

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

Volume Title: Capital in Agriculture: Its Formation and Financing Since 1870

Volume Author/Editor: Alvin S. Tostlebe

Volume Publisher: Princeton University Press

Volume ISBN: 0-870-14100-7

Volume URL: <http://www.nber.org/books/tost57-1>

Publication Date: 1957

Chapter Title: The Value of Physical Capital in Agriculture

Chapter Author: Alvin S. Tostlebe

Chapter URL: <http://www.nber.org/chapters/c1379>

Chapter pages in book: (p. 52 - 73)

CHAPTER 4

The Value of Physical Capital in Agriculture

IN THE previous chapter changes in the agricultural sector were described in terms of the farm labor force, the number of farms or "establishments" in which agricultural production is carried on, and the land area covered by these units of operation. In this chapter we shall discuss in more detail the growth of real farm capital as reflected in the value of physical assets used in farming, including land.

The Value of Physical Assets in 1870

In 1870 the value of physical assets of agriculture (current prices) amounted to nearly \$12 billion (Table 7). Nearly a third of this was in the Northeast. Somewhat more than a third was in the Corn Belt. These two regions together contained only 41 per cent of the land in farms, but they contained 68 per cent of the value of physical farm capital. If the Lake States and Appalachian region are included with the Northeast and the Corn Belt, the enlarged area contained 70 per cent of the land in farms and 89 per cent of the value of physical farm assets. The entire western half of the United States together with the Delta States and the Southeast region accounted for only 11 per cent of the value of these assets. In large measure the low value of physical farm assets in the South reflected the havoc of the Civil War. In the western half of the United States settlement had only begun. Oklahoma, North Dakota, South Dakota, Arizona, New Mexico, Colorado, Idaho, Utah, Wyoming, Montana, and Washington had yet to achieve statehood.

In 1870 farm real estate represented 78 per cent of the total investment in physical farm capital, livestock represented 14 per cent, stored crops 5 per cent, and implements and machinery 3 per cent. Nearly two-fifths of the value of livestock was represented by horses and mules, and a little more than three-fifths by animals raised to produce animal products.

The percentage represented by real estate was higher than the national average in the Northeast, the Lake States, and the Corn Belt. It was slightly below the national average in the Appalachian region. In the regions of the West and in the deep South the ratio of real estate to the total was well below the national average, in the Mountain region amounting to only 25 per cent of the total. This extremely low figure was largely due to the practice of grazing cattle on the open range, which by definition is excluded from farm real estate.

VALUE OF PHYSICAL CAPITAL

As a result, the value of farm real estate was an exceptionally small part, and the value of livestock was an exceptionally large part—73 per cent—of the total investment. The influence of this grazing practice is also reflected in the relative importance of these classes of capital in the Pacific and Texas-Oklahoma regions.

In the southern regions, including the Southeast, Delta States, and Texas-Oklahoma, horses and mules represented a strikingly large part (about a seventh) of the value of all physical farm assets. In Texas-Oklahoma this may have been partly the result of raising horses on the range for eastern and northern markets. In the other southern regions it can probably be explained by the fact that after the Civil War work animals were relatively harder to obtain and more costly than land. Similarly, the abundance and cheapness of land in the Delta States and the Southeast probably accounts for the relatively high proportion of the total investment devoted to machinery, livestock other than work animals, and stored crops.

Growth of Physical Farm Assets, 1870-1920

After 1870 the value of the physical assets of agriculture rose at varying rates for half a century. By 1900, despite falling prices during most of the period, the increase in current-price values was 83 per cent. This expansion varied greatly by regions, and in consequence an important shift in the distribution of farm assets occurred.

The percentage changes in the various regions reflect the changes in the nation's agriculture that were induced mainly by the extensive building of railroads after the Civil War. The rapid extension of rail transportation encouraged settlement in areas formerly avoided because markets were inaccessible. Thus the newly built railroads brought the fertile lands of the Mississippi Valley and of the western half of the United States into active competition with the farms of the East. Declining prices for farm products (Chart 6) did not greatly interfere with the rapid development of new farms in the regions that were being penetrated by the expanding railroad network. Costs of production were lower in the newly settled regions than on many farms in the East, and production was profitable even at the lower prices. In contrast, in the eastern states many farmers, discouraged by unprofitable prices, found employment in the rapidly growing industrial cities or joined those who were developing farms in the West. Thus expansion of agriculture in the West and an impressive development of manufacturing and trade in the East forced agriculture in the Northeast to contract and held expansion of agriculture in the Appalachian region to relatively modest proportions.

TABLE 7

Value of Physical Farm Assets in Current Prices, by Selected Groups and by Regions, Census Years, 1870-1950
(millions of dollars)

Region and Group	1870	1880	1890	1900	1910	1920	1925	1930	1935	1940	1945	1950
United States:												
Total physical assets	11,864	13,370	17,466	21,766	43,293	83,846	60,711	60,494	40,392	43,902	75,027	107,419
Land	6,912	7,550	10,281	13,058	28,476	54,830	37,721	34,930	22,740	23,236	39,372	54,083
Buildings	2,351	2,647	2,998	3,557	6,325	11,486	11,747	12,950	10,119	10,406	15,234	21,172
Implements and machinery	337	407	494	750	1,265	3,395	2,692	3,302	2,153	3,060	6,208	12,944
Livestock	1,634	1,804	2,672	3,012	4,901	8,481	5,021	6,496	3,466	5,115	8,970	12,860
Horses and mules	623	702	1,270	940	2,659	2,776	1,561	1,413	1,393	1,275	999	477
Other	1,011	1,102	1,402	2,072	2,242	5,705	3,460	5,083	2,073	3,840	7,971	12,383
Crop inventories	630	962	1,021	1,389	2,326	5,454	3,530	2,816	1,914	2,085	5,243	6,360
Northeast:												
Total physical assets	3,859	3,424	3,207	3,136	4,019	5,560	4,857	5,059	3,900	3,797	5,801	7,427
Land	2,183	1,875	1,617	1,503	1,845	2,150	1,747	1,723	1,357	1,201	1,760	2,098
Buildings	976	928	922	974	1,317	1,769	1,959	2,035	1,685	1,578	2,146	2,609
Implements and machinery	112	107	117	153	218	452	416	447	292	367	729	1,222
Livestock	403	333	376	325	419	732	441	646	356	478	829	1,065
Horses and mules	123	116	168	107	207	209	131	122	108	106	72	24
Other	280	217	208	218	212	523	310	524	248	372	757	1,041
Crop inventories	185	181	175	181	220	457	294	208	210	173	337	433
Appalachian:												
Total physical assets	1,492	1,546	1,825	1,955	3,466	6,949	5,184	5,146	3,673	4,388	6,992	10,118
Land	930	937	1,106	1,124	2,006	4,086	2,956	2,681	1,865	2,195	3,316	4,573
Buildings	214	260	294	379	666	1,213	1,226	1,406	1,067	1,262	1,807	2,706
Implements and machinery	34	40	46	65	101	261	202	217	142	216	489	1,177
Livestock	217	192	255	237	437	741	396	504	348	471	720	1,012
Horses and mules	103	91	139	104	274	333	177	170	184	213	221	131
Other	114	101	116	133	163	408	219	334	164	258	499	881
Crop inventories	97	117	124	150	256	648	404	338	251	244	660	650

