

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: National Income and Capital Formation, 1919-1935

Volume Author/Editor: Simon Kuznets

Volume Publisher: NBER

Volume ISBN: 0-87014-031-0

Volume URL: <http://www.nber.org/books/kuzn37-1>

Publication Date: 1937

Chapter Title: Apportionment of Gross National Product between Gross Capital Formation and Consumers' Outlay

Chapter Author: Simon Kuznets

Chapter URL: <http://www.nber.org/chapters/c5451>

Chapter pages in book: (p. 39 - 47)

are measured at their cost to those who hold them.

Our study has yielded estimates of gross capital formation corresponding to the first two variants, and an approximation to gross capital formation corresponding to the third variant. But the data on the current consumption of finished durable commodities or on results of repairs and alterations, provided by Solomon Fabricant in his study of capital consumption, make possible an evaluation of net capital formation only in accordance with Variant I. Similarly, from the national income estimates we can measure net and gross national product only in accordance with the concepts used in this report, i.e., corresponding to Variant I. For

this reason neither net capital formation as described in Variants II and III, nor consumers' outlay corresponding to these variants, can be measured. In Sections VII-IX we discuss primarily the distinction between consumers' outlay and capital formation and the analysis of these two parts of the national income product, all as described in Variant I. But in Section VII estimates of gross capital formation in accordance with Variant II are also presented, and in Appendix C some data making possible an approximation to gross capital formation in accordance with Variant III are provided.

VII APPORTIONMENT OF GROSS NATIONAL PRODUCT BETWEEN GROSS CAPITAL FORMATION AND CONSUMERS' OUTLAY

I GROSS CAPITAL FORMATION—CHARACTERISTICS OF THE ESTIMATES

THE totals of gross capital formation in the United States for 1919-35, presented in Table 10 in two variants, correspond in coverage to the composition of gross capital formation given in the outline of Variant I and Variant II. There were, however, some reinterpretations of the theoretical definition, and some departures from it, the latter caused by the exigencies of the available data.

As defined above, gross capital formation in either Variant I or II excludes all repairs and alterations. But in one industry, viz., construction, there is a considerable volume of alteration and rebuilding activity whose result is tantamount to new construction. It seemed illogical to include new construction and to exclude these substantial alteration jobs which with respect both to the cost and durability of results are little different from new construction. Accordingly, such substantial alterations of construction units as called for building permits were treated as new construction and are included in the estimates of the volume of construction appearing in Table 10 and subsequently. Other repairs and alterations were excluded, but their volume, so far as data were available, was estimated (see Appendix C, Table VII).

Parts sold for replacement in finished durable commodities at their destination raised a similar problem. Here again, especially in the case of machinery and equipment used in the process of production, parts may be conceived as having a life as long as or not much shorter than the commodity when new; and the total of many machines may be treated as a combination of parts since they are ordinarily replaced part by part until the framework is the only original piece that survives. It therefore appeared advisable to expand the concept of producers' finished durable commodities to include parts sold for replacement. The case seemed much weaker for parts of consumers' durable commodities; they have consequently been treated as unfinished.

We may now consider how the availability or lack of data affected the estimates given in Table 10. The flow of movable commodities, producers' and consumers' taken together, is reasonably complete, covering all manufactured commodities (as reported in the Census of Manufactures) and whatever finished durable commodities flow directly from agriculture and mining. The item omits the insignificant volume of durable commodities produced in the service industries. The volume of construction, inclusive of such alterations and repairs as call for building permits, is based upon a comprehensive estimate prepared for nonfarm res-

Table 10
GROSS CAPITAL FORMATION, BY TYPE OF USER, 1919-1935
(millions of dollars)

