,499	59,004	-1,505	-2,772
1920	72,386	74,232	-1,846	67,056	68,523	-1,467	-379
1921	58,343	59,412	-1,069	55,177	57,112	-1,935	+866
1922	59,706	60,707	-1,001	58,041	59,718	-1,677	+676
1923	69,706	71,626	-1,920	65,854	67,896	-2,042	+122
1924	70,369	72,095	-1,726	66,763	69,088	-2,325	+599
1925	74,846	76,047	-1,201	69,921	71,993	-2,072	+871
1926	79,477	81,551	-2,074	72,823	75,036	-2,213	+139
1927	77,429	80,051	-2,622	73,381	76,119	-2,738	+116
1928	80,397	81,678	-1,281	75,823	77,945	-2,122	+841
1929	83,424	87,234	-3,810	79,808	82,421	-2,613	-1,197
1930	72,040	77,319	-4,379	73,620	76,520	-2,900	-1,479
1931	56,010	60,300	-4,290	62,565	65,061	-2,496	-1,794
1932	39,628	42,932	-3,304	49,785	52,070	-2,285	-1,019
1933	39,283	42,183	-2,900	47,860	48,659	-779	-2,121
1934 *	47,849	49,548	-1,699	52,385	53,758	-1,373	-326
1935	53,035	54,406	-1,371	56,287	58,016	-1,729	+358
Average 1919-35	64,397	66,796	-2,398	63,804	65,820	-2,016	-382
Avg. disregarding signs			2,398			2,016	922

* Present estimates for 1934 in this and subsequent tables are arithmetic means of the two estimates for that year appearing in the tables in the Statistical Appendix to Part Two and in Part Four.

Since the greater relative revision was in total net savings we analyze the main sources of the change in this item first (Table 78). The greatest difference in it is in net savings of governmental agencies. Our preliminary estimates of net governmental savings are the difference between changes in governmental debt and in tangible assets; in the present estimates account is also taken of changes in the security assets

held by governmental agencies. In the early years of the period these changes in security assets, whose accretion is primarily to the credit of the federal government, were largely increases in claims against foreign governments; and in the later part of the period, i.e., since 1931, increases in claims against public corporations financed and supported by the federal government. We did not originally take these intangible assets into account because we doubted their real worth, a doubt that can still be entertained with reference to claims against foreign governments. Since omission of changes in these assets caused erratic fluctuations in the total net value of governmental services, we finally decided to include them, just as we include in business net savings changes in claims by business establishments. If such claims are not eventually substantiated, the fact will be reflected in revaluations of assets; and such revaluations, like other changes in assets that do not arise from current productive operations, cannot properly be included in current net income. A further revision was introduced by the substitution of new estimates of public construction for those previously available, in preparing the figures on tangible assets. The basic data now used are from Lowell J. Chawner's *Construction Activity in the United States, 1915-37* (Washington, 1938). These modifications in treatment raised savings of government and of enterprises in most years of the period; and this rise accounts for most of the shortage in the preliminary estimates of net savings.

The other revisions in the estimates of net savings were smaller. That in agriculture ranks second and is the result of replacing the preliminary estimates of gross income and expenses by the estimates prepared by the Bureau of Agricultural Economics in connection with the study of Income Parity for Agriculture. The changes in the gross income figures were relatively small but bore heavily upon the residual item, net savings, since the subtrahend (current expenses and income payments) was revised only slightly.

Modifications of the preliminary estimates of savings in con-

TABLE 78

Main Differences in Components of Net Savings
Preliminary and Present NBER Estimates Compared,
1919-1934 (millions of dollars)

	DIFFERENCE IN UNADJUSTED SAVINGS BY INDUSTRIAL DIVISIONS						UNADJ. SAVINGS FOR ALL INDUS- TRIAL DIVISIONS (7)	DIF. DUE TO CHANGES IN ADJ. (8)
	Agr.	Const.	Serv.	Gov.	Misc.	Total		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1919	+481	-87	+97	-2,976	+31	-2,454	-2,410	-362
1920	+127	-33	-107	-287	+63	-237	-173	-206
1921	+1,077	+13	-346	-398	+172	+640	+640	+226
1922	+385	-16	+34	+148	-43	+508	+512	+164
1923	+313	-35	-51	-186	-39	+2	-9	+131
1924	+588	-104	-7	-252	-27	+198	+184	+415
1925	+152	-116	+13	-43	-82	-76	-108	+979
1926	+58	-98	-107	-274	-22	-443	-490	+639
1927	-10	-63	-80	-276	-14	-443	-593	+799
1928	+191	-51	-53	-133	-238	-284	-292	+1,133
1929	-200	-58	-38	-718	-232	-1,246	-1,074	-123
1930	+228	+29	-155	-1,129	-644	-1,671	-1,615	+136
1931	+10	+73	-251	-1,044	-704	-1,916	-1,894	+100
1932	-188	+157	-122	-500	-605	-1,258	-1,221	+202
1933	-242	+68	-675	-705	-499	-2,053	-2,126	+5
1934	-216	+103	-317	-606	+206	-830	+149	-475
Average 1919-34	+172	-14	-135	-580	-167	-724	-658	+229
Avg. disregarding signs	279	69	153	598	226	890	843	375

As in Tables 77 and 79, from the preliminary estimates the present estimates are subtracted. Col. 8: difference between col. 7 of Table 77 and col. 7 of Table 78.

struction were due largely to the revision of the estimate for total construction that utilized the recent estimates of Mr. Chawner. The value of construction was raised in most years, and since net savings in this industry are derived as a ratio to total value, they also were raised.

Preliminary estimates of net savings for the service division were revised partly because of a revision in the average net income of several professional groups. This revision was, in turn, due partly to the accretion of sample data collected by the Department of Commerce and other agencies, and to the recalculation by Milton Friedman of the averages with more careful consideration of the biases of the samples, partly to the revision of the extrapolating series for 1919-28, and partly to the change in the ratio of savings to net income for the combined total of mining, manufacturing, construction, and trade—a ratio that is one of the bases for estimating net savings in the service industries.

Net savings in the miscellaneous industrial division were substantially revised for the years since 1929, owing chiefly to a change in method. In the preliminary estimates we attempted, for the years since 1929, to make corporate net savings check with that in *Statistics of Income*. Accordingly, corporate net savings for miscellaneous industries were estimated as the difference between total net savings accounted for in the specific industries (except agriculture and life insurance) and the overall total in *Statistics of Income*. In the present estimates we abandoned this attempt, concluding that since our estimates of net savings in public utilities are derived from the *Census of Electrical Industries*, sample corporate data, and Interstate Commerce Commission reports, to use the *Statistics of Income* total as a controlling one was undesirable. Hence for the years since 1926 net savings for the miscellaneous industries were estimated on the basis of the item for the specific industries reported in *Statistics of Income* and included by us under the miscellaneous division; and for the earlier years

were extrapolated on the basis of the movement of the item in all other industrial divisions.¹

Finally, changes were made in the adjustment of net savings for profit and loss from sales of capital assets, the effects of revaluation of inventories, and the difference between depreciation charges at original and reproduction costs. The series on profit and loss from sales of capital assets was extended to cover the entire period. In our preliminary estimates the adjustment was made for 1929 and later years only. The revision of the inventory adjustment was due largely to a change in the coverage of trade and construction. When the estimates of activity in these two industries published in *Commodity Flow and Capital Formation* (National Bureau of Economic Research, 1938), Vol. One, were used (in a somewhat revised form), estimates of total inventories and hence of the effects of changing inventory valuations on net savings had to be revised. The changes in the depreciation adjustment were due in part to slight revisions in Dr. Fabricant's estimates of depreciation charges; his final estimates were published in *Capital Consumption and Adjustment*. Other changes were due to our exclusion of the estimated depreciation adjustment on farmers' property, since our agricultural savings are derived after deducting depreciation charges on a current price basis.

The total difference in unadjusted savings for the five industrial divisions given in Table 78 (col. 6) accounts for an overwhelming proportion of the difference between the present and preliminary estimates of the countrywide total of unadjusted net savings (col. 7). The only part of the difference not accounted for, in 1934, arises from the use, in the latter, of sample corporate data and, in the former, of *Statistics of Income* data.

We now turn to an analysis of the sources of the difference between the preliminary and present estimates of aggregate payments to individuals excluding entrepreneurial savings (Table 79). Most of the revisions are due to the appearance

¹ See Part Four, notes to Table Ms 1.