(continued on next page)

TABLE 7 (continued)
(millions of dollars)

Region and Group	1870	1880	1890	1900	1910	1920	1925	1930	1935	1940	1945	1950
Southeast:												
Total physical assets	350	434	624	690	1,648	3,893	2,439	2,364	1,756	1,985	3,559	5,284
Land	176	214	350	370	950	2,189	1,505	1,362	991	1,093	1,924	2,756
Buildings	41	66	85	116	268	588	433	520	414	459	736	1,142
Implements and machinery	11	16	27	27	56	159	89	102	66	110	280	683
Livestock	89	81	110	107	225	488	215	234	194	251	418	520
Horses and mules	49	43	62	55	146	253	117	104	121	139	156	93
Other	40	38	48	52	79	235	98	130	73	112	262	427
Crop inventories	33	60	63	70	149	469	197	146	91	72	201	183
Lake States:												
Total physical assets	994	1,367	1,770	2,455	4,268	8,848	6,944	6,653	4,440	5,012	7,670	10,793
Land	563	763	1,029	1,513	2,546	5,329	3,772	3,077	1,945	1,951	2,745	3,616
Buildings	233	288	345	425	819	1,597	1,805	1,940	1,511	1,593	2,150	2,920
Implements and machinery	35	48	58	88	155	471	381	458	298	489	929	1,734
Livestock	110	161	238	283	462	894	597	850	405	686	1,179	1,660
Horses and mules	42	72	120	105	236	227	160	168	156	143	80	32
Other	68	89	118	178	226	667	437	682	249	543	1,099	1,628
Crop inventories	53	107	100	146	286	557	389	328	281	293	667	863
Corn Belt:												
Total physical assets	4,261	4,794	5,877	7,550	14,081	26,545	17,730	15,573	9,998	11,766	18,731	26,980
Land	2,643	2,896	3,666	4,971	9,953	18,741	11,527	9,039	5,473	6,203	9,621	13,197
Buildings	752	819	885	1,014	1,792	3,237	3,272	3,427	2,612	2,828	3,885	5,491
Implements and machinery	114	133	144	195	312	944	628	715	467	742	1,454	2,993
Livestock	534	590	845	896	1,417	2,085	1,286	1,579	821	1,221	2,155	3,065
Horses and mules	213	235	425	274	767	592	339	328	320	251	140	53
Other	321	355	420	622	650	1,493	947	1,251	501	970	2,015	3,012
Crop inventories	218	356	337	474	607	1,538	1,017	813	625	772	1,616	2,234

(continued on next page)

TABLE 7 (continued)
(millions of dollars)

Region and Group	1870	1880	1890	1900	1910	1920	1925	1930	1935	1940	1945	1950
Delta States:												
Total physical assets	304	370	509	648	1,228	2,775	1,719	2,002	1,337	1,700	2,838	4,506
Land	158	182	267	328	688	1,633	1,019	1,132	761	949	1,573	2,384
Buildings	32	44	64	100	193	384	305	402	282	337	449	820
Implements and machinery	14	15	19	47	53	116	81	103	67	113	269	679
Livestock	78	72	97	103	182	376	165	215	156	231	360	454
Horses and mules	45	38	58	53	121	191	92	91	92	115	114	52
Other	33	34	39	50	61	185	73	124	64	116	246	402
Crop inventories	22	57	62	70	112	266	149	150	71	70	187	169
Great Plains:												
Total physical assets	174	547	1,581	2,292	6,655	12,801	8,826	8,890	5,319	4,672	8,615	12,764
Land	83	227	912	1,381	4,786	9,316	5,974	5,697	3,499	2,766	4,749	7,068
Buildings	40	137	233	259	593	1,187	1,205	1,316	942	789	1,076	1,456
Implements and machinery	6	25	50	81	170	1,534	375	545	355	350	757	1,588
Livestock	38	119	295	412	709	1,028	698	902	362	541	1,133	1,703
Horses and mules	12	45	148	112	414	331	196	166	147	99	65	25
Other	26	74	147	300	295	697	502	736	215	442	1,068	1,678
Crop inventories	7	39	91	159	397	736	574	430	161	226	900	949
Texas-Oklahoma:												
Total physical assets	128	314	632	1,287	3,262	6,654	5,022	5,837	3,939	4,233	7,239	11,253
Land	40	124	344	741	2,282	4,417	3,504	4,094	2,771	2,861	4,669	7,157
Buildings	20	46	65	122	300	647	590	746	587	560	997	1,413
Implements and machinery	3	9	14	41	84	235	200	275	179	259	497	1,055
Livestock	56	105	176	300	455	936	462	575	327	479	851	1,327
Horses and mules	20	28	60	62	254	379	203	149	151	112	76	27
Other	36	77	116	238	201	557	259	426	176	367	775	1,300
Crop inventories	9	30	33	83	141	419	266	147	75	74	225	301

(continued on next page)

TABLE 7 (continued)
(millions of dollars)

Region and Group	1870	1880	1890	1900	1910	1920	1925	1930	1935	1940	1945	1950
Mountain:												
Total physical assets	44	144	382	609	1,835	4,373	2,944	3,466	2,304	2,550	5,446	8,090
Land	3	46	171	284	1,174	2,802	1,839	2,038	1,418	1,430	3,254	4,481
Buildings	8	12	28	55	145	361	334	421	354	350	705	1,032
Implements and machinery	1	4	8	19	50	191	130	211	138	181	357	854
Livestock	32	79	159	223	365	784	478	630	295	481	824	1,316
Horses and mules	2	11	39	30	122	158	82	68	68	59	46	25
Other	30	68	120	193	243	626	396	562	227	422	778	1,291
Crop inventories	^a	3	16	28	101	235	163	166	99	108	306	407
Pacific:												
Total physical assets	258	430	1,059	1,144	2,831	5,448	5,046	5,504	3,726	3,799	8,136	10,204
Land	133	286	819	843	2,246	4,167	3,878	4,087	2,660	2,587	5,761	6,753
Buildings	35	47	77	113	232	503	618	737	605	650	1,283	1,583
Implements and machinery	7	13	22	34	66	232	190	229	149	233	447	959
Livestock	77	72	121	126	230	417	283	361	202	276	501	738
Horses and mules	14	23	51	38	118	103	64	47	46	38	29	15
Other	63	49	70	88	112	314	219	314	156	238	472	723
Crop inventories	6	12	20	28	57	129	77	90	50	53	144	171

^a Less than \$500,000.

