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CHAPTER XI

FACTS BEARING ON AGRICULTURAL INCOME

Changes in the Total Physical Productivity of Agriculture.

To measure year to year changes in the total physical productivity of the agricultural industry is not easy. The records of the physical quantities of the various crops produced each year are, to be sure, reasonably complete. But a large proportion of the crops are used to feed livestock, and, to no small extent, the farmer derives his income from the sale of milk, butter, eggs, beef, and pork, rather than from the sale of hay and grain. The figures in Table XCII represent the results of an effort to overcome such statistical difficulties and to present a condensed picture of the physical productivity of the agricultural industry for the years 1909 to 1925, inclusive. The method of attack has been to calculate what the value of the various net products would have been had the price of each remained at the level measured by the average price of each product during the period 1909 to 1913, inclusive.

The question will probably be raised at this point as to why the average for a period of years has been used as a base in this particular instance, while, in previous tables in this report, it has been customary to make all comparisons on the basis of one year only, namely 1913. The reason for broadening the base in this particular instance is that crop production is notoriously variable, rising and falling greatly with the amount of rainfall, and hence agricultural prices, depending as they do very largely upon the volume of production in the given year, also vary widely from month to month and season to season. For this reason, it has seemed best to take an average for a five year period as a basis for our calculations.

Relative Importance of Different Agricultural Products.

The figures for grain and hay production appear very low in comparison with the figures for animal products. This is due to the fact that the estimates for grain and hay do not represent the total value of the amount of these products raised by the farmers, but merely the estimated value of the amounts either sold outside of the farm area, or consumed by human beings on farms or else-

where; in other words, an attempt has been made to eliminate all grain and hay fed to livestock on the farms.

In Chart 45 it is seen that the four groups of products making up the bulk of agricultural output, are, in order of importance, animal products, grain, cotton and miscellaneous products—animal products alone accounting for nearly half of the total value. Furthermore, animal products have been increasing relatively in proportionate importance, while hay, and to a certain extent grain, show a diminution in relative importance.

A year to year comparison indicates that, when all products are combined, 1915 and 1924 are the banner years for production in the entire period covered. Although we heard much of the strenuous efforts of the farmers in 1917 and 1918, in neither of these years did physical output reach a level as high as in 1915 or even in 1916. It must be remembered, however, that, especially in 1918, the farm working force was reduced by the enlistment of a large number of the boys into the Army. The year 1918 did, however, represent a peak for that part of the period, as far as production of animal products was concerned, and the yield of potatoes was also well above normal. The net supply of grain available for human food, while larger than in 1917 and 1916, was not nearly up to the level of 1914 and 1915. The net output of grain in 1925 was lower than in any other year in the period, and the same may be said of hay, the tendency in the shipments of the latter being sharply downward owing to the diminution of the number of horses in the city. Cotton production was unusually high in 1925. The output of animal products is more stable than the output of other agricultural products, and apparently has a decided upward trend.

The net totals of grain production in Table XCII have not been arrived at by calculating and deducting from the gross production the amount of grain fed to livestock, but have been estimated on the basis of the excess of exports over imports, the amount of grain milled less the amount ground for feed, and the amount used for brewing and miscellaneous purposes. The figures for hay, in the same table, represent the estimated amounts of hay fed to livestock not on farms. As the numbers of such livestock are but roughly estimated, these figures are, of course, nothing but approximations.

Variations in Total Acreage Harvested.

The figures in Table XCII, while representing the aggregate of *net* physical production, do not show the relationships of these

TABLE XCII

ESTIMATED NET VALUE[b] OF ALL AGRICULTURAL PRODUCTS HAD AVERAGE PRICE OF EACH PRODUCT IN PERIOD 1909-1913 PREVAILED THROUGHOUT[a]

(MILLIONS OF DOLLARS)

Year	All Products	Grain	Hay	Cotton	Potatoes	Fruit	Tobacco	Animal Products	All Other
1909	$5,629	$1,141	$144	$780	$244	$158	$ 93	$2,426	$643
1910	5,738	1,153	150	766	276	204	109	2,412	668
1911	5,934	1,149	153	881	251	222	101	2,485	692
1912	6,221	1,215	147	1,072	259	248	93	2,425	762
1913	5,953	1,223	150	887	271	203	95	2,414	710
1914	6,069	1,433	148	775	253	237	99	2,385	739
1915	6,620	1,344	146	1,074	291	305	103	2,536	820
1916	6,225	1,268	142	897	235	237	109	2,611	725
1917	5,814	1,135	133	783	279	208	117	2,493	667
1918	6,207	1,287	121	696	311	196	131	2,777	688
1919	6,340	1,207	114	892	298	197	141	2,776	715
1920	5,983	1,087	101	798	295	241	141	2,651	669
1921	6,051	1,247	97	798	314	166	161	2,568	699
1922	6,129	1,246	92	707	331	221	127	2,719	684
1923	6,346	1,107	85	677	331	242	142	3,113	649
1924	6,570	1,213	81	796	307	238	128	3,115	693
1925	6,409	924	78	1,031	288	214	133	3,026	715
1926	6,604*	1,023	73	1,050	273	298	132	3,039*	716*
1927	6,647*	1,096	73	999	313	200	143	3,114*	709*
1928	6,760*	1,113*	70*	956*	340*	249*	124*	3,191*	716*

[a] Based upon the *Census of Agriculture* and reports of the U. S. Department of Agriculture.