	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
Current Prices																	
Destined for use by																	
1 Consumers	1,732	1,493	2,241	3,524	4,422	4,713	5,202	4,757	4,524	4,255	3,010	1,805	1,262	444	392	458	923
a Residential construction	13,128	16,681	6,166	7,165	11,553	7,558	11,137	11,668	10,402	9,916	13,903	8,152	4,393	655	1,858	2,680	5,095
2 Business	6,234	6,177	3,926	3,848	5,267	4,962	5,287	5,716	5,461	5,852	6,908	5,480	3,536	2,019	2,051	3,024	3,615
a Flow of producers' durable commodities	2,762	3,129	2,166	2,783	3,300	3,513	4,062	4,366	4,477	4,385	4,581	3,800	2,232	1,097	936	1,180	1,461
b Business construction	+4,132	+7,375	+54	+534	+3,016	-917	+1,788	+1,586	+464	-321	+2,414	-1,128	-1,375	-2,461	-1,129	-1,524	+19
c Net change in business inventories	1,166	1,672	2,453	2,378	2,272	2,528	2,444	2,568	2,676	2,696	3,073	3,334	2,483	2,008	1,720	3,791	4,858
3 Public agencies	1,422	1,714	1,678	2,076	1,921	2,264	2,546	2,470	2,786	2,932	2,928	3,023	2,615	1,955	1,902	2,726	2,684
a Public construction																	
b Change in stocks of gold and silver	-256	-42	+775	+302	+351	+264	-102	+98	-110	-236	+145	+311	-132	+53	-182	+1,065	+2,174
4 Unallocable - net change in claims against foreign countries	+3,315	+2,254	+628	-215	-78	+446	+428	+44	+606	+957	+312	+371	+326	+40	+298	-868	-1,868
5 Gross capital formation, Variant I	19,341	22,100	11,488	13,282	18,199	15,245	19,211	19,037	18,208	17,824	20,298	13,662	8,464	3,147	4,268	6,061	9,008
6 Flow of consumers' durable commodities	5,987	6,921	5,570	6,181	7,943	7,900	9,056	9,445	8,890	9,174	9,913	7,550	5,748	3,806	3,882	4,686	5,918
7 Gross capital formation, Variant II	25,328	29,021	17,058	19,463	26,142	23,145	28,267	28,482	27,098	26,998	30,211	21,212	14,212	6,953	8,150	10,747	14,926
1929 Prices																	
Destined for use by																	
1 Consumers	1,664	1,135	2,230	3,797	4,248	4,589	5,218	4,757	4,515	4,268	3,010	1,865	1,506	600	548	594	1,198
a Residential construction	10,332	11,534	5,382	7,079	11,037	7,276	11,038	11,306	10,902	10,118	13,886	8,544	5,052	668	2,155	2,977	5,988
2 Business	4,633	4,735	3,303	3,858	5,058	4,838	5,368	5,761	5,993	6,083	6,891	5,791	4,012	2,601	2,779	3,714	4,312
a Flow of producers' durable commodities	2,776	2,476	2,221	2,973	3,186	3,408	4,026	4,325	4,467	4,391	4,581	3,884	2,481	1,332	1,166	1,403	1,741
b Business construction	+2,923	+4,323	-142	+248	+2,793	-970	+1,644	+1,220	+442	-356	+2,414	-1,131	-1,441	-3,265	-1,790	-2,140	-65
c Net change in business inventories	1,231	1,226	2,487	2,515	2,010	2,284	2,403	2,521	2,531	2,635	3,073	3,432	2,768	2,494	2,044	3,654	4,362
3 Public agencies	1,439	1,275	1,719	2,020	1,666	2,022	2,347	2,306	2,641	2,871	2,928	3,120	2,689	2,440	2,222	2,950	2,963
a Public construction																	
b Change in stocks of silver and gold	-208	-49	+768	+295	+344	+262	-102	+97	-110	-236	+145	+312	-121	+54	-178	+704	+1,399
4 Unallocable - net change in claims against foreign countries	+2,280	+1,391	+613	+212	-74	+433	+394	+42	+605	+943	+312	-409	+426	+59	+431	-1,104	-2,226
5 Gross capital formation, Variant I	15,507	15,286	10,712	13,403	17,221	14,582	18,895	18,508	18,553	17,964	20,281	14,250	9,752	3,821	5,178	6,121	9,322
6 Flow of consumers' durable commodities	5,821	5,707	4,580	5,819	7,522	7,873	8,817	9,752	9,364	9,555	9,894	7,875	6,577	4,704	4,645	5,259	6,756
7 Gross capital formation, Variant II	21,328	20,993	15,292	19,222	24,743	22,455	27,712	28,260	27,917	27,519	30,175	22,125	16,329	8,525	9,823	11,380	16,078

