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## CHAPTER 5

### Changes in the Structure of National Wealth

THE revival of interest in national wealth estimates during the past decade has been accompanied by a realization that the value of these figures for economic analysis resides much less in broad national aggregates than in breakdowns which permit comparisons among types of wealth or among groups of wealth holders, and breakdowns which also enable the analyst to relate the wealth estimates to the income derived from the same type of assets or by the same groups of holders. Of the two breakdowns, changes in the structure of national wealth among its components have been given more attention by economists, probably because analysis of the distribution of national wealth among groups requires the simultaneous consideration of tangible assets, financial assets, liabilities, and net worth. This chapter deals primarily with the breakdown of tangible assets by type and secondarily with the distribution of the ownership of tangible assets among the various sectors of the economy.

Changes in the relations between components of national wealth differ, depending on whether the analysis is conducted on the basis of original cost, current (market or replacement), or constant (base period) values. What is more disturbing, changes in the structure of national wealth also depend to some extent on the choice of the price basis. This may be true even if the base periods are only twenty years apart, as seen from a comparison of the distribution of national wealth by type during the first part of the postwar decade in 1947-49 prices, given in this report, with a similar distribution based on 1929 prices, derived from previously published estimates.<sup>1</sup>

In order not to complicate the discussion unduly, we shall concentrate in this chapter on changes in the structure of national wealth as reflected in current values (replacement cost for reproducible tangible wealth), drawing attention only occasionally to instances of changes in the structure of national wealth that differ significantly in pattern when

NOTE: The discussion in this section is based for the period beginning with 1900 on the estimates shown in the relevant Appendix tables, which in turn are taken for the period 1900 to 1935 from *A Study of Saving in the United States*, Vol. III, *Special Studies*, 1956. For the nineteenth century the rough estimates in "The Growth of Reproducible Wealth of the United States of America from 1805 to 1950," *Income and Wealth Series II*, London, 1952 (pp. 247ff.), were used.

<sup>1</sup> *A Study of Saving . . .*, Vol. III, Table W-3.

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deflated figures are used. The interested reader, however, can follow the movements on both bases in summary form in Tables 6 to 12, and in detail with the help of Tables A-9 to A-14 and A-19 to A-24.

### *Reproducible and Nonreproducible Tangible Wealth*

The primary distinction usually made in the analysis of the structure of national wealth is that between nonreproducible assets, represented chiefly by land, and reproducible assets, which consist chiefly of structures, equipment, and inventories.

During the postwar decade the ratio of the current value of nonreproducible tangible assets declined only very slightly from almost 21 per cent to 19½ per cent, as shown in Table 8. The drop was fairly regular, amounting on the average to nearly one-tenth of a percentage point or about ⅜ per cent of its own level per year. It reflected primarily the relatively slow increase in the aggregate current value of farm land—the quantity of which, of course, hardly changed in the face of a considerable expansion of the physical volume of reproducible tangible wealth, however measured. As a result the share of agricultural land in national wealth declined from about 8 to 6 per cent.<sup>2</sup>

This decline thus was not due to either of two factors which may be thought responsible. It was not due, first, to the lag in an increase in the price of agricultural land. In fact, the price of agricultural land advanced slightly more between 1945 and 1958 than the price level of all reproducible tangible wealth increased, measured by the ratios of current to its deflated values, that is, by about 115 per cent against

<sup>2</sup> An explanation of the substantial increase in the value of land at constant prices, which is shown in Table 8, is appropriate, since it might be presumed that the value of land at constant prices should by definition remain unchanged. This increase is the result of the method of estimating the value of nonagricultural land, particularly land underlying residential and nonresidential buildings. The value of these categories of land in constant (1947-49) prices at any one date is obtained by applying, to the constant price values of structures, land-structure ratios derived from the relationship between land and structure values in current prices at the same date. Hence, if the constant price value of structure increases relatively more than the land-structure ratio declines, and of course if the land-structure ratio remains unchanged, the value of land in constant prices will rise. This is not unreasonable economically. In an expanding economy land is often upgraded, that is, its value is increased in constant prices even in the absence of improvements. Thus, the transformation of farm acreage into urban land increased the value of total land between, say, 1900 and 1960, whether we use the 1900 prices or the 1960 prices or any intermediate years' prices of land of a given type. The increase in the aggregate value of land in constant prices shown in Table 8 is thus the effect of what may be called the change in the "mix" of different types of land that occurred during the period of observation.

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TABLE 8  
REPRODUCIBLE AND NONREPRODUCIBLE NET WEALTH,  
SELECTED YEARS AND PERIODS, 1945-58

Year	Total Wealth		Reproducible Wealth		Nonreproducible Wealth	
	Military Assets		Military Assets		Military Assets	
	Included	Excluded	Included	Excluded	Included	Excluded
	(1)	(2)	(3)	(4)	(5)	(6)
A. ABSOLUTE VALUES, CURRENT PRICES (\$ billion)						
1945	649	576	530	457	119	119
1951	1,220	1,165	984	929	236	236
1958	1,791	1,702	1,456	1,367	335	335
B. ABSOLUTE VALUES, CONSTANT (1947-49) PRICES (\$ billion)						
1945	889	788	723	622	166	166
1951	1,037	991	844	798	193	193
1958	1,308	1,244	1,086	1,022	222	222
C. PERCENTAGE SHARES, CURRENT PRICES						
1945	100.0	100.0	81.7	79.3	18.3	20.7
1951	100.0	100.0	80.7	79.7	19.3	20.3
1958	100.0	100.0	81.3	80.3	18.7	19.7
D. PERCENTAGE SHARES, CONSTANT (1947-49) PRICES						
1945	100.0	100.0	81.3	78.9	18.7	21.1
1951	100.0	100.0	81.4	80.5	18.6	19.5
1958	100.0	100.0	83.0	82.2	17.0	17.8
E. PERCENTAGE RATE OF GROWTH PER YEAR, CURRENT PRICES						
1949-51	11.09	12.46	10.86	12.55	12.09	12.09
1951-58	5.64	5.56	5.76	5.67	5.13	5.13
1945-58	8.12	8.69	8.08	8.79	8.29	8.29
F. PERCENTAGE RATE OF GROWTH PER YEAR, CONSTANT (1947-49) PRICES						
1945-51	2.60	3.89	2.62	4.24	2.54	2.54
1951-58	3.37	3.30	3.66	3.60	2.02	2.02
1945-58	3.02	3.59	3.18	3.89	2.26	2.26

SOURCE: Data from Tables A-5, A-6, A-25, and A-26.

85 per cent. Second, it was not due, or due only to an insignificant degree, to the declining share of the value of agricultural land in total tangible assets of agriculture. This share was approximately the same in 1958 as twelve years earlier—about one-half. Among nonfarm sectors, the share of land (including forests and subsoil assets) held up until 1951 and declined very slightly, from 16 to 15 per cent over the entire decade.

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The decline in the share of land in total national wealth during the postwar decade continued a trend that can be observed as far back as national wealth estimates reach. From 1900 to 1945, for instance, the share of land was almost cut in half from 35 per cent to about 20 per cent. This meant a decline by about one-third of one percentage point per year, or by approximately 1.25 per cent of its average level. Thus, the decline in the share of land during the postwar decade was considerably smaller in absolute terms than the diminution that had been experienced over the preceding half century.

During the nineteenth century the decline in the share of land in national wealth had proceeded quite regularly at the rate of about one-fifth of one percentage point per year so far as the very rough estimates utilized in Table 9 can be trusted. As during the postwar decade this continuous decline in the share of land reflected primarily the diminishing importance of agriculture within the American economy and was not due, or only to a minor extent, to a decline in the share of land in total tangible assets of agriculture<sup>3</sup> or in total tangible assets of the other sectors of the economy.

### *Wealth for Production Versus Wealth for Consumption*

Another significant division of tangible wealth is by assets used for production and those devoted directly to individuals' welfare (consumption). The separation—which of course is not identical with the distinction between profit-making and nonprofit-making assets—is not entirely unambiguous conceptually or statistically. However, the result cannot be very far off quantitatively from what more precisely allocated figures would yield, if we regard as tangible wealth used for consumption residential and institutional structures and the land underlying them; consumer durables, except one-half of the stock of passenger cars;<sup>4</sup> one-half of government civilian structures;<sup>5</sup> and—

<sup>3</sup> The share of land in the tangible assets of agriculture may be put very roughly at close to three-fifths in 1805, 1850, and 1900, although the share probably was somewhat above that level in 1805, and somewhat below it in 1880. The figures permit only the tentative conclusion that the ratio of land to total tangible assets in agriculture failed to show an obvious or marked trend during the nineteenth century.