[b] Crops fed to livestock on farms are excluded, thus giving a total very different from the gross value of products.

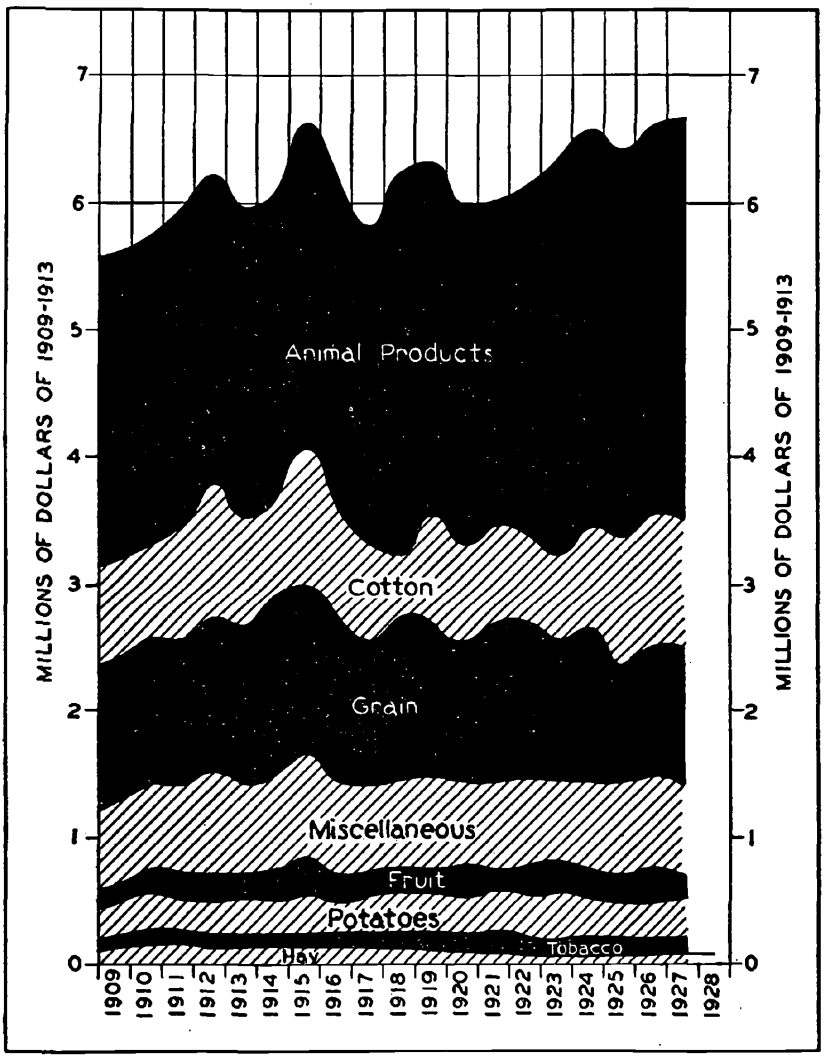
* Preliminary estimate.

aggregates either to the number of farmers or to the total population. This comparison appears in Table XCIII. In the first column of this table is shown the estimated total acreage of all crops harvested. Since the figures for minor crops are not available in great detail, the probabilities are that the figures presented in Table XCIII as to acreage have an appreciable percentage of error, but there is apparently little doubt that the trend shown is approximately correct.

Acreage rose steadily from 1909 to 1919, the increase during this decade being about 16 per cent, or practically the same as the growth of population during the same 10 years. It will be observed

CHART 45

ESTIMATED NET VALUE OF ALL AGRICULTURAL PRODUCTS HAD AVERAGE PRICE OF EACH PRODUCT IN PERIOD 1909-1913 PREVAILED THROUGHOUT[a]



[a] For data, see Table XCII.

also that acreage continued to increase in 1918 despite the fact that a large number of men from the farms were called into the Army. Evidently, then, there is truth in the idea that more work per farm worker was expended on the farms of the United States during war time than in the years immediately preceding. In 1920, there was a sharp decline in acres harvested, partly due, presumably, to the fact that the demand at high wages for workers in the cities was so strong as to draw a proportion of laborers from the farm, and partly ascribable, no doubt, to the fact that, with the collapse of prices in 1920, a considerable proportion of the low-yield acreage was not worth harvesting. The decline in total acreage extended somewhat further in the next year, but, in 1922 and 1923, acreage again rose, despite the fact that the number of farmers[1] was then beginning to decrease. Between 1922 and 1927, acreage remained practically stationary, while the number of farmers declined somewhat, and the farm population fell off materially.

Effect of Tractors and Automobiles on Acreage Cultivated.

One of the factors which has enabled a diminished number of farm workers to maintain acreage undiminished has been the increasing use of the tractor on the larger farms in the Mississippi Valley and especially in the Great Plains region. The fact that most farmers now have automobiles has also helped them to economize on time in getting from place to place and doubtless has also aided in enabling a smaller number of farmers to keep up the acreage. In 1928, there was a sharp increase in acreage which finally pulled the figure above the level of 1919—and this in the face of the fact that the number of farmers declined still further.