TABLE 79

Main Differences in Components of Aggregate Payments to Individuals
 Preliminary and Present NBER Estimates Compared, 1919-1934 (millions of dollars)

	AGR. (1)	MINING (2)	CONSTR. (3)	TRADE (4)	INS. (5)	REAL ESTATE (6)	SERV. (7)	GOV. (8)	MISC. (9)	TOTAL (10)	TOTAL UN- ACCOUNTED FOR (11)
1919	-107	+68	-327	-27	-152	-1,243	+201	+131	-8	-1,464	-41
1920	-218	+179	-429	-32	-177	-1,202	+281	+175	-13	-1,526	+59
1921	-389	+40	-592	-32	-195	-1,245	+81	+244	-131	-1,919	-16
1922	-418	+93	-831	-42	-204	-1,188	+276	+271	-95	-1,638	-39
1923	-352	+155	-623	-52	-111	-1,269	+83	+297	-145	-2,017	-25
1924	-377	+102	-767	-60	-120	-1,422	+157	+335	-149	-2,301	-24
1925	-329	+117	-854	-70	-127	-1,254	+286	+307	-125	-2,049	-23
1926	-298	+136	-1,076	-83	-129	-1,124	+182	+304	-145	-2,233	+20
1927	-249	+95	-967	-119	-144	-1,191	-226	+323	-210	-2,688	-50
1928	-239	+86	-817	-161	-166	-1,003	+61	+348	-159	-2,050	-72
1929	-277	+97	-920	-215	-155	-1,189	-5	+379	-128	-2,413	-200
1930	-532	+72	-925	-241	-162	-1,240	-133	+393	+7	-2,761	-139
1931	-563	+25	-953	-315	-164	-1,055	+55	+275	-21	-2,416	-80
1932	-451	-2	-571	-343	-158	-802	-5	+154	-75	-2,223	-62
1933	-232	-1	-174	-298	-149	-846	+973	+221	-227	-733	-46
1934	-257	+33	-84	-711	-154	-961	+811	+211	-207	-1,319	-51
Average 1919-34	-330	+81	-613	-175	-154	-1,145	+192	+275	-114	-1,984	-49
Avg. disregarding signs	330	81	613	175	154	1,145	238	275	115	1,984	59

Col. 11: difference between col. 6 of Table 77 and col. 10 of Table 79.

of new and more comprehensive data. The Department of Agriculture's estimates of gross income and expenses in agriculture have replaced the data formerly used in the agricultural estimates. The 1935 *Census of Business* segregated for the first time wages paid by mining contractors (for anthracite coal), thereby making it possible to revise the earlier estimate, which was based on statements from Bureau of Mines authorities. Also, contract work in oil and gas wells, which is apparently primarily construction and drilling of wells rather than production of oil and gas, was transferred to construction. For construction the more comprehensive estimates of Mr. Chawner were used. The estimates for trade were raised to include employee compensation at central administrative offices of retailers. There also were revisions in the 1930's owing to new Census data. The 1935 Census collected new data on payrolls in insurance agencies. For real estate the revision was extensive. D. L. Wickens' data on the ratio of average to median rents (from a special tabulation of Census data) and on rent-value ratios for specific Real Property Inventory cities led to an upward revision in most years. The use of the Department of Commerce study of individuals' long term debt raised the estimates of interest. The ratio of net to gross rent, applied to imputed rent, was raised, resulting in increased estimates of imputed rent in all years. For service, new sample data and Mr. Friedman's recomputation of the averages led to a downward revision of the preliminary estimates. In estimating net government interest we deducted receipts of interest by state and local governments. A second revision in government was the elimination, from pensions, of contributions by employees to pension funds. Finally, in the miscellaneous division, the new treatment of dividends and interest (see comments above on net savings) and a more careful estimate for such industries as could be segregated resulted in larger totals in most years.

The differences in Table 79 and the comments just made account for all except a minor part of the total differences be-

tween our preliminary and present estimates. For 1929 and 1930 a substantial discrepancy between the two sets is still unaccounted for (see col. 11). This discrepancy, almost entirely in the estimates for manufacturing, is due in part to a correction in *Statistics of Income* for 1929 and in part to estimating by detailed parts rather than as a whole.

2 *Department of Commerce Estimates*

The present estimates cannot be expected to agree as closely with those of the Department of Commerce. Estimates by different investigators usually reflect differences in the treatment of controversial questions and in the extent to which they venture to stretch inadequate data in order to attain comprehensive scope. Also, since the Department of Commerce estimates cover only the years since 1929, whereas we attempt a continuous coverage back to 1919, differences in details of classification and in some specific aspects of methods are inevitable. Discrepancies between the two sets, due to a cumulation of minor differences in methods and data, are therefore inevitably larger than between our own two sets, and our accounting for them cannot be as fine.

The differences between the Department of Commerce and our estimates of national income are much more substantial than between the two estimates of payments to individuals (Table 80), indicating clearly that there is a major discrepancy in the estimates of net savings of enterprises. By and large, the Department of Commerce totals for both national income and payments to individuals are smaller than ours. The differences average about 3 per cent of either total of national income and of aggregate payments to individuals.

Our estimates include three items omitted by the Department of Commerce: imputed rent on owner-occupied houses, direct relief payments, and net savings of governmental agencies. Furthermore, the Department of Commerce adjusts business savings for gains and losses on sales of capital assets, but not for gains and losses on inventory holdings or

TABLE 80

**National Income and Aggregate Payments to Individuals
Department of Commerce and Present NBER Estimates Compared, 1929-1938 (millions of dollars)**

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	Avg. 1929-38	Avg. DISREGARD- ING SIGNS
<i>National income</i>												
1 D of C	82,885	68,901	54,310	40,074	42,430	50,347	55,860	64,936	71,028	63,547	59,432	
2 Present	87,234	77,319	60,300	42,932	42,183	49,548	54,406	62,864	70,494	65,461	61,274	
3 (1 - 2)	-4,349	-8,418	-5,990	-2,858	+247	+799	+1,454	+2,072	+534	-1,914	-1,842	2,864
<i>Aggregate payments excl. entrepreneurial savings</i>												
4 D of C	80,611	74,211	62,816	49,289	45,515	51,788	55,886	63,922	70,118	64,944	61,910	
5 Present	82,421	76,520	65,061	52,070	48,659	53,758	58,016	64,537	70,966	66,061	63,807	
6 (4 - 5)	-1,810	-2,309	-2,245	-2,781	-3,144	-1,970	-2,130	-615	-848	-1,117	-1,897	1,897
<i>Net savings</i>												
7 Difference (3 - 6)	-2,539	-6,109	-3,745	-77	+3,391	+2,769	+3,584	+2,687	+1,382	-797	+55	2,708

All Department of Commerce estimates in this and subsequent tables are based upon unpublished data underlying 'National Income at Nearly 70 Billion Dollars in 1939', *Survey of Current Business*, June 1940.

for the difference between depreciation charges at original and reproduction costs. Although the Department of Commerce estimates of pensions and similar other income of employees are of distinctly broader industrial coverage than ours we include the military and naval compensation and pensions reported by the Veterans' Administration and consequently our estimates of 'other labor income' are larger than those of the Department of Commerce.

When these differences in definitions and coverage are taken into account (Table 81), the discrepancy between the two sets, so much larger in Table 80, shrinks to moderate proportions. The residual difference between the two national income totals ranges from \$76 million to \$2.0 billion, and at its largest is less than 3 per cent of either. The residual difference between the two totals of payments to individuals is still smaller, ranging from \$17 million to \$1.4 billion, and at its largest is only slightly over 2 per cent of either. The residual discrepancy in the two estimates of net savings is sizable, although far smaller than that in Table 80.

But since small overall differences may conceal large differences for industrial divisions, we compare the two sets of estimates in greater detail. Agriculture, transportation and other public utilities, service, and miscellaneous are the divisions for which the two sets of estimates of net savings differ markedly (Table 82), for various reasons. For agriculture the difference is in entrepreneurial withdrawals. Our estimates assume that withdrawals per farmer equal full-time compensation per farm worker plus some allowances for (a) family labor and (b) the difference between average consumption expenditures of farm operators and farm workers. The Department of Commerce estimates do not provide for the second allowance (b). Consequently our estimate of farmers' withdrawals is distinctly larger, and since net income originating is approximately the same in the two sets, the Department of Commerce estimate of net savings is much larger.