dential construction by David Wickens (see *Bulletin* 65, National Bureau of Economic Research, September 15, 1937), and upon a careful utilization of estimates and primary data available for nonresidential and farm construction. But the available data enable us to measure the value of construction at cost when completed by the construction firm, rather than at cost to the ultimate owner. The change in inventories is the least inclusive item, owing largely to scarcity of comprehensive data. The estimates cover most business inventories, include farm stocks for only three important crops and such livestock as is classified as non-durable, and stocks of gold and silver; but do not cover inventories of unincorporated business establishments in the service, finance and public utility groups, or inventories of non-business enterprises that are exempt from corporate income taxes. Moreover, this item is *not* the change from one year-end inventory to the next, obtained as the difference between successive year-end inventories in changing, current valuation. On the contrary, it is so measured as to reflect actual accretion of commodities to or actual drafts of commodities from the commodity stock comprising the inventories, this effect being attained by converting the inventories at each year-end to the commodity equivalent in constant prices, obtaining the change by subtraction, and then expressing the net change for each year in prices current during it. Finally, the balance of foreign trade in commodities is obtained directly from *The Balance of International Payments of the United States* published annually (recently semi-annually) by the Department of Commerce, and is as complete as foreign trade statistics allow.

The distribution by type of user also calls for some explanatory comment. First, our allocation of movable durable commodities between consumers' and producers' is crude, being based upon the characteristics of preponderant use, and the crudities influence both the volume of capital formation in Variant I and its distribution by type of user. No attempt has been made to segregate the shares of either consumers' or producers' durable commodities that flow to governmental agencies; or the shares of consumers' goods, such as passenger cars, that may be used by business enterprises; or the shares of producers' goods, such as typewriters or airplanes, that may be used by ultimate consumers. The result is to underestimate the volume of commodities destined for use by governmental agencies, to underestimate somewhat the volume of producers' goods, to underestimate gross capital

formation in Variant I and to overestimate somewhat the volume of consumers' durable commodities. It is impossible to set even a tolerably approximate figure on these respective shortages and excesses. In percentages of such magnitudes as the total flow of consumers' or producers' durable commodities (including construction), they can hardly be significantly large. But this qualification is to be kept in mind in interpreting the totals in Table 10.

Second, changes in stocks of monetary metals (whether in bullion or the bullion contents of coinage) were classified under capital formation destined for use by public agencies. Since before 1933 part of that stock was held by private institutions, viz., banks, there may be some question concerning this classification. But it appeared to us that monetary metals, in bullion and coinage (excluding any business inventories held for industrial use) are largely in the nature of public capital, and should be classified in the same division as public roads, streets and governmental buildings.

The estimates in Table 10, as in all the subsequent basic tables, carry through 1935, but the measures for the last two years are built upon a relatively slender foundation and hence are much more tentative than those for the earlier years. Also, the estimates are in terms of both current market and 1929 prices. The adjustment for price changes was accomplished with the help of price indexes specially compiled for the purpose and based primarily upon the Bureau of Labor Statistics data on wholesale prices, scattered sample data on prices of machinery and on cost of construction, and information on the movement of transportation charges and distributive margins. The 1929 price level was chosen to express the volumes adjusted for price changes largely because, owing to the wealth of Census data for that year, the estimates for 1929 provided the best basing point for the entire inquiry. However, the general price level in 1929 was close to the average for the entire period and fairly close to the level of 1923-29.

2 VOLUME AND COMPOSITION OF GROSS CAPITAL FORMATION

Exclusive of consumers' durable commodities but inclusive of residential construction, gross capital formation in current prices averaged 14.0 billion; in 1929 prices 13.5 billion dollars (Table 11). The inclusion of movable consumers' commodities of durable character in Variant II of gross capital