<sup>4</sup> The exclusion of one-half of the stock of passenger cars is intended as a rough recognition of the fact that a substantial proportion of intracity and interurban transportation between home and place of work depends on consumer owned and operated passenger cars. To that extent at least passenger cars are direct substitutes for trolley cars, buses, and railroad coaches; and indirect substitutes for part of railroad track, coaches and locomotives.

<sup>5</sup> Only one-half of government structures is allocated to wealth used for consump-

TABLE 9  
 SHARE OF LAND IN NATIONAL WEALTH, SELECTED YEARS, 1805-1958  
 (current values in billions of dollars)

Year	Total			Agriculture		Other Sectors			
	Tangibles Wealth (1)	Land <sup>b</sup> (2)	Share of Land (3)	Tangible Wealth (4)	Land (5)	Share of Land (6)	Tangible Wealth (7)	Land (8)	Share of Land (9)
1805	1.23	0.65	0.53	0.95	0.60	0.63	0.28	0.05	0.18
1850	7.2	3.0	0.42	4.1	2.5	0.61	3.1	0.4	0.13
1880	37.7	13.0	0.36	13.5	7.6	0.56	24.2	5.4	0.22
1900	87.7	30.9	0.35	24.5	14.5	0.60	63.2	16.4	0.26
1929	439.1	113.5	0.26	64.4	34.9	0.54	374.7	78.6	0.21
1945	576.2	121.2	0.21	86.7	43.5	0.50	489.5	77.7	0.16
1958	1702.3	310.8	0.18	182.6	87.6	0.48	1519.7	223.2	0.15

Source: 1805-80: Goldsmith, "The Growth of Reproducible Wealth of the United States of America from 1850 to 1950," excluding military assets.

1900 and 1929: *A Study of Saving* . . . , Vol. III, Table W-1.  
 1945 and 1958: Tables A-5 and A-52.

a Including consumer durables and net foreign assets, but  
 b Including forests and subsoil assets.

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rather arbitrarily—one-half of government land. Thus, all nonresidential structures and the land underlying them, all producer durables, all private inventories, farm land, and one-half the stock of passenger cars and of government structures and land are regarded as assets for production.

Such an allocation, in which tangible assets of a given type are assigned either to wealth for consumption or to wealth for production throughout the entire period, cannot take account of the shift of certain activities between household and business that occurred during the period. For instance, a larger proportion of passenger traffic facilities of railroads may have served immediate consumption—for pleasure travel—in 1900 than in 1960. If so, a larger share of the reproducible tangible assets of railroads should have been allocated to wealth for consumption in 1900. (Actually no such allocation was made in either year, all tangible assets of railroads having been allocated to wealth for production throughout the period.) It is unlikely that these shifts, not all of which tended in the same direction, were large enough to change the general outlines of the distribution of national wealth between production and consumption use.

The distribution of tangible wealth between assets for welfare and for production has hardly changed over the postwar decade, keeping close to a 45-55 per cent division, as Table 10 shows. This stability, however, is the result of an increase in the share of consumer durables large enough to offset a moderate decline—in proportion to its starting level—in the share of residential structures. The absence of a trend in the distribution of tangible wealth between assets for welfare and for production is in contrast to the trend in the preceding half-century,

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tion because a considerable part of the reproducible tangible wealth owned by the government, particularly state and local governments, serves what are under any reasonable definition productive functions and has a close counterpart in the private sphere. This applies particularly to water and sewerage facilities, gas and electric plants, reclamation and flood control work, and river and harbor improvements. These categories accounted in 1946 for more than one-fifth of the total value of reproducible government assets (J. E. Reeve, *et al.*, "Government Component in the National Wealth," *Studies in Income and Wealth*, Vol. 12, New York, NBER, 1950, pp. 514ff.). If only one-half of roads and streets are added, as primarily serving business transportation or substituting for facilities of the business type like railroad tracks, the share of tangible government assets used for productive purposes rises to above two-fifths. Allocation of parts of nonresidential buildings and miscellaneous structures, which together represent about three-tenths of reproducible government assets, would bring the share of productive assets to at least one-half. It would be considerably in excess of one-half if city streets were also regarded as productive assets.

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TABLE 10

CIVILIAN WEALTH FOR PRODUCTION AND WELFARE, SELECTED YEARS AND PERIODS, 1945-58  
(values in billions of dollars)

	NET WEALTH				GROSS WEALTH			
	Total		Reproducible		Total		Reproducible	
	Production (1)	Welfare (2)	Production (3)	Welfare (4)	Production (5)	Welfare (6)	Production (7)	Welfare (8)
A. ABSOLUTE VALUES, CURRENT PRICES								
1945	311	265	227	230	468	450	384	414
1951	642	523	471	458	927	870	757	804
1958	961	741	700	667	1,377	1,259	1,131	1,170
B. ABSOLUTE VALUES, CONSTANT (1947-49) PRICES								
1945	422	367	304	318	642	621	525	572
1951	537	454	400	398	769	765	632	709
1958	661	583	505	517	957	980	802	913
C. PERCENTAGE SHARES, CURRENT PRICES								
1945	54.0	46.0	49.7	50.3	51.0	49.0	48.1	51.9
1951	55.1	44.9	50.7	49.3	51.6	48.4	48.5	51.5
1958	56.5	43.5	51.2	48.8	52.2	47.8	49.2	50.8
D. PERCENTAGE SHARES, CONSTANT (1947-49) PRICES								
1945	53.5	46.5	48.9	51.1	50.8	49.2	47.9	52.1
1951	54.2	45.8	50.1	49.9	50.1	49.9	47.1	52.9
1958	53.1	46.9	49.4	50.6	49.4	50.6	46.8	43.2
E. PERCENTAGE GROWTH PER YEAR, CURRENT PRICES								
1945-51	12.84	12.00	12.94	12.16	12.06	11.61	12.23	11.70
1951-58	5.93	5.10	5.82	5.52	5.82	5.37	5.90	5.51
1945-58	9.07	8.23	9.05	8.53	8.70	8.18	8.92	8.32
F. PERCENTAGE GROWTH PER YEAR, CONSTANT (1947-49) PRICES								
1945-51	4.10	3.61	4.60	3.81	3.29	3.77	3.14	3.54
1951-58	3.01	3.64	3.45	3.81	3.16	3.60	3.46	3.68
1945-58	3.50	3.62	3.98	3.81	3.12	3.79	3.31	3.66

SOURCE: Data from Tables A-5 and A-6.

when the share of tangible wealth serving consumption increased noticeably from only about 30 per cent in 1880 and more than 35 per cent in 1900 to close to 45 per cent in the 1930's.<sup>6</sup>

<sup>6</sup> So far as the rough estimates permit a conclusion, the share of tangible assets used for consumption was fairly stable between 1805 and 1880. In fact, if attention is limited to reproducible tangible wealth, the share of assets for consumption seems to have declined between 1805 and 1850. This trend indicated by the rough estimates is not unreasonable, as one would expect that during most of the nineteenth

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### *Structures, Equipment, and Inventories*

This division shown in Table 11 and Chart 8 is of significance primarily for productive reproducible tangible wealth. It is to some extent arbitrary, particularly with respect to the distinction of some types of equipment from the structures in which they are installed, and to the classification of livestock which may be regarded as a form of either inventory or equipment.<sup>7</sup>

The outstanding change during the postwar decade is the increase in the share of producers' durable equipment in productive reproducible wealth shown in Table 11. It rose between 1945 and 1958 from 22 per cent to 29 per cent if livestock is excluded, although the advance was only from 26 to 31 per cent if it is included, because the share of livestock alone in productive reproducible assets declined from 4 to 3 per cent.<sup>8</sup> This increase in the share of equipment (producer durables) was offset partly by the fall in the proportion of inventories from 23 to 19 per cent including livestock, and from 19 to 16 per cent excluding livestock. The share of nonresidential private structures increased slightly from 34 to 36 per cent. These movements, however, can be regarded as reflecting to only a relatively small extent significant long-term trends. They are largely the result of postwar readjustments and of the very low level of expenditures on equipment from 1930 through 1945. It was only around 1950 that equipment (excluding livestock) regained its share of 1929 in productive reproducible wealth.

The increasing share of equipment observed during the postwar decade, however, continues a trend visible at least since 1880.<sup>9</sup> At that time about one-sixth of productive reproducible wealth consisted of equipment (excluding livestock), a figure apparently little changed over the preceding three-quarters of a century. The share then rose to

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century the share of tangible assets used for production increased with industrialization, but that this increase ceased when consumer durables began to gain in importance, beginning with the introduction of the automobile early in the twentieth century. On the basis of these considerations one might have expected the share of tangible assets used for production to increase until about the turn of the century, but the figures, such as they are, place the turning point near the end of the third quarter of the nineteenth century.

