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Appendix F

COMPARISON WITH OTHER ESTIMATES OF OUTLAY

The scope of this appendix is confined to a discussion of the various available estimates of outlay and its components. As for income, no comparison of our estimates with other estimates of income will be undertaken. It will be recalled that the annual income totals used in this volume (Table 4) are the National Bureau totals, and for a comparison of these with other evaluations the reader is referred to Simon Kuznets, *National Income and Its Composition*, Chapter 10. The only quarterly income estimates for the United States of which I am aware, other than those presented here, are the series for income distributed to individuals compiled by Frederick M. Cone.¹ A careful comparison of my estimates for income originating in private industry with Cone's estimates might lead to a quarterly series for business savings, but the errors in such a computation would probably be important. For outlay I do not know of any quarterly estimates published hitherto.

Numerous annual estimates of outlay have been made. In particular, it is worth while to compare roughly the outlay estimates presented here with those compiled by Lough² and Warburton³ respectively. Warburton has himself undertaken such a comparison insofar

¹ *Monthly Income Payments in the United States, 1929-40* (U. S. Department of Commerce, 1940). The Alexander Hamilton Institute, in reviewing business conditions, publishes a monthly interpolation, based upon indexes of production and prices, of the Department of Commerce annual income totals. This does not result in a true income series, but rather in a hybrid series for the national product, derived partly from income and partly from outlay data.

² William H. Lough, *High-Level Consumption* (McGraw-Hill, 1935). As indicated in Appendix A, I have made such extensive use of Lough's estimates for services rendered to consumers that my own estimates for this item are little more than a revision and extension of his.

³ Clark Warburton, "The Gross National Product and Its Components," *Journal of the American Statistical Association* (December 1934), XXIX, pp. 383-8; *Studies in Income and Wealth*, Vol. III (National Bureau of Economic Research, 1939). Part V, "Three Estimates of Output."

TABLE 43
COMPARISON OF ESTIMATES FOR SERVICES IN TABLE 22 WITH THOSE GIVEN BY LOUGH^a
Billions of current dollars

	1921			1927			1929		
	Table 22	Lough	Difference	Table 22	Lough	Difference	Table 22	Lough	Difference
TOTAL CONSUMERS' SERVICES	19.5	17.1	+2.4	25.8	26.2	-.4	27.2	29.6	-2.4
Personal	1.3	.7	+.6	1.6	1.1	+.5	1.6	1.2	+.4
Home expenses	11.3	8.5	+2.8	14.1	13.8	+.3	14.6	15.7	-1.0
Medical expenses	1.0	1.4	-.4	1.9	2.0	-.1	2.1	2.2	-.2
Transportation and recreation	4.0	3.7	+.3	5.6	6.2	-.6	6.1	7.1	-1.1
Education, religion and miscellaneous	1.9	2.6	-.7	2.6	3.1	-.5	2.8	3.4	-.6
Nonfarm rentals included in home expenses:									
Paid	3.9	2.8	+1.1	4.5	4.2	+.2	4.4	4.7	-.3
Imputed ^b	3.7	2.6	+1.1	4.7	5.0	-.3	4.8	5.9	-1.1

^a See W. H. Lough, *op. cit.*, Appendix A.

^b Gross of mortgage interest and occupying expenses.

as concerns Kuznets' commodity totals,⁴ but a brief reconsideration of the question is rendered necessary by the fresh estimates for consumers' services offered in this book.

The data for services given above (Table 22) are compared in Table 43 for 1921, 1927 and 1929 with those compiled by Lough. Before 1927 the former run higher, and after 1927 lower, than the latter. The totals are not precisely comparable, owing to certain deliberate differences of coverage. If we neglect these, and also minor reclassifications made by us, the breakdown in Table 43 shows that the major revision occurs in home expenses. A large part of this discrepancy can be traced to the items for nonfarm residential rentals. It will be recalled that the data used here have been taken from Kuznets' work: the new estimates for rentals are higher in 1921 and lower in 1929 than those included in Lough's totals. Among other revisions, the 1933 and 1935 Censuses have suggested higher figures for personal services, while expenditures on religious activities have been revised downward.

On the other hand, owing to the fact that Kuznets' estimates for expenditure on consumable commodities are, for the most part, somewhat larger than Lough's, our estimates for total consumption run ahead of the latter, except for the single year 1929. The two series are compared in Table 44.