Note: Comparable preliminary United States estimates for 1955 are:

Total physical assets (excluding crop inventories)	120,354
Land	67,609
Buildings	23,702
Implements and machinery	17,691
Livestock	11,352
Horses and mules	255
Other	11,097
Crop inventories	n.a.

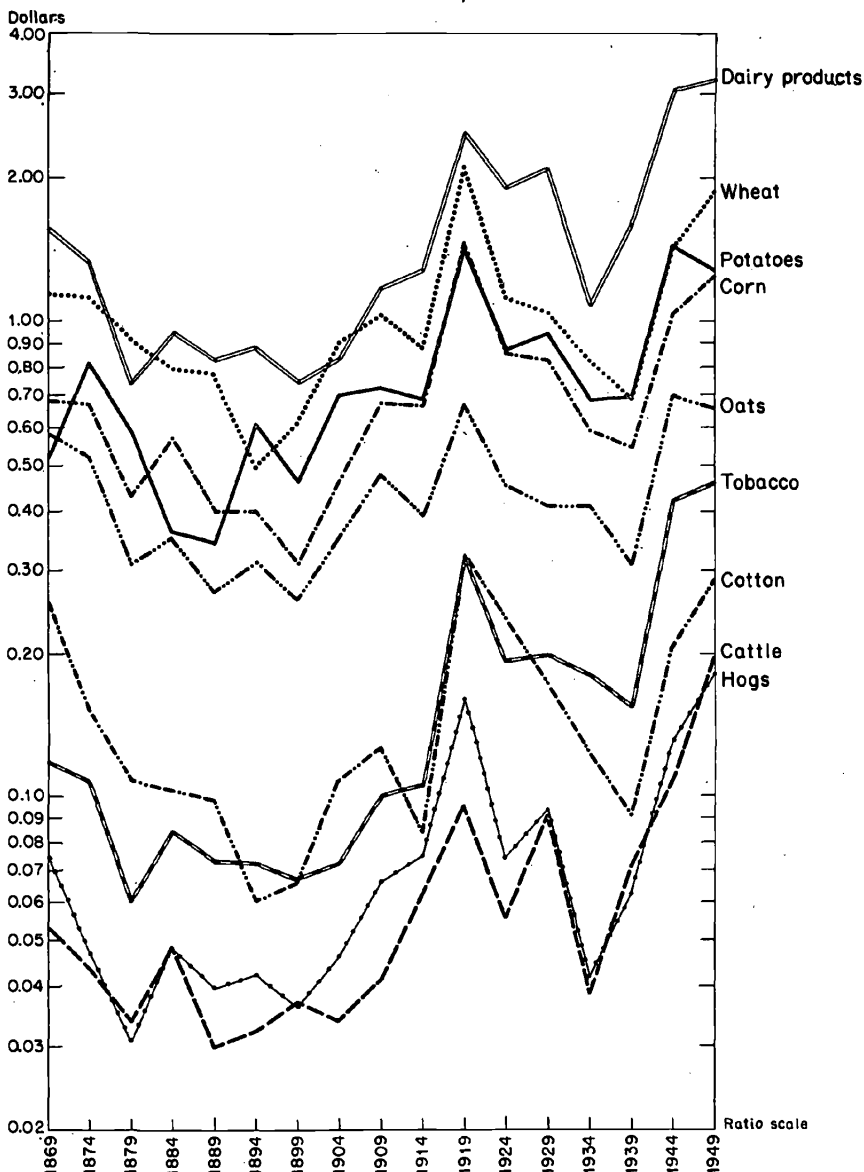
"Implements and machinery" are presumably comparable not with the 1950 BAE estimate used here, but with a later revision of it.

Source: Land and buildings: 1870-1940 and 1950, *Census of Agriculture, 1950*, Vol. II, *General Report*, Table 19, p. 48 (1870 values raised 25 per cent to adjust from "gold standard" to "currency"); 1945 BAE estimate. Implements and machinery: 1870-1920, *Census of Agriculture, 1930*, Vol. IV, *General Report*, Table 18, p. 64; 1925, *Census of Agriculture, 1925*, Parts I, II, and III, State Table II; 1930 and 1940, *Census of Agriculture, 1940*, Vol. III, *General Report*, Table 16, p. 49; 1935 and 1950, United States totals are estimates by BAE (see text for state distribution); 1870 values raised 25 per cent to adjust from "gold standard" to "currency." Livestock: Livestock and Poultry on Farms and Ranches on January 1, 1945-50; Dept. of Agriculture, Stat. Bull. 106, 1952; *Livestock and Poultry on Farms, January 1, 1940-1945*, Dept. of Agriculture, 1947; *Livestock and Poultry on Farms and Ranches, January 1, 1920-1939*, Dept. of Agriculture, Stat. Bull. 88, 1950; *Livestock on Farms, January 1, 1867-1935*, Dept. of Agriculture, 1938; chickens estimated for years prior to 1925 by methods described in Appendix D. Crops: estimated. For methods see Appendix E.

VALUE OF PHYSICAL CAPITAL

CHART 6

Prices of Farm Products Received by Farmers, United States, by Five-Year Intervals, 1869-1949



Prices are in dollars per bushel for wheat, corn, oats, and potatoes; per hundredweight for dairy products; and per pound for cattle and hogs, tobacco, and cotton.

Source: Dairy products, 1869-1934, Frederick Strauss and Louis H. Bean, *Gross Farm Income and Indices of Farm Production and Prices in the United States, 1869-1937*, Dept. of Agriculture, Tech. Bull. 703, 1940; 1934-49, "Average per Unit Cash Return from Milk and Cream Marketings," Dept. of Agriculture, Agricultural Marketing Service; all other products, 1869-1934, Strauss and Bean, *op. cit.*, 1939-49, Agricultural Marketing Service

VALUE OF PHYSICAL CAPITAL

Most of the regions that show large percentage gains in the value of real farm capital for this period had relatively small absolute gains (i.e. in dollars). The largest percentage gains were from very low base values in 1870; only in the Great Plains was the increase in dollar value relatively large. In dollars, nearly a third of the increase occurred in the Corn Belt, about a fifth in the Great Plains, and a sixth to a seventh in the Lake States. The remaining third was widely distributed in six regions.