Cultivated Acreage Per Farmer.

The number of acres per farmer in 1909 was about 50.3; in 1919, this had increased to approximately 57.4; and, in 1928, it was just above 60. It appears, therefore, that the size of the farm as measured by the area of crops cultivated has grown very materially during the 19 years, despite the fact that the number of workers per farm has diminished, and also despite the fact that a very considerable additional amount of farm land has been devoted to the intensive type of cultivation necessary for growing the vegetables and fruits required by an increasing population. Such

[1]The term "farmers" means farm operators and does not include hired employees.

increase in truck farming has evidently been more than offset by the growth in extensive farming on the Western plains.

Physical Product Per Acre Cultivated.

While each farmer has clearly been enabled by modern inventions to become more efficient as regards acreage cultivated, it is not necessarily true that the quality of each acre tilled in 1928 was as good as that of the average acre tilled in 1909, for the margin of cultivation is being pushed out upon lands that are quite arid, and these lands of course yield relatively small crops per acre. It is, therefore, of especial interest to study the value, at constant prices, of the net produce per acre harvested. These figures measure as accurately as is possible the physical net productivity per acre of all the farm land cultivated. A study of this column indicates that physical productivity per acre rose from 1909 to 1915 but fell again in 1916. Since 1916, the trend has been approximately horizontal, though there was a noticeable depression during the years 1920 to 1922 which may represent some diminution in the carefulness of cultivation in those years. In general, it appears that the effects of the intensive cultivation of part of the farm land have almost exactly offset those occasioned by the inclusion of large areas of the low yield land of the arid regions, the net result being that the physical output per acre was but slightly greater in 1928 than in 1909.

Physical Product Per Farmer.

The next column of Table XCIII shows physical output per farmer. This is the best measure that can be devised of the efficiency of the average farm as an operating unit. The evidence indicates that there was a very definite increase in the output per farmer between 1909 and 1915. During the ten years following 1915, the average output never reached as high a level as that of 1915. In both 1917 and 1920, the average output per farm was at a low ebb. Following 1920, there was a regular increase each year until 1928, with the exception of a slight decline in 1925. The deductions from Chart 46 are, in general, that the trend of the physical output per farmer has been upward ever since 1909, but that the rise was a little steeper at the beginning than at the end of the period. The year to year fluctuations due to changes in the weather are so large that it is impossible to state with precision the exact nature of the trend. It appears, nevertheless, that, despite the reduction in the number

TABLE XCIII

NET VALUE AT AVERAGE PRICES OF 1909-1913 OF TOTAL FARM PRODUCTS PER ACRE, PER FARMER AND PER CAPITA

Year	Acres of Crop Harvested[a] (thous.)	Number of Farmers[a] (thous.)	Population of the Continental United States[b] (thous.)	Value of Net Produce at Average Prices of 1909-1913			
				Total[c] (Millions)	Per Acre Harvested	Per Farmer	Per Capita
1909	316,028	6,289	90,508	$5,629	$17.81	$ 895.05	$62.19
1910	328,655	6,307	92,422	5,738	17.46	909.78	62.08
1911	334,993	6,322	93,837	5,934	17.71	938.63	63.24
1912	332,085	6,336	95,249	6,221	18.73	981.85	65.31
1913	336,755	6,346	97,111	5,953	17.68	938.07	61.30
1914	337,160	6,353	98,974	6,069	18.00	955.30	61.32
1915	346,698	6,359	100,390	6,620	19.09	1,041.04	65.94
1916	346,411	6,365	101,787	6,225	17.97	978.00	61.16
1917	354,309	6,369	103,234	5,814	16.41	912.86	56.32
1918	363,346	6,374	104,377	6,207	17.08	973.80	59.47
1919	366,063	6,378	105,007	6,340	17.32	994.04	60.38
1920	361,136	6,381	106,422	5,983	16.57	937.63	56.22
1921	360,176	6,387	108,370	6,051	16.80	947.39	55.84
1922	363,515	6,271	109,742	6,129	16.86	977.36	55.85
1923	364,265	6,297	111,478	6,346	17.42	1,007.78	56.93
1924	358,530	6,344	113,466	6,570	18.32	1,035.62	57.90
1925	363,515	6,317	115,004	6,409	17.63	1,014.56	55.73
1926	364,690	6,200*	116,442*	6,604*	18.11*	1,065.22*	56.71*
1927	363,598	6,124*	117,980*	6,647*	18.28*	1,085.34*	56.34*
1928	367,469	6,102*	119,440*	6,760*	18.40*	1,107.83*	56.60*

[a] Based upon *Census of Agriculture* and reports of the U. S. Department of Agriculture.
[b] See Table I.
[c] See Table XCII.
* Preliminary estimate.

