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Appendix A

Capital Assets of Business Enterprises

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INTERPRETATION OF CAPITAL ASSETS AND THEIR CHANGES

THE most ambiguous component elements of changes in the capital assets of business enterprises are those associated with capital consumption and adjustment. Our discussion of capital consumption and adjustment and of the accounting records underlying available statistical data is therefore useful in throwing light on the nature of the existing book values of capital assets and the meaning to be ascribed to changes in them.

Capital assets are of interest because they measure the aggregate amount of one type of capital in existence at a given moment. Changes in capital assets provide convenient measures of the current savings that find their way into the property, plant, and equipment of business enterprises and make possible a classification of net capital formation by industrial divisions. But book values must be carefully interpreted before they can be used for these purposes. The measurement of net capital formation, confined to fixed assets, would seem to be easily accomplished by recourse to the balance sheet of business enterprises. The year-to-year changes in the book values of capital assets, allowing for the usual reserves, seem to provide an obvious answer to the question of net capital change. In fact, these changes may be accepted only as first, and rough, approximations to the measures desired. The nature of this approximation will concern us in the first section of this Appendix. The amount and fluctuations of net capital formation revealed by data on corporate capital assets (within the limitations we shall mention) will be considered in the second section. Since the available data on the value of farm property are complicated

in other ways, as well, they will be examined separately in a third section.

Component elements of the changes in capital assets

Book values of capital assets change chiefly because of three factors. First, there is the element of 'real' growth or decline in buildings, equipment, machinery, and furniture. The number of the separate pieces of capital goods, or the length of their remaining useful life may change.[1] Second, the prices at which the goods are carried on the books of business concerns may change as a result of a higher or lower cost of replacements as compared with the original cost of the equipment or structures replaced. Third, the prices at which the goods are carried on the books of business concerns may change in response to changes in price levels as a result of write-ups or write-downs of book values or as a result of gains or losses on sales of used equipment. To get at the first type of change it is necessary to eliminate the effects of the second and third types of change.

Revaluations or gains and losses on sales of capital assets which reflect obsolescence and errors made in accruing depreciation may be included in the first type of change. In this case it would not be confined simply to current net capital formation. It would include also certain charges or credits 'on capital account'. However, if all revaluations and changes in book value arising from the sale of assets are eliminated, as well as changing replacement costs, net capital formation, in the sense of current savings apart from capital charges and credits, will be isolated.

Changes in replacement costs

It is essential to eliminate the changes in book values consequent upon higher or lower prices of newly installed capital goods as contrasted with the cost prices of the goods replaced. In a period of rapidly rising or falling prices these changes may be large. Indeed, the prices underlying net book values of specific classes of capital assets change more rapidly than do the prices underlying depreciation charges on the same assets.[2] It is not unreasonable to

[1] That is, strictly speaking, accounting measures of these characteristics may indicate changes. In the present discussion we ignore possible errors in these estimates.

[2] This statement applies to each individual life class of capital goods and is a

expect that when current prices are double those of a few years earlier (as they were in 1918–20 in comparison with 1914), mere replenishment of capital goods at a given rate per annum will result in almost as large a rate of increase in book values. An analogous situation will exist following a large decline in prices.

The point may be illustrated algebraically as follows: Let us assume a property in which $G =$ the gross value. Let the average rate of depreciation be n per cent per annum. Assume a fractional change in replacement costs of x during the year. Then the discarded property (with an average value $= nG$) will be replaced by similar property but with a value of nG $(1 + x)$. That is, the original total G will now be $G - nG + nG$ $(1 + x) = G$ $(1 + nx)$. If prices have doubled (x is unity), the gross value of the property will have increased by an amount equal to the depreciation charge, owing simply to price changes. If x is 0.5, nG $(1 + x)$ will be 50 per cent greater than nG and the original G will be increased by one-half of the depreciation charge. If x is 0.1, but persists for five years, the effect is cumulative. The absolute increase in book value due merely to replacement at higher price levels will be 10 per cent of the depreciation charge, nG (1.10), in the first year. By the end of the second year the increase will be 20 per cent of nG; and so on, to 50 per cent in the fifth year. All these percentage increases are in terms of G in the base year. In terms of G in the preceding year the cumulated changes per unit book values will rise at a declining rate: 10 per cent of depreciation charges in the first year; 20/110 or 18 per cent in the second year; and so on to 50/140 or 36 per cent in the fifth year.[3] If the only rise in prices occurs in the first year, book values will continue to rise, though at a declining rate, for years after the initial spurt in the price level.

If fixed assets increase in quantity as well, the rise in underlying average prices will be even greater. Thus, if replacement prices are double original cost prices, and the rate of depreciation

consequence of the different weighting schemes involved in the average prices underlying book values and those underlying depreciation charges. (The prices of 'younger' capital goods are weighted more in book values than they are in depreciation charges.) On account of the greater weight ascribed to long-lived goods it does not necessarily apply to total capital goods.