In the first two decades of the present century the value of physical farm assets rose spectacularly (Table 8). A strong upward move-

TABLE 8
Percentage Change in Value of Physical Farm Assets, by Regions,
1870-1900 and 1900-1920

REGION	1870-1900		1900-1920	
	<i>Current Prices</i>	<i>Constant Prices</i>	<i>Current Prices</i>	<i>Constant Prices</i>
United States	83	104	285	24
Northeast	-19	7	77	-7
Appalachian	31	42	255	13
Southeast	97	60	465	38
Lake States	147	153	260	33
Corn Belt	77	63	252	7
Delta States	113	118	328	23
Great Plains	1,220	1,259	459	52
Texas-Oklahoma	904	520	417	31
Mountain	1,286	1,490	618	120
Pacific	344	194	376	42

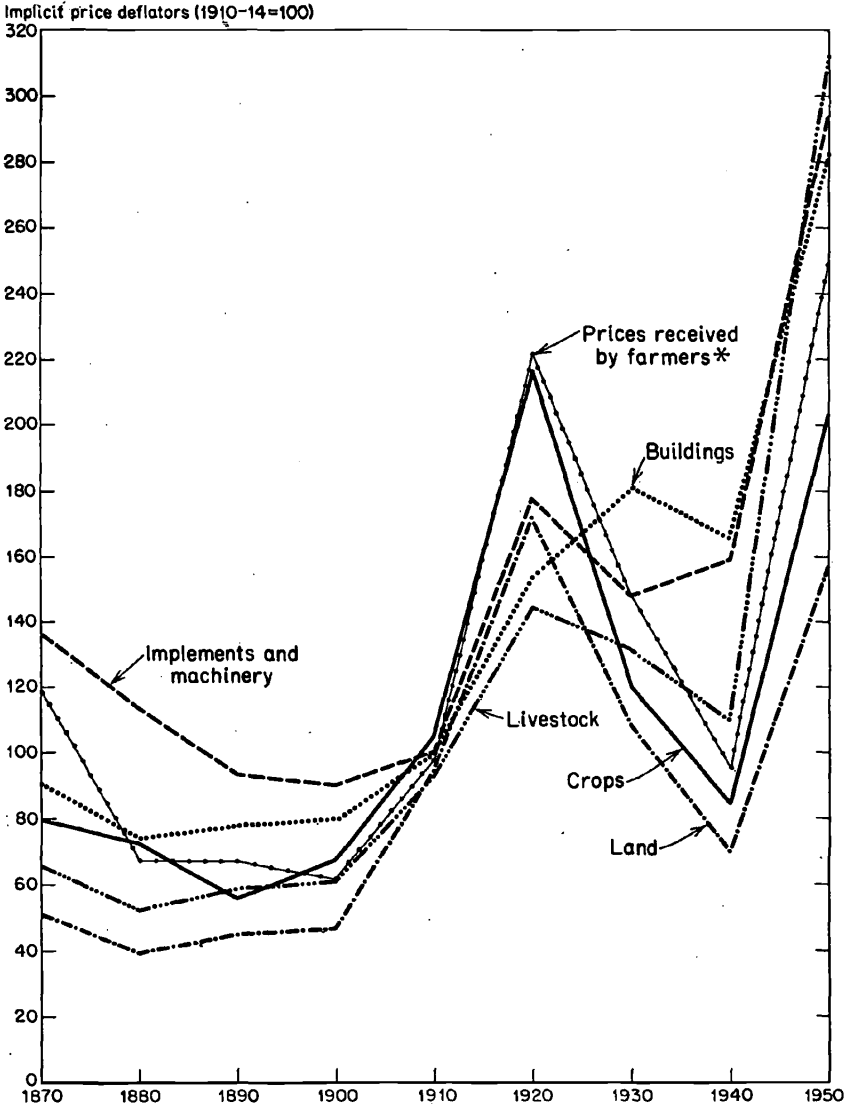
Source: Based on Tables 7 and 9.

ment of prices, particularly prices of farms and farm products, characterized both decades. Regional variations were less pronounced between 1900 and 1920 than in the earlier period. This reflected the waning of land settlement as the dominant factor affecting the growth in value of physical assets and the emergence of rising prices as the chief influence. Land settlement after 1870 affected the regions very differently, mainly because of differences in the degree to which land was already occupied. Rising prices of farm products after 1900, on the other hand, affected values in all regions with considerable similarity, although their influence was by no means identical. The major influence of rapidly rising prices on the value of farm assets is reflected in the implicit deflators shown in Chart 7, and the similarity of effects of this influence on the farm assets of the various regions is reflected by the implicit deflators shown in Chart 8. But

VALUE OF PHYSICAL CAPITAL

CHART 7

Implicit Price Deflators: Land, Buildings, Implements and Machinery, Livestock, and Crops, United States, Census Years, 1870-1950

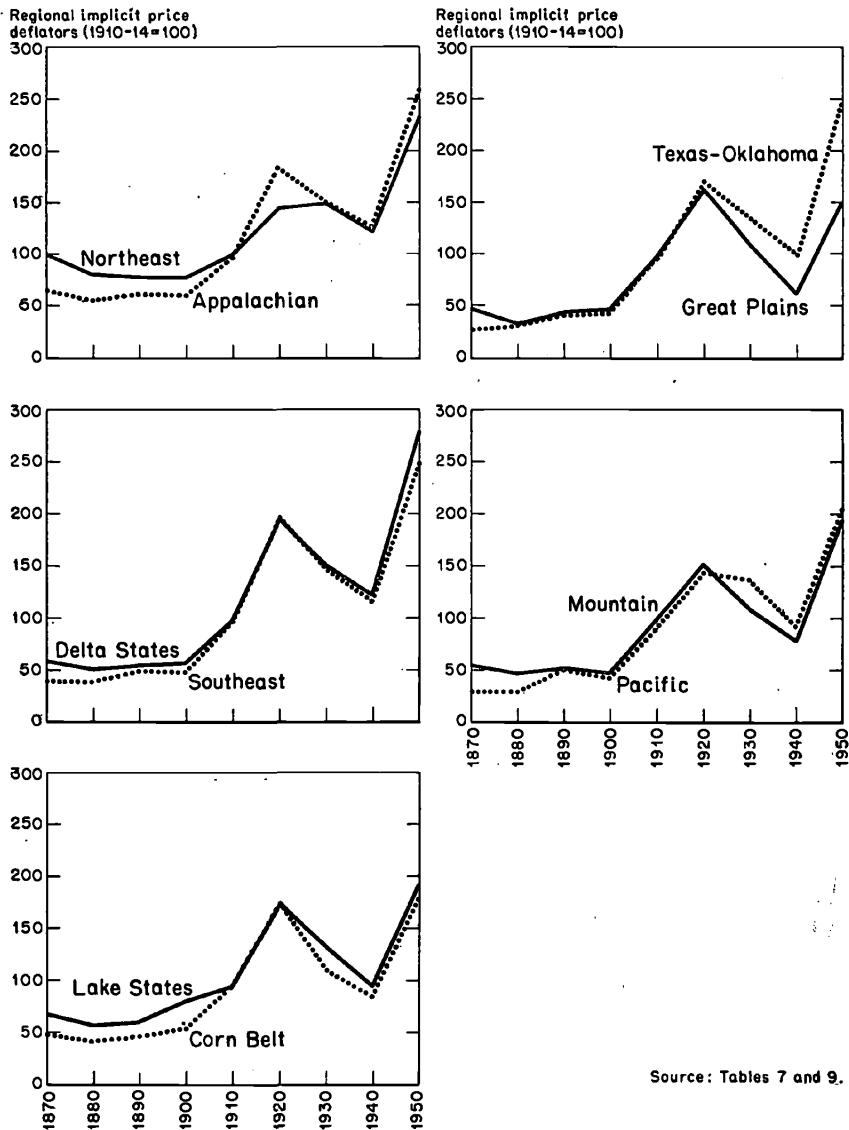


* Strauss-Bean Index covers from 1870-1920, BAE from 1910-1950.
Source: Tables 7 and 9.