<sup>7</sup> The test probably should be the length of useful life of the individual livestock unit. From that point of view, the classification probably should be changed from inventories to equipment, as the relatively long-lived dairy cattle came to account for an increasing proportion of the total value of livestock.

<sup>8</sup> Detailed data from Table A-5.

<sup>9</sup> Goldsmith, *Income and Wealth Series II*, p. 306.

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TABLE 11

MAIN CATEGORIES OF CIVILIAN WEALTH, SELECTED YEARS AND PERIODS, 1945-58  
(values in billions of dollars)

	<i>Net Wealth</i> <sup>a</sup>				<i>Gross Wealth</i> <sup>a</sup>			
	Structures (1)	Equip- ment (2)	Inven- tories (3)	Non- repro- ducible (4)	Structures (5)	Equip- ment (6)	Inven- tories (7)	Non- repro- ducible (8)
A. ABSOLUTE VALUES, CURRENT PRICES								
1945	286	95	53	121	522	200	53	121
1951	545	246	110	222	983	439	110	222
1958	833	379	130	311	1,424	721	130	311
B. ABSOLUTE VALUES, CONSTANT (1947-49) PRICES								
1945	408	119	74	168	746	255	74	168
1951	466	214	94	181	841	381	94	181
1958	593	297	110	203	1,011	572	110	203
C. PERCENTAGE SHARES, CURRENT PRICES								
1945	49.7	16.5	9.2	21.0	56.9	21.8	5.8	13.2
1951	46.8	21.1	9.4	19.1	54.7	24.4	6.1	12.4
1958	48.9	22.3	7.6	18.3	54.0	27.4	4.9	11.8
D. PERCENTAGE SHARES, CONSTANT (1947-49) PRICES								
1945	51.7	15.1	9.4	21.3	59.1	20.2	5.9	13.3
1951	47.0	21.6	9.5	18.3	54.8	24.8	6.1	11.8
1958	47.7	23.9	8.8	16.3	52.2	29.5	5.7	10.5
E. PERCENTAGE GROWTH PER YEAR, CURRENT PRICES								
1945-51	11.38	17.18	12.94	10.64	11.13	14.00	12.94	10.64
1951-58	6.25	6.37	2.42	4.93	5.44	7.34	2.42	4.93
1945-58	8.57	11.23	7.15	7.53	8.03	10.37	7.15	7.53
F. PERCENTAGE GROWTH PER YEAR, CONSTANT (1947-49) PRICES								
1945-51	2.24	10.27	4.07	1.25	2.02	6.92	4.07	1.25
1951-58	3.50	4.79	2.27	1.65	2.67	5.98	2.27	1.65
1945-58	2.92	7.29	3.10	1.47	2.37	6.41	3.10	1.47

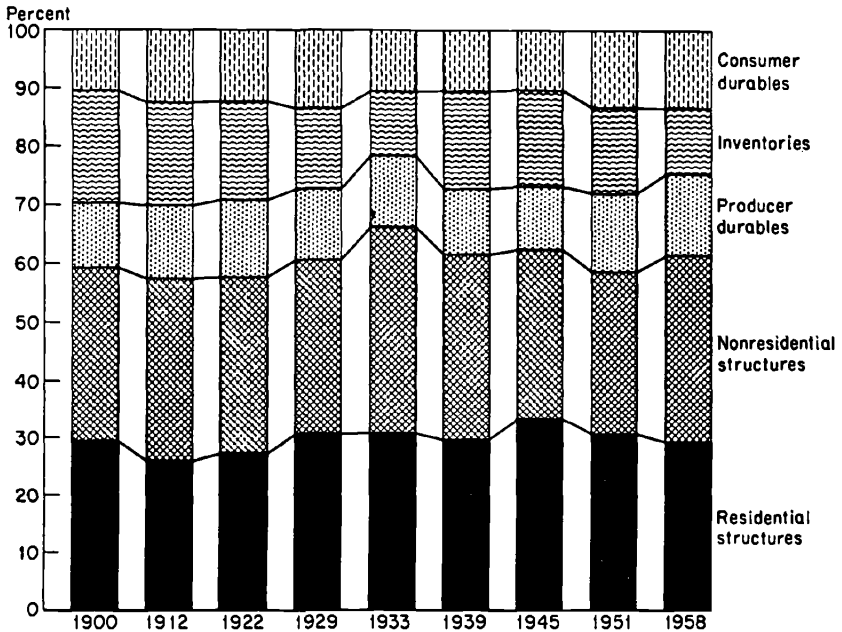
SOURCE: Data from Tables A-5, A-6, A-7, and A-8.

<sup>a</sup> Not including monetary metals and net foreign assets.

over one-quarter in 1929, gaining about two percentage points every decade, or advancing every year on the average by 1 per cent of its own level. If this trend had continued at the same absolute intensity after 1929 it would have led in 1958 to a share of equipment in reproducible productive wealth of about 30 per cent. Continuation of the trend at the same relative intensity would have led to a ratio between 33 and 34 per cent in 1958. The actual level of 34 per cent is thus right

CHART 8

Distribution of Net Reproducible Wealth Among Main Assets,  
Selected Years, 1900-58  
(current prices)



Source: Underlying data from Table A-5.

in line with the extrapolated trend.<sup>10</sup> This is what the general observations of the tendency toward the use of more and more complicated machinery would lead one to expect.

A similar shift occurred among components of reproducible wealth used for consumption, taking the form of an increased share of consumer durables compared with residential structures. In 1958 the value of consumer durables amounted to 44 per cent of that of residential structures, a substantial advance from the 30 per cent of 1945. As in the case of producer durables, this advance was partly a reflection of the low level of purchases between the Great Depression and the end of World War II, and partly a continuation of long-term trends. In

<sup>10</sup> The figures are virtually the same if constant prices are used. The actual level of 32 per cent in 1958 then compares with extrapolated values of 30 per cent and 34 per cent, respectively.

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1929, for instance, consumer durables accounted for 44 per cent of the value of residential structures, the same proportion that prevailed in 1958. At the turn of the century, however, the ratio had been around 35 per cent.<sup>11</sup>

For many purposes of analysis it is desirable, and sometimes even essential, to break down the aggregate stock of producer durables by type of equipment. The available figures, unfortunately, are far from satisfactory for this purpose. Expenditures on producer durables are given for only about one dozen broad classes of equipment, and even this limited breakdown is available only through 1954.<sup>12</sup> Many of the price indexes used to deflate the expenditures series leave much to be desired. Finally, the estimates of the useful length of life of the different types of equipment are rough, and can be applied only to the total of all different items that are combined in each of these classes. Therefore, the estimates of net and gross stock of the different types of producer durables must be interpreted with great caution. The fact that the tendencies they show for the postwar decade agree well with what is known from other sources may, however, increase confidence in the figures.

The main changes in the distribution of the stock of producer durables in the postwar decade are increases in the share of electrical machinery, instruments, office equipment, and motor vehicles, and sharp declines in the share of railroad equipment and ships. The largest category, industrial machinery and equipment, which accounts for almost one-half of the total stock of all producer durables, showed only a small decline.<sup>13</sup> Electrical machinery, office machinery, and instruments, together, represented at the end of 1954 almost one-fourth of the total value, in 1947-49 prices, of producer durables, against a share of not much over one-sixth at the beginning of the period. This increase, most of which is attributable to electrical machinery, though the rise is proportionately sharpest for instruments, is in line with the technological changes during the period. Unfortunately, separate figures cannot yet be provided for types of machinery particularly closely

<sup>11</sup> In constant prices the shares are 50 per cent in 1900, 47 per cent in 1929, 27 per cent in 1945, and 53 per cent in 1958.

<sup>12</sup> In order to continue estimates of stock figures for the entire postwar decade, a necessary assumption was that total expenditures on producer durables were distributed in the same proportions among types for the years 1955-58 as for the preceding seven years.

<sup>13</sup> These statements are based on estimates in constant prices. They are valid also if current price estimates are used, except that on that basis the share of industrial machinery shows a small increase, as can be seen from Tables B-128 and B-129.

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connected with the process of automation, or even a distinction between old and new types of machinery, both of which would be particularly valuable for economic analysis. The sharp increase in the share of trucks, buses, and passenger cars owned by business—from 4 per cent in 1945 to 9 per cent of all producer durables in 1954—reflects primarily the replenishment of a stock depleted by low replacements during the war period but is also indicative of the expansion of the intercity truck fleet. Hence, only part of the increase may be regarded as reflecting a long-term trend. The sharp decline of the share of railroad equipment and ships from more than 17 per cent to only slightly over 10 per cent mirrors the declining relative importance of the two industries that use such equipment.