[3] Strictly, the 140 should be reduced by the amount of accrued depreciation on the 40. The changes in *net* book values will be greater than those in gross values discussed above.

is as low as 4 per cent per annum, gross book values will rise 4 per cent. If the quantity of assets increases 3 per cent, gross book value will rise 10 per cent, an increase of 6 per cent in underlying prices.

For assets accounted for chiefly on a maintenance basis (e.g., steam railways), the effect of price changes will be less rapid. Both old and young assets will be weighted by cost, rather than by cost less depreciation. Ultimately, however, the underlying price level reached under maintenance accounting will be the same as under depreciation accounting. However, if price levels fluctuate con-

Table 50

Estimated Index of Prices underlying Net Book Values of Capital Assets, 1919–1935

(1929 prices: 100)

	INDEX, END OF YEAR	PERCENTAGE CHANGE DURING YEAR		INDEX, END OF YEAR	PERCENTAGE CHANGE DURING YEAR
1918	64.9		*1928*	87.8	1.3
1919	69.4	6.9	*1929*	89.2	1.6
1920	74.6	7.5	*1930*	89.8	0.7
1921	76.4	2.4	*1931*	89.7	−0.1
1922	77.5	1.4	*1932*	89.4	−0.3
1923	79.8	3.0	*1933*	88.9	−0.6
1924	81.7	2.4	*1934*	88.9	0.0
1925	83.5	2.2	*1935*	89.0	0.1
1926	85.2	2.0			
1927	86.7	1.8			

tinually, a difference will persist. The price level implicit in maintenance accounting will possess some of the characteristics of a moving average of the price level implicit in depreciation accounting.

For the period since the War it is possible to estimate, roughly, the price level underlying net book values of capital assets. (It is assumed that depreciation accounting is general, and that revaluations through write-ups and gains or losses on sale may be ignored.) The index and its year-to-year changes appear in Table 50. The index of prices underlying book values of capital assets was obtained as a by-product of the index of prices underlying deprecia-

tion charges (Ch. 10) and is very similar to it. An harmonic aver-
age was used as before, but instead of the weights being based on
the current depreciation charge, they were based on the future
depreciation charges, that is, on the undepreciated portion of the
value of each existing capital asset.

The prices underlying book values of capital assets were, in
1929, about 10 per cent below 1929 reproduction costs. In 1919
they were 30 per cent below 1929 price levels and almost 40 per
cent below 1919 prices. The level of these prices was consistently
below, though but slightly, the level of the prices underlying de-
preciation charges.[4]

If the evidence of this index is acceptable, we may expect that
book values of capital assets rose about 7 per cent during 1919
solely on account of the high cost of new equipment and other
property. As time went on, this figure tended to decline, and be-
ginning with 1931, became negative: replacement costs were then
lower than prices implicit in book values.

Effect of revaluations

The influence of changes in book values due to write-ups and
write-downs and transfers by sale is less important in the long run.
In a period characterized by a rising secular trend of prices, we
may assume that if any changes are made in the book values of
capital assets by adjusting entries, they will be upward. In other
words, such changes will merely anticipate the changes due to

[4] The magnitude of the difference between original cost and reproduction
cost of all the physical property of steam railways in the United States has
been determined by the Interstate Commerce Commission. The value of
steam railway property existing on December 31, 1932, including Class I, II,
and III and switching and terminal companies, valued at 'spot' prices as of
June 1, 1933, was 23,743 million dollars (cost of reproduction new, excluding
land) (Source: General Rate Level Investigation, 1933, No. 26000, 195 *I.C.C.*
49, and the *47th Annual Report of the Interstate Commerce Commission,* 1933,
p. 76.) The original cost of this property was 22,860 million dollars. The differ-
ence of less than one billion dollars is relatively small, but it represents the
net change in reproduction costs over a very long period. The reproduction
cost of this same property at a date preceding the decline in prices beginning
in 1929 was much higher. As of June 30, 1927 it amounted to over 30 billion
dollars. (The relation between 1927 and 1933 prices, 1927=127 per cent of
1933, is based on the I.C.C. indexes of reproduction costs; see note to Ch. 10.)
The difference at that date amounted to seven billion dollars, or 30 per cent.

higher prices paid for replacements. No duplication will be in-
volved. Thus, if the 'physical' volume of capital goods remains
constant, and price levels rise for a while and then remain steady,
book values (assuming no write-ups or sales) will rise until prices
level out, and then continue to rise for a period, though more
slowly, until all depreciating assets have been replaced at the
higher price levels. If write-ups are entered upon the books of
business enterprises, book values will tend to rise even more rap-
idly, at first, and less rapidly later. That is, an index based on the
original cost of equipment will lag behind the actual prices (as-
suming write-ups) that underlie book values. The final level will
be identical with the level reached in the absence of such entries
of adjustment. This identity is reached also when prices decline.