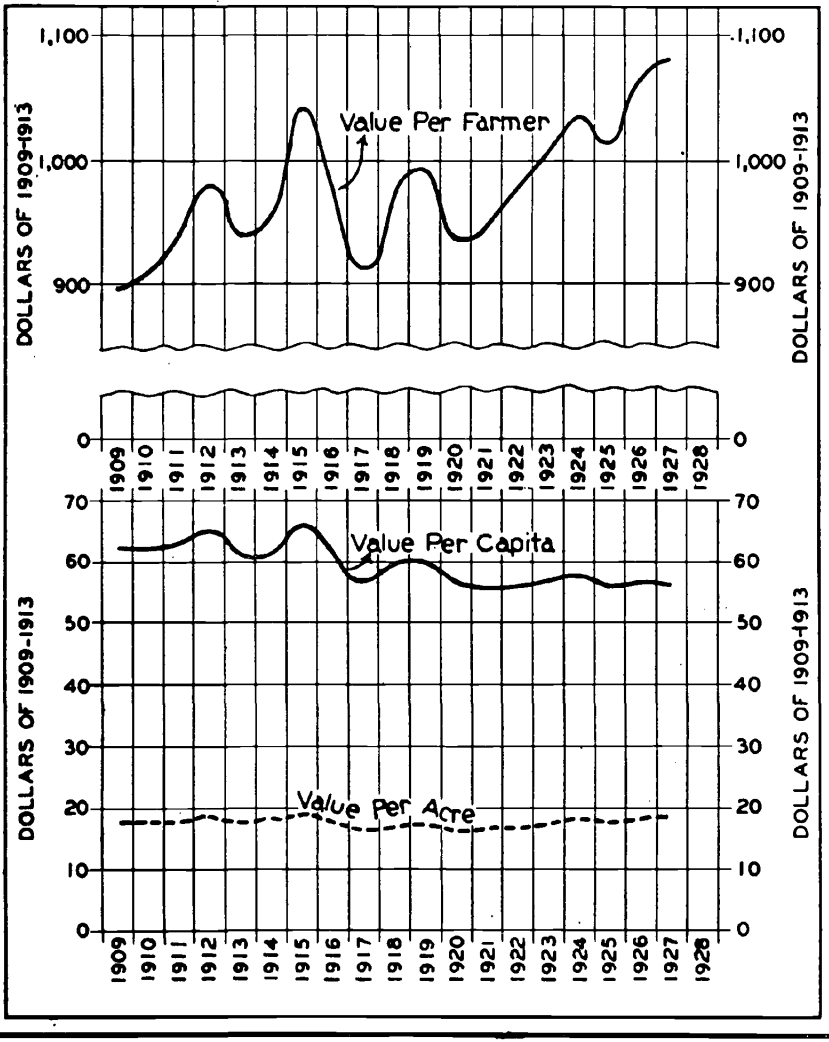
of workers per farm, and also despite the relatively low prices of farm products prevailing in years since the close of the World War, the average farmer has succeeded in maintaining the same standard of physical output prevailing prior to 1920, but that he has not been able materially to raise the level.

Agricultural Output per Inhabitant of the United States.

The last column of Table XCIII shows the physical output of agricultural produce per inhabitant of the Continental United

CHART 46

NET VALUE AT AVERAGE PRICES OF 1909-1913 OF TOTAL FARM PRODUCTS PER ACRE, PER FARMER, AND PER CAPITA*



* For data, see Table XCIII.

States. The population of the United States has, of course, been growing rapidly. Since 1915, agricultural output has not been keeping pace with population. Between 1909 and 1916, production per capita apparently ran on approximately a level trend, but after 1915, a marked decline became apparent, and, from 1917 to 1928, the output of agriculture per inhabitant remained on a level materially lower than that characterizing the years 1909 to 1916. The average output for the years 1917 to 1925, was, in fact, only about 91 per cent as great as the output during the years 1909 to 1916. This decline in per capita production of agricultural products resulted in some curtailment of exports and in some shift of consumption from meat to vegetable products. Every shift in this direction makes it possible for a fixed number of acres to supply food for a number of persons relatively much larger than could be fed from meat grown on the same acreage.

Value of Business Property Devoted to Agriculture.

Table XCIV records in terms of current dollars the value of various kinds of business property devoted to agriculture. The figures in this table are either taken directly from the reports of the Federal Bureau of Agricultural Economics or are estimated from the reports of that Bureau or from the *Census of Agriculture*. An interesting column in this table shows the nominal value of farm land in the various years. We see portrayed here the steady rise in its aggregate value between 1909 and 1915 and the very rapid ascent between 1915 and 1920. It was, of course, this steep upward incline which led farmers and others to believe that agricultural land was an extremely profitable investment, and, because of this belief, many thousands of persons bought farms on relatively small payments. The disastrous results of this practice, with its aftermath of wholesale foreclosures of farm mortgages and failures of numerous banks, are too well known to need emphasis at this point. It is, indeed, true that the increase in nominal value between 1915 and 1920 would disappear if reduced to terms of dollars of constant purchasing power, but the fact must be kept in mind that people interested in buying farm land did not realize that the upward movements in values were merely reflections of currency inflation and that the upward trend would therefore cease when currency inflation stopped.