A similar breakdown is equally important in the case of consumer durables, the aggregate for which grew during the postwar period by as much as 180 per cent (1947-49 prices), or by more than 8 per cent per year. This aggregate is a compound of one group of consumer durables—automobiles and household appliances, mostly electrical, including radio and television sets—the stock of which grew at the astonishing average rate of 14 per cent per year after adjustment for price changes; and of another group—consisting of furniture, house furnishings, jewelry, watches, and books—which showed an average rate of growth of the net stock of only 4.5 per cent per year. The reasons for these differences are fairly obvious. The extraordinary increase in the value of the net stock of passenger cars—at a rate of 15 per cent per year in 1947-49 prices—reflected primarily the replacement of a stock that had been run down far beyond customary standards as a result of unavailability of new cars during the war years, but was also influenced by a spread of car ownership, due to the general high level of income, and by an upgrading among types of cars, made possible by the same favorable income experience. The almost equally sharp rise in the stock of what may be called household machinery, averaging about 12.5 per cent a year, on the other hand, may be attributed primarily to the introduction of entirely new types of commodities (for example, television sets and air conditioning equipment) or the sharp decline in the relative price of others (such as radios, washing machines, and heaters). These are typically “new products,” and their rapid growth is in sharp contrast to the much slower increase of furniture (5 per cent per year) and particularly house furnishings (only about 1.5 per cent per year). Although furniture basically must be classified, like the other items showing relatively lower rate of growth,

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as an "old product," changes in style preferences together with the high level of new household formation may have lifted furniture into a somewhat intermediate position between the slowly and the very rapidly expanding types of consumer durables.

### *Domestic and International Wealth*

In many countries the growth and structure of reproducible tangible wealth cannot be understood without considering the country's international financial relations, primarily the ebb and flow of its capital imports and exports. In the United States during the postwar decade these relations have been statistically of small importance, if attention is concentrated, as it must be here, on the share of domestic tangible wealth owned by foreigners or of the foreign assets held by U.S. residents.

The share of foreign ownership of tangible assets situated in the United States is negligible, even if we assume that the total foreign direct investment in nonfinancial businesses is represented by tangible assets, and if we regard foreign holdings of shares in American nonfinancial publicly owned corporations as equivalent to a pro rata ownership of their tangible assets. In that case foreign ownership, although rising in current value from about \$5 billion in 1946 to \$12 billion in 1958, accounted in both years for only a little over 0.5 per cent of total national wealth. This figure, because of its derivation, is almost certainly an overstatement of the actual ownership by foreigners of tangible assets situated in the U.S. What is more relevant, there does not seem to be any major type of tangible assets for which foreign ownership is more than marginal.

If foreign investments by American owners are treated similarly, we have to account at the end of 1946 for about \$6 billion of direct investments in nonfinancial businesses operating abroad, and for holdings of stocks in publicly owned foreign corporations of about \$1 billion. This total of \$7 billion was equivalent to about 1 per cent of the national wealth of the United States. Notwithstanding a sharp increase in the value of these types of foreign investments, which rose in 1958 to nearly \$30 billion, about nine-tenths of which consisted of direct investments in nonfinancial enterprises, they were equivalent to less than 2 per cent of total national wealth.<sup>14</sup>

<sup>14</sup> While these figures, which are based on estimates made by the Department of Commerce in connection with its studies of the balance of payments, understate the current value of direct foreign investments, reflecting as they do book values rather

## CHANGES IN THE STRUCTURE OF NATIONAL WEALTH

In considering the international aspects of national wealth we may, however, also want to take account of the net balance of intangible claims and liabilities, including the claims of the United States Treasury against foreign governments, insofar as they are definite enough to permit valuation. In 1946 the net balance of claims was very small, liabilities offsetting most of the claims. Twelve years later the net credit balance had risen to about \$6 billion, but yet amounted to less than 0.5 per cent of national wealth. Even the most liberal interpretation of net foreign assets, including both tangible and intangible assets, would thus add only about 1.5 per cent to total domestic national wealth in 1958 and would leave it virtually unchanged for 1946.

This reduction in foreign assets and liabilities to almost insignificance in the over-all picture of the national balance sheet of the United States is a rather recent phenomenon, although foreign investments have never been statistically very important since the turn of the century. In 1929, when the relative importance of foreign investments for the U.S. probably reached its statistical peak, they accounted for about 3 per cent of domestic national wealth. Throughout the nineteenth century the U.S. had been a debtor country on balance. However, net foreign investments in the U.S. apparently were never in excess of 5 per cent of total national wealth, and showed a declining trend throughout the century, falling to about 3 per cent in 1850 and fluctuating around that level during the second half of the century.

The share of foreign investment is, of course, higher when net foreign investments are compared, not with total national wealth but—what is economically more appropriate—only with reproducible tangible assets, since most of the foreign investments found their way into assets other than land. In that case, net foreign investment may have accounted for almost 10 per cent of domestic reproducible tangible wealth at the beginning of the nineteenth century and for as much as 5 per cent even in 1850, further slowly declining to about 4 per cent in 1900 and, of course, becoming negative rather than positive from World War I on.

### *Military and Civilian Wealth*

Military durable assets have become too important and the change in their absolute and relative value too pronounced during the postwar

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than market values, a tentative adjustment would still leave the share for 1958 not much above 2 per cent and would not substantially affect it for 1946.

## CHANGES IN THE STRUCTURE OF NATIONAL WEALTH

decade to be ignored altogether in an analysis of national wealth. The discussion whether durable military assets are an intrinsic part of national wealth or only an intermediary item in a complete accounting for all stocks of physical assets will, of course, continue. Furthermore, however military assets are treated from the conceptual point of view, the user must be aware that the estimates which can be contrived at the present time, in the absence of a comprehensive or statistically satisfactory inventory in current or constant prices compiled by the federal government, are affected by a very substantial margin of uncertainty. This results mainly from the uncertainty about the length of life that should be assigned to some of the most important types of military equipment in a period of rapidly changing military technology, and the consequent high incidence of obsolescence. There are, however, two developments which are sufficiently well established not to be unduly affected by these uncertainties, and at the same time are relevant for an analysis of national wealth during the postwar decade.

The first is the fact that, however estimated, military assets have ceased to be of negligible size compared with civilian wealth, and indeed have become larger than several types of civilian assets that would be regarded as important in any analysis. For the average of the period 1946-58 military assets were equal, on the basis of current or replacement values, to at least 6 per cent of total civilian wealth. Their share was somewhat higher (8 per cent) if attention is limited to reproducible tangible assets and, of course, was considerably more important if the comparison is made between military and civilian equipment (excluding in both cases structures and inventories). In that comparison it appears that the value of military equipment was equal, for the average of the postwar decade, to about one-fifth of total civilian equipment, but to almost two-fifths of producer durables alone.

The second fact is that, unlike the upward trend in civilian tangible assets, the net value of the stock of military durables diminished markedly between the end of World War II and 1950. As a result, the share of military in total tangible assets declined from 13 per cent to 5 per cent. The substantial increase in the stock during the 1950's—at least in current prices—was just sufficient to prevent a further decline in the share of military assets.

Because of its large size and still more because of the sharp fluctuations in its value, the inclusion of the stock of military assets in national wealth produces a change in the level and particularly in the

## CHANGES IN THE STRUCTURE OF NATIONAL WEALTH

movements of the rate of growth of wealth during the postwar decade. Thus the average annual rate of growth of reproducible tangible wealth in constant (1947-49) prices is reduced by the inclusion of military assets from 3.9 per cent to 3.2 per cent. The effect, of course, is relatively more pronounced on the rate of growth per head, which is lowered by the inclusion of military assets from 2.2 to 1.5 per cent per year. This effect, however, is entirely limited to the first half of the decade for which the rate of growth of civilian wealth of 4.2 per cent is reduced to 2.6 per cent by the inclusion of military assets. For the second half of the period the rate is hardly affected, actually being increased from 3.6 per cent to 3.7 per cent. Thus, the most spectacular effect of the inclusion of military durables is in the comparison between the two halves of the postwar decade. For civilian wealth alone the rate of growth is substantially higher for the first than for the second half—4.2 per cent against 3.6 per cent. If military assets are included, the relationship is reversed, and the rate of growth appears to have risen from 2.6 per cent in the first half to 3.7 per cent in the second half of the decade. Any interpretation of the over-all rate of growth of national wealth in the postwar decade depends decisively on whether or not military assets are included, that is, on the decision whether or not military structures and equipment should be regarded as a part of a nation's stock of assets. That decision, in turn, will depend on whether, in the world of today, military assets are regarded as a necessary complement to civilian wealth.