NATIONAL INCOME AND CAPITAL FORMATION

 Table 11
 AVERAGE VOLUME AND DISTRIBUTION OF GROSS CAPITAL FORMATION

Destined for use by	AVERAGE	PERCENTAGE	PERCENTAGE DISTRIBUTION		1921-1927	1927-1933
	VOLUME (millions of dollars)	DISTRIBU- TION	1919- 1927	1927- 1935		
		1919-1935	<i>Current Prices</i>			
1 Consumers						
a Residential construction	2,656	18.9	20.9	16.9	25.6	18.3
2 Business (total)	8,361	59.5	61.2	56.5	57.3	57.4
a Flow of producers' durable commodities	4,668	33.2	30.0	37.6	30.1	36.5
b Business construction	2,956	21.0	19.6	23.9	21.5	25.1
c Net change in business inventories	737	5.2	11.6	-5.0	5.7	-4.1
3 Public agencies (total)	2,595	18.5	12.9	26.4	15.1	21.0
a Public construction	2,332	16.6	12.1	23.3	13.7	21.1
b Change in stocks of silver and gold	263	1.9	0.8	3.1	1.4	-0.2
4 Unallocable—net change in claims against foreign countries	437	3.1	5.0	0.2	2.0	3.4
5 Gross capital formation, Variant I	14,050	100.0	100.0	100.0	100.0	100.0
6 Flow of consumers' durable commodities	6,975	49.6	43.5	59.0	48.0	57.0
7 Gross capital formation, Variant II	21,024	149.6	143.5	159.0	148.0	157.0
Destined for use by			<i>1929 Prices</i>			
1 Consumers						
a Residential construction	2,691	19.9	22.5	17.2	26.2	18.2
2 Business (total)	7,957	59.0	60.2	57.3	57.2	57.2
a Flow of producers' durable commodities	4,690	34.8	30.5	40.1	30.6	38.0
b Business construction	2,990	22.2	20.9	24.2	22.0	24.8
c Net change in business inventories	277	2.1	8.7	-7.0	4.7	-5.7
3 Public agencies (total)	2,541	18.8	13.1	25.6	14.5	21.1
a Public construction	2,343	17.4	12.2	23.8	13.2	21.3
b Change in stocks of silver and gold	198	1.5	0.9	1.9	1.4	-0.2
4 Unallocable—net change in claims against foreign countries	303	2.2	4.1	-0.1	2.0	3.5
5 Gross capital formation, Variant I	13,927	100.0	100.0	100.0	100.0	100.0
6 Flow of consumers' durable commodities	7,089	52.5	45.7	61.4	48.0	58.6
7 Gross capital formation, Variant II	20,581	152.5	145.7	161.4	148.0	158.6

formation raises the average volume to 21.0 billion dollars in current prices and to 20.6 billion in 1929 prices—an addition of some 50 per cent in current prices and 53 per cent in 1929 prices to the total of gross capital formation in Variant I. If the concept of capital formation is narrowed even further than in Variant I and confined to capital formation undertaken by business enterprises, the average volume in current prices shrinks to somewhat over 8 billion dollars, i.e., to 60 per cent of gross capital formation in Variant I and to 40 per cent of gross capital formation in Variant II.

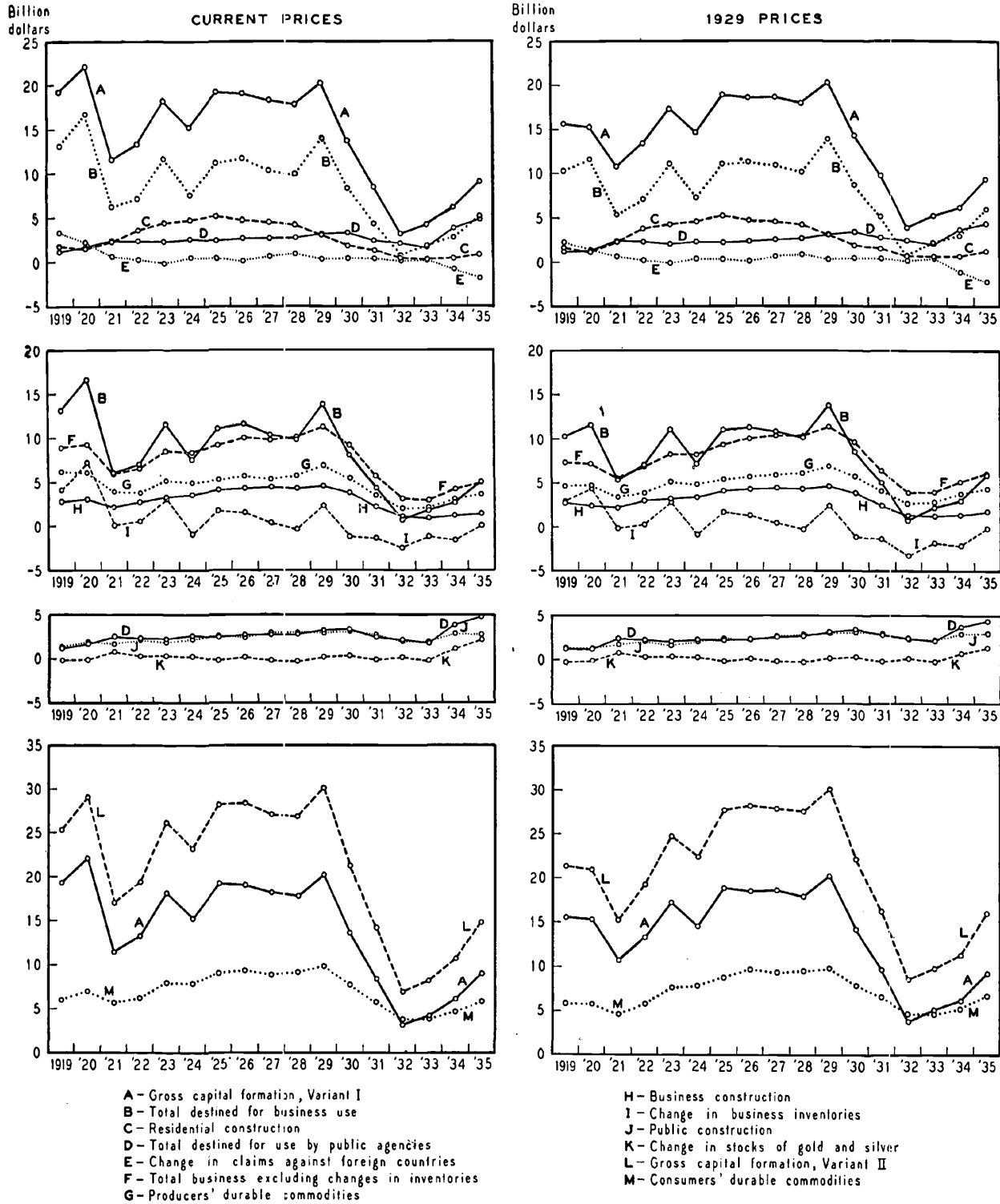
In both variants presented in Tables 10 and 11 the volume of gross capital formation showed marked changes over the period. Variant I in current prices shows a decline from 22.1 billion in 1920 to 11.5 in 1921, over 48 per cent; a rise from 11.5 billion in 1921 to a peak of 20.3 billion in 1929, but interrupted by contractions in 1924 and 1927; and then a drastic contraction from 1929 to 1932, the volume in the latter year being only slightly over 15 per cent of the volume in the former year. The fluctuations in the volume measured in 1929 prices are somewhat less marked. But in