For consumers' outlay Warburton's estimate runs as high as \$85.3 billion for the year 1929—\$7.3 billion more than that given here.⁵ Of this excess \$1.5 billion is accounted for by the excess in Warburton's estimate for consumable commodities in 1929 over Kuznets' estimate used here,⁶ and \$4.9 billion by Warburton's inclusion of an estimate for the value of governmental services to consumers (other than carriage of mails), an item which has been deliberately excluded from consideration in the present study. The remaining difference, \$984 million, stems from the slightly higher total reached by Warburton for consumer services rendered by private business (including, however, postal services). A comparison by categories of expenditure is presented in Table 45.⁷

⁴ *Loc. cit.*, "Three Estimates of Output."

⁵ Warburton has himself discussed his differences with Lough and with Kuznets. See "Three Estimates of Output," *loc. cit.*

⁶ For Warburton's discussion of this difference, see *Studies in Income and Wealth*, Vol. III, pp. 329-32 and 391-97; and for Kuznets' comment, *ibid.*, pp. 388-89. While Warburton's estimates for individual commodities are generally lower than Kuznets', the former includes a number of items, especially for alcoholic beverages, omitted from the Kuznets total. See *ibid.*, p. 394.

⁷ The comparison is between Table 22 and the last column of Warburton's Table 12 in "Three Estimates of Output," *loc. cit.*

The principal difference is seen to lie in home expenses, and is due mainly to the item for rentals (paid and imputed) for which, using Kuznets' data, we allow \$800 million less than Warburton. The estimates for the remaining groups agree reasonably well.

The various estimates for saving and investment (here identical by definition) may also be compared tentatively. To Lough's figure of \$9.3 billion for saving by individuals we must add Kuznets' \$2.6 bil-

TABLE 44

COMPARISON OF ESTIMATES FOR CONSUMERS' OUTLAY IN TABLE 1 WITH THOSE GIVEN BY LOUGH^a

Billions of current dollars

	<i>Table 1</i>	<i>Lough</i>	<i>Difference</i> (1 - 2)
	(1)	(2)	(3)
1921	56.9	51.8	+5.1
1922	57.9	55.3	+2.6
1923	64.5	61.6	+2.9
1924	65.9	63.9	+2.0
1925	70.2	67.9	+2.3
1926	73.6	69.2	+4.4
1927	73.4	71.9	+1.5
1928	75.1	74.4	+.7
1929	78.0	79.0	-1.0
1930	70.6	69.1	+1.5
1931	59.6	58.6	+1.0

^a W. H. Lough, *op. cit.*, Table 3. Lough's estimates have been revised slightly by Martin R. Gainsbrugh, now of the National Industrial Conference Board, who originally helped to compile them. Gainsbrugh's estimates for total outlay on consumption (excluding "direct payments to government") run \$1.4 billion below ours for 1933, agree with ours for 1935, and run \$2.6 billion above ours for 1937 (National Industrial Conference Board, *Studies in Enterprise and Social Progress*, 1939, p. 139). Gainsbrugh's revision and extension of Lough's estimates for consumption have not as yet been published in a form which allows detailed comparison with those presented here.

lion⁸ for savings by business enterprises, which yields the rather high figure of \$11.9 billion for aggregate net saving in 1929. From Warburton's estimate for total net capital formation (\$9.7 billion), we may deduct \$2.7 billion for public construction and equipment and add back \$.9 billion which Warburton allows for the depreciation of public

⁸ Adjusted to exclude profits and losses realized on the sale of assets, to allow for depreciation and depletion on a basis of current prices, and to exclude income derived from the revaluation of inventories. See *National Income and Its Composition* (National Bureau of Economic Research, 1941), Table 22.

property.⁹ Warburton's estimate for net capital formation in 1929 comparable with our own is therefore \$7.9 billion. The estimate for net private investment given here, based mainly on Kuznets' data for the output of capital goods together with the Chawner-Dennis estimates for construction, is \$7.2 billion. Net public outlay would have to be added to both these totals to reach a figure comparable with the sum of individual and business savings; this item, however, appears to have been negligible in 1929 (Table 3). The two capital formation

TABLE 45

COMPARISON OF ESTIMATES FOR SERVICES IN TABLE 22
WITH THOSE GIVEN BY WARBURTON FOR 1929

Millions of current dollars

	Table 22	Warburton ^a	Difference (1 - 2)
	(1)	(2)	(3)
TOTAL	27,164	28,148	-984
Personal services	1,614	1,722	-108
Home expenses	14,639	15,307	-668
Medical expenses	2,082	2,329	-247
Education and religion	1,193	1,134 ^b	+59
Transportation and recreation	6,060	6,162 ^b	-102
Miscellaneous	1,576	1,494 ^b	+82

^a Clark Warburton, "Three Estimates of Output," Table 12.