VALUE OF PHYSICAL CAPITAL

CHART 8

Implicit Price Deflators for Total Capital, by Regions, Census Years, 1870-1950



VALUE OF PHYSICAL CAPITAL

rising prices also powerfully stimulated growth in the physical volume of farm capital in these years.

For the United States as a whole, the growth of the investment in physical farm assets did not greatly alter its composition (Chart 9). As in 1870, the investment in real estate in 1920 constituted about four-fifths of the total. The investment in livestock constituted 10 per cent, that in stored crops 6 per cent, and that in implements and machinery 4 per cent of the total. These percentages differ somewhat from those of 1870, but the rank of the classes of assets is the same. Examination of changes in the percentage that each class is of the total value *in constant prices* reveals a moderate decline in the relative importance of real estate, to which the outstanding growth of the physical inventory of machinery made a major contribution.

In contrast to the relative stability in the countrywide composition of physical assets, marked changes occurred in some regions. As already indicated, in the western regions the practice of grazing cattle mainly on land not in farms in the early years led to a relatively high percentage of farm investment in livestock and a relatively low percentage in farm real estate. In the decades following 1870, many new farms were established and others were enlarged on land that had previously been part of the public domain or of the holdings of nonagricultural owners such as timber companies or railroads. Thus, although the investment in livestock rose notably in the western regions, the value of land in farms and farm buildings rose proportionately much more (Table 7). A similar but less intensive development occurred in some parts of the South as well.

Meanwhile, in the Northeast an opposite trend was under way. In this region the value of land and buildings in 1870 was 82 per cent of the investment in all physical farm assets, but in 1900 and 1920 the percentages were 79 and 71 respectively. In contrast, the value of livestock, stored crops, and especially of machinery became increasingly important fractions of the total. The shifts in relative importance of the investment represented by each major class of farm capital resulted partly from differences in the extent of price changes and partly from changes in physical inventory. As an example of the latter influence, the value of farm real estate in constant prices in the Northeast was 7 per cent lower in 1920 than in 1870, but the constant-price value of machinery was 210 per cent higher.

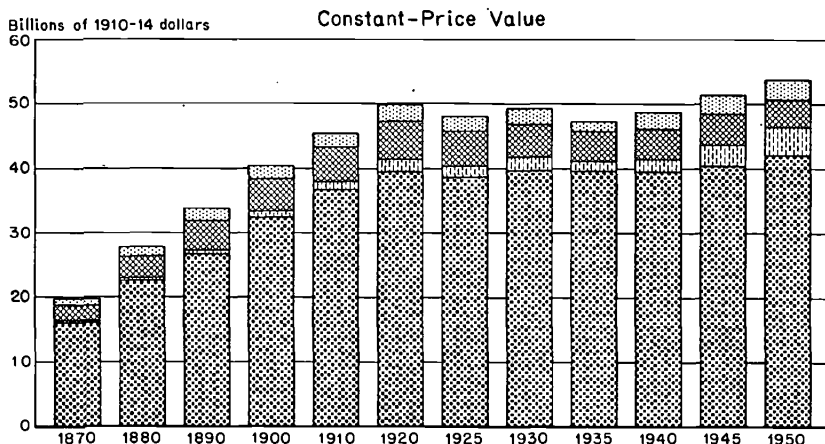
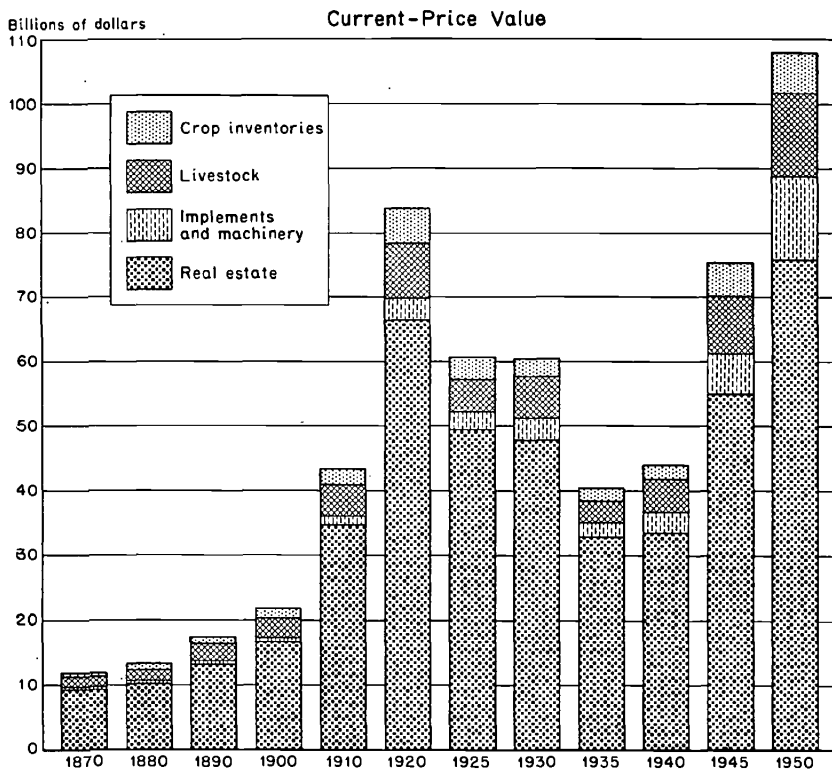
Value and Distribution of Farm Assets in 1920

As 1920 marks the end of a long period of uninterrupted and often rapid growth of physical farm capital in the United States, some

VALUE OF PHYSICAL CAPITAL

CHART 9

Value of Physical Farm Assets in Current and 1910-1914 Prices, United States, Census Years, 1870-1950



Source: Tables 7 and 9.

notice should be taken of how this growth affected the volume, location, and composition of such capital.