The comparison for transportation and other public utili-

TABLE 81

Differences due to Differences in Definitions and Coverage

Department of Commerce and Present NBER Estimates Compared, 1929-1938 (millions of dollars)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1929-38 AVG. GARDING SIGNS
1 Imputed rent	-2,337	-2,283	-1,739	-1,284	-1,216	-1,048	-1,107	-1,115	-1,315	-1,421	-1,486
2 Relief payments					-482	-657	-894	-439	-407	-476	-330
3 Dif. in coverage of other empl. comp.	-261	-278	-377	-416	-317	-248	-273	-506	-425	-347	-345
4 Gov. savings	-2,225	-2,104	-344	+906	+113	+575	+1,736	+2,196	-497	+175	+53
5 Adj. for gains on inventory holdings	-702	-4,115	-3,230	-1,471	+2,273	+1,487	+724	+164	+635	-1,104	-534
6 Adj. of depreciation item	+553	+286	+9	-353	-364	-44	+15	+185	+572	+524	+138
7 Total dif. (1-6)	-4,972	-8,494	-5,681	-2,618	+7	+65	+261	+485	-1,437	-2,649	-2,503
8 Residual dif. in nat. income: (3) of Table 80 minus (7)	+623	+76	-309	-240	+240	+734	+1,193	+1,587	+1,971	+735	+661
9 Dif. affecting agg. pay. (1-3)	-2,598	-2,561	-2,116	-1,700	-2,015	-1,953	-2,214	-2,060	-2,147	-2,244	-2,161
10 Residual dif. in agg. pay: (6) of Table 80 minus (9)	+788	+252	-129	-1,081	-1,129	-17	+84	+1,445	+1,299	+1,127	+264
11 Residual dif. in net savings (8 minus 10)	-165	-176	-180	+841	+1,369	+751	+1,109	+142	+672	-392	+397

ties is not quite exact, because the Department of Commerce coverage is somewhat broader: it includes and we exclude motor transportation, public warehousing, and air transportation. But according to unpublished Department of Commerce detail, net savings in motor and air transportation were consistently negative from 1929 to 1938, ranging from — \$8 million in 1929 to — \$82 million in 1932. Hence the difference between the two estimates would, for a comparable area, be about the same as that indicated in Table 82. The reason for this difference is that our estimates of net savings in transportation and other public utilities are based largely upon Interstate Commerce Commission reports and the *Census of Electrical Industries* while the Department of Commerce estimates are based largely on *Statistics of Income*. The former, obtained from standardized accounting forms and not subject to the bias from which all reporting for income tax purposes is likely to suffer, seemed preferable to *Statistics of Income*, although their use does disturb somewhat the comparability of the resulting estimates with those for the industrial divisions for which *Statistics of Income* is used.

The Department of Commerce coverage of the service group is also different from ours, including accounting, chambers of commerce, trade associations, other miscellaneous business service, and various repair services. Another source of difference is that we include all professional service industries, while the Department of Commerce includes only religious, curative, legal, and engineering service, and private education. A third source is the Department of Commerce assumption that the total net income of professional entrepreneurs is withdrawn by them. We estimated the savings of professional entrepreneurs on the basis of the ratio of savings to net income for manufacturing, mining, construction, and trade.

The discrepancy between the two estimates of net savings in the miscellaneous division is more apparent than real. If we added to the Department of Commerce totals the net savings arising in motor and air transportation (which we in-

TABLE 8 2

Main Differences in Components of Net Savings due to Differences in Methods of Estimation
Department of Commerce and Present NBER Estimates Compared, 1929-1938 (millions of dollars)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	Avg. 1929-38	DISRE- GARDING SIGNS
<i>Agriculture</i>												
1 D of C	935	-277	-1,016	-1,058	161	966	1,364	1,805	1,713	887	548	
2 Present	77	-1,835	-1,780	-1,671	-491	340	639	1,045	624	-83	-264	
3 (1-2)	+858	+1,058	+764	+613	+652	+626	+725	+760	+1,089	+970	+812	812
<i>Transportation and other public utilities</i>												
4 D of C	460	-368	-636	-848	-436	-475	-481	-123	-183	-416	-351	
5 Present	757	131	-194	-474	-176	-221	-197	213	122	-90	-13	
6 (4-5)	-297	-499	-442	-374	-260	-254	-284	-336	-305	-326	-338	338
<i>Service</i>												
7 D of C	-18	-388	-594	-787	-410	-268	-232	-220	-196	-226	-334	
8 Present	511	301	-268	-1,321	-1,314	-556	-403	-107	-228	39	-335	
9 (7-8)	-529	-689	-326	+534	+904	+288	+171	-113	+32	-265	+1	385
<i>Miscellaneous</i>												
10 D of C	-89	-432	-391	-290	-286	-126	260	-352	-290	-339	-234	
11 Present	-77	-473	-440	-448	-416	-270	-296	-202	-198	-184	-300	
12 (10-11)	-12	+41	+49	+158	+130	+144	+556	-150	-92	-155	+67	149
13 Total dif. (9+6+9+12)	+20	-89	+45	+931	+1,426	+804	+1,168	+161	+724	+224	+541	559
14 Residual dif. in net savings: (11) of Table 81 minus (13)	-185	-87	-225	-90	-57	-53	-59	-19	-52	-616	-144	144

All estimates of savings presented above are adjusted only for gains and losses on sales of capital assets. Line 4 includes savings of motor transportation, public warehousing, and air transportation, which are excluded from line 5. These industries are included in line 11 but not in line 10.

clude under the miscellaneous division), the discrepancy would become insignificant.

Between the two sets of estimates of payments to individuals the main differences are in entrepreneurial withdrawals in agriculture, rent paid to individuals, total manufacturing, total construction, total service, and total miscellaneous (Table 83). In the other divisions the differences are minor; and their total combined discrepancy ranges from \$3 million to \$307 million, an exceedingly small part of aggregate payments to individuals or of the total payments originating in these industries. The reason for the large excess in our estimate of withdrawals by farmers has already been indicated. The difference in net rent (paid, not imputed) received by individuals arises from a difference in the estimated ratio of net to gross rent. The ratio underlying the Department of Commerce estimate is 50 per cent, derived from a "consensus of authorities". In our estimates the ratio is based upon samples of operating expenses for apartment and office buildings which suggest an appreciably lower ratio. The difference in the manufacturing estimates is due to the inclusion by the Department of Commerce of payments to employees in distributing offices, canvassed for the first time in the *Census of Business*, 1935. These employees are covered by us in the miscellaneous division. The reason for the excess in our estimates for construction is that our basic figures on the value of construction include contracts for private maintenance construction whereas the Department of Commerce figures cover new private construction only. Since employee compensation is derived by applying to the value of construction the ratio of wages and salaries to value, total payments reflect the difference in the value estimates. Our inclusion of miscellaneous professional services (mentioned above in connection with the coverage of service) accounts in large part for our higher total service (line 15).

The higher Department of Commerce estimate for the miscellaneous division (including motor transportation, pub-

TABLE 83

Main Differences in Components of Aggregate Payments to Individuals due to Differences in Methods of Estimation
Department of Commerce and Present NBER Estimates Compared, 1929-1938 (millions of dollars)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	AVG. 1929-38	DISREGARD- AVG. INGS
<i>Entrepreneurial withdrawals, agriculture</i>												
1 D of C	4,693	4,429	3,565	2,719	2,464	2,760	3,016	3,219	3,622	3,553	3,404	
2 Present	5,899	5,579	4,541	3,502	3,166	3,500	3,775	4,028	4,546	4,492	4,303	
3 (1-2)	-1,206	-1,150	-976	-783	-702	-740	-759	-809	-924	-939	-899	899
<i>Rent paid to individuals</i>												
4 D of C	3,864	2,674	2,986	1,224	1,208	1,455	1,691	1,909	2,113	1,975	1,965	
5 Present	2,581	1,982	1,288	807	898	857	1,036	1,071	1,264	1,154	1,294	
6 (4-5)	+783	+692	+748	+417	+310	+598	+655	+838	+849	+821	+671	671
<i>Total payments, manufacturing</i>												
7 D of C	19,097	16,763	12,926	8,872	8,817	10,917	12,424	14,672	16,770	13,068	13,433	
8 Present	18,237	15,972	12,315	8,550	8,429	10,402	11,831	14,015	16,048	12,339	12,814	
9 (7-8)	+860	+791	+611	+322	+388	+515	+593	+657	+722	+729	+619	619
<i>Total payments, construction</i>												
10 D of C	3,591	2,739	1,938	1,147	707	843	1,017	1,621	1,935	1,769	1,731	
11 Present	3,951	3,443	2,297	1,404	968	1,022	1,163	1,648	1,884	1,693	1,947	
12 (10-11)	-360	-704	-359	-257	-261	-179	-146	-27	+51	+76	-217	242
<i>Total payments, service</i>												
13 D of C	9,606	9,084	7,908	6,338	5,705	6,421	7,031	7,833	8,644	8,261	7,683	
14 Present	10,756	10,108	9,037	7,811	7,142	7,319	7,771	8,392	9,349	8,824	8,651	
15 (13-14)	-1,150	-1,024	-1,129	-1,473	-1,437	-898	-740	-559	-705	-563	-968	968
<i>Total payments, miscellaneous</i>												
16 D of C	5,173	4,971	4,300	3,445	3,145	3,410	3,293	4,239	4,548	4,436	4,096	
17 Present	3,553	3,327	3,017	2,574	2,427	2,537	2,863	3,124	3,368	3,189	2,998	
18 (16-17)	+1,620	+1,644	+1,283	+871	+718	+873	+430	+1,115	+1,180	+1,247	+1,098	1,098
19 Total dif. (3+6+9+12+15+18)	+547	+249	+178	-903	-984	+169	+33	+1,215	+1,173	+1,371	+305	682
20 Residual dif. in agg. pay:												
(10) of Table 81 minus (19)	+241	+3	-397	-178	-145	-186	+51	+230	+126	-244	-41	171

Line 16 is the sum of total payments in miscellaneous industries, motor transportation and public warehousing and air transportation. Lines 7, 10, 13, and 16 exclude 'other labor income', differences in this item having already been considered.

lic warehousing, and air transportation) is due to a larger estimated number of employees and entrepreneurs attached to it. The difference is due partly to the inclusion, under the Department of Commerce miscellaneous division, of a few professional service industries and partly to our method of computing the number attached to the miscellaneous division. By subtracting from an overall measure of gainfully occupied those attached to the specific industries whose income activities have already been accounted for we estimate the number of persons engaged in the miscellaneous industries in 1929 as 2.0 million. The corresponding Department of Commerce estimate, based on data for the miscellaneous division, is 2.2 million.