both series for Variant I, the amplitude of expansions and contractions in gross capital formation was much greater than in the volume of gross national product of which this gross capital formation is a part.

In Variant I of gross capital formation, in which the only item destined for immediate use by consumers is residential construction, the most important division is that of volume destined for business use, whose average volume accounts for 60 per cent of the average of the total; and the most important single item is the flow of movable durable commodities to the producers who are their final users, which accounts for 33 per cent of the total. The relative share of public capital formation is on the average 18 per cent. While this is decidedly an underestimate, stemming from the crudity of our apportionment of durable commodity flow by type of user and from the failure to take account of inventories in the hands of public agencies, it may be doubted that more refined apportionment would result in a significant rise in the share in the total of public capital formation. The expansion of the concept of gross capital for

GROSS CAPITAL FORMATION

Chart 6
GROSS CAPITAL FORMATION, 1919 - 1935



mation to include the flow of all consumers' durable finished commodities substantially changes the distribution by type of user. In the resulting Variant II of gross capital formation, it is the formation of capital destined for immediate use by consumers that accounts for the largest relative share (46 per cent); and the most important single item is the flow of consumers' durable movable commodities

to their ultimate recipients, which accounts for 33 per cent of the new total.

The major items in gross capital formation show a marked long cyclical swing, both in absolute volume (see Chart 6) and in the percentage apportionment. Consequently only clearly marked and persistent changes in the relative distribution can be attributed significance as representing an

approximation to long time movements. Such marked and persistent changes are few but the sets of averages in Table 11 and the relative movement of the volumes in Table 10 reveal three significant changes over the period.

First, the volume of public construction and hence of total public capital formation constituted an increasing share of the volume of gross capital formation, whether the latter is taken in Variant I or II, in current or 1929 prices (see the percentages in Table 11). Table 10 shows that this tendency was manifest even before 1929. Thus, for 1919-21 the average share of public capital formation in the total was for Variant I in current prices 10 per cent, and for Variant II, 7 per cent; for the three years ending in 1929 the percentages were 15 and 10, respectively. For the volumes in 1929 prices the corresponding percentages were 12 and 9 for 1919-21, and 15 and 10 for 1927-29. After 1929 the tendency became greatly accelerated owing to the much smaller decline in the volume of public capital formation than in the sum of all the other elements in the total. By 1935 the share of public capital formation in total capital formation was in Variant I in current prices 54 per cent; in Variant II, 33 per cent. The percentages in 1929 prices were 47 and 27, respectively.