It is interesting to observe how long the effects of the exorbitant valuations due to currency inflation persisted after that

TABLE XCIV

VALUE OF BUSINESS PROPERTY DEVOTED TO AGRICULTURE[a]

(MILLIONS OF CURRENT DOLLARS)

Jan. 1	A Land	B Buildings	C Livestock	D Automobiles[b]	E Tools and Implements	F Crops on Hand	G Miscellaneous Property	H Total Value of Property Devoted to Agriculture A+B+C+D+E+F+G	I Value of Farms Leased from Non-Farmers	J Non-Farmer Creditors' Equity in Owned Farms	K Property of Farmers Devoted to Agriculture H−(I+J)
1909	$27,973	$2,350	$4,569	$ 11	$1,198	$1,944	$ 677	$38,721	$ 9,094	$1,817	$27,810
1910	28,437	2,527	4,925	16	1,265	2,190	700	40,060	9,482	1,894	28,684
1911	28,712	2,619	5,256	28	1,392	2,079	713	40,798	9,770	1,948	29,080
1912	29,393	2,691	4,955	35	1,420	2,107	722	41,323	10,161	2,024	29.138
1913	31,090	2,801	5,407	47	1,676	2,201	769	43,989	10,877	2,172	30,940
1914	32,012	2,833	5,749	54	1,773	2,284	795	45,500	11,328	2,276	31,896
1915	33,145	2,954	5,785	64	1,634	2,341	817	46,741	11,915	2,426	32,400
1916	37,020	3,121	5,795	78	1,764	2,735	898	51,411	13,365	2,799	35,247
1917	40,153	3,278	6,438	114	1,993	3,254	982	56,211	14,620	3,188	38,403
1918	44,577	3,349	7,862	153	2,548	5,164	1,132	64,785	16,235	3,650	44,900
1919	50,379	3,808	8,319	236	3,289	5,273	1,268	72,573	18,619	4,268	49,686
1920	54,815	4,595	8,015	304	3,595	6,087	1,377	78,787	20,892	4,989	52,906
1921	52,877	5,139	5,784	403	3,500	3,822	1,272	72,798	20,493	5,382	46,923
1922	43,053	4,925	4,684	304	3,088	2,489	1,041	59,583	17,083	5,544	36,956
1923	39,774	4,751	5,092	285	2,746	3,364	996	57,007	15,769	5,599	35,639
1924	38,876	4,738	4,837	363	2,817	3,598	982	56,211	15,316	5,619	35,276
1925	37,779	4,707	4,858	361	2,692	3,824	964	55,186	14,799	5,606	34,781
1926	36,836	4,719	5,239	350	2,649	3,603	950	54,345	14,549	5,629	34,167
1927	35,056*	4,731*	5,269*	349	2,460	3,167	908*	51,938*	14,004*	5,655	32,279*
1928	34,217*	4,750*	5,770*	344	2,242	3,426	903*	51,652*	13,767*	5,724*	32,161*

[a] Based upon *Census of Agriculture* and reports of U. S. Department of Agriculture.
[b] Fractional value of automobiles assumed to be devoted to business purposes is 0.3.
* Preliminary estimate.

phenomenon had passed into history. The total value of farm land in the United States was still declining in 1928, even though the worst of the price inflation was over before 1921 had ended.

The estimates in Table XCIV of the total value of buildings, tools and implements, crops on hand, and miscellaneous property, are not sufficiently accurate to be worthy of much consideration,

even though they have been computed as carefully as the data on hand permit. The figures on livestock, however, are reasonably dependable. It will be observed that the nominal value of livestock increased tremendously between 1912 and 1919, when the peak was reached. The precipitous decline beginning in 1920 brought the total value in 1922 almost back to the level of 1909. While the aggregate value of livestock increased somewhat between 1923 and 1928, the total nominal value in 1928 was still no greater than in 1914.

The reader's attention is called to the fact that the estimated value of automobiles, as here given, refers not to the total value of automobiles on farms, but merely to that fraction of the total value estimated to represent the percentage of automobile use devoted to business purposes. Examination of the next to the last column in the table shows that, while the total value of farm property rose between 1909 and 1920 and then declined sharply until 1922, after which it tended slightly downward, the equity of non-agricultural creditors in the owned farms steadily rose, this type of partial ownership being three times as extensive in 1928 as in 1909. It appears, then, that the burden of debt owed by farmers to non-farmers has, in recent years, been growing larger, while values of farm property have been shrinking. Column K indicates that, as a net result, that part of the property of farmers devoted to agriculture had a value in gold dollars approximately the same in 1928 as in 1912, despite the fact that the gold dollar would buy so much less of everything in the later years.

Sources of Agricultural Income.

Table XCV and Chart 47 deal with the net receipts in terms of gold dollars, of the agricultural industry derived from each of a number of sources. For this reason, year to year comparisons are not particularly significant. Receipts from crops constitute slightly more than half of the total value of farm produce, and this proportion has changed but little during the period covered by this study. The value of dairy products makes up slightly more than one-eighth of the net value of all farm produce, while meat animals account for something more than one-fifth, and eggs and poultry for another one-eleventh. These proportions did not change radically between 1909 and 1928.