In current dollars the value of the physical farm assets increased sevenfold between 1870 and 1920 (Table 7) while in constant dollars it rose two-and-a-half-fold (Table 9). In 1870, nearly a third of this investment in farm assets was in the Northeast region, but in 1920 only a fifteenth was there. The regions comprising the western half of the United States, together with the Delta States and the Southeast, which in 1870 had contained only 11 per cent of the physical assets of farms, in 1920 accounted for 43 per cent. Despite the huge increase in the value of assets in the Corn Belt, amounting to \$22,285 million, the proportion of total assets in this region was slightly lower in 1920 than in 1870. The increase there was sixfold compared with the sevenfold national average. The ninefold increase in the Lake States gave this region a larger proportion in 1920 than in 1870, whereas the fivefold increase in the Appalachian region caused the total for this region to decline in proportion to the total for the country as a whole.

Shrinkage in Agricultural Assets, 1920-1935

The value of the physical assets used in farming declined sharply in the early 1920's and again in the early 1930's. For the United States as a whole the value (current prices) declined 28 per cent between 1920 and 1925, remained virtually level during the next five years, and declined 33 per cent from 1930 to 1935. These changes were due mainly to falling prices, as the value of physical assets at constant prices was only 5 per cent lower in 1935 than in 1920.

Though the first wave of deflation lowered the value of the major classes of farm assets in the United States with considerable uniformity, the decline in value between 1920 and 1925 was not entirely due to lower prices. Constant-price values reveal some shrinkage in physical quantity or deterioration of condition in each major class.

Regional differences in the extent of deflation were notable in this period. In the Pacific region the value of all physical assets was only 7 per cent lower in 1925 than five years before, and in the Northeast the shrinkage was limited to 13 per cent. The decline was most severe in the South—38 per cent in the Delta States and 37 in the Southeast region.

The relatively small decline in the Northeast and Pacific regions was chiefly due to a very moderate shrinkage in the value of real estate. In the Northeast the value of farm real estate dropped only

VALUE OF PHYSICAL CAPITAL

6 per cent, partly because the upswing that culminated in 1920 had been moderate in these states, and partly because the farm prices of the dairy, poultry, fruit, and vegetable products characteristic of this region remained well above the prewar level. Moreover, the growing inclination of city workers to live on conveniently located small farms helped to sustain farm real estate values in this region.

In the Pacific states the rise in the value of real estate in the decade before 1920 amounted to 88 per cent, a rate of increase only a little below the national average. Nevertheless, in 1925 the level was only 4 per cent below 1920. The value of real estate in the Pacific area was sustained partly because prices for the region's fruit, vegetable, poultry, and dairy products remained well above the prewar level and partly because of the active demand for, and development of, small farms. The census in 1925 reported an increase of more than 31,000 farms in this region and a sharp increase in the value of farm buildings despite a decline in land in farms.

In the Delta States the decline in the value of both farm real estate and livestock exceeded that of any other region. In the Southeast shrinkage in the value of livestock almost paralleled that of the Delta States, the percentage declines in machinery and crops exceeded those of all other regions, and the decline in the value of real estate exceeded the national average. Moreover, the percentage declines in constant-price valuations between 1920 and 1925 indicates contractions of real farm capital in these southern regions that were not matched elsewhere.

The exceptional shrinkage both in the value and in the physical volume of farm capital in these southern regions was partly a reaction from the remarkable growth of the previous decade. Only in the Mountain region had farm capital increased more rapidly. Another factor was the onslaught of the boll weevil, which made cotton farming, particularly in the Southeast, hazardous and unprofitable and turned discouraged farmers toward the growing opportunities for profitable employment in the developing industrial centers. Except for 1921, farm prices of cotton were relatively favorable.

The second major wave of deflation occurred in the period 1930-35 and, like the first, affected the values of all major classes very similarly. A comparison of the percentage declines in current prices with those calculated in constant prices reveals that for real estate the lower value was solely the consequence of lower prices; for livestock it was due mainly to lower prices, but partly to a reduction in the number of horses and mules. For machinery and for stored crops the lower value was chiefly a result of sharply lower physical inven-

TABLE 9

Value of Physical Farm Assets in 1910-1914 Prices, by Selected Groups and by Regions, Census Year, 1870-1950
(millions of dollars)

Region and Group	1870	1880	1890	1900	1910	1920	1925	1930	1935	1940	1945	1950
United States:												
Total physical assets	19,758	27,819	33,707	40,307	45,367	49,842	48,013	49,160	47,178	48,572	51,376	53,693
Land	13,627	19,115	22,937	28,020	30,215	31,931	31,161	32,457	33,090	33,210	33,711	34,521
Buildings	2,598	3,575	3,854	4,461	6,389	7,491	7,375	7,185	6,480	6,285	6,672	7,517
Implements and machinery	248	360	531	833	1,265	2,031	1,794	2,231	1,445	1,925	3,184	4,403
Livestock	2,496	3,448	4,551	4,929	5,276	5,873	5,319	4,940	4,686	4,676	4,890	4,122
Horses and mules	1,048	1,477	2,037	2,339	2,693	2,862	2,513	2,139	1,879	1,636	1,343	874
Other	1,448	1,971	2,514	2,590	2,583	3,011	2,806	2,801	2,807	3,040	3,547	3,248
Crop inventories	789	1,321	1,834	2,064	2,222	2,516	2,364	2,347	1,477	2,476	2,919	3,130
Northeast:												
Total physical assets	3,854	4,331	4,146	4,127	4,122	3,829	3,782	3,427	3,289	3,133	3,290	3,191
Land	1,985	2,203	2,026	1,979	1,879	1,695	1,529	1,427	1,464	1,382	1,412	1,316
Buildings	1,078	1,257	1,186	1,227	1,330	1,154	1,338	1,126	1,083	954	918	911
Implements and machinery	82	95	126	170	219	255	277	302	196	231	374	416
Livestock	487	543	541	503	466	460	391	362	351	358	360	317
Horses and mules	191	219	237	229	219	201	167	130	119	106	83	50
Other	296	324	304	274	247	259	224	232	232	252	277	267
Crop inventories	222	233	267	248	228	265	247	210	195	208	226	231
Appalachian:												
Total physical assets	2,342	2,838	3,033	3,323	3,606	3,768	3,463	3,442	3,241	3,495	3,617	3,916
Land	1,646	1,906	1,989	2,120	2,127	2,043	1,863	1,853	1,835	1,915	1,862	1,826
Buildings	236	352	378	475	673	786	753	785	681	766	787	956
Implements and machinery	25	35	50	73	100	147	135	147	95	136	251	400
Livestock	322	379	417	437	463	511	457	414	412	427	438	406
Horses and mules	160	198	221	257	281	308	282	239	216	222	208	177
Other	162	181	196	180	182	203	175	175	196	205	230	229
Crop inventories	113	166	199	218	243	281	255	243	218	251	279	328

(continued on next page)

TABLE 9 (continued)
(millions of dollars)