### *Ownership of National Wealth*

Since ownership is a financial concept and national wealth a real concept, the analysis of the ownership of tangible assets alone is of limited significance, but there is considerable interest in the extent to which tangible assets used for production or consumption are owned by their operators or must be rented by their users.<sup>15</sup>

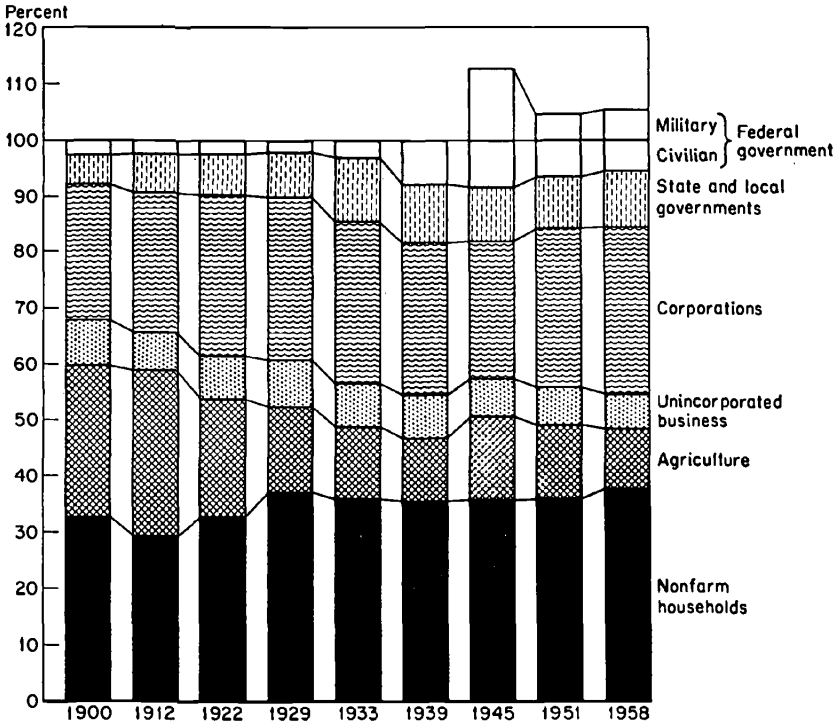
The distribution of ownership of total national wealth or of reproducible tangible assets did not change significantly during the postwar decade, if attention is limited to the three very broad groups of business enterprises, households, and government, as can be seen from Table 12 and Chart 9.<sup>16</sup> Throughout the period, business enterprises

<sup>15</sup> The distribution of ownership of tangible assets, of course, is not identical with the distribution of net worth because the debt-asset ratio differs among sectors. The difference is particularly pronounced in the case of the federal government.

<sup>16</sup> For details, see Tables A-29 to A-32.

CHART 9

Distribution of Total Nonmilitary Wealth Among Sectors,  
Selected Years, 1900-58  
(current prices)



Source: Underlying data from Table A-19.

owned, on the basis of current valuations, almost one-half of total civilian tangible wealth, while households owned slightly more than one-third, leaving about one-sixth for the government.<sup>17</sup> If military assets are included, the level of the share of government increases, but its relation to total national wealth in the broader definition shows a sharp decline from 30 per cent in 1945 to about 20 per cent in the

<sup>17</sup> Nonprofit institutions are included with households. The business sector includes all of agriculture and hence also farm residences and farmers' consumer durables. If these are shifted to the household sector—a shift which produces more homogeneous figures—the share of business is decreased by between 2 and 3 percentage points and that of households increased accordingly. Trends are not affected by this shift.

CHANGES IN THE STRUCTURE OF NATIONAL WEALTH

TABLE 12  
 DISTRIBUTION OF OWNERSHIP OF NATIONAL WEALTH  
 AMONG MAIN SECTORS, SELECTED YEARS AND PERIODS, 1945-58  
 (values in billions of dollars)

		<i>Net Wealth</i>				<i>Gross Wealth</i>					
		Government, Military Assets		Nonfarm House- holds <sup>a</sup>		Government, Military Assets		Business Excluded Included			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Nonfarm House- holds	Agri- culture	Business Excluded	Included	Nonfarm House- holds	Agri- culture	Business Excluded	Included	Business Excluded	Included
1945		204	87	182	106	177	354	116	305	143	294
1951		418	153	410	184	239	699	206	629	262	449
1958		638	183	620	262	351	1,064	257	939	375	601
A. ABSOLUTE VALUES, CURRENT PRICES											
1945		277	113	257	142	242	483	151	429	200	408
1951		362	124	342	163	209	606	170	526	233	388
1958		486	132	559	200	263	927	188	638	285	437
B. ABSOLUTE VALUES, CONSTANT (1947-49) PRICES											
1945		35.4	15.0	31.6	18.1	30.7	38.6	12.6	33.2	15.6	32.0
1951		35.9	13.2	35.2	15.8	20.5	38.9	11.5	35.0	14.6	25.0
1958		38.1	10.6	36.1	15.3	20.4	40.4	9.8	35.6	14.2	22.8
C. PERCENTAGE SHARES, CURRENT PRICES											

(continued)

CHANGES IN THE STRUCTURE OF NATIONAL WEALTH

TABLE 12 (concluded)

		Net Wealth				Gross Wealth					
		Nonfarm House-holds <sup>a</sup>		Government, Military Assets Excluded		Nonfarm House-holds <sup>a</sup>		Government, Military Assets Excluded			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
D. PERCENTAGE SHARES, CONSTANT (1947-49) PRICES											
1945		35.2	14.3	32.6	18.0	30.7	38.2	12.0	34.0	15.8	32.3
1951		36.5	12.6	34.5	16.4	21.1	39.5	11.1	34.3	15.2	25.3
1958		39.0	10.6	34.5	16.0	21.1	42.7	9.7	32.9	14.7	22.6
E. PERCENTAGE GROWTH PER YEAR, CURRENT PRICES											
1945-51		12.70	9.87	14.50	9.98	5.13	12.01	10.04	12.82	10.62	7.31
1951-58		6.60	2.59	6.09	5.18	5.64	6.19	3.21	5.89	5.26	4.25
1945-58		9.38	5.89	9.89	7.37	5.41	8.83	6.31	9.04	7.70	5.65
F. PERCENTAGE GROWTH PER YEAR, CONSTANT (1947-49) PRICES											
1945-51		4.56	1.56	4.88	2.32	-2.47	3.85	1.99	3.45	2.58	-0.84
1951-58		4.30	.90	7.27	2.97	3.34	6.26	1.45	2.80	2.92	1.71
1945-58		4.42	1.20	6.16	2.67	0.64	5.14	1.70	3.10	2.76	0.53

SOURCE: Data from Tables A-15 to A-22, inclusive.

<sup>a</sup> Including nonprofit organizations.

## CHANGES IN THE STRUCTURE OF NATIONAL WEALTH

fifties. As government ownership of land is substantial, even on the basis of its present market value or an approximation to it, the share of the government in reproducible wealth is slightly lower than its share in total tangible wealth, but still it has remained fairly stable at approximately one-sixth throughout the period.

Three main changes in the distribution of ownership of tangible assets may be observed during the postwar period. The first is the increase in the share of corporations from 25 to 30 per cent. This has been accompanied by a slight decline in the share of nonfarm unincorporated business from 7 to 6 per cent. The second main change is the decline in the share of agriculture from 15 to 10 per cent. The third is the reduction of the share of the civilian assets of the federal government from 8 to 5 per cent of total national wealth. The movement is even more pronounced if military assets are included, in which case the federal government's share is cut in half from 20 to 10 per cent.

The decline of the share of government in national wealth is a rather new development, although there is a precedent for it in the period 1912-29. Throughout the nineteenth century and until World War I the share of government showed an increasing trend, though at a moderate rate. During the thirties the share moved sharply upwards, the combined result of a considerable increase in the value of tangible assets owned by the government—including monetary metal—and a stagnation in the value of private wealth. As a result of the decline of the postwar period, the federal government's share in civilian national wealth in 1958 was back to the level of the mid-1930's.

The increasing share of corporations in national wealth is in line with the trend observed between 1900 and 1929 but interrupted during the thirties. The 1929 peak was reached again in 1951 and the 1958 share was 1.5 percentage points above that of 1929. It will be interesting to see whether the trend will continue during the sixties. The decline in the share of agriculture also resumes a trend in evidence from 1900, and even earlier, to 1939, but briefly interrupted during World War II. This decline which now has reduced the share of agriculture in national wealth to less than its 1939 low was, however, less pronounced than the decline of farmers' share in population.