The graphs in Chart 47 bring out clearly the enormous growth

TABLE XCV

NET[b] RECEIPTS OF AGRICULTURE FROM VARIOUS SOURCES[a]

(MILLIONS OF CURRENT DOLLARS)

Year	Total Net Receipts	Crops Not Fed to Livestock	Dairy Products	Eggs	Poultry	Other Meat Products	Wool and Mohair	Honey and Wax	Sold for Urban Use	
									Horses, Mules and Dairy Cows	Land
1909	$ 6,049	$3,354	$ 771	$292	$192	$1,291	$66	$ 6	$38	$38
1910	6,341	3,488	830	319	210	1,347	61	6	42	38
1911	5,946	3,313	792	293	193	1,224	51	7	43	31
1912	6,479	3,693	850	316	198	1,283	52	7	42	38
1913	6,388	3,431	853	298	214	1,450	45	7	42	47
1914	6,393	3,407	848	303	219	1,451	45	7	72	42
1915	6,804	3,789	864	338	209	1,394	56	7	112	36
1916	8,046	4,553	960	367	238	1,715	45	7	116	46
1917	11,026	6,564	1,282	310	272	2,354	110	9	80	44
1918	13,473	7,501	1,633	516	337	3,262	140	12	41	30
1919	14,889	8,544	1,889	635	392	3,221	124	14	31	38
1920	14,042	8,215	1,968	632	409	2,618	90	22	21	67
1921	9,098	5,151	1,350	487	349	1,598	39	13	13	98
1922	9,264	5,262	1,276	457	331	1,784	63	11	13	67
1923	10,350	5,749	1,555	566	395	1,858	89	11	12	115
1924	10,527	5,894	1,545	539	426	1,914	93	12	11	94
1925	11,280	6,039	1,667	605	432	2,335	104	12	11	75
1926	10,498*	5,077*	1,681	563*	488	2,497	95	12*	10	75*
1927	10,642*	5,491*	1,700*	527*	424*	2,332	92	12*	11	53*
1928	10,519*	5,124*	1,753*	563*	455*	2,438*	114	12*	13	48*

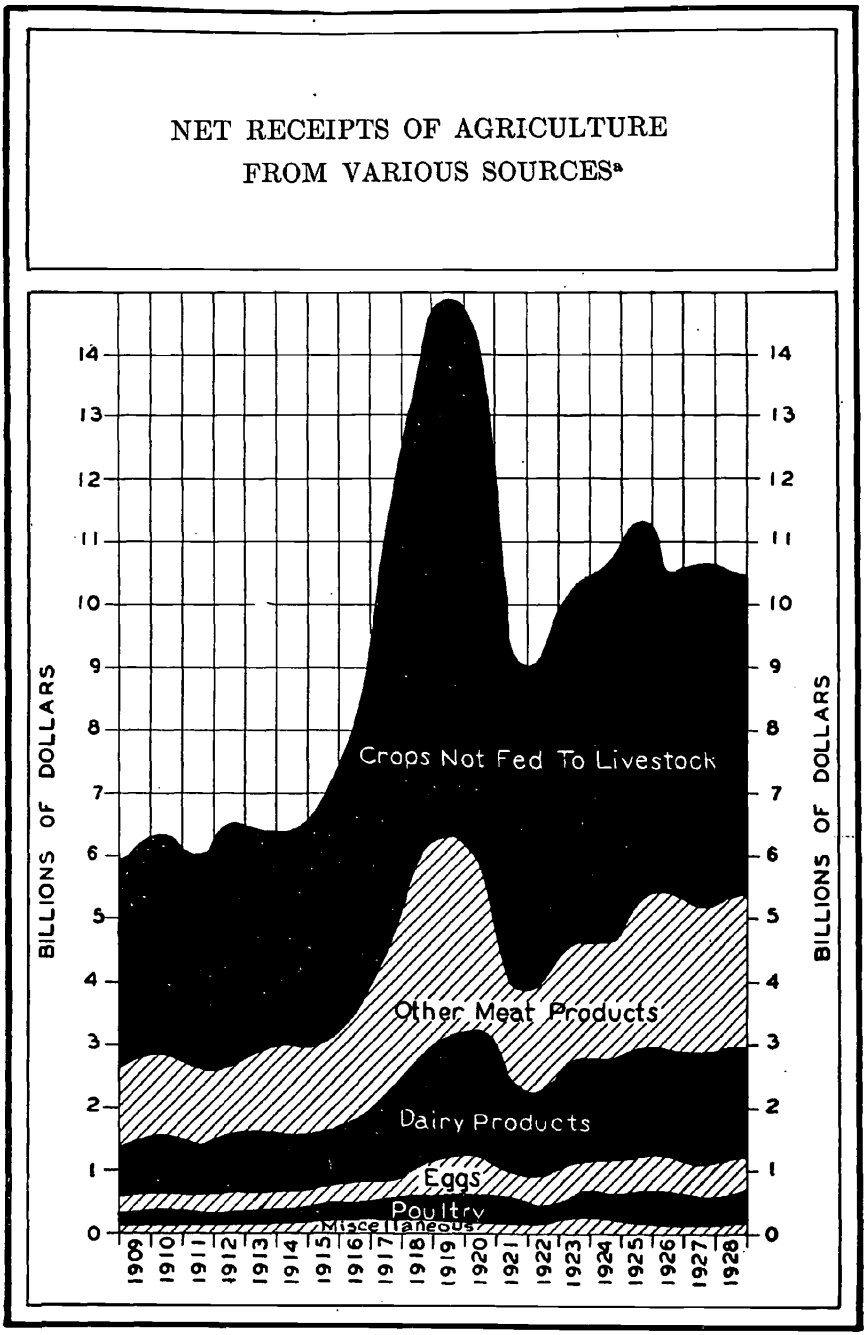
[a] Based upon *Census of Agriculture* and reports of U. S. Department of Agriculture.