^b Our estimate for postage (\$338 million) has been deducted from Warburton's figure for communication and included in Miscellaneous in order to secure comparability. With the same object, Warburton's estimate for expenditure on religious activity (\$750 million) has been transferred from Miscellaneous to Education and religion.

estimates (\$7.9 billion by Warburton and \$7.2 billion in Table 3) therefore agree well, and are much below Lough's estimate for saving adjusted for comparability (\$11.9 billion). These comparisons are summarized in Table 46.

Comparison may also be made with another estimate of saving for more recent years by Raymond W. Goldsmith of the Securities and Exchange Commission. This estimate, based upon changes in the assets of individuals and institutions, is reproduced in Table 47, to-

⁹ See "Three Estimates of Output," *op. cit.*, Tables 7 and 17.

TABLE 46

COMPARISON OF ESTIMATES FOR OUTLAY IN TABLE 3 WITH THOSE BY LOUGH AND WARBURTON FOR 1929

Billions of current dollars

	Table 3	Lough (as adjusted ^b)	Difference (1 - 2)	Warburton (as adjusted ^c)	Difference (1 - 4)
	(1)	(2)	(3)	(4)	(5)
TOTAL CONSUMPTION	77.8	79.0	-1.2	80.4	-2.6
Commodities	50.8	49.3	+1.5	52.3	-1.5
Services	27.0 ^a	29.7	-2.7	28.1	-1.1
TOTAL SAVINGS	7.2	11.9	-4.7	7.9	-.7
Net private investment	7.2			7.9	-.7
Net public outlay	0		
TOTAL OUTLAY ^d	85.0	90.9	-5.9	88.3	-3.3

^a Adjusted to exclude foreign tourist expenditure in the United States. See Table 3^b Adjusted to include business savings in the savings estimate.^c Adjusted to exclude governmental services from the consumption estimate and public construction from the savings estimate.^d As defined in Chapter II, above.

TABLE 47

COMPARISON WITH SAVINGS ESTIMATE BY GOLDSMITH^a*Billions of current dollars*

	Individual and Business Savings ^b (Goldsmith)	Changes in Farm Inventories (Goldsmith)	Savings, excluding Changes in Farm Inventories ^c (Goldsmith)	Net Private Investment Plus Net Public Outlay (as pre- sented here) ^d
1933	-4.3	0	-4.4	-2.7
1934	-2.6	-.7	-1.9	.7
1935	-2.1	.1	-2.1	2.5
1936	2.7	-.3	3.0	6.2
1937	1.1	.2	1.0	5.7
1938	-1.2	0	-1.2	.7
Total, 1933-38			-5.6	13.1

^a I have to thank Raymond W. Goldsmith of the Securities and Exchange Commission for the special tabulation used here, which is a revision and extension of data underlying the series published in *Studies in Income and Wealth*, Vol. III, Part IV.^b Excludes changes in individuals' equity in consumers' durable goods other than dwellings; also excludes saving by governmental insurance funds.^c Changes in farm inventories are excluded because we have taken no account of this item in computing net investment.^d See Table 3.

gether with our own data for net private investment plus net public outlay. It will be seen that our estimate, for savings embodied in private capital and absorbed by deficit financing, runs much higher than that derived by Goldsmith from a study of changes in assets. Since the sources underlying the two estimates are so entirely different, reconciliation can be no easy matter.¹⁰

It seems to me probable that estimates based upon the output of capital goods and related items, i.e. estimates of investment, are to be preferred to those, mainly financial in origin, which attempt to measure savings, insofar as we are interested in accumulation by private business and by individuals, when this accumulation is considered as a whole. It is difficult to keep track of small savings, and equally difficult to make sure that large transactions in the capital market really represent new savings and not merely an exchange of existing assets. In particular, in computing quarterly measures such as those given in this volume, we are forced to rely almost exclusively upon statistics of the value of components of physical investment. Nevertheless the independent measurement of savings is valuable as a check upon data for investment, and in providing fresh breakdowns of the total.