Second, net changes in business inventories declined over the period and constituted a contracting share of the gross capital formation total. This tendency is manifest whether the ratio of net changes in business inventories is taken to the total in Variant I or Variant II, in current or 1929 prices. It is this decline in the percentage accounted for by changes in business inventories that is fully responsible for the decline in the share of business capital formation (see Table 11).

Third, the flow of consumers' durable commodities (movable), whether considered in relation to the volume of gross capital formation in Variant I or as a part of gross capital formation in Variant II, accounted for a growing share of gross capital formation. The movement of the volumes in Table 10 confirms the evidence of the percentages in Table 11. Thus, during 1919-21, in current prices, the flow of consumers' movable commodities averaged 35 per cent of total capital formation, Variant I; during 1927-29 the corresponding percentage was 50, and during 1933-35, 75. The movement of the percentages in terms of the larger volume of gross capital formation in Variant II likewise indicates the increasing relative importance of the flow of durable commodities to ul-

timate consumers, which again is confirmed by the volumes in 1929 prices.

The changes in the relative shares of the other components of gross capital formation appear to be either irregular, or if consistently shown by the percentages in Table 11, to lack significance. This is true even of the change in the relative share of residential construction which, though appreciable, appears to be due largely to the configuration of the long swing in its volume: a peak in 1927 rather than in 1929 appears to account for the changes in its percentage share indicated by Table 11.

3 APPORTIONMENT BETWEEN GROSS CAPITAL FORMATION AND CONSUMERS' OUTLAY

As stated in Section VI, the only variant of gross capital formation that is comparable with gross national product as measured in this report is Variant I, which includes residential construction but excludes the flow to ultimate consumers of all other finished commodities. But before gross capital formation so defined can be compared with gross national product and the volume of consumers' outlay obtained by subtraction, the conceptual and statistical comparability of the estimates must be assured.

By definition, the gross national product obtained as the sum of income payments and of gross savings of enterprises should equal the total obtained by adding consumers' outlay and gross capital formation. The only possible source of the theoretical disparity between the two totals is in the adjustments made in the estimate of gross savings of enterprises in an attempt to have current consumption of durable capital goods and of inventories evaluated on their proper basis, i.e., on the basis of the market price current at the time income is produced. One of these adjustments may under certain conditions make for a disparity between the national product total that would be obtained by adding income payments and savings of enterprises and that obtained by adding consumers' outlay and capital formation.²¹ But as the discussion in Appendix D shows, neither the adjustment for the difference between depreciation charges in cost accounting on a current reproduction basis, nor that for gain and losses on inventory holding, as applied above, disturbs the theoretical comparability of the national product and the capital formation totals.

²¹ For a more detailed discussion of this and other aspects of this comparison see Appendix D.

Table 12

APPORTIONMENT OF GROSS NATIONAL PRODUCT BETWEEN GROSS CAPITAL FORMATION AND CONSUMERS' OUTLAY, 1920-1934

(absolute figures in millions of dollars)