[b] Crops fed to livestock are excluded, thus giving a total very different from the gross value of products.

* Preliminary estimate.

occurring between 1914 and 1919, in the nominal agricultural income. When we see how striking this increase was, we can readily understand how it happened that, during the period mentioned, most farmers had visions of a constantly accelerating demand for their products, and also why it was that farm land skyrocketed in value during these five years. The terrific debâcle of 1920 and 1921 is also vividly portrayed.

CHART 47



[a] For data, see Table XCV.

Payments by Agriculture to Other Industries.

Table XCVI[1] indicates the approximate amounts of business-expense money paid out by agriculture to other industries. In this table, as in the one preceding, all amounts are entered in terms of dollars current in the given year, and hence the comparisons of one date with another are not of prime significance. It will be observed that the owners of leased farms and the holders of mortgages on farms are treated as investors in the agricultural industry, the result being that payments to these classes are not counted in the list of business expenses appearing in Table XCVI. Similarly, amounts paid in the form of wages and salaries to employees engaged in agriculture are not listed in this table, for payments to employees are not deductions from the income of the industry.

None of the quantities appearing in Table XCVI can be computed with any high degree of precision. In general, however, it appears that, at the close of the period, out of the 11 billions of dollars, representing the total net receipts of farmers, landlords, and mortgage holders combined, between 2 and 2½ billions had to be paid out to other industries for their contributions to agriculture.

Total Realized Income of Agriculture.

When total payments to other industries have been subtracted from the net receipts accruing to the agricultural industry, the figures entered in Column C of Table XCVII are obtained. These figures show the realized income of agriculture in terms of gold dollars. By subtracting from the items in this column the amount paid to employees in wages and salaries, we arrive at the figures in Column E which represent the aggregate income of landlords, holders of farm mortgages, and farmers and their families. The figures in the last two columns show that the combined nominal income of agricultural employees and of the entrepreneurs and investors in the industry reached a peak in either 1919 or 1920, declined until 1921, and, since then, has moved upward.

Realized Income of Entrepreneurs and Other Property Owners.

Table XCVIII pictures the total realized income of mortgage holders, landlords, and agricultural entrepreneurs after it has been

[1]The reader who is interested in a more detailed discussion of the way in which the figures in Tables XCV and XCVI have been derived is referred to *Income in the United States*, Volume II, Chapter III, and *Income in the Various States*, Chapters VII, VIII, and IX. Both of these books are publications of the National Bureau of Economic Research.

TABLE XCVI

PAYMENTS FOR BUSINESS PURPOSES MADE BY AGRICULTURE TO OTHER INDUSTRIES[a]

(MILLIONS OF CURRENT DOLLARS)

Year	Total Payments	Tools and Implements	Fertilizer	Business Use of Automobiles	Binder Twine	Harness and Saddles	Business Buildings Including Insurance	Feed	Interest Payments to Banks and Merchants	Taxes	Cotton Ginning	Spraying	Horseshoeing
1909	$1,147	$177	$115	$ 24	$17	$58	$107	$307	$166	$ 74	$46	$26	$32
1910	1,214	223	135	31	16	56	120	282	180	77	36	26	32
1911	1,225	196	160	37	13	56	126	269	185	80	41	30	33
1912	1,281	184	147	55	17	57	135	312	174	83	53	31	34
1913	1,354	229	161	68	23	57	143	283	195	85	46	28	36
1914	1,411	198	188	73	21	57	146	333	196	87	50	27	35
1915	1,419	173	160	93	28	57	150	346	196	90	62	29	36
1916	1,524	219	162	145	25	59	159	318	214	93	55	35	39
1917	1,951	287	221	187	44	76	171	442	256	99	62	56	50
1918	2,384	363	293	201	63	82	172	581	340	109	68	50	61
1919	2,837	456	326	298	49	95	210	633	430	133	82	58	67
1920	3,143	527	379	431	42	73	233	568	503	166	87	58	77
1921	2,307	255	206	330	27	34	276	341	479	194	74	43	47
1922	2,133	251	198	355	29	42	240	367	321	184	62	37	46
1923	2,485	378	230	428	25	49	236	462	355	175	61	36	50
1924	2,364	337	231	316	30	41	236	499	357	175	63	30	49
1925	2,352	403	257	383	30	35	120	461	327	172	85	30	48
1926	2,446*	443	282	379	31	33	140*	452*	327*	171*	104		
1927	2,432*	479	206	362	27	32	125*	570*	278*	171*	101		
1928	2,572*	487*		403	29	37*	115*	615*					

[a] Based upon *Census of Agriculture* and reports of U. S. Department of Agriculture. Payments to landlords and mortgage holders are not included here, for these payments are considered part of income of the agricultural industry.

* Preliminary estimate.

divided into three shares: namely, the interest paid to mortgage holders, the rent paid to landlords, and the amount remaining, which is the realized income of farmers and their families. It should be kept in mind that the figures in Column B, representing as they do realized income, take no cognizance of the sweeping changes in the value of farm property which have occurred during this period.