When our attention is devoted to short periods, however, re-
valuations may distort the capital assets figures and render less
clear the movements free of price changes. The figures adduced in
Part V are useful here. The available facts bearing on revaluations
are important, also, because revaluations of land, an important
type of property included in capital assets, are not due entirely
to changes in general price levels.[5]

For each year for which figures are available revaluations and
gains or losses on sale are presented, in Table 51, as percentages
of corresponding capital assets. For revaluations the base was
capital assets in 1934, which is fairly close to the average for 1925–
34 and may be accepted, for the present purpose, as a sufficiently
good approximation to it. The various data are given annually,
since it is year-to-year changes in which we are primarily inter-
ested. They may easily be combined to give the total possible ef-
fect over several years. These figures represent not only revaluations
on account of changes in prices and capitalization rates, but also
uncovered obsolescence and other types of capital consumption
relevant to our present purpose. They therefore overstate the
effects that we wish to eliminate.

The quantities in Table 51 seem small. At the maximum, the
decline in capital assets between the end of 1931 and the end of
1932 due to revaluations and sales reached only 3.3 per cent.[6] But

5 Transfers of land (and other capital assets) from public to private owner-
ship will also influence the value of capital assets.
6 All industries are combined. As shown in Ch. 12, the assets of certain in-

Table 51

Revaluations and Gains or Losses from Sales, in relation to the Existing Value of Capital Assets, 1925–1934

	NET REVALUATIONS [1]	NET GAINS ON SALE [2]	TOTAL
	(percentage of capital assets)		
1925	0.16		
1926	0.45		
1927	0.08		
1928	−0.45		
1929	−1.23	0.32	−0.91
1930	0.09	−0.04	0.05
1931	−2.02	−0.48	−2.50
1932	−2.72	−0.61	−3.33
1933	−1.26	−0.58	−1.84
1934	−1.26	−0.03	−1.29

[1] Cf. Tables 43 and 46. The data are based on reports of industrial corporations.
[2] Based on Tables 42 and 52. No data are available prior to 1929.

we shall be better able to judge the significance of the figures when we come to examine the order of magnitude of net changes in capital assets.

Errors of estimate

A further difficulty in the measurement of net capital formation by recourse to year-to-year changes in capital assets arises from the fact that the first differences of a series are subject to all the errors of its individual items. Since we are dealing with a series in which the first differences are small relatively to its items, the probable errors of the differences (relative to the differences) may be large.

Meaning of real value of capital assets

After we have eliminated changes in replacement costs and the effects of revaluations, and allowed for possible errors of estimation, we have a measure of the real amount of capital assets and

dividual industries and establishments are more affected by revaluations and sales than those of others.

of changes in it. Even this measure is not unambiguous, for it depends on the method of time allocation of capital consumption that is currently used in accounting records. The real value of capital assets in the mining industry will not include that portion of expenditures on the development of mines that is charged to current expenses. In other industries it will be affected by the extent to which the straight line depreciation formula is used. In public utilities or other fields it will not reveal any over- and undermaintenance that may occur. These possibilities must be kept in mind in interpreting book values of existing capital goods.

Further, the real amount of capital assets is not a measure of productive capacity in the ordinary sense of this term. The time dimension of capital, even if there were no other factors involved, would prevent this correspondence. A one-ton truck can carry a ton of coal whether the truck be brand-new or three years old. Yet the real amount of capital invested in the new truck is considerably greater than that in the older machine.[7]

CAPITAL ASSETS OF BUSINESS CORPORATIONS

Capital assets of all corporations
Capital assets (less reserves) of all corporations in the United States, as they appear in their accounts, are given in Table 52. The probable errors of the annual increments are large, not only because they are increments but also because of the amount of estimating needed for years prior to 1926. Estimates based on samples were necessary for 1919–20, 1922, and 1925. The data for 1921 and 1923–24 originate in the capital stock tax returns made to the

[7] Changes in depreciation charges also tell us something of net capital formation. But their relation to it is looser than is that of capital assets. Depreciation charges are limited to depreciable assets; for short periods they are useful only so far as the straight line formula is used; they may change because of the changing age and life composition of the underlying property; they are susceptible to changes in legislation or in administrative practices. On the other hand, depreciation charges have an advantage over capital assets in that they move with the *gross* value of capital goods, which is of interest in certain problems. Further, depreciation reported for tax purposes, which we are using, is unaffected by revaluations. As a matter of fact, over the last decade the ratio of depreciation charges to capital assets has remained fairly constant. The sum of net changes in capital assets and of depreciation charges is a rough measure of gross capital formation, of interest in cyclical movements in business. This measure also is available by industry and establishment.