3 *King's Estimates*

Since the estimates prepared under the direction of W. I. King and published in *National Income and Its Purchasing Power* were completed more than a decade ago many new data, of both comprehensive Census and sample coverage, have become available. While most are for recent years, making possible estimates for industrial divisions that could not be measured separately before, they provide basing points, with the help of which better estimates can be derived for the earlier years covered by King.

We therefore found, as we expected, that King's estimates differ much more from ours than do those of the Department of Commerce. But large as the differences are, a major proportion of the industrial divisions covered by King is truly comparable with ours both as to scope and the character of the underlying data; and for these divisions the differences, while still large, do not bar using one set of estimates as a continuation of the other.

The totals of national income, aggregate payments to individuals, and net savings are compared in Table 84. The differences between the two estimates of national income, if we accept in both instances the most comprehensive concept,

TABLE 8 4

National Income, Aggregate Payments to Individuals, and Net Savings
King's and Present NBER Estimates Compared, 1919-1925 (millions of dollars)

	1919	1920	1921	1922	1923	1924	1925	AVG. 1919-25	AVG. DISREGARD- ING SIGNS
<i>National income</i>									
1 King ¹	54,058	72,659	88,254	75,416	72,819	90,191	85,369	76,967	
2 Present	64,203	74,232	59,412	60,707	71,626	72,095	76,047	68,332	
3 (1-2)	-10,145	-1,573	+28,842	+14,709	+1,193	+18,096	+9,322	+8,635	11,983
<i>Aggregate payments excl. entrepreneurial savings</i>									
4 King ²	65,949	73,999	63,371	65,925	74,337	77,135	81,931	71,807	
5 Present	59,004	68,523	57,112	59,718	67,896	69,088	71,993	64,762	
6 (4-5)	+6,945	+5,476	+6,259	+6,207	+6,441	+8,047	+9,938	+7,045	7,045
<i>Difference due to net savings</i>									
7 (3-6)	-17,090	-7,049	+22,583	+8,502	-5,248	+10,049	-616	+1,590	10,162
<i>Net savings and gains in property values</i>									
8 King ³	-11,891	-1,340	+24,884	+9,490	-1,518	+13,056	+3,438	+5,160	
9 Present net savings, adj.	+5,199	+5,709	+2,301	+989	+3,730	+3,007	+4,055	+3,570	
10 (8-9)	-17,090	-7,049	+22,583	+8,501	-5,248	+10,049	-617	+1,590	10,162
11 Present net savings, unadj.	+8,851	+3,886	-3,177	+2,672	+5,173	+4,136	+6,203	+3,963	
12 (8-11)	-20,742	-5,226	+28,061	+6,818	-6,691	+8,920	-2,765	+1,197	11,318

Lines 1, 4, and 8 are from W. I. King, *National Income and Its Purchasing Power*, Table LII. All subsequent citations of King's estimates (tables numbered with Roman numerals) are from the same source.

1 Income of all people.

2 Entire realized income.

3 Gains in purchasing power of property values.

are striking indeed. At their largest, in 1921, they amount to almost one-half of our estimate; and they average, signs disregarded, about 17 per cent of the average of our estimates of national income. But an important source of the difference lies in the estimates of net savings, since they are based upon different concepts. King's concept of savings as an item complementary to payments to individuals led him to interpret them as gains in purchasing power of property values held by individuals. We, on the other hand, treat them as part of current net value product retained by enterprises. It is this difference in concept that causes the huge discrepancies in lines 10 and 12 of Table 84, since changes in property values are bound to fluctuate much more violently than net savings of enterprises, tracing a different pattern.²

While the difference in the savings item accounts for a substantial part of the difference between the two estimates of national income, King's 'entire realized income' is consistently larger than our 'aggregate payments to individuals', comparable concepts. The excess ranges between \$5.5 and \$7 billion from 1919 through 1923, and increases markedly in 1924 and 1925. We trace its sources and show its effect on the relative apportionment of the two totals by industrial source and type of payment, treating first the differences that arise from differences in coverage (Table 85).

King's 'entire realized income' includes three items omitted from our 'aggregate payments to individuals': (a) net income from urban poultry and gardens; (b) net income from urban cow keeping; (c) interest on durable goods accruing to owners. The totals under these heads, as estimated by King, amount to about \$3 billion annually (except in 1920 when

² Our concept of net savings of enterprises (unadjusted) is identical with that used in the first income study of the National Bureau of Economic Research, *Income in the United States, 1909-1919*. The algebraic sum of changes in property values from 1919 to 1925 differs from that of unadjusted savings of enterprises by an annual average of only \$1 billion. This small difference may be accidental, although there are reasons to assume that over a long period the average value of the two items should be fairly close.

TABLE 8 5

Differences in Aggregate Payments to Individuals due largely to Differences in Coverage King's and Present NBER Estimates Compared, 1919-1925 (millions of dollars)

	1919	1920	1921	1922	1923	1924	1925	AVG. 1919-25	AVG. DISREGARD- ING SIGNS
<i>Items incl. by King and omitted by us</i>									
1 Urban poultry & gardens	197	187	117	120	128	132	147	147	
2 Urban cow keeping	126	135	100	85	97	95	96	105	
3 Int. on durable goods	2,740	3,717	3,015	2,596	2,834	2,923	3,000	2,975	
4 Total	3,063	4,039	3,232	2,801	3,059	3,150	3,243	3,227	3,227
<i>Total payments, agriculture</i>									
5 King	11,009	9,864	5,831	6,284	7,017	7,276	8,016	7,900	
6 Present	8,587	9,975	6,981	6,768	7,374	7,471	7,526	7,812	
7 (5 - 6)	+2,422	-111	-1,150	-484	-357	-195	+490	+88	744
8 Est. net savings in agr. (King)	3,151	898	-1,870	-848	-358	-250	461	169	
<i>Total payments, manufacturing</i>									
9 King	15,941	19,356	13,080	13,757	16,631	16,071	16,661	15,928	
10 Present	14,340	16,740	11,760	12,285	15,289	14,578	15,396	14,341	
11 (9 - 10)	+1,601	+2,616	+1,320	+1,472	+1,342	+1,493	+1,265	+1,587	
12 Est. duplication in King	+797	+1,041	+755	+677	+868	+762	+762	+809	809
13 Residual excess in King [transferred to 'all other', Table 87, (2)]	+804	+1,575	+565	+795	+474	+731	+503	+778	
14 Excess accounted for (4 + 7 + 12)	+6,282	+4,969	+2,837	+2,994	+3,570	+3,717	+4,495	+4,123	4,123
15 Residual excess: (6) of Table 84 minus (14)	+663	+507	+3,422	+3,213	+2,871	+4,330	+5,443	+2,921	2,921

Lines 1-3: Table CXXXIII.

Line 5: King's estimate of realized income (Table XIV), excluding rent paid to non-farmers (Table XCVIII).

Line 9: King's estimate of realized income (Table XIV), excluding rent paid (from original source books).

Line 12: wages and salaries in steam and electric railroad repair shops, reported for 1919, 1921, 1923, and 1925 in the *Census of Manufactures* and interpolated between 1919 and 1923 by the Federal Reserve Board payrolls index for car building and repairing and between 1923 and 1925 by the Bureau of Labor Statistics payrolls index for railroad repair shops.

they were over \$4 billion) and account for almost one-half of the difference between the two estimates of payments to individuals.

Furthermore, King includes under income realized from agriculture rent paid to non-farmers and net savings of farm operators. Since we include the former item under real estate, we transferred King's estimate of it to this division in Tables 86-90. And since we exclude completely farmers' net savings from the narrower total of payments to individuals we computed them by estimating farmers' withdrawals on the basis of King's figures on the number of farmers and average compensation of farm workers; and subtracting these withdrawals from King's total net income of farm operators. The results (Table 85, line 8) indicate that the major part of the difference in the two estimates for agriculture for 1919, 1921, 1923, 1924, and 1925 is due to the inclusion, in King's total, of net savings. The residual difference under agriculture, averaging about \$81 million, is a relatively small part of the total and is due largely to our use of more recent and more comprehensive data on gross income and expenses.