Information is not sufficient for a comprehensive separation of tangible assets into those used by owners and those rented by operators. It is, however, known that renting is practiced on a large scale for only three types of tangible assets, agricultural land, residential structures, and commercial real estate. On the basis of shares of rental properties

## CHANGES IN THE STRUCTURE OF NATIONAL WEALTH

of approximately two-fifths in the value of urban residential real estate and of one-fourth of agricultural land, and an allowance for other rental use of tangible assets, particularly in the field of commercial real estate, the share of national wealth rented may be put at approximately one-seventh for the postwar decade, leaving about six-sevenths to be operated or used by owners, including corporate owners. The share of rented properties is considerably higher for land, where it approaches one-fourth, than the share for reproducible tangible assets, which remains around one-tenth. The proportion of tangible assets rented is much smaller for business—less than one-tenth—than among households, where it is as high as one-fifth as a result of the still relatively large proportion of rented residential structures. It is negligible in the case of tangible assets used by the government.

Combining the rough indications about the main types of rented property suggests that the share of rented properties in total national wealth remained between one-fourth and one-fifth from 1900 to World War II. The ratios of the two out of three main components about which statistical information is available—tenanted farm property and rented residential property—failed to show definite long-term trends. At the end of World War II, the proportion of rented properties probably had declined to approximately one-sixth, and it seems to have averaged one-seventh since 1950.

While no comprehensive close estimates can be made, it is likely that the rented share of national wealth has declined during the postwar period, possibly from one-sixth at the beginning to not much over one-eighth at the end. The sharp decline in the share of rental housing from about 35 per cent of the value of all dwelling units in 1945 to only 28 per cent thirteen years later has been the main factor in this development.<sup>18</sup> It continues a trend in evidence, although not without interruption, since at least the turn of the century. In the case of farm land, the trend toward a declining share of land not owned by operators—observable only since the Great Depression—seems to have come to a halt during the postwar decade.<sup>19</sup> Virtually nothing is known statistically about the movement of the share of rental properties in the third field in which they are important, urban commercial buildings.

<sup>18</sup> Robert E. Lipsey, "Housing in the National Balance Sheet," in Goldsmith and Lipsey, *Studies in the National Balance Sheet*, in press, NBER, 1962.

<sup>19</sup> *Statistical Abstract of the U.S.*, 1958, p. 762. The value ratios must be estimated since 1950 on the basis of the proportion of the number of tenant farms.

## CHANGES IN THE STRUCTURE OF NATIONAL WEALTH

### *Current Versus Constant (1947-49) Prices*

Only if the prices of all categories of durable assets showed the same price movements could the student of changes in the structure of national wealth ignore differences between distributions based on current (replacement) values and constant (deflated) values and be absolved from deciding which of the two bases is relevant for the purpose of the investigation. The wider the changes in the relative prices of different types of tangible assets are, the larger are the differences between the results of the two sets of estimates, and the more important is a careful consideration of the effects of price movement on the interpretation of the statistics.

For an analysis of the statistics of national wealth the crucial developments of the postwar decade are, as they were in previous periods, the relative price movements of structures, equipment, inventories, and land and, in particular, the apparent upward trend in the relative price of structures compared with commodities. This tendency has the result that an increase in the share of structures in national wealth or reproducible tangible assets appears larger (or the decline smaller) when current values (replacement cost) are used as the basis of comparison than it appears when the analysis is based on deflated prices. This is true whether the years 1947-49 are selected as the base period, as here, or the year 1929 is chosen, as in *A Study of Saving in the United States* or in Simon Kuznets' studies.<sup>20</sup>

In Table 13 changes during the period 1945-58 in the share of the main tangible assets in national wealth are compared on the basis of current values and 1947-49 prices. The difference between the two sets of figures is easiest to follow in columns 7 and 8, which show the proportional change in the share of the various assets on the two bases of valuation, and in column 9, which expresses the change in the current value share as a ratio of the change in the constant price share. The share of reproducible tangible wealth in total national wealth, for example, increased by 1.2 per cent in current values but by 4.0 per cent in 1947-49 prices, or by three and one-third times as much. On the other hand, the share of nonreproducible assets declined by 4.7 per cent in current prices, but fell by 15.1 per cent in 1947-49 prices.<sup>21</sup>

<sup>20</sup> See, for example, his "Long-Term Changes in the National Income of the United States of America since 1870," *Income and Wealth Series II*.

<sup>21</sup> The absolute changes in the shares of reproducible and nonreproducible assets, in terms of percentage points of total national wealth, are, of course, equal but of opposite sign on both valuation bases.

TABLE 13

## PERCENTAGE CHANGE IN SHARE OF MAIN TYPES OF TANGIBLE ASSETS IN NET NATIONAL WEALTH, 1945-58

TANGIBLE ASSETS	SHARE IN NET NATIONAL WEALTH					Percentage Change in Share, 1947-58		Change in Current Value Share as Ratio of 1947-49 Price Changes (9)	
	Current Prices		1947-49 Prices			Current Prices (7)	1947-49 Prices (8)		
	1945 (1)	1958 (2)	Change 1945-58 (3)	1945 (4)	1958 (5)				Change 1945-58 (6)
Reproducible Wealth	79.31	80.29	+0.98	78.99	82.17	+3.18	+1.24	+4.03	0.31
Structures	49.56	48.93	-0.63	51.73	47.65	-4.08	-1.27	-7.89	0.16
Nonfarm residential	24.85	22.99	-1.86	25.17	23.18	-1.99	-7.48	-7.91	0.95
Nonfarm nonresidential	9.72	10.53	+0.81	10.35	9.19	-1.16	+8.33	-11.21	-0.74
Mining	1.35	1.87	+0.52	1.43	1.78	+0.35	+38.52	+24.48	1.57
Farm	2.83	2.12	-0.71	2.82	2.27	-0.55	-25.09	-19.50	1.29
Institutional	1.21	1.54	+0.33	1.47	1.43	-0.04	+27.27	-2.72	-10.03
Government	9.60	9.88	+0.28	10.49	9.80	-0.69	+2.92	-6.58	-0.44
Equipment	16.47	22.25	+5.78	15.09	23.86	+8.77	+35.09	+38.12	0.60
Producer durables	8.44	11.75	+3.31	7.80	11.03	+3.23	+39.22	+41.41	0.95
Consumer durables	8.03	10.50	+2.47	7.29	12.83	+5.54	+30.76	+75.99	0.40
Inventories	9.13	7.62	-1.51	9.41	8.84	-0.57	-16.54	-6.06	2.73
Livestock	1.69	1.06	-0.63	1.89	1.20	-0.69	-37.28	-36.51	1.02
Crops	1.03	0.47	-0.56	1.00	0.86	-0.14	-54.37	-14.00	3.88
Nonfarm	5.95	5.61	-0.34	6.06	6.06	—	-5.71	—	b
Public	0.46	0.48	+0.02	0.46	0.72	+0.26	+4.35	+56.52	0.08
Monetary gold and silver	4.15	1.49	-2.66	2.76	1.82	-0.94	-64.10	-34.06	1.88
Nonreproducible Wealth	20.69	19.71	-0.98	21.01	17.83	-3.18	-4.74	-15.13	0.31
Agricultural	8.08	5.95	-2.13	7.63	4.81	-2.82	-26.36	-36.96	0.71
Nonagricultural	12.61	13.76	+1.15	13.38	13.02	-0.36	-9.12	-2.69	-3.39

SOURCE: Data from Tables A-9 and A-10.

a Col. 7 divided by col. 8.

b Indeterminate.

## *CHANGES IN THE STRUCTURE OF NATIONAL WEALTH*

The most pronounced discrepancies among major categories of wealth are shown in the movements of the share of structures, consumer durables, inventories, and gold. The changes in the shares were in the same direction on both valuation bases but were more pronounced in constant (1947-49) prices than in current prices for structures and consumer durables, while the opposite relationship prevailed for inventories and gold. The explanation in all cases can be found in the course of relative asset prices, that is, the relation between the movement of the price of the asset in question and the average of tangible asset prices. This is more evident in the sharper decline in the share of gold stock in current prices than in 1947-49 prices: the price of gold remained unchanged on both bases, but the average current price of tangible assets increased considerably. On the other hand, the much larger decline in the share of structures in constant than in current prices reflects the sharper increase in the cost of construction compared with the rise in prices of equipment or of inventory goods. This discrepancy in turn may be traced primarily to the slower increase of productivity in the construction trades compared with the manufacturing industries. The much sharper increase in the share of consumer durables on the basis of 1947-49 prices is due to their relatively small absolute price rise during the postwar decade. Similarly, the decline in the share of inventories results largely from a decline in the relative price of crop products in the face of a substantial advance in the general price level.