Table 52

Book Values of Capital Assets (less Reserves), 1918–1935 Corporations [1]

	NET BOOK VALUE AT END OF YEAR ($1,000,000)	ANNUAL CHANGE IN NET BOOK VALUE (per cent)
1918	59,495	
1919	61,388	+3.2
1920	66,347	+8.1
1921	68,653	+3.5
1922	74,191	+8.1
1923	80,646	+8.7
1924	89,759	+11.3
1925	93,788	+4.3
1926	100,150	+6.8
1927	106,535	+6.4
1928	111,978	+5.1
1929	118,465	+5.8
1930	123,146	+4.0
1931	116,890	—5.1
1932	112,492	—3.8
1933	109,144	—3.0
1934	105,362	—3.5
1935	103,006	—2.2

SOURCE: The data for 1921, 1923–24, and 1926–35 are based on *Statistics of Income,* those for 1921 and 1923–24 relating to capital stock tax returns; slight additions were made for corporations not reporting balance sheets. The figures for other years were obtained by interpolations based on: (1) *Census of Electrical Industries* for 1917, 1922, and 1927, interpolated by annual data from the *Electrical World,* electric railway figures reported to the I. C. C., and data of the Bell Telephone System; plus steam railway figures from *Statistics of Railways.* (2) Capital assets of 2,046 manufacturing corporations and 664 trading corporations compiled by R. C. Epstein *(Source-Book of Industrial Profits)* for 1924–26; and capital assets of 329 industrial corporations compiled by the National Bureau for 1918–23. The 1935 figure has been adjusted slightly to render it comparable with earlier years (see Table 54).

1 Excluding tax-exempt corporations.

Treasury Department; those for 1926–35 are from balance sheets reported in income tax returns. For these reasons we may not expect great accuracy in the year-to-year changes; in fact, close examination includes incongruities that are difficult to explain.

The large changes in 1922–24, especially in 1924, and the small change in 1919 (compared with the price changes shown in Table 50) are not consistent with our notions of the economic history of these years. Only the data beginning with 1926, being based on a homogeneous set of definitions, classifications, and legal requirements, can be analyzed by single years. These annual data, classified by industry, are examined later in this Appendix.

There is less reason to doubt the accuracy of the movement shown for capital assets over the period as a whole. In relation to any probable errors in the estimates the growth in capital assets was large.

The broad movement over the entire period covered by Table 52 is indeed striking. To some extent the growth in fixed capital is exaggerated by the adaptation of prices to post-War levels and by the shift from single proprietorships and partnerships to corporations. But after allowance for these biases, there is definite evidence of a considerable growth in our capital equipment. The decline to the end of 1935 canceled only a fraction of the rise in the earlier part of the period. The rate of growth in book values over the entire period was equal to 3.5 per cent per annum. With implicit prices rising at the rate of about 1.9 per cent, this means a net rate of growth in capital assets, expressed in constant prices, of about 1.6 per cent per annum. Corresponding rates for 1919–29 were 7.0 per cent for book value, 2.6 per cent for implicit prices, and 4.4 per cent for assets in constant prices.[8]

Changes in capital assets compared with direct measures of net capital formation
Dr. Kuznets' figures on net capital formation,[9] derived from measures of output of new capital equipment and the measures of capital consumption presented in this volume, suggest an aggregate of 23 billion dollars net business capital formation during 1919–35 (1929 prices). After allowance for price changes, corporate capital assets increased 24 billion dollars during the same

[8] The presence of land values is somewhat troublesome. If it may be assumed, however, that aggregate land values rose no more than the aggregate value of depreciable capital goods, the rate of growth of these goods is not overstated. At the end of 1934 the value of land constituted about 12 per cent of total net capital assets of corporations (Table VIII, Appendix B).
[9] See *National Income and Capital Formation* (1937) p. 48.

period. To this about 3 billion for non-corporate business (including farming), roughly estimated at 10 per cent, must be added, and about 3 or 4 billion dollars for increase in land values (about 10 or 12 per cent) must be deducted. This leaves an aggregate increase of about 23 billion dollars, which checks with Dr. Kuznets' estimate. Presumably, differences that would arise from revaluations, inclusion of intangibles in capital assets, and errors of estimate have ironed out over the period as a whole.

Table 53

Net Capital Formation, 1927–1934, Derived Directly and from Capital Assets, in Constant (1929) Prices

(Unit: $1,000,000)

	CHANGE IN CAPITAL ASSETS (corporations) [1]	NET CAPITAL FORMATION (all business) [2]
1927	5,300	3,900
1928	4,500	3,700
1929	5,400	4,300
1930	4,300	2,600
1931	−6,800	−500
1932	−4,500	−2,600
1933	−3,200	−2,400
1934	−4,100	−1,300
1927–1934	900	7,700

[1] If we allow for revaluations in 1931–34 (Table 51) we have:

1931	−3,600	*1933*	−1,000
1932	−300	*1934*	−2,600

[2] Simon Kuznets, *National Income and Capital Formation, 1919–1935*, p. 48.