King's estimates for manufacturing had to be adjusted in two respects to be comparable with ours. First, they include wages and salaries in repair shops of steam and electric railroads, apparently duplicating this item under transportation and public utilities. The correction is entered in line 12 of Table 85. Second, King includes under manufacturing custom grist and saw mills, manufactured gas, power laundries, and motion pictures—industries included by us under other divisions. Since other incomes in King's estimate for manufacturing agree fairly closely with ours, we thought it best to ascribe the entire excess in his estimates (remaining after the correction for duplication) (line 13) to wages and salaries, and transfer it to the 'all other' division in Table 87 (line 2).

With these differences in coverage and classification (as well as the basis of the estimate in agriculture) accounted for, the excess of King's 'entire realized income' over our 'aggregate

TABLE 86

Income Payments Originating in Directly Comparable Industrial Divisions
King's and Present NBER Estimates Compared, 1919-1925 (millions of dollars)

	1919	1920	1921	1922	1923	1924	1925	AVG. 1919-25	AVG. DISREGARD- ING SIGNS
<i>Mining</i>									
1 King	1,675	2,050	1,660	1,518	2,128	1,800	1,914	1,821	
2 Present	1,728	2,315	1,821	1,610	2,273	1,997	1,937	1,954	
3 (1-2)	-53	-205	-161	-92	-145	-197	-23	-134	134
<i>Construction</i>									
4 King	1,846	1,895	1,740	2,198	2,465	2,974	3,458	2,368	
5 Present	1,868	2,322	1,915	2,306	3,280	3,469	3,706	2,724	
6 (4-5)	-22	-627	-175	-108	-815	-495	-248	-356	356
<i>Steam railroad, Pullman, & express</i>									
7 King	3,856	4,818	3,801	3,689	4,128	3,999	4,073	4,052	
8 Present	3,880	4,832	3,821	3,718	4,156	4,024	4,105	4,079	
9 (7-8)	-24	-34	-20	-29	-28	-25	-32	-27	27
<i>Street railways</i>									
10 King	552	652	646	627	671	671	668	641	
11 Present	516	607	583	608	622	620	605	594	
12 (10-11)	+36	+45	+63	+19	+49	+51	+63	+47	47
<i>Water transportation</i>									
13 King	710	896	741	555	563	602	587	665	
14 Present	559	747	562	484	495	520	505	553	
15 (13-14)	+151	+149	+179	+71	+68	+82	+82	+112	112
<i>Communication</i>									
16 King	406	518	528	568	626	679	719	578	
17 Present	392	493	502	532	591	636	679	546	
18 (16-17)	+14	+25	+26	+36	+35	+43	+40	+31	31

Electric light and power

19 King	267	323	365	413	505	571	679	446
20 Present	290	337	365	434	558	663	737	483
21 (19 — 20)	-23	-14	0	-21	-53	-92	-58	-37

Trade

22 King	7,517	8,192	7,872	8,077	10,130	10,362	11,261	9,059
23 Present	8,061	9,071	7,708	8,074	8,854	9,089	9,548	8,629
24 (22 — 23)	-544	-879	+164	+3	+1,276	+1,273	+1,713	+429

Banking

25 King	646	775	848	930	997	1,029	1,094	903
26 Present	658	770	821	843	871	906	947	831
27 (25 — 26)	-12	+5	-27	+87	+126	+123	+147	+72

Rent

28 King	5,368	6,200	6,620	6,781	6,842	7,117	7,322	6,607
29 Present rent	3,967	4,288	4,470	4,897	5,165	5,632	5,466	4,841
30 Present interest, real estate	829	900	954	990	1,141	1,245	1,419	1,068

Government

31 Present total (29 + 30)	4,796	5,188	5,424	5,887	6,306	6,877	6,885	5,909
32 (28 — 31)	+572	+1,012	+1,196	+894	+536	+240	+437	+698

Government

33 King	6,136	5,311	5,629	5,792	5,783	5,896	6,130	5,811
34 Present	5,071	5,124	5,248	5,282	5,431	5,561	5,751	5,353
35 (33 — 34)	+1,065	+187	+381	+510	+352	+335	+379	+458

36 Total difference (3 + 6 + 9 + 12 + 15 + 18 + 21 + 24 + 27 + 32 + 35)

37 Dif: Table 85, (15)	+663	+507	+3,422	+3,213	+2,871	+4,330	+5,443	+2,921
38 Residual dif. (37 — 36)	-497	+903	+1,742	+1,843	+1,470	+2,992	+2,943	+1,628
								1,770

Lines 1, 4, 7, 10, 13, 16, 19, 22, 25, 33: Table XIV, excluding estimates of rent originating (from original source books).
 Line 28: sum of estimates of rent for agriculture, mining, manufacturing, express, electric railways, telegraphs, mercantile, unclassified, leased houses not on farms, and imputed rent on owner-occupied urban houses. Of these only the first and the last two are given in King's published report (see Tables XCVIII and CXXXIII).

payments to individuals' is cut in half. The residual difference (line 15) is about \$500 million in 1919 and 1920, about \$3 billion in 1921 through 1923, and about \$5 billion in 1924 and 1925.

The industrial divisions for which the two sets of estimates can be compared directly, without any adjustment for coverage, are listed in Table 86. Our attempt to correct for interest receipts on government securities and pension contributions by employees lessens slightly the comparability of King's and our estimates by industrial divisions. Nevertheless in the industrial divisions for which few new data have accumulated since King completed his report—mining, the combined groups of transportation and communication (exclusive of pipe lines and manufactured gas), banking, and government (except for 1919)—the differences are moderate.

In construction, trade, and rent the differences are consistently substantial. The difference in construction seems to be due primarily to the difference in the value of construction. Our estimates are based on data collected recently. That in trade seems to be due largely to a difference in the trend of sales. King's total sales rise much more steeply from 1919 to 1925 than ours, which are from the commodity flow and capital formation study. As a result, his income payments rise much more rapidly. Our smaller totals for rent seem to be due largely to the much lower ratio of net to gross rent in our calculations. In many components of the rent total (estimated by King for each industrial division in which it is assumed to originate), the figure for gross rent is used for net. In other components of the rent total, the ratio of net to gross is less than 100 per cent, but is still appreciably higher than that derived from operating expense samples which we used.³

The discrepancies in directly comparable industrial divi-

³ In order to assure comparability with King's estimate, we include not only net rent received by individuals and imputed rent but also interest originating. King seems not to have differentiated between these two types of income derived by individuals from real estate.

sions account for a substantial part of the total excess of King's estimate of income payments over ours. But even when added to those previously accounted for in Table 85, they do not account fully for the difference between the two totals of payments to individuals. The residual difference (Table 86, line 38) is substantial, and still rises rapidly from the earlier to the later years of the period covered by the comparison. Its source, of course, is largely in the difference between King's 'all other' and our estimates for industrial divisions (including our 'miscellaneous') for which there is no comparable, segregable division in King's total (Table 87).

TABLE 87

Income Payments Originating in the 'All Other' Comparable Industries, King's and Present NBER Estimates Compared 1919-1925 (millions of dollars)

	1919	1920	1921	1922	1923	1924	1925	1919-25 AVG.
<i>King 'All other'</i>								
1 Unclassified	6,977	9,120	10,785	11,579	12,424	14,552	15,685	11,589
2 Residual from mfg.	804	1,575	565	795	474	731	503	778
3 Net income from foreign investments	-17	-8	-7	354	369	390	419	214
4 Total	7,764	10,687	11,343	12,728	13,267	15,673	16,607	12,581
<i>Present 'All other'</i>								
5 Mfd. gas	134	137	122	117	142	167	177	142
6 Pipe lines	58	65	67	94	82	79	111	79
7 Insurance	662	792	830	878	882	974	1,082	871
8 Real estate other than covered	502	626	615	625	740	768	743	661
9 Service	5,001	6,021	5,969	6,974	7,410	8,034	8,667	6,869
10 Misc.	1,901	2,143	1,999	2,198	2,520	2,657	2,884	2,329
11 Total	8,258	9,784	9,602	10,886	11,794	12,679	13,664	10,952
12 Difference * (4 - 11)	-494	+903	+1,741	+1,842	+1,473	+2,994	+2,943	+1,629

Line 1: Table XIV, excluding rent originating (from original source books).

Line 2: Table 85, (13).

Line 3: Table CXXXIII.

Line 8: sum of our estimates of employee compensation and dividends in real estate.

* Average for: 1919-25, disregarding signs, is \$1,770 million.