There remains finally the relation between outlay and income, regarded as alternative measures of the same quantity. Using concepts which are obviously different from those employed here, Warburton obtains fairly close agreement between the estimates for the two sides of the account which he presents for census years, 1919-29.¹¹ His conceptual apparatus, however, is not set forth sufficiently clearly for the reader to judge the significance of the comparison.

Lough obtains somewhat better agreement between income and outlay than that shown in Table 6 of Chapter III, but for 1926-29 he, like Warburton, uses the extraordinarily high income estimates of the Brookings Institution,¹² and for other years also relies on estimates which in the light of later compilations now seem on the high side. It is true that Lough's concepts of income and outlay differ slightly from those used here. On both sides of the account he includes individual income taxes and excludes corporate savings. These conceptual differences do not, however, affect the agreement or lack of agreement between the income and outlay totals.¹³ Close agreement in *High-Level*

¹⁰ Cf. comment by Kuznets, *National Income and Its Composition*, pp. 301-04.

¹¹ See "The Gross National Product and Its Components," *Journal of the American Statistical Association*, XXIX (Dec. 1934), p. 387.

¹² Maurice Leven, Harold G. Moulton and Clark Warburton, *America's Capacity to Consume* (Brookings Institution, 1934). See Lough, *op. cit.*, p. 30.

¹³ Allowance has been made for these differences in the comparison shown in Table 46.

Consumption is based upon a figure for income distributed to individuals (including imputed rentals) of \$87.2 billion (1929); Kuznets' figure is only \$82.4 billion for the same item.¹⁴ I believe, for reasons which it is impossible to elaborate here, that Kuznets' income figures are the best available at the present writing. In any case, I should have been compelled to use them because they are the only comparable series extending over the whole period chosen for study. But if Lough's figures for outlay are compared with Kuznets' income estimates (not available when Lough wrote) the discrepancy, after all necessary adjustments have been made, is much greater than that shown in *High-Level Consumption*. Lough indeed foresaw that this might happen, and placed no special emphasis on the quite remarkable agreement between outlay and income which he obtained.¹⁵

TABLE 48

SUMMARY OF NATIONAL RESOURCES COMMITTEE ESTIMATES OF OUTLAY AND INCOME^a

Income, family and individual	\$59,259 million
Aggregate disbursements by consumers	59,259 "
Consumers' outlay	50,214 "
Gifts	2,178 "
Taxes	889 "
Savings	5,978 "

^a *Consumer Incomes*, Table 1; *Consumer Expenditures*, Table 7.

From a rather different angle, the National Resources Committee has also made estimates of outlay and income for an indeterminate twelve-month period during 1935-36.¹⁶ These are summarized in Table 48. The global figures derived from budget studies ostensibly provide simultaneous breakdowns by outlay and by income, instead of yielding independent estimates for the two sides of the account. In Table 49 the above data are rearranged to conform to our definitions, and compared with the mean outlay and income estimates for 1935 and 1936 appearing in Tables 3 and 5 of this volume. It will be seen that the National Resources Committee estimate for income is \$4½ billion, and for consumption nearly \$10 billion, below our own. On the other hand the data for savings agree closely with our figures for private net investment plus public outlay. There appears to be no way, with the

¹⁴ *National Income and Its Composition*, Table 57.

¹⁵ *Op. cit.*, p. 29.

¹⁶ *Consumer Incomes in the United States* (Washington, 1938); *Consumer Expenditures in the United States* (Washington, 1939).

breakdowns available, of isolating the discrepancies on the income side of the account and distributing them among individual components. Something may be said, however, concerning the very large difference in the two estimates of consumers' outlay. Since the National Resources Committee total, which is so much lower than our own, is broken down only into broad expenditure groups and does not

TABLE 49

COMPARISON WITH NATIONAL RESOURCES COMMITTEE ESTIMATES

Millions of current dollars

	<i>National Resources Committee 1935-36</i>	<i>Estimates Presented Here (mean of 1935 and 1936)^a</i>
INCOME		
Income, family and individual	59,259	
<i>less</i> gifts	-2,178	
<i>less</i> direct taxes	-889	
Business savings ^b	-576	
Total income, as defined here	55,616	59,960
OUTLAY		
Consumers' outlay	50,214	59,525
Savings, family and individual	5,978	
Business savings ^b	-576	
Net private investment		218
Net public outlay		4,166
Total outlay, as defined here	55,616	63,908

^a Tables 3 and 5.