For the period since 1926 a more detailed comparison is justified (Table 53). Here also allowance must be made for non-corporate business, changes in land values, and revaluations, which are important. For the first four years of the period changes in book values of capital assets (adjusted for changes in prices) totaled 19.5 billion dollars. Net capital formation amounted to 14.5 billion dollars. In the last four years of the period, 1931–34, changes in book value reached a negative figure of 18.6 billion; the corresponding negative figure for net capital formation is 6.8 billion

dollars. The signs of the annual figures in the first column agree with those in the second column. There can be little question that, from an annual point of view, capital formation became negative in 1931 and remained negative through 1933. Another interesting point is that changes in capital assets were greater (absolutely) than corresponding amounts of net capital formation in each year 1927–34. Here is strong evidence of revaluations—upward in the first part of the period, downward in the second—that agrees with what we already know. Making rough allowance for revaluations in 1931–34, we have a total decline in capital assets of about 7.5 billion (instead of 18.6) in these four years, compared with the 6.8 billion decline indicated by Dr. Kuznets' figures. The discrepancy is now very much smaller.

Another point of correspondence is in the sign of the net change over the entire period 1927–34, inclusive. In both series it is positive. Despite the large declines during 1931–34, the growth in capital during the preceding upturn more than made up for them.

Changes in capital assets, by industrial groups
Data on capital assets make possible a determination of their industrial distribution and of net capital formation by industries. For groups of corporations, data on capital assets have been compiled by the Treasury Department and are available since 1926. Corrected to include the assets of companies not reporting balance sheets they are presented in both absolute and percentage form in Table 54. Shifts in classification, arising from error or change in dominant type of business, prevent nice comparisons. The present figures, however, indicate (subject to verification from other sources) the industrial groups in which capital assets are most important, in which changes have been greatest, and which deviate most in time distribution of capital formation from the average pattern.

It must be remembered, further, that these figures relate to corporations alone. Non-corporate enterprises are preponderant in farming; important in construction, trade, and service; and appreciable in textiles and printing. In other groups they fall below 10 per cent of the total value of product (see the note to Ch. 4). For the period covered here value changes arising from changing replacement costs may be ignored as probably unimportant.

Table 54

Book Values of Capital Assets (less Reserves), 1926–1934
Corporations, by Industries [1]

A Absolute Figures in Millions of Dollars

| | OLD CLASSIFICATION [2] | | | |
	1926	*1927*	*1928*	*1929*
Industrial group				
Agriculture and related industries	1,326.1	1,285.1	1,239.1	1,291.9
Mining	8,288.3	7,593.4	6,778.3	7,397.4
Manufacturing	26,959.7	26,192.1	27,278.4	28,466.7
Construction	690.1	763.4	784.5	889.8
Transportation and other public				
utilities	41,122.4	46,829.3	49,286.6	52,604.3
Trade	4,190.5	4,393.4	5,028.5	5,076.9
Service	2,955.1	3,474.9	3,682.3	3,981.8
Finance and real estate	14,501.8	15,904.9	17,847.4	18,681.9
Miscellaneous	116.1	98.3	52.4	74.6
Grand total	100,150.1	106,534.8	111,977.5	118,465.3
Manufacturing subgroup				
Food and tobacco	3,359.1	3,519.5	3,396.4	3,743.6
Textiles	2,302.1	2,409.5	2,463.9	2,466.1
Leather	300.7	278.9	267.5	267.8
Rubber	577.2	474.3	480.9	501.2
Lumber	1,893.7	1,785.2	1,834.5	1,747.9
Paper	1,017.9	1,041.7	1,128.0	1,237.5
Printing and publishing	801.4	825.2	854.4	920.2
Chemicals	5,416.6	5,212.1	5,690.3	6,107.9
Stone, clay, and glass	1,176.4	1,232.6	1,344.4	1,334.4
Metals	9,223.9	8,713.5	9,120.1	9,378.5
Misc. manufacturing	890.7	699.6	698.0	761.6
Total manufacturing	26,959.7	26,192.1	27,278.4	28,466.7

While the fixed assets of certain industries (e.g., public utilities
and realty companies) may be longer-lived than those of other
groups, it is doubtful that the industrial differences in movement
or levels of underlying prices for this period are appreciable.
Changes in book values of assets arising from revaluations may be
more important, however, and these must be kept in mind. An-
other qualification must be made: the assets of industrials and
other non-utility groups are net, after deduction of depreciation
reserves. Those of public utilities, however, are to a great extent