In view of the significant differences in the movement of the shares of components of national wealth on the two bases—observable not only during the postwar decade but also in earlier periods—the selection of the valuation basis is of more than academic importance for an analysis of changes in the structure of national wealth. The decision should not depend upon the admittedly unsatisfactory nature of many of the deflators that must now be used, but rather on the assumption that the indexes used as deflators could correctly measure changes in the prices—whether visualized as market values or as replacement cost—of physically identical or closely comparable commodities. Even if this condition were met, the use of current values is indicated for some purposes of analysis and the reduction to a constant price basis for others. Wherever tangible assets are combined with intangible assets or compared with debt and net-worth figures, current values are appropriate, though occasionally the original cost of the different assets to the owner may also be relevant. Constant (deflated) values

rarely have any use when tangible assets are regarded as part of national or sectoral balance sheets, or when the problems these estimates are supposed to illuminate are primarily financial. On the other hand, when the purpose of the analysis is the measurement of the rate of growth of the stock of tangible assets, the use of deflated figures is almost always essential. Then the only or predominant question will be whether the figures actually do measure changes in the physical volume of durable assets, provided an unambiguous definition of physical changes in stock can be framed. Doubt about the valuation basis to be used may thus remain chiefly in analyses comparing wealth estimates with income estimates. Probably the most important instance which requires a choice is that of capital-output ratios.

### *Gross and Net Stock of Wealth*

If the purpose of estimates of national wealth, and particularly of reproducible tangible assets, is not so much the determination of the accounting value of the stock, i.e., its unabsorbed original cost adjusted or unadjusted for price changes, or the economic theorist's favorite—capitalized expected future earnings—but a measure of the stock's capacity for current production, it can be argued that the value of the gross (undepreciated) stock is a better approximation than the value of net (depreciated) stock. The argument would be entirely convincing if all durables were like Holmes's deacon's masterpiece, the "wonderful one-hoss shay." The less durable assets behave like this famous vehicle, the more will the productive capacity<sup>22</sup> of an asset decline stepwise, either with straight-line depreciation, declining balance depreciation, or some other accounting device for writing off its original cost (less scrap value) during its useful life, rather than, like the one-hoss shay, "all at once and nothing first." In practice, a figure somewhere between net and gross stock, in terms of either replacement cost or base-period cost, may provide the best workable approximation to an accounting measure of capacity.

It is known from the formulas discussed in Chapter 3 that, as the rate of capital expenditure accelerates, the value of the net stock will

<sup>22</sup> The definition of "current productive capacity" is by no means without difficulty. Obviously, prime cost, including cost of repair and maintenance, cannot be entirely neglected, but how is it to be taken into account? One possibility is to include the potential output of a durable asset in productive capacity, so long as the prime cost of its operation is not above the average full cost of the item that could replace it most economically. This definition may be satisfactory for some purposes, but of course cannot as yet be translated into statistical terms.

## CHANGES IN THE STRUCTURE OF NATIONAL WEALTH

rise more rapidly than that of the gross stock, and the net-gross ratio will increase. What is relevant, however, in this comparison is the average rate of growth of capital expenditures over a period extending from the date for which the stock estimate is made back to the presumed date of installation, a period equal to the assumed length of life. Thus, in comparing the rate of growth of gross and net stock of the various types of durable assets at the end of 1945 and 1958, the relevant rate is the rate of growth—say, for an item of twenty years' life—from 1926 through 1945 as against the rate of growth for the period 1938 to 1958. The periods to be compared are thus much longer, and the part of the period for which they overlap relatively more extended in the case of long-lived structures than in that of relatively short-lived producer and consumer durables. One would therefore expect differences in the rate of growth of the net and the gross stock between 1945 and 1958 to be relatively smaller for structures than for equipment. Since capital expenditures increased for most types of assets at a more rapid rate over the period ending in 1958 than during an equally long period terminating in 1945—whether in current or constant prices—one would also expect the rate of growth between 1945 and 1958 to be generally lower for the gross than for the net stock.

These expectations are borne out in Table 14, which compares the net and gross rates of growth of the main components of reproducible tangible wealth (other than inventories, gold, and net foreign assets for which, of course, gross and net stock are identical) for the entire postwar period. During the 1945-58 period, the net stock of reproducible tangible wealth in constant (1947-49) prices rose by 69 per cent, while the increase amounted to only 58 per cent for the gross stock. The annual rates of growth thus were 4.1 per cent for the net stock against 3.6 per cent for the gross stock. Since the increase in population was the same in both cases (1.8 per cent per year) the difference between the rate of growth of the net and the gross stock was much larger on a per head basis—2.3 per cent for the net stock, but only 1.8 per cent for the gross stock.

The differences in the rate of growth of the net and the gross stock are considerably larger in absolute terms for equipment than for structures—0.9 per cent against 0.6 per cent—but they are almost identical at about one-eighth in relative terms. Among structures, however, two groups can be distinguished. For residential structures, the largest and longer lived component, the difference is quite small—2.9 per cent for net against 2.7 per cent for the gross stock. The differences are much

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TABLE 14

COMPARISON OF RATIOS OF GROWTH OF GROSS AND NET CAPITAL STOCK,  
1945-58

(per cent per year, except ratios)

Item	Current Prices			Constant (1947-49) Prices		
	Gross (1)	Net (2)	Ratio (3)	Gross (4)	Net (5)	Ratio (6)
Total reproducible tangible wealth	8.63	8.96	0.96	3.59	4.12	0.87
Structures	8.03	8.57	.94	2.37	2.92	.81
Residential	7.81	8.05	.97	2.69	2.91	.92
Nonresidential nonfarm	8.00	9.36	.85	1.47	2.57	.57
Mining	9.38	11.42	.82	3.44	5.33	.65
Farm	5.59	6.28	.89	1.19	1.86	.64
Institutional	9.05	10.72	.84	1.78	3.35	.53
Government	8.78	8.93	.98	2.91	3.03	.96
Equipment	10.36	11.25	.92	6.40	7.29	.88
Producer durables	10.50	11.53	.91	5.34	5.84	.91
Consumer durables	10.23	10.95	.93	7.24	8.17	.89

SOURCE: Tables A-5, A-6, A-7, and A-8.

larger, absolutely and relatively, for nonfarm, nonresidential structures, and for several of the smaller components—farm, mining, and institutional structures—reflecting the substantial acceleration of capital expenditures during the period ending in 1958 compared with that ending in 1945.

The ratio of the rate of growth of gross to net stock is closer to unity, i.e., the difference between the two rates is smaller, for current than for constant price estimates (except for producer durables, where the ratios are equal), and the difference is substantial for most types of structures. The direction of the difference is to be expected: expenditures in current prices have been increasing at a more rapid rate than at constant prices, because the trend of prices has been upward for most of the half-century before 1945.

One would, of course, like to check the rates of growth of both the net and the gross stock of total reproducible tangible wealth and of its main components against independent estimates of capacity. Such estimates, unfortunately, do not exist for the entire economy—unless the increase in real national product in years equally close to full employment were accepted as a measure of capacity—and they are also missing for virtually all large sectors of the economy for which estimates of capital stock are available, except for manufacturing and mining.

*Capital Stock of the Main Industries*

Since private business enterprises, even excluding agriculture and residential real estate, account for over one-third of total national wealth, a further breakdown by industry will be most desirable for an understanding of the changes in the structure of national wealth. Unfortunately, it is not as yet possible to present such a breakdown in a way that, while consistent over long periods of time, ties in exactly with the national estimates of the different types of wealth.<sup>23</sup> Figures are available, however, for the two largest sectors of private nonfarm business enterprises, manufacturing and mining, on the one hand, and railroads and public utilities, on the other. Since these two groups appear to have accounted for about three-fourths of the total fixed capital of all nonfarm business enterprises since the turn of the century, a study of them goes quite far to substitute for a complete breakdown of the wealth of the nonfarm business sector.

The outstanding feature in the distribution of the total fixed assets of manufacturing and public utilities during the postwar period, as it appears in Table 15, is the sharp decline of the share of railroads at the expense of manufacturing and mining and still more of all other public utilities. In this respect the postwar period is but a continuation of the half century before World War II. During that period the share of railroads in the fixed assets of manufacturing, mining, and public utilities declined from about one-half to not much over one-quarter, and that of manufacturing and mining increased from almost one-third to nearly one-half. Since the share of the three groups together appears to have remained fairly stable at approximately three-fourths of the total for nonfarm business enterprises, these changes can also be interpreted as reflecting similar movements in the share of the three groups in the total fixed assets of nonagricultural business.

<sup>23</sup> The difficulty does not lie in the scarcity of estimates for the capital stock in individual industries. Rather it lies in the existence of several bodies of material, independently derived from different sources, and of different scope, detail, valuation basis, and reliability. This material cannot be combined in a way to fit exactly the over-all estimates of the value of plant and equipment of nonagricultural business enterprises derived by the perpetual inventory method, the set which in turn constitutes an integral part of the estimates of reproducible tangible wealth underlying this study. In particular, the separate estimates for structure and for equipment of nonagricultural business derived by the perpetual inventory method cannot be completely reconciled with the sum of the estimates of structures and equipment in the main sectors—manufacturing and mining, public utilities, and other nonfinancial business—that can be pieced together from other information available for these sectors. As these difficulties affect primarily the period before World War II—there are no similar figures for all main sectors in the postwar period—they need not be discussed here.