Region and Group	1870	1880	1890	1900	1910	1920	1925	1930	1935	1940	1945	1950
Southeast:												
Total physical assets	896	1,137	1,270	1,437	1,712	1,976	1,599	1,615	1,637	1,693	1,918	2,136
Land	673	805	871	948	1,009	1,016	909	909	1,001	1,016	1,079	1,158
Buildings	45	89	109	147	272	382	261	283	266	276	335	406
Implements and machinery	8	12	17	30	55	90	59	69	45	69	144	232
Livestock	127	159	175	202	240	293	242	227	233	237	242	215
Horses and mules	62	82	96	125	152	188	162	153	144	143	131	111
Other	65	77	79	77	88	105	80	74	89	94	111	104
Crop inventories	43	72	98	110	136	195	128	127	92	95	118	125
Lake States:												
Total physical assets	1,502	2,457	3,011	3,807	4,479	5,075	5,053	5,114	4,926	5,253	5,508	5,621
Land	974	1,617	1,951	2,546	2,713	2,868	2,807	2,851	3,023	3,018	3,141	3,085
Buildings	258	389	444	535	827	1,048	1,116	1,091	967	961	919	1,039
Implements and machinery	26	43	63	98	155	266	254	309	200	307	476	590
Livestock	174	290	388	444	511	616	580	562	536	584	576	463
Horses and mules	76	135	190	226	249	280	243	221	208	191	144	75
Other	98	155	198	218	262	336	337	341	328	393	432	388
Crop inventories	70	118	165	184	273	277	296	301	200	383	396	444
Corn Belt:												
Total physical assets	8,768	11,699	13,044	14,264	14,788	15,284	14,316	14,250	13,691	14,180	14,579	14,949
Land	6,691	8,768	9,619	10,596	10,605	10,436	9,921	9,964	10,143	9,883	10,004	9,894
Buildings	831	1,111	1,137	1,277	1,810	2,104	2,022	1,920	1,675	1,708	1,773	1,957
Implements and machinery	84	117	154	217	313	533	419	483	313	467	745	1,018
Livestock	893	1,161	1,456	1,445	1,471	1,497	1,322	1,226	1,148	1,224	1,208	1,037
Horses and mules	407	531	688	675	756	697	577	484	426	361	265	135
Other	486	630	768	770	715	800	745	742	722	863	943	902
Crop inventories	269	542	678	729	589	714	632	657	412	898	849	1,043

(continued on next page)

TABLE 9 (continued)
(millions of dollars)

Region and Group	1870	1880	1890	1900	1910	1920	1925	1930	1935	1940	1945	1950
Delta States:												
Total physical assets	526	742	940	1,149	1,273	1,413	1,227	1,348	1,296	1,391	1,443	1,613
Land	350	471	589	672	724	746	689	731	790	809	777	799
Buildings	35	59	82	127	195	255	189	225	182	201	190	294
Implements and machinery	10	13	20	52	53	66	54	69	45	71	138	231
Livestock	91	128	156	185	200	240	207	207	218	226	233	190
Horses and mules	47	68	84	117	126	151	138	137	127	130	122	95
Other	44	60	72	68	74	89	69	70	91	96	111	95
Crop inventories	40	71	93	113	101	106	88	116	61	84	105	99
Great Plains:												
Total physical assets	380	1,708	3,778	5,163	6,870	7,845	7,792	8,334	7,726	7,652	8,387	8,506
Land	266	1,233	2,704	3,860	4,976	5,608	5,576	6,143	6,170	6,151	6,347	6,482
Buildings	44	175	299	326	599	771	747	691	597	477	459	519
Implements and machinery	4	23	54	89	170	302	250	368	239	220	388	540
Livestock	55	201	490	631	743	846	841	764	621	542	663	527
Horses and mules	19	82	218	282	396	428	383	315	250	177	150	80
Other	36	119	272	349	347	418	458	449	371	365	513	447
Crop inventories	11	76	231	257	382	318	378	368	99	262	530	438
Texas-Oklahoma:												
Total physical assets	489	1,038	1,596	3,033	3,508	3,962	4,080	4,372	4,283	4,267	4,493	4,600
Land	263	667	1,035	2,205	2,476	2,621	2,874	3,152	3,236	3,225	3,189	3,213
Buildings	22	63	84	153	303	427	362	414	376	339	433	505
Implements and machinery	3	8	15	45	84	133	133	186	120	163	255	359
Livestock	186	273	402	499	515	588	546	500	493	449	447	368
Horses and mules	49	92	136	211	267	305	297	248	209	158	114	65
Other	137	181	266	288	248	283	249	252	284	291	363	303
Crop inventories	15	27	60	131	130	193	165	120	58	91	139	155

(continued on next page)

TABLE 9 (continued)
(millions of dollars)

Region and Group	1870	1880	1890	1900	1910	1920	1925	1930	1935	1940	1945	1950
Mountain:												
Total physical assets	83	315	734	1,308	1,853	2,871	2,959	3,252	3,081	3,323	3,668	4,167
Land	26	130	361	839	1,163	1,879	2,059	2,292	2,240	2,465	2,547	2,940
Buildings	10	17	35	51	146	237	206	235	227	211	305	367
Implements and machinery	1	3	8	21	50	108	86	143	92	114	183	291
Livestock	46	162	312	357	406	545	483	442	437	394	442	378
Horses and mules	4	19	74	107	126	188	168	140	115	95	85	58
Other	42	143	238	250	280	357	315	302	322	299	357	320
Crop inventories	^a	3	18	40	88	102	125	140	85	139	191	191
Pacific:												
Total physical assets	918	1,554	2,155	2,696	3,156	3,819	3,742	4,006	4,008	4,185	4,473	4,994
Land	753	1,315	1,792	2,255	2,543	3,019	2,934	3,135	3,188	3,346	3,353	3,808
Buildings	39	63	100	143	234	327	381	415	426	392	553	563
Implements and machinery	5	11	24	38	66	131	127	155	100	147	230	326
Livestock	115	152	214	226	261	277	250	236	237	235	251	221
Horses and mules	33	51	93	110	121	116	96	72	65	53	41	28
Other	82	101	121	116	140	161	154	164	172	182	210	193
Crop inventories	6	13	25	34	52	65	50	65	57	65	86	76

^a Less than \$500,000.

Note: Comparable preliminary estimates for 1955 for the United States are:

Total physical assets (excluding land and crop inventories)	18,159	Livestock	4,245
Land	n.a.	Horses and mules	515
Buildings	8,617	Other	3,730
Implements and machinery	5,297		

"Implements and machinery" are presumably comparable not with the 1950 BAE estimate used here, but with a later revision of it.

Source: Land and building values calculated by methods described in Appendix A. Implement and machinery values are current values from Table 7 divided by an index described in Appendix B. Livestock values are average prices per head on January 1, 1910-14 multiplied by numbers on farms on January 1 of census years obtained from sources indicated in Table 7. Crop values are average prices per unit (bushels, bales, tons) on December 15, 1910-14 multiplied by the number of units stored on farms on January 1 of census years, by methods described in Appendix E.