1930	*1931*	*1932*	*1933*	*1934*	NEW CLASSIFICATION [3]	
					1934	*1935*
1,246.1	1,408.2	1,397.2	1,269.3	1,283.9	1,363.2	1,285.2
7,389.9	6,772.4	6,490.7	6,147.4	5,983.8	6,596.6	6,378.7
29,218.3	27,629.6	25,767.8	24,568.8	23,224.3	20,747.3	20,525.4
928.6	740.1	702.4	580.3	485.0	564.4	501.2
55,487.6	52,687.8	52,510.4	52,713.4	51,052.1	51,085.1	50,183.3
4,997.6	4,899.8	4,257.1	3,899.7	3,768.8	3,796.3	3,760.3
4,055.3	3,926.6	5,879.0	5,376.8	5,320.9	5,692.7	6,304.4
19,764.8	18,759.5	15,399.6	14,564.2	14,172.5	15,475.1	14,032.4
57.4	66.0	88.3	24.5	71.0	55.0	48.4
123,145.6	116,890.0	112,492.5	109,144.4	105,362.3	105,375.7	103,019.3
3,606.5	3,299.7	3,162.5	3,127.6	2,999.2	2,816.0	2,758.3
2,339.9	2,218.0	2,026.4	1,929.7	1,866.8	1,883.5	1,833.7
258.0	235.6	211.6	201.6	190.2	171.0	166.1
500.7	462.8	420.6	397.1	405.0	350.3	249.5
1,701.3	1,545.1	1,460.4	1,351.8	1,283.0	1,237.7	1,111.6
1,251.8	1,207.0	1,193.1	1,144.3	1,054.9	989.7	986.4
969.3	937.7	919.2	805.2	774.9	708.7	690.4
6,449.5	6,411.4	5,736.4	5,593.1	5,266.5	4,477.1	4,572.1
1,410.4	1,273.5	1,186.8	1,080.0	1,019.0	1,037.9	995.5
9,926.9	9,338.1	8,832.3	8,377.5	7,851.4	6,608.5	6,719.2
804.0	700.7	618.5	560.9	513.4	466.9	442.6
29,218.3	27,629.6	25,767.8	24,568.8	23,224.3	20,747.3	20,525.4

gross.[10] As a consequence, the relative importance of public util-

[10] This has already been shown for steam railways. The figures for the major industrial groups for 1934 are as follows (see Appendix B, Table VIII):

	RATIO OF RESERVE FOR DEPRECIATION AND DEPLETION TO	
	Gross capital assets (including land)	Gross capital assets (excluding land)
Mining and quarrying	.406	.493
Manufacturing	.421	.452
Construction	.411	.466
Transportation and other public utilities	.129	.130

B Percentages of the Total

| | OLD CLASSIFICATION [2] | | | |
	1926	*1927*	*1928*	*1929*
Industrial group				
Agriculture and related industries	1.32	1.21	1.11	1.09
Mining	8.28	7.13	6.05	6.24
Manufacturing	26.92	24.59	24.36	24.03
Construction	.69	.72	.70	.75
Transportation and other public utilities	41.06	43.96	44.01	44.40
Trade	4.18	4.12	4.49	4.29
Service	2.95	3.26	3.29	3.36
Finance and real estate	14.48	14.93	15.94	15.77
Miscellaneous	.12	.09	.05	.06
Grand total	100.00	100.00	100.00	100.00
Manufacturing subgroup				
Food and tobacco	3.35	3.30	3.03	3.16
Textiles	2.30	2.26	2.20	2.08
Leather	.30	.26	.24	.23
Rubber	.58	.45	.43	.42
Lumber	1.89	1.68	1.64	1.48
Paper	1.02	.98	1.01	1.04
Printing and publishing	.80	.77	.76	.78
Chemicals	5.41	4.89	5.08	5.16
Stone, clay, and glass	1.17	1.16	1.20	1.13
Metals	9.21	8.18	8.14	7.92
Misc. manufacturing	.89	.66	.62	.64
Total manufacturing	26.92	24.59	24.36	24.03

[1] Excluding tax-exempt corporations.
[2] Consolidated corporate reports classified by predominant business of group as a whole.

ity property at any date is exaggerated. Finally, it must be remembered that the depletion practices prevalent may cause assets of mining companies to be understated.

(footnote [10] concluded)

Service	.213	.263
Finance and real estate	.120	.168
All groups	.241	.265

The ratios are influenced by the character of the capital assets and by their growth. But some responsibility on the part of accounting practices is evident.