By far the largest component in King's 'all other' is total payments originating in the unclassified division. Estimated as a unit, it is largely the product of a single average compensation figure and the number of employees and entrepreneurs

estimated as attached to and employed in this carry-all residual industrial division. But our corresponding 'all other', the miscellaneous division, estimated similarly, accounts on the average for about one-fifth of the total for the group. The rest is estimated by parts, i.e., on the basis of specific data for each part. It is this difference in the method of estimation and the character of the underlying data that accounts for the substantial and varying difference between the two estimates. A large part of the *increase* over the period in the excess of King's total payments to individuals over our estimates is due to this discrepancy of the totals for the 'all other' or miscellaneous divisions.⁴

We now compare the percentage distributions of the two totals by industrial divisions (Table 88). In deriving the percentage distribution of King's total, the following adjustments, already explained, were made: (a) from his 'entire realized income' we subtracted the items we excluded—income from urban poultry, gardens, and cows, interest on durable goods utilized by their owners, net savings in agriculture, and the duplication of railroad repair shops; (b) for his manufacturing total we substituted our total and transferred the difference (remaining after the adjustment for duplication) to his 'all other' division; (c) we excluded from the total for all industrial divisions the item 'rent originating', and transferred the amounts to a separate rent category. The only adjustment we made in our own estimates was to include under rent not only rent received by individuals and imputed rent but also interest originating in real estate.

After these minor adjustments, the percentage distributions of the two totals by industrial source show small differences, especially in the averages for the period as a whole. The share of the commodity producing industries—agriculture, mining, manufacturing, construction—is consistently smaller in King's estimates. But the difference is moderate, averaging about 6 per cent of the total share. Similarly, the share of the com-

⁴ The other factor is the divergency in trend of the two totals for trade.

TABLE 38: Payments to Individuals

Percentage Distribution by Industrial Divisions

King's and Present NBER Estimates Compared, 1919-1925

	1919	1920	1921	1922	1923	1924	1925	AVG. DISRE- GARDING 1919-25	SIGNS
<i>Agriculture</i>									
1 King	13.3	13.2	12.6	11.3	10.4	10.2	9.8	11.5	
2 Present	14.6	14.6	12.2	11.3	10.9	10.8	10.5	12.1	
3 (1 - 2)	-1.3	-1.4	+0.4	0.0	-0.5	-0.6	-0.7	-0.6	0.7
<i>Mining</i>									
4 King	2.8	3.0	2.7	2.4	3.0	2.4	2.5	2.7	
5 Present	2.9	3.4	3.2	2.7	3.3	2.9	2.7	3.0	
6 (4 - 5)	-0.1	-0.4	-0.5	-0.3	-0.3	-0.5	-0.2	-0.3	0.3
<i>Manufacturing</i>									
7 King	24.3	24.6	19.2	19.4	21.6	19.8	19.9	21.3	
8 Present	24.3	24.4	20.6	20.6	22.5	21.1	21.4	22.1	
9 (7 - 8)	0.0	+0.2	-1.4	-1.2	-0.9	-1.3	-1.5	-0.9	0.9
<i>Construction</i>									
10 King	3.1	2.8	2.8	3.5	3.5	4.0	4.5	3.5	
11 Present	3.2	3.7	3.4	3.9	4.8	5.0	5.1	4.2	
12 (10 - 11)	-0.1	-0.9	-0.6	-0.4	-1.3	-1.0	-0.6	-0.7	0.7
<i>Steam railroad, Pullman, & express</i>									
13 King	6.5	7.1	6.2	5.8	5.8	5.4	5.3	6.0	
14 Present	6.6	7.1	6.7	6.2	6.1	5.8	5.7	6.3	
15 (13 - 14)	-0.1	0.0	-0.5	-0.4	-0.3	-0.4	-0.4	-0.3	0.3
<i>Street railways</i>									
16 King	0.9	1.0	1.1	1.0	0.9	0.9	0.9	1.0	
17 Present	0.9	0.9	1.0	1.0	0.9	0.9	0.8	0.9	
18 (16 - 17)	0.0	+0.1	+0.1	0.0	0.0	0.0	+0.1	+0.1	0.1
<i>Water transportation</i>									
19 King	1.2	1.3	1.2	0.9	0.8	0.8	0.8	1.0	
20 Present	0.9	1.1	1.0	0.8	0.7	0.8	0.7	0.9	
21 (19 - 20)	+0.3	+0.2	+0.2	+0.1	+0.1	0.0	+0.1	+0.1	0.1
<i>Communication</i>									
22 King	0.7	0.8	0.9	0.9	0.9	0.9	0.9	0.9	
23 Present	0.7	0.7	0.9	0.9	0.9	0.9	0.9	0.8	
24 (22 - 23)	0.0	+0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Electric light and power</i>									
25 King	0.5	0.5	0.6	0.7	0.7	0.8	0.9	0.7	
26 Present	0.5	0.5	0.6	0.7	0.8	1.0	1.0	0.7	
27 (25 - 26)	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.1	-0.1	0.1
<i>Trade</i>									
28 King	12.8	12.0	12.9	12.8	14.3	14.1	14.5	13.3	
29 Present	13.7	13.2	13.5	13.5	13.0	13.2	13.3	13.3	
30 (28 - 29)	-0.9	-1.2	-0.6	-0.7	+1.3	+0.9	+1.2	0.0	1.0

TABLE 88 (concl.)

	1919	1920	1921	1922	1923	1924	1925	1919-25	AVG. DISRE- GARDING SIGNS
<i>Banking</i>									
31 King	1.1	1.1	1.4	1.5	1.4	1.4	1.4	1.3	
32 Present	1.1	1.1	1.4	1.4	1.3	1.3	1.3	1.3	
33 (31 - 32)	0.0	0.0	0.0	+0.1	+0.1	+0.1	+0.1	+0.1	0.1
<i>Rent</i>									
34 King	9.1	9.1	10.8	10.7	9.7	9.7	9.5	9.8	
35 Present	8.1	7.6	9.5	9.9	9.3	10.0	9.6	9.1	
36 (34 - 35)	+1.0	+1.5	+1.3	+0.8	+0.4	-0.3	-0.1	+0.7	0.8
<i>Government</i>									
37 King	10.4	7.8	9.2	9.2	8.2	8.0	7.9	8.7	
38 Present	8.6	7.5	9.2	8.8	8.0	8.0	8.0	8.3	
39 (37 - 38)	+1.8	+0.3	0.0	+0.4	+0.2	0.0	-0.1	+0.4	0.4
<i>'All other'</i>									
40 King	13.2	15.7	18.5	20.1	18.7	21.3	21.4	18.4	
41 Present	14.0	14.3	16.8	18.2	17.4	18.4	19.0	16.9	
42 (40 - 41)	-0.8	+1.4	+1.7	+1.9	+1.3	+2.9	+2.4	+1.5	1.8
CLASSIFICATION A BY CHARACTER OF PRODUCTIVE FUNCTION									
<i>Commodity producing</i>									
43 King	44.0	44.1	37.9	37.3	39.2	37.2	37.6	39.6	
44 Present	45.5	46.6	40.0	39.2	42.3	40.8	40.7	42.2	
45 (43 - 44)	-1.5	-2.5	-2.1	-1.9	-3.1	-3.6	-3.1	-2.5	2.5
<i>Commodity transporting and distributing</i>									
46 King	20.5	20.4	20.3	19.5	20.9	20.3	20.6	20.4	
47 Present	21.2	21.4	21.2	20.5	19.8	19.8	19.7	20.5	
48 (46 - 47)	-0.7	-1.0	-0.9	-1.0	+1.1	+0.5	+0.9	-0.2	0.9
<i>Services</i>									
49 King	35.4	35.5	41.9	43.4	39.8	42.2	42.0	40.0	
50 Present	33.4	32.1	38.8	40.2	37.8	39.5	39.6	37.3	
51 (49 - 50)	+2.0	+3.4	+3.1	+3.2	+2.0	+2.7	+2.4	+2.7	2.7
CLASSIFICATION C BY TYPE OF BUSINESS ORGANIZATION									
<i>With large proportion of individual firms</i>									
52 King	51.5	52.8	57.6	58.4	56.6	59.3	59.7	56.6	
53 Present	53.6	53.4	55.4	56.8	55.4	57.4	57.5	55.6	
54 (52 - 53)	-2.1	-0.6	+2.2	+1.6	+1.2	+1.9	+2.2	+0.9	1.7
<i>Private corporations</i>									
55 King	27.1	27.6	21.9	21.8	24.6	22.2	22.4	23.9	
56 Present	27.2	27.8	23.8	23.3	25.8	24.0	24.1	25.1	
57 (55 - 56)	-0.1	-0.2	-1.9	-1.5	-1.2	-1.8	-1.7	-1.2	1.2
<i>Semi-public corporations</i>									
58 King	10.9	11.8	11.4	10.8	10.5	10.2	10.2	10.8	
59 Present	10.7	11.4	11.6	11.0	10.7	10.7	10.4	10.9	
60 (58 - 59)	+0.2	+0.4	-0.2	-0.2	-0.2	-0.5	-0.2	-0.1	0.3
<i>Public</i>									
61 King	10.4	7.8	9.2	9.2	8.2	8.0	7.9	8.7	
62 Present	8.6	7.5	9.2	8.8	8.0	8.0	8.0	8.3	
63 (61 - 62)	+1.8	+0.3	0.0	+0.4	+0.2	0.0	-0.1	+0.4	0.4

modity handling industries—transportation, communication, and trade—is somewhat smaller in King's estimates, but the difference is much less than for the commodity producing industries. The share of the service industries in King's total is larger than in ours. Similar minor differences are true of the apportionments among the broader groups by character of organization. The two totals are sufficiently similar in industrial composition for the industrial allocation to be treated as continuous in rough comparison.