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TABLE 15

FIXED ASSETS OF MANUFACTURING, MINING, AND PUBLIC UTILITIES, SELECTED YEARS,  
1899-1956

(amounts in billions of 1929 dollars)

End of Year	Absolute Figures				Percentage Shares		
	Manufac- turing and Mining (1)	Railroads (2)	Other Public Utilities (3)	Total (4)	Manufac- turing and Mining (5)	Railroads (6)	Other Public Utilities (7)
1899	9.7	15.2	5.6	30.5	32	50	18
1929	30.9	23.8	20.1	74.8	41	32	27
1937	25.9	21.0	21.3	68.2	38	31	31
1948	36.5	22.3	23.0	81.8	45	27	28
1956	54.1	24.8	37.2	116.1	47	21	32

SOURCE: Col. 1, Table 16, line 14; Cols. 2 and 3, Table 17, lines B-1 and B-7.

The changes in the distribution of the fixed capital stock of manufacturing among about a dozen main industries can be followed in Table 16. Addition of inventories and land probably would change the picture only to a minor extent.

Between 1948 and 1956 the value (in 1929 prices) of the fixed assets of all manufacturing industries increased by 48 per cent or 5.0 per cent a year, a rate somewhat in excess of that for plants and equipment of all business or for national fixed assets. Differences in the rates of growth among major manufacturing industries are reflected in their changing share in the fixed assets of total manufacturing shown in Table 16. Shifts in this eight-year period were quite substantial even in the stock of fixed assets and, of course, were considerably more pronounced for gross or net investment in fixed assets. The chemical industries sharply increased their share from 9 to about 14 per cent of the total, the result of an increase of 125 per cent or about 10.5 per cent a year. The smaller "other transportation equipment" industry (primarily aircraft) more than tripled its share. The very large metal industries showed a smaller but still noticeable increase from less than 32 to over 34 per cent. On the other hand, the share of the food, textile, leather, forest products, and printing industries declined considerably, and that of petroleum refining to a lesser degree. Using a broader and economically more relevant grouping, it appears that during the postwar period the durable goods industries expanded plant and equipment much more rapidly than the nondurable goods

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TABLE 16

PERCENTAGE DISTRIBUTION OF NET FIXED CAPITAL OF MANUFACTURING, SELECTED YEARS, 1900-56, 1929 PRICES

	1956 (1)	1948 (2)	1937 (3)	1929 (4)	1900 (5)
1. Food products	9.6	12.0	14.6	14.7	21.5
2. Textiles and products	4.5	6.5	8.2	10.8	15.9
3. Leather and its manufactures	0.3	0.5	0.7	1.0	2.5
4. Rubber products	1.1	1.3	1.0	1.6	0.6
5. Forest products	3.1	4.5	5.7	7.3	12.7
6. Paper, pulp, and products	4.5	4.2	4.7	4.4	3.4
7. Printing and publishing	2.6	3.1	3.3	3.4	4.7
8. Chemicals	13.8	9.1	6.7	5.6	5.0
9. Petroleum refining	17.2	19.8	16.1	13.0	1.3
10. Stone, clay, and glass products	3.2	3.2	4.8	5.5	5.3
11. Metal and its products	38.1	33.5	32.4	30.4	25.9
Iron and steel products		14.1	15.1	13.7	11.3
Nonferrous metals and products		3.3	4.0	3.7	4.4
Machinery		9.6	6.9	7.0	8.7
Motor vehicles		4.7	4.5	4.6	0.4
Other transportation equipment	3.6	1.1	1.8	1.4	1.2
12. Miscellaneous	2.2	2.4	1.7	2.4	1.4
13. Total, shares	100.0	100.0	100.0	100.0	100.0
14. Total (billions of 1929 dollars)	54.1	36.5	25.9	30.9	9.7

SOURCE: 1899-1948, Daniel Creamer, Sergei Dobrovolsky, and Israel Borenstein, *Capital in Manufacturing and Mining: Its Formation and Financing*, Princeton for NBER, 1960, Table A-9.

1956, Creamer, "Postwar Trends in the Relation of Capital to Output in Manufactures," *American Economic Review*, May 1958, p. 253 (with some minor alterations to preserve comparability).

industries did—at the rate of 6.9 per cent a year compared to only 2.8 per cent for the nondurable goods industries. In consequence, they increased their share in the fixed assets of all manufacturing industries from 50 to 58 per cent.<sup>24, 25</sup>

These postwar developments are in the same direction as, though more pronounced than, the prewar trends in the growth and distribution of manufacturing plant and equipment. Between 1899 and 1948 the durable goods industries increased their share in the fixed assets of total manufacturing from 49 to 51 per cent, expanding plant and

<sup>24</sup> For purposes of this calculation, the industries on lines 5, 8, 10, and 11 of Table 16 have been regarded as durable goods industries, and all others as nondurable goods industries.

<sup>25</sup> If petroleum refining is excluded from nondurable goods industries, the rate of growth of their fixed assets is reduced to 2.5 per cent, and their share in plant and equipment of all manufacturing declines from 30 per cent to less than 25 per cent.

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equipment at the rate of 2.8 against 1.7 per cent for the nondurable goods industries excluding petroleum refining.<sup>26</sup> The postwar decline in the share of the textile and food industries from 18.5 to 14 per cent, in particular, is in line with the decline from 37.5 to 25.5 per cent between 1899 and 1929 and from 25.5 to 18.5 per cent in the following twenty years.

In the public utility sector, the basic structural change evident in Table 17 has been the continuous—and since World War I rapid—

TABLE 17  
PERCENTAGE DISTRIBUTION OF NET PLANT AND EQUIPMENT OF PUBLIC UTILITIES,  
SELECTED YEARS, 1899-1956

	1956 (1)	1950 (2)	1945 (3)	1937 (4)	1929 (5)	1912 (6)	1899 (7)
A. CURRENT PRICES							
1. Railroads	38.0	44.9	54.3	51.3	54.2	61.2	71.2
2. Street and electric railways	1.0	1.5	2.5	4.1	6.0	11.5	9.7
3. Electric light and power	26.0	22.0	17.3	19.3	15.8	7.7	2.5
4. Telephone	12.0	9.6	6.0	5.7	5.1	5.7	4.1
5. Other	23.0	22.0	20.0	19.6	18.8	13.8	12.5
6. Total, shares	100.0	100.0	100.0	100.0	100.0	100.0	100.0
7. Total (billions of dollars)	135.0	87.3	50.9	40.9	43.9	19.5	9.0
B. CONSTANT (1929) PRICES							
1. Railroads	40.0	46.7	53.8	53.8	54.2	62.8	74.0
2. Street and electric railways	1.0	1.6	2.5	4.4	6.0	11.8	9.7
3. Electric light and power	23.0	19.3	17.1	16.7	15.8	9.0	2.7
4. Telephone	13.0	10.5	6.5	5.5	5.1	2.2	.9
5. Other	23.0	22.0	20.2	19.6	18.8	14.3	12.7
6. Total, shares	100.0	100.0	100.0	100.0	100.0	100.0	100.0
7. Total (billions of dollars)	62.0	48.4	41.2	42.3	43.9	33.0	20.8

SOURCE: 1899-1950, Derived from Melville J. Ulmer, *Capital in Transportation, Communications, and Public Utilities: Its Formation and Financing*, Princeton for NBER, 1960, Tables B-1, C-1, D-1, E-1, F-1, G-1 and H-1.

1956, Rough estimates based on gross and net capital expenditures in 1951-56 derived from *Statistics of Income, 1950 and 1956*.

decline in the share of the railroads and street railways, and the corresponding increase in the share of the electric power and telephone industries.<sup>27</sup> The railroads (including street railways) at the turn of

<sup>26</sup> If petroleum refining is included the rate for nondurable industries is 2.7 per cent a year.

<sup>27</sup> Among public utilities, it makes little difference whether or not inventory and land are included in the calculations.

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the century still accounted for over four-fifths of the capital stock of all public utilities. Their share had declined to three-fifths by 1929 and lost only a few percentage points until the end of World War II. In the postwar decade it resumed its rapid decline, falling to less than 40 per cent by 1956. The electric power and the telephone industries continued during the postwar period to increase their share in the capital stock of all utilities, but at a rate considerably more rapid than between 1929 and 1945 (the telephone industry at a more rapid rate than at any time since 1899).