1930	*1931*	*1932*	*1933*	*1934*	NEW CLASSIFICATION 3	
					1934	*1935*
1.01	1.20	1.24	1.16	1.22	1.29	1.25
6.00	5.79	5.77	5.63	5.68	6.26	6.19
23.73	23.64	22.91	22.51	22.04	19.69	19.92
.75	.63	.62	.53	.46	.53	.49
45.06	45.07	46.68	48.30	48.45	48.49	48.71
4.06	4.19	3.78	3.57	3.58	3.60	3.65
3.29	3.36	5.23	4.93	5.05	5.40	6.12
16.05	16.05	13.69	13.34	13.45	14.69	13.62
.05	.06	.08	.02	.07	.05	.05
100.00	100.00	100.00	100.00	100.00	100.00	100.00
2.93	2.82	2.81	2.87	2.85	2.67	2.68
1.90	1.90	1.80	1.77	1.77	1.79	1.78
.21	.20	.19	.18	.18	.16	.16
.41	.40	.37	.36	.38	.33	.24
1.38	1.32	1.30	1.24	1.22	1.18	1.08
1.02	1.03	1.06	1.05	1.00	.94	.96
.79	.80	.82	.74	.73	.67	.67
5.24	5.48	5.10	5.12	5.00	4.25	4.44
1.15	1.09	1.06	.99	.97	.99	.96
8.06	7.99	7.85	7.68	7.45	6.27	6.52
.65	.60	.55	.51	.49	.44	.43
23.73	23.64	22.91	22.51	22.04	19.69	19.92

3 Constituent companies of consolidated groups classified separately.

The relative magnitudes in Table 54 depend somewhat on the degree of detail in the classification scheme. But it is clear that almost half of the property, plant, and equipment of all American corporations was held by public utilities, a regulated industry. Together with service and real estate this group accounted for almost 70 per cent of total corporate capital assets, leaving but 30 per cent in the remaining industries. Even if allowance is made for the property of unincorporated firms in the latter industries, the figure is striking.

At the end of 1934 total capital assets of all corporations ap-

proximately equaled the 1927 value. After rising about 15 per cent between 1927 and 1930, they had declined to the initial level by the end of 1934. But the relative positions of most of the individual industries had changed during the interval. Among the main groups, mining and construction fell off considerably, trade less; manufacturing declined slightly. Agriculture and related industries (excluding non-corporate concerns), and service and real estate combined [11] retained their relative position, in terms of capital assets. The one main group that rose was the transportation and utility. Among the manufacturing subgroups the assets of paper and chemicals rose in relation to the total, despite the decline in total manufacturing. Printing assets remained fairly constant, and all other groups declined, especial severity of fall being noticeable in textiles, leather, and lumber.

The possible effect of revaluations must be remembered. While assets of gas and electric utilities may have been written up at a faster rate than those of industrials, the assets of steam railways were practically untouched in the period under review. The constancy of printing and publishing assets may reflect the write-ups noticed in Chapter 12, while the decline in the value of property of textile manufacturers may have been aggravated by write-downs. Downward revaluations may also have affected somewhat the book values of assets of the food and tobacco groups, petroleum (in the chemical group), and metal products.

There was fair coincidence of movement among the capital assets of different groups. Of the eight main groups (excluding miscellaneous) there was a rise in the assets of five in 1927, of six in 1928, of eight in 1929, of five in 1930, and of one in each year 1931–35. Corresponding figures for the eleven manufacturing subgroups are:

| 1927 | 5 | 1929 | 8 | 1931 | 0 | 1933 | 0 | 1935 | 2 |
| 1928 | 8 | 1930 | 6 | 1932 | 0 | 1934 | 1 | | |

The groups with the greatest fluctuations in capital assets, over the period covered, were construction and trade among the main divisions, and stone in manufacturing.

[11] Because of the shift in 1932 it is necessary to combine these two groups; see footnote to Table 1. Another shift seems to have occurred between 1934 and 1935.

If we divide the period into two parts, 1926–29 and 1929–35, an upswing in the first period and a downswing in the second are noticeable in many groups, conforming with the behavior of the total. But the assets of agriculture, mining, leather, rubber, lumber, and miscellaneous manufacturing declined in both periods; while those of service rose. The assets of service and real estate combined conformed to the average pattern. And, if 1930 is taken as the high, so did those of public utilities.

In terms of dollars, public utilities and real estate were primarily responsible for the 18 billion dollar rise in capital assets between 1926 and 1929, together accounting for 15 billion. The 13 billion dollar decline between 1929 and 1934 represented, chiefly, a decline of 5 billion in manufacturing, 1 billion each in mining and trade, and 3 billion in service and real estate combined.

Too close analysis of this particular body of data is not warranted, chiefly because of the classification changes already noted. But the industrial distribution of capital assets and of net capital formation is important and the possibilities of this approach to its determination are sufficiently interesting to suggest the value of further work along this line.