^b Estimated by Kuznets and included in our income total. The figure is adjusted to exclude profits and losses on inventory revaluation and the sale of capital assets, and to place depreciation on a current price basis. *Op. cit.*, Tables 45 and 46.

distinguish between consumers' commodities and consumers' services, no direct comparison is possible. It happens that Martin R. Gainsbrugh has made an estimate for consumers' outlay in 1935 (\$56,-457 million) which agrees closely with our own (\$56,447 million; see Table 1) and which is broken down in much the same fashion as the National Resources Committee total.¹⁷ Gainsbrugh's figures can be

¹⁷ National Industrial Conference Board, *Studies in Enterprise and Social Progress* (1939), p. 139. Direct payments to government have been excluded from the total quoted.

regarded as furnishing an approximate breakdown of our own total in 1935, supplemented by data for rentals, and for transportation by other means than automobile, taken from our own Table 22. This leads to the comparison shown in Table 50.

It will be seen that in every expenditure group except rentals, which run \$2 billion larger, the National Resources Committee estimate is the smaller of the two. In the case of the estimates for clothing, for transportation by automobile, for home expenses other than rent,

TABLE 50

COMPARISON WITH NATIONAL RESOURCES COMMITTEE ESTIMATE
FOR CONSUMERS' OUTLAY

Millions of current dollars

<i>Estimate for 1935 Presented Here,^a Broken Down by Use of Gainsbrugh's Data</i>		<i>National Resources Committee Estimates for 1935-36</i>	
Total consumers' outlay	56,447	50,214	Total consumption
Food and beverages	17,540	16,865	Food
Tobacco	1,451	966	Tobacco
Clothing	6,349	5,261	Clothing
Transportation: automobile	4,935	3,781	Transportation: automobile
other	1,193	884	other
Home maintenance: rentals	7,490	9,506	Housing
other	7,856	6,707	Household operation
Sickness and death	2,777	2,205	Medical care
Personal appearance	1,099	1,032	Personal care
Recreation	2,566	1,643	Recreation
Social-cultural activities	3,201	1,057	Reading and education
Residual ^b	-10	307	Other items

^a Table 3.

^b Difference between Gainsbrugh's total and our own.

for recreation and for social-cultural activities, the National Resources Committee figures are in each case the lower of the two by \$1 billion or more. Moreover the Gainsbrugh components used to break our data down relate to the year 1935: to obtain estimates relating to the mean of 1935 and 1936 we should have to distribute an additional \$3 billion among these components, making the discrepancies, except in the case of rentals, even larger than those shown in the comparison. On the other hand the fact that our outlay estimate is nearly

\$4 billion higher in 1935, and \$4 billion higher in 1936 than our income estimate (see Chapter III, Table 6) suggests a possible overstatement both by our own and by Gainsbrugh's total for consumers' outlay. To some extent at any rate these two considerations offset each other, and suggest that the comparison undertaken in Table 49, if rough, is not irrelevant.

It is exceedingly hard to believe that the National Resources Committee data do not represent a substantial understatement of consumption as well as of outlay and income as a whole. The high figure for housing is puzzling, and suggests that it may include items not ordinarily comprised in gross rentals. The Committee admits that the coverage of the upper income brackets presented peculiar obstacles,¹⁸ and the large deficiencies in expenditure on clothing, automobile transportation, recreation and social-cultural activities might be explained on the ground that these brackets were not adequately covered. There can be no doubt that estimates of the national product derived from budget studies possess an important advantage, in that they can be made to yield simultaneous breakdowns by outlay and income components respectively. The disadvantages are that the sample is difficult to control, that it is not usually related to any single definite time period, that little is known about psychological bias in the reporting of expenditure, and that the coverage of the upper income brackets cannot readily be tested. It seems clear that up to the present the information yielded by such studies has been more reliable insofar as it concerns the distribution of income between persons, and of expenditure between objects, than in regard to the absolute level of the product.

¹⁸ See especially *Consumer Expenditures*, Appendix B, Section 3.



Appendix G

NOTE ON STATISTICAL METHODS