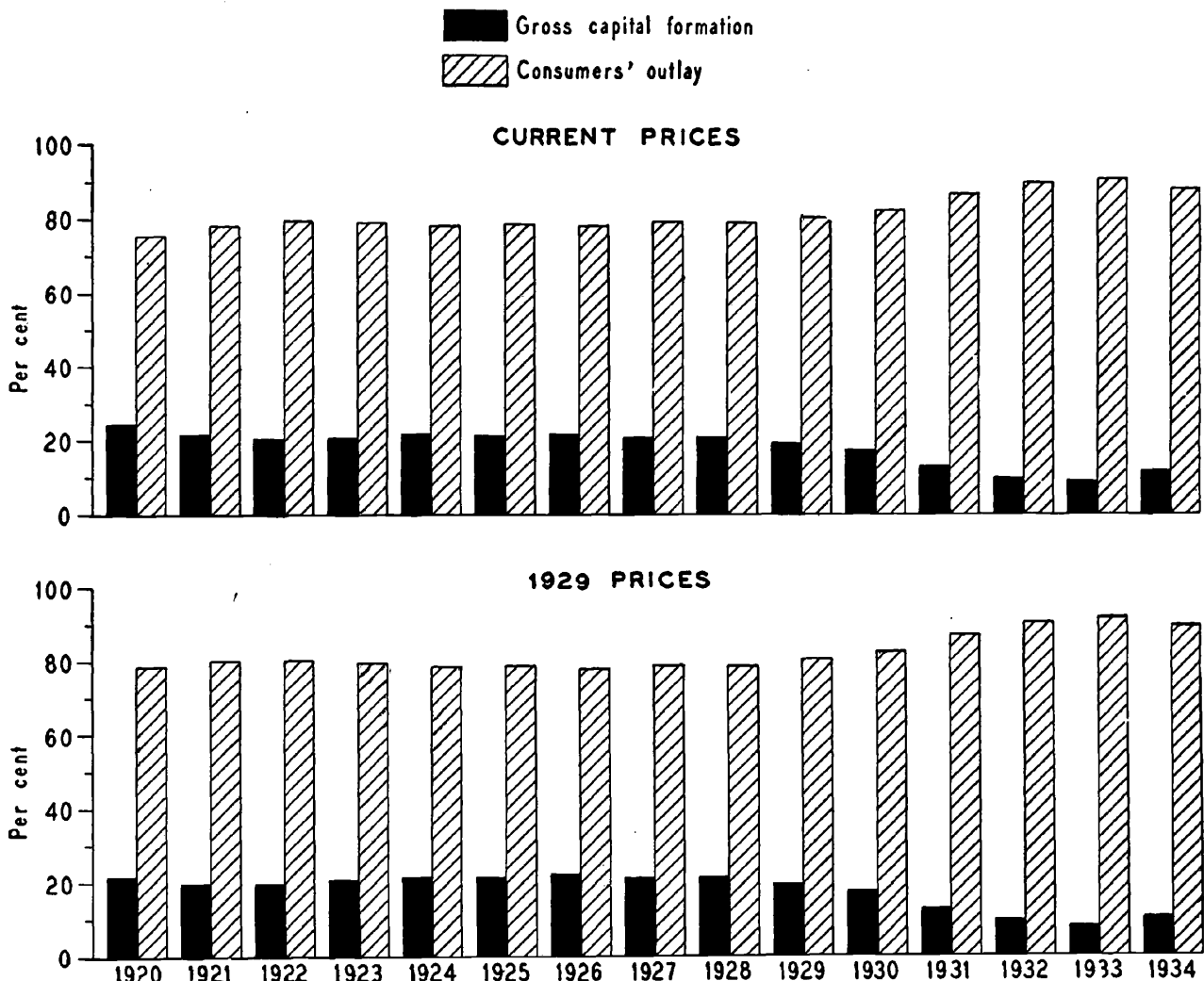
	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Current Prices															
1 Gross national product, 3-year moving average	72,578	72,057	70,516	74,730	80,139	83,661	86,324	88,537	90,157	88,805	80,371	64,892	52,830	49,835	54,515
2 Gross capital formation, Variant I, 3-year moving average	17,643	15,623	14,323	15,575	17,552	17,831	18,819	18,356	18,777	17,261	14,141	8,424	5,293	4,492	6,446
3 Consumers' outlay, line 1 - line 2	54,935	56,434	56,193	59,155	62,587	65,830	67,505	70,181	71,380	71,544	66,230	56,468	47,537	45,343	48,069
4 Gross capital formation as percentage of gross national product	24.3	21.7	20.3	20.8	21.9	21.3	21.8	20.7	20.8	19.4	17.6	13.0	10.0	9.0	11.8
5 Consumers' outlay as percentage of gross national product	75.7	78.3	79.7	79.2	78.1	78.7	78.2	79.3	79.2	80.6	82.4	87.0	90.0	91.0	88.2
1929 Prices															
1 Gross national product, 3-year moving average	64,471	65,973	69,481	74,722	79,170	82,154	84,660	87,440	89,860	89,554	83,715	71,926	63,796	62,554	67,562
2 Gross capital formation, Variant I, 3-year moving average	13,835	13,134	13,779	15,069	16,899	17,328	18,652	18,342	18,933	17,498	14,761	9,274	6,250	5,040	6,874
3 Consumers' outlay, line 1 - line 2	50,636	52,839	55,702	59,653	62,271	64,826	66,008	69,098	70,927	72,056	68,954	62,652	57,546	57,514	60,688
4 Gross capital formation as percentage of gross national product	21.5	19.9	19.8	20.2	21.3	21.1	22.0	21.0	21.1	19.5	17.6	12.9	9.8	8.1	10.2
5 Consumers' outlay as percentage of gross national product	78.5	80.1	80.2	79.8	78.7	78.9	78.0	79.0	78.9	80.5	82.4	87.1	90.2	91.9	89.8

But the conceptual similarity of the two measures does not change the effect on the comparison of the varying assumptions and approximations that had to be accepted in the statistical procedures leading to the final estimates. Since both sets of measures were built up part by part it would be an exceedingly laborious, and within the confines of this report an impossible, task to review the scaffolding by the help of which the final estimates have been erected. But even brief consideration of the most important deficiencies of the estimates in Appendix D suggests that the margins of error in the annual series in the comparison are such that it would be unwise to use the annual data and study the annual differences between the national product totals and those of capital formation. For this reason, three-year moving averages of these

series have been calculated, centered on the middle year of the three; and the comparison is confined to the series thus smoothed.