FARM PROPERTY

Census data on value of farm property
We have dealt above with capital assets as recorded in the usual accounts of business corporations. These enterprises provide us with most of the data to which we can turn for information on capital assets by industries. The value of farm property is also available, but from another source: the Census of Agriculture. For this industry it is the value reported in the census returns that we must interpret. The census values are interpolated for non-census years by the department of Agriculture on the basis of various statistical materials relating to gross capital formation. The independent estimates therefore are only those for census years—1920, 1925, and 1930. (The 1935 census figures yield no information on value of machinery or number of machines, and give value of buildings only in combination with the value of land.) We confine our attention to the census years.

The values reported by farmers in response to the census questions are ambiguous. The questions read, typically, as follows: [12]

"IV. Farm Values, Jan. 1, 1925

    22. Total value of this farm (land and buildings)

       . . . . $. . . . .

           Give the amount for which this farm would sell."

In the instructions to enumerators, the following appears: "The farm operator's valuation must be accepted unless you have reason to believe that such valuation is below the actual value of the farm or is grossly exaggerated. In such cases give, as nearly as you can determine, the amount for which the farm . . . would sell under normal conditions (not at forced sale)." "A fair estimate of the present value of the farm buildings is desired, not a replacement value." [13] In the 1930 instructions to enumerators there is added:

"No attempt should be made to find out the original cost of the buildings nor the amount it would cost to replace them new, as this amount will frequently be much more than the present value of the buildings . . . ." [14] It is highly doubtful, from the way the question is phrased and from what we know of farm records, that the values reported are equivalent to 'book values': original cost less accumulated depreciation. The values are more probably replacement costs less depreciation, or current selling prices of similar property in the vicinity. The figures are further complicated for our immediate purposes by the presence of a considerable value of land and of dwellings. The Department of Agriculture treats the figures, except those for land, which is priced at current land values per acre, as if they represented net book values. We shall assume that they represent reproduction costs (less depreciation). For this reason, as well as because the values are available for three census years only, we consider agriculture apart from other industries.

12 Farm Schedule: *U. S. Census of Agriculture, 1925.*
13 *Census of Agriculture, 1925,* Instructions Nos. 55, 56.
14 Instruction on Questions 27 and 28.

Changes in value of farm property

The available figures for census years appear in Table 55. The 1919 figure is clearly affected by the high prices prevailing in that year. If we examine the available figures on reproduction costs we find that at the end of 1919 costs were about 15 or 20 per cent greater than in 1929 for buildings (Ch. 10 and Note) and 25 to 35 per cent greater for farm machinery and autos.[15] For both types of productive instruments 1924 prices were fairly close to those of 1929. If these price relations are applicable to Table 55 the slight

Table 55

Current Values of Farm Property used in Production, 1919–1929 [1]

(Unit: $1,000,000)

	Year ending December 31		
	1919	*1924*	*1929*
Buildings other than dwellings	5,517	5,643	6,220
Farm machinery (incl. automobiles) [2]	3,595	2,692	3,302
Total	9,112	8,335	9,522

1 *Census of Agriculture.* The 1919 and 1924 values of dwellings are estimated by the Department of Agriculture.
2 Automobiles are used for non-business purposes also.

increase of 130 million dollars in the value of buildings between 1919 and 1924 becomes a large increase of 800 to 1,000 million expressed in 1929 prices. The decline of 900 million in the value of farm machinery becomes a slight decline or a small increase.

From 1924 to 1929 building values (in 1929 prices) seem to have increased somewhat less than during the preceding five years. Farm machinery, however, increased over 600 million dollars—a large increase compared with the first five years.

Farm property used in production is a sizable amount in relation to corporate capital assets. In 1929 it reached about 8 per cent of the latter (9 per cent, if allowance is made for the inclusion of land in corporate assets).

The Census of Agriculture has collected figures also on the

15 The Bureau of Labor Statistics price index of farm machinery for the end of 1919, 1924, and 1929 is: 114, 106, 96; and for autos: 153, 108, 108.

number of certain types of farm property, summarized in Table
56. The number of automobiles increased between 1920 and 1930
almost two million, trucks, 760,000, and tractors, 670,000. Allow-

Table 56

Farm Facilities, 1919–1929

(*number of units*)

	1919	*1924*	*1929*
Automobiles	2,146,362		4,134,675
Motor trucks	139,169		900,385
Tractors	246,083	505,933	920,021

SOURCE: *Fifteenth Census, 1930, Agriculture, IV,* 530. No data were collected
in 1935.

ing as little as $200 per automobile, $400 per truck and per tractor,
these items alone account for an increase of almost one billion
dollars in farm machinery. Clearly the figures reported in the
census, which suggest a drop in the value of farm machinery, re-
quire modification. The assumption made above that the census
values represent reproduction values (less depreciation) fits the
facts more closely than the assumption that the census values
represent net 'book' values.