While the industrial categories are more numerous and hence can be compared in more detail, we compare the two sets of estimates by type of payment also (Table 89).⁵ After the necessary adjustments, all of which have been indicated, moderate differences appear between the two sets of estimates of dividends and interest. There are sizable differences between the two totals of employee compensation, although the algebraic mean difference for the period is small compared with the totals. But King's rent is about 12 per cent and his entrepreneurial withdrawals are from 10 to 35 per cent larger than ours, obviously because trade, real estate, and the 'all other' industrial divisions, for which the bases of his estimates differ so significantly from ours, dominate these categories.

The differences in the totals of payments to individuals (Table 89) are naturally reflected in the differences in the percentage distributions by type of payment (Table 90). The share of employee compensation is lower in King's total; the share of entrepreneurial withdrawals higher. The shares of the combined total of service income are fairly close in the two sets; and so are, naturally, the shares of property income. But the persistence of the difference between the apportionments of the two totals during the years covered by both makes it feasible to use King's figures for rough comparisons, even without adjustments for the trade, rent, and unclassified items.

⁵ Comparisons by type of payment were omitted from the preceding sections of this chapter because the differences would have been minor or were already indicated in the industry by industry comparisons.

TABLE 89

Payments to Individuals by Type of Payment
King's and Present NBER Estimates Compared
1919-1925 (millions of dollars)

	1919	1920	1921	1922	1923	1924	1925	AVG. 1919-25	AVG. DIS- REGARDING SIGNS
<i>Employee compensation</i>									
1 King	35,399	42,283	36,213	37,700	42,893	44,493	46,855	40,834	
2 King, adj. for duplication	34,602	41,242	35,458	37,023	42,025	43,731	46,093	40,025	
3 Present	37,140	43,890	35,537	37,004	43,340	43,324	45,019	40,751	
4 (2-3)	-2,538	-2,648	-79	+19	-1,315	+407	+1,074	-726	1,154
<i>Dividends incl. international payments</i>									
5 King	3,209	3,103	2,951	3,003	3,715	3,899	4,577	3,494	
6 Present	2,887	3,216	2,963	3,049	3,839	3,813	4,425	3,456	
7 (5-6)	+322	-113	-12	-46	-124	+86	+152	+38	122
<i>Interest</i>									
8 King	2,585	2,706	2,773	2,872	2,889	2,846	2,892	2,795	
9 Present	3,229	3,653	3,872	3,980	4,206	4,374	4,579	3,985	
10 Present excl. real estate int.	2,400	2,753	2,918	2,990	3,065	3,129	3,100	2,916	
11 (8-10)	+185	-47	-145	-118	-176	-283	-268	-122	175
<i>Rent</i>									
12 King	5,368	6,200	6,620	6,781	6,842	7,117	7,322	6,607	
13 Present	4,796	5,188	5,424	5,887	6,306	6,877	6,885	5,909	
14 (12-13)	+572	+1,012	+1,196	+894	+536	+240	+437	+698	

Entrepreneurial withdrawals

15	Comp. of entrep. & property owners (King)	30,550	31,716	27,157	28,225	31,444	32,642	35,076	30,973	
16	Items omitted by us & net savings in agr.	6,214	4,937	1,862	1,953	2,701	2,900	3,704	3,396	
17	Div., int., & rent	11,162	12,009	12,344	12,656	13,446	13,862	14,791	12,896	
18	Withdrawals (King) (15 — 16 — 17)	13,174	14,770	13,451	13,616	15,297	15,880	16,581	14,681	
19	Present	11,782	13,477	10,269	10,789	11,345	11,946	12,503	11,730	
20	(18 — 19)	+1,392	+1,293	+3,182	+2,827	+3,952	+3,934	+4,078	+2,951	
21	Total dif. (4 + 7 + 11 + 14 + 20)	-67	-503	+4,142	+3,576	+2,873	+4,384	+5,473	+2,840	
<i>Totals paid out</i>										
22	Realized income (King)	65,949	73,999	63,371	65,925	74,337	77,135	81,931	71,807	
23	Items omitted by us & net savings in agr.	6,214	4,937	1,862	1,953	2,701	2,900	3,704	3,396	
24	Duplication in mfg.	797	1,041	755	677	868	762	762	809	
25	King's total comparable with ours (22 — 23 — 24)	58,938	68,021	61,254	63,295	70,768	73,473	77,465	67,602	
26	Present	59,004	68,523	57,112	59,718	67,896	69,088	71,993	64,762	
27	(25 — 26)	-66	-502	+4,142	+3,577	+2,872	+4,385	+5,472	+2,840	

Line 1: Table XIX.

Line 2: difference between (1) and Table 85, (12).

Line 5: Tables XXXVII, XXXVIII, CXXXIII.

Line 8: Tables XXXVI, CXXXVII, XCVIII.

Line 12: Table 86, (28).

Line 15: Table XVII.

Line 16: Table 85, (4 + 8).

Line 24: Table 85, (12).

TABLE 90

Payments to Individuals

Percentage Distribution by Type of Payment

King's and Present NBER Estimates Compared, 1919-1925

	1919	1920	1921	1922	1923	1924	1925	AVG. 1919-25	AVG. DIS- REGARDING SIGNS
<i>Employee compensation</i>									
1 King	58.7	60.6	57.9	58.5	59.4	59.5	59.5	59.2	
2 Present	62.9	64.1	62.2	62.0	63.8	62.7	62.5	62.9	
3 (1 - 2)	-4.2	-3.5	-4.3	-3.5	-4.4	-3.2	-3.0	-3.7	3.7
<i>Entrepreneurial withdrawals</i>									
4 King	22.4	21.7	22.0	21.5	21.6	21.6	21.4	21.7	
5 Present	20.0	19.7	18.0	18.1	16.7	17.3	17.4	18.2	
6 (4 - 5)	+2.4	+2.0	+4.0	+3.4	+4.9	+4.3	+4.0	+3.6	3.6
<i>Service income</i>									
7 King	81.1	82.3	79.8	80.0	81.0	81.1	80.9	80.9	
8 Present	82.9	83.7	80.2	80.0	80.5	80.0	79.9	81.0	
9 (7 - 8)	-1.8	-1.4	-0.4	0.0	+0.5	+1.1	+1.0	-0.1	0.9
<i>Dividends incl. international payments</i>									
10 King	5.4	4.6	4.8	4.7	5.2	5.3	5.9	5.1	
11 Present	4.9	4.7	5.2	5.1	5.7	5.5	6.1	5.3	
12 (10 - 11)	+0.5	-0.1	-0.4	-0.4	-0.5	-0.2	-0.2	-0.2	0.3
<i>Interest</i>									
13 King	4.4	4.0	4.5	4.5	4.1	3.9	3.7	4.2	
14 Present	4.1	4.0	5.1	5.0	4.5	4.5	4.4	4.5	
15 (13 - 14)	+0.3	0.0	-0.6	-0.5	-0.4	-0.6	-0.7	-0.4	0.4
<i>Dividends and interest</i>									
16 King	9.8	8.6	9.3	9.2	9.3	9.2	9.6	9.3	
17 Present	9.0	8.7	10.3	10.1	10.2	10.0	10.5	9.8	
18 (16 - 17)	+0.8	-0.1	-1.0	-0.9	-0.9	-0.8	-0.9	-0.5	0.8
<i>Rent</i>									
19 King	9.1	9.1	10.8	10.7	9.7	9.7	9.5	9.8	
20 Present	8.1	7.6	9.5	9.9	9.3	10.0	9.6	9.1	
21 (19 - 20)	+1.0	+1.5	+1.3	+0.8	+0.4	-0.3	-0.1	+0.7	0.8
<i>Property income</i>									
22 King	18.9	17.7	20.2	20.0	19.0	18.9	19.1	19.1	
23 Present	17.1	16.3	19.8	20.0	19.5	20.0	20.1	19.0	
24 (22 - 23)	+1.8	+1.4	+0.4	0.0	-0.5	-1.1	-1.0	+0.1	0.9

4 *Summary Note*

It is not possible, or intended here, to summarize the several comparisons just made in detail. But it seems pertinent to point out that they show that our estimates differ from each of the three others in much the same items. Thus, of the various types of income, the greatest relative discrepancies occur in all three comparisons for the controversial area of net savings; and of the various types of payment, the greatest discrepancy is in entrepreneurial withdrawals. Of the estimates for the various industries, those for branches covered by well established censuses, such as mining and manufacturing, agree best; greater discrepancies exist among the service industries, real estate, and the miscellaneous divisions, areas in which the paucity of data leaves wide room for differences in methods.