We may now consider the apportionment of gross national product between gross capital formation and consumers' outlay (Table 12 and Chart 7). Table 12 reveals that during 1920-29 the volume of gross capital formation accounted for 20 per cent of the gross national product, the remaining four-fifths representing the outlay by consumers on commodities and services. In the contraction that followed 1929 the far more precipitous decline in the volume of capital formation than in consumers' outlay caused the ratio of the former to gross national product to fall to about half of what it had been before 1929. One aspect of the movement in this percentage apportionment deserves

Chart 7
**PERCENTAGE APPORTIONMENT OF GROSS NATIONAL PRODUCT
 BETWEEN GROSS CAPITAL FORMATION AND CONSUMERS' OUTLAY
 1920 - 1934**



comment, namely, its stability before 1929. On the assumption that since 1919 the volume of gross national product had described a complete long swing, one would expect to observe its reflection in an upward movement of the ratio of gross capital formation to gross national product from 1919, or the preceding or succeeding year, to 1929. For in all cyclical oscillations, especially of long duration, the volume of gross capital formation may be expected to rise more during the phase of expansion, just as it usually declines more during the phase of contraction. Gross capital formation did decline more after 1929, but its share did not increase before 1929. One reason for this stability may be looked for in the use of three-year moving averages; but their use has a relatively small effect since it did not conceal a marked decline after 1929. A more significant explanation may be that the

long swing that culminated in 1929 may have begun before 1919. The War period, 1914-19, with its low volume of residential construction, was possibly characterized by a low ratio of gross capital formation to gross national product; although this surmise may be incorrect in view of the large net change in claims against foreign countries and extensive production of capital equipment during the War years. The trough of the ratio of gross capital formation to gross national product may have occurred before 1914, and the rise may have been from these low levels to the high plateau of 1920-29. Our study does not include years before 1919, but its results, shown in Table 12, suggest the importance of carrying the analysis back at least to the first decade of the twentieth century, if one is to understand clearly the developments since 1919.

VIII APPORTIONMENT OF NATIONAL INCOME BETWEEN NET CAPITAL FORMATION AND CONSUMERS' OUTLAY

1 NET CAPITAL FORMATION, VOLUME AND COMPOSITION

a *Characteristics of the Estimates*

THE volume of net capital formation is measured by subtracting from gross capital formation the estimated consumption of all durable capital goods utilized in the process of production. Such estimates have been prepared by Solomon Fabricant covering capital consumption: (a) that took place within the business enterprises of the nation (exclusive of that chargeable to residential buildings); (b) that was chargeable to the use of residential buildings; (c) that was chargeable to the use of durable goods by governmental agencies. Mr. Fabricant presented his preliminary results in *Bulletin 60, Measures of Capital Consumption, 1919-1933*, and we have taken advantage of the results of his subsequent work. Lack of data on the consumption of consumers' durable products except residential buildings and passenger cars made it impossible to measure net capital formation in Variant II; we had to confine our measures to net capital formation as described in Variant I (see Table 13 and Chart 8).

For the most important item in Table 13, capital formation destined for business use, there is

some lack of correspondence between the gross capital formation totals (Table 10) and the totals of depreciation, depletion and fire loss deductions which are presented as measures of capital consumption. This lack of correspondence arises largely from two factors: (1) our distinction between producers' and consumers' goods is based on the preponderant use of the commodities, whereas the measures of depreciation, depletion, etc., charged by business enterprises are based on the actual segregation of capital goods used by business enterprises; (2) depreciation may be deducted for items not appearing in gross capital formation. Thus, the estimates in Table 13 of net capital formation destined for business use may be too large because: (a) gross capital formation totals include some durable goods that are destined for use either by ultimate consumers or by non-business agencies (e.g., government); (b) these totals include commodities (e.g., tools), which, their unit cost being small, may be treated by business enterprises on an inventory basis in 'deferred charges', rather than made subject to depreciation charges; (c) depreciation may be applied to capital values that have been reduced from their original cost. On the other hand, the net capital formation totals in Table 13 may be too small because: (a) the gross capital