VALUE OF PHYSICAL CAPITAL

tories. The lower value of implements and machinery reflects the amount by which depreciation outran new purchases during this period. The low value of stored crops reflects the abnormally low physical stocks resulting from the drought of 1934 and should not be interpreted as reflecting a change in farm practice.

Regional differences in the severity of the deflation were less pronounced in this period than in 1920-25. Declines in the value of all physical farm assets (current prices) ranged from 23 per cent in the Northeast to 40 per cent in the Great Plains. The regional estimates for machinery in 1935 were constructed by a method that makes changes in that item between 1930 and 1935, whether observed in current or constant prices, fairly uniform throughout the United States. But at most this contributed little to the uniformity of regional changes of the total values shown in the tables. The most influential factor again was real estate. Declines in value of this dominant class ranged from 19 per cent in the Northeast to 37 per cent in the Great Plains—a considerably narrower range than in either half of the 1920's.

Recovery of Values, 1935-1940

Between 1935 and 1940, for the United States as a whole, the value of physical assets, in current prices, rose 9 per cent. Recovery in prices of farm assets accounted for the larger part of the increase, as the value in constant prices gained only 3 per cent.

Differences in the rate of increase in the value of the major classes of physical farm assets between 1935 and 1940 are notable. The value of livestock rose 48 per cent despite an 8 per cent decline in the value of horses and mules. This reflected solely an increase in prices, as there was a slight decline in constant-price values. The gain for implements and machinery was almost as large as for livestock, but it resulted mainly from an increase in physical volume; the constant-price value of this class rose by one-third. The sharp increase in physical volume of machinery is not unrelated to the shrinkage in number of horses and mules. The value of stored crops was 9 per cent higher in 1940 than in 1935. As a result of the drought of 1934, inventories of crops were low and prices were relatively high in 1935. By 1940 inventories were much higher and prices were lower. The value of farm real estate was only 2 per cent higher in 1940 than five years earlier. This was entirely the result of a mild rise in price; the constant-price value of real estate remained virtually constant.

Recovery of farm values was far from uniform geographically. In

VALUE OF PHYSICAL CAPITAL

the Great Plains the current-price value of physical assets was 12 per cent lower in 1940 than in 1935, and in the Northeast their value declined 3 per cent. In the Pacific area the increase was only 2 per cent. In contrast, the increase in the Delta States was 27 per cent, in the Appalachian region 20 per cent, in the Corn Belt 18 per cent, in the Southeast, Lake States, Mountain, and Texas-Oklahoma regions 13, 13, 11, and 7 per cent respectively.

Accelerated Rise, 1940-1950

With the outbreak of World War II and the sharp increase in cash receipts from farming that followed, the rise in value of physical farm assets, already under way, was greatly accelerated. During the first half of the 1940's, a period that coincides roughly with that of World War II, the value of all physical farm assets increased 72 per cent in current prices. As the constant-price value rose only 6 per cent, the increase must be attributed mainly to higher prices.

The rate of advance varied considerably for the several classes of assets. The value of real estate rose 63 per cent, implements and machinery 103 per cent, livestock 75 per cent, and crops 151 per cent. For real estate, livestock, and crops these advances were due mostly to higher prices. For implements and machinery the increase in physical inventory, amounting to 65 per cent, accounted for the larger part of the higher current value.

The pattern of physical expansion of agriculture in the war period is reflected in the changes in constant-price values of farm assets. Under the impact of wartime demand for farm products, farm real estate expanded only 2 per cent. Livestock other than horses and mules—i.e. the sources of animal products—increased 17 per cent. Stored crops, largely composed of feed for livestock, increased 18 per cent. Implements and machinery increased 65 per cent, while horses and mules decreased 18 per cent—astonishing changes for a five-year period. During the war the need for a record output of farm products coincided with an acute shortage of agricultural labor. In this situation farm operators added to their inventories of machinery and disposed of horses and mules at rates that were without precedent, and they would have added even more machinery had various important items like tractors been available in greater quantity.

The wartime growth in the value of physical farm assets was proportionally largest in the Mountain and Pacific regions, where the increases were 119 and 120 per cent, respectively. It was least in the Northeast and Lake States (about 53 per cent) and only slightly more in the Appalachian region and the Corn Belt. As the total value

VALUE OF PHYSICAL CAPITAL

is dominated by its largest component, the regional pattern of growth of real estate is much the same as that of total assets. The increase in value of machinery exceeded the national average in the Southeast, Delta, Appalachian, and Great Plains regions. In the Great Plains, gains in the value of livestock and of stored crops were conspicuously large. Above-average increases in livestock occurred also in the Corn Belt, Texas-Oklahoma, and Pacific regions, and in crops in all regions except the Corn Belt, Lake States and the Northeast.

The surrender of the enemy in 1945 did not halt farm prosperity or check the increase in value of farm assets that had proceeded so rapidly during the war years. Cash receipts from farming and net farm income continued to rise sharply through 1948. In 1949 both cash receipts and net income declined but they remained well above the levels reached before 1946. The persistence of strong markets and high prices for farm products after the military forces had been largely demobilized encouraged a further rise in the prices of physical farm assets and a considerable physical expansion in some of the means of agricultural production.

On January 1, 1950, the current-price value of all physical farm assets in the United States was 43 per cent higher than five years before. The value of farm real estate had increased 38 per cent; livestock, 43 per cent; crops, 21 per cent; and implements and machinery, 108 per cent. These increases resulted mainly from higher prices. Changes in constant-price values were more modest, and they even include a decline of livestock.

Regionally, the largest percentage increases in the value of all physical assets in this postwar period occurred in the Delta States. Percentage increases which were well above the average for the United States occurred throughout the South and, except for the Pacific region, in the western half of the United States. The smallest gains in value were in the Northeast and Pacific regions.

Physical expansion of farm capital in the postwar years occurred most notably in the South and the West. The increase in the constant-price value of physical assets for the United States was 4 per cent, but in the Mountain, Pacific, Delta, and Southeast regions the increases ranged from 11 to 14 per cent. In the Southeast and Delta regions the constant-price increases in real estate were respectively 11 and 13 per cent, and in the Mountain and the Pacific regions they were 16 and 12 per cent. The value of implements and machinery advanced 67 per cent in the Delta and only slightly less in the Southeast, Appalachian, and Mountain regions. In the Pacific region the increase was 42 per cent. By 1950 the physical inventory of livestock

VALUE OF PHYSICAL CAPITAL

in the United States had contracted 16 per cent. Contraction of livestock was least in the Southeast and Northeast, and greatest in Texas-Oklahoma and the Great Plains. Although for the country as a whole there was a 7 per cent constant-price increase in stored crops, in most of the regions of the West and South the increase was smaller, or the physical inventories actually declined. As stored crops represent a very small fraction of total physical assets, this did not prevent these regions from showing impressive increases of total capital.