Appendix to Chapter 10: King's Estimates, 1909-1919

Comparison of King's and our estimates for the few years covered by both indicates substantial disparities. But a large part is due to differences in coverage that can be eliminated; and after adjustment the comparable totals of payments to individuals are fairly close. More important, the distributions of the two totals by industrial source and type of payment are sufficiently similar to allow using both sets in exploring changes in the distribution over periods extending beyond that covered by each separately.

Tables 84-90 compare only the years since 1919 for which both sets are available. But for analysis of temporal changes it would obviously be useful to have King's estimates for earlier years, modified by adjustments similar to those followed above to make them as comparable with our estimates as possible without cardinal revision. We therefore give King's estimates of payments to individuals for 1909-19, modified by the three revisions noted: (a) omission of the items we ex-

T A B L E 9 1

King's Estimates of Income Payments by Industrial Divisions,
Adjusted to Conform with Present NBER Estimates, 1909-1919 (millions of dollars)

	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
<i>Items to be omitted from King</i>											
1 Urban poultry and gardens	70	75	72	80	78	82	85	100	211	281	197
2 Urban cow keeping	52	56	54	59	61	61	62	66	86	109	126
3 Int. on durable goods	850	932	966	1,018	1,070	1,116	1,187	1,334	1,625	2,302	2,740
4 Total	972	1,063	1,092	1,157	1,209	1,259	1,334	1,500	1,922	2,692	3,003
<i>Agriculture</i>											
5 Income pay. incl. savings	4,360	4,547	4,095	4,594	4,412	4,347	4,737	5,819	8,272	10,182	11,009
6 Est. net savings	510	770	138	533	243	237	567	1,275	2,679	3,658	3,151
7 Adj. income pay. (5 - 6)	3,850	3,777	3,957	4,061	4,169	4,110	4,170	4,544	5,593	6,524	7,858
<i>Manufacturing</i>											
8 Income pay.	5,405	6,123	6,167	6,749	7,238	6,816	7,261	10,145	12,353	14,661	15,941
9 Est. duplication	214	244	245	273	295	279	308	425	543	697	797
10 Residual excess (transferred to line 24)	276	312	314	344	369	347	369	516	627	741	804
11 Adj. income pay. (8 - 9 - 10)	4,915	5,567	5,608	6,132	6,574	6,190	6,584	9,204	11,183	13,223	14,340
<i>Income payments</i>											
12 Mining	760	839	834	916	1,054	884	883	1,309	1,597	1,795	1,675
13 Construction	1,692	1,580	1,607	1,742	1,527	1,412	1,394	1,516	1,206	1,207	1,846
14 Steam rr., Pullman, & express	1,800	1,961	2,017	2,110	2,211	2,142	2,165	2,345	2,668	3,584	3,856
15 Street rwy.	306	330	348	366	388	410	414	438	454	488	552
16 Water transp.	211	232	229	241	250	252	276	339	436	504	710
17 Communication	154	169	187	203	221	226	226	265	301	342	406
18 Elec. light & power	93	99	117	126	139	152	166	182	204	232	267
19 Trade	3,377	3,417	3,704	3,695	4,126	4,373	4,437	4,890	5,806	6,358	7,517
20 Banking	337	380	409	429	453	454	463	480	509	572	646
21 Rent	3,292	3,483	3,592	3,716	3,903	4,027	4,164	4,412	4,691	4,960	5,368
22 Government	1,554	1,678	1,767	1,862	1,981	2,093	2,192	2,297	3,044	3,278	6,136

All other

23 Unclassified	5,364	5,596	5,775	6,156	6,702	6,886	7,161	7,388	7,829	6,579	6,977
24 Residual from mfg.	276	312	314	344	360	347	360	516	627	741	804
25 Net income from foreign investments	-74	-78	-82	-86	-90	-85	-68	-46	-51	-26	-17
26 Income pay. (23 + 24 + 25)	5,566	5,830	6,007	6,414	6,981	7,148	7,462	7,858	8,405	7,294	7,764
27 Total income pay. (7 + 11 + 12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20 + 21 + 22 + 26)	27,007	29,351	30,383	32,013	33,977	33,873	34,996	40,088	46,187	53,361	58,941
28 Total realized income	29,605	31,430	31,858	33,977	35,723	35,647	37,205	43,288	51,331	60,408	65,949
29 Total income pay. (28 - 4 - 6 - 9)	27,909	29,353	30,383	32,014	33,976	33,872	34,996	40,088	46,187	53,361	58,938

Lines 1-3: Table CXXXIII.

Line 5: difference between realized income from Table XIV and rent paid,

Table XCVIII, col. C.

Line 6: difference between entrepreneurial net income (realized income, Table XVII, less interest and rent payments to non-farmers, Table XCVIII) and withdrawals as estimated by us (see notes to Vol. II, Part Four, Table A 2).

Lines 8, 12, 14, 15, 17, 19, 23: realized income from Table XIV less rent paid (original source books).

Line 9: wages and salaries in railroad repair shops, reported for 1909,

1914, and 1919 in the *Census of Manufactures* and interpolated by King's estimates of manufacturing employee compensation.

Line 10: difference in 1919 between the present estimate and (8 - 9) extrapolated by (8 - 9) for the earlier years.

Lines 13, 16, 18, 20, 22, 28: Table XIV.

Line 21: sum of estimates of rent in agriculture, mining, manufacturing, express, street railways, telegraphs, mercantile, unclassified, leased houses, and imputed rent on owner-occupied houses. Only the first and the last two are given in King's published report (Tables XCVIII and CXXXIII).

Line 25: Table CXXXIII.

TABLE 9 2

King's Estimates of Income Payments, Adjusted to Conform in Coverage with Present NBER Estimates
Percentage Distribution by Industrial Divisions, 1909-1919

	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
1 Agriculture	13.8	12.9	13.0	12.7	12.3	12.1	11.9	11.3	12.1	12.2	13.3
2 Mining	2.7	2.9	2.7	2.9	3.1	2.6	2.5	3.3	3.5	3.4	2.8
3 Manufacturing	17.6	19.0	18.5	19.2	19.3	18.3	18.8	23.0	24.2	24.8	24.3
4 Construction	6.1	5.4	5.3	5.4	4.5	4.2	4.0	3.8	2.6	2.3	3.1
5 Steam rr., Pullman, & express	6.4	6.7	6.6	6.6	6.5	6.3	6.2	5.8	5.8	6.7	6.5
6 Street rwy.	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.1	1.0	0.9	0.9
7 Water transp.	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.9	0.9	1.2
8 Communication	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.6	0.7
9 Electric light & power	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.5
10 Trade	12.1	11.6	12.2	11.5	12.1	12.9	12.7	12.2	12.8	11.9	12.8
11 Banking	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.1	1.1	1.1
12 Rent	11.8	11.9	11.8	11.6	11.5	11.9	11.9	11.0	10.2	9.3	9.1
13 Government	5.6	5.7	5.8	5.8	5.8	6.2	6.3	5.7	6.6	11.8	10.4
14 All other	19.9	19.9	19.8	20.0	20.5	21.1	21.3	19.6	18.2	13.7	13.2
15 Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

CLASSIFICATION A BY CHARACTER OF PRODUCTIVE FUNCTION

16 Commodity prod.	40.5	40.5	39.9	40.6	39.6	37.6	37.7	41.9	42.8	43.1	44.0
17 Commodity transp. & distri.	19.3	19.1	19.6	18.9	19.3	19.9	19.7	18.8	19.5	19.5	20.5
18 Services	40.2	40.5	40.4	40.4	40.9	42.4	42.6	39.3	37.8	37.4	35.4

CLASSIFICATION C BY TYPE OF BUSINESS ORGANIZATION

19 With large proportion of individual firms	63.7	61.7	62.1	61.2	60.9	62.2	61.8	57.9	55.9	49.4	51.5
20 Private corp.	20.3	21.9	21.2	22.1	22.4	20.9	21.3	26.3	27.7	28.2	27.1
21 Semi-public corp.	10.4	10.8	10.8	10.8	10.7	10.6	10.6	10.1	9.9	10.6	10.9
22 Public	5.6	5.7	5.8	5.8	5.8	6.2	6.3	5.7	6.6	11.8	10.4

clude; (b) exclusion of entrepreneurial savings in agriculture; (c) adjustment for duplication and wider coverage in King's estimates for manufacturing. Table 91, which lists the items excluded and gives payments by industrial source, thus parallels and supplements Tables 85, 86, and 87. Table 92, which gives the percentage distribution of the revised total among payments originating in the several industries, supplements Table 88. Table 93 gives payments by type of income; and Table 94 the corresponding percentage distribution of aggregate payments to individuals. Tables 93 and 94 supplement Tables 89 and 90.

The estimates in Tables 91-94, together with those in Tables 85-90, provide the basis for some of the analysis of changes in the income totals and in their distribution developed in Chapters 4-6.