The share of the owners of leased farms has grown much less rapidly than has the share of the mortgage holders. When both amounts are expressed in terms of the dollars current at the various

TABLE XCVII

REALIZED INCOME OF THE AGRICULTURAL INDUSTRY[a]

(MILLIONS OF CURRENT DOLLARS)

Year	A Receipts[b]	B Payments to Other Industries[c]	C Realized Agricultural Income A-B	D Wages and Salaries[d]	E Income of Entrepreneurs and of Property[e] C-D
1909	$6,049	$1,147	$4,902	$ 717	$4,185
1910	6,341	1,214	5,127	715	4,413
1911	5,946	1,225	4,722	751	3,971
1912	6,479	1,281	5,198	754	4,444
1913	6,388	1,354	5,034	776	4,258
1914	6,393	1,411	4,982	756	4,226
1915	6,804	1,419	5,385	773	4,612
1916	8,046	1,524	6,523	828	5,694
1917	11,026	1,951	9,074	1,029	8,045
1918	13,473	2,384	11,089	1,213	9,876
1919	14,889	2,837	12,051	1,491	10,561
1920	14,042	3,143	10,899	1,663	9,236
1921	9,098	2,307	6,791	1,405	5,386
1922	9,264	2,133	7,132	1,203	5,928
1923	10,350	2,485	7,864	1,231	6,633
1924	10,527	2,364	8,163	1,232	6,931
1925	11,280	2,352	8,929	1,253	7,676
1926	10,498*	2,446*	8,052*	1,272*	6,779*
1927	10,642*	2,432*	8,210*	1,252*	6,958*
1928	10,519*	2,572*	7,947*	1,279*	6,668*

[a] Includes interest received by mortgage holders and rent received by landlords.
[b] See Table XCV.
[c] See Table XCVI.
[d] See Table XIX.
[e] Exclusive of imputed rent on owned homes.
* Preliminary estimate.

dates, we see that the rent of leased farms increased by about 60 per cent between 1909 and 1927, while, during the same period, payments of interest to non-farm mortgage holders practically trebled. The realized income of farmers, also expressed in gold dollars, rose by about 65 per cent, a fraction slightly greater than the increase in rent accruing to landlords. Apparently farmers tend to receive something less than 6 per cent of their entire realized income from sources other than agriculture. This percentage has

not changed radically between 1909 and 1927 except during the ups and downs of inflation and deflation, when it oscillated decidedly.

Entire Realized Income of Farmers (1913 Dollars).

The figures in Column F of Table XCVIII have been divided by indices of the prices of the direct or consumers' goods used by farmers and the results are shown in Column H. The fact should be carefully noted that the index appearing in Column G represents the price of consumers' goods only, and hence is very different from the index compiled by the United States Bureau of Agricultural Economics showing the prices of all goods bought by farmers. The index in Table XCVIII includes the prices of goods produced on the farm and also consumed there, as well as the prices of goods purchased by the farmer for the direct use of himself or his family, but not the prices of goods bought for business purposes.

When all quantities are expressed in dollars of constant purchasing power, the income of all farmers was roughly stationary between 1909 and 1915, then rose sharply until 1918, declined somewhat in 1919, fell off rapidly in 1920, and tumbled precipitously in 1921. The much heralded prosperity of the farmer in 1918 and his poverty in 1921, were, then, no mere figments of the imagination, for the total income of all farmers in 1921 would buy but slightly more than half as many direct goods as would their income in 1918. The purchasing power of the income of all farmers taken as a unit increased regularly each year from 1921 until 1927 with a slight decline in 1926. By 1923, it approximately equalled the figure for 1915 which was considered a good year for agriculture. The income in 1925 was about half way between the income of 1915 and that of 1916, in both of which years the farmers were sharing in the prosperity brought on by European war orders.

Realized Income per Farmer (1913 Dollars).

Column J represents an estimate of the average realized income, in terms of 1913 dollars, per farm family. The figures in this column show that the income per farm family remained between the limits of $550 and $625 during the entire period 1909 to 1914, then rose steadily to a sum of $876 in 1918, after which it fell abruptly to $451 in 1921. The recovery after 1921 was steady until $658 was attained in 1927 except for a slight decline in 1926. This average was materially higher than the average for 1915, the year which, up to that time, was the best in the period recorded. Only

TABLE XCVIII

REALIZED INCOME OF FARMERS[e]

(MILLIONS OF DOLLARS)

Year	A	B	C	D	E	F	G	H	I	J
	Realized Entrepreneurial and Property Income from Agriculture[a]	Payments to Non-Farmers[b]		Realized Income of Farmers		Entire Realized Income of Farmers	Index of Prices of Goods Used by Farmers[d]	Entire Realized Income in 1913 Dollars	Number of Farmers (thous.)	Realized Income of Farmer and Family in 1913 Dollars
		Interest	Rent	From Agriculture A-(B+C)	Other[c]	D+E		F÷G		H÷I
1909	$4,185	$ 76	$ 628	$3,481	$232	$3,714	.968	$3,838	6,289	$610
1910	4,413	79	671	3,663	241	3,904	.995	3,925	6,307	622
1911	3,971	84	720	3,167	246	3,413	.973	3,509	6,322	555
1912	4,444	88	700	3,656	249	3,905	.987	3,958	6,336	625
1913	4,258	93	721	3,444	255	3,699	1.000	3,699	6,346	583
1914	4,226	101	734	3,391	256	3,647	1.008	3,617	6,353	569
1915	4,612	110	751	3,752	264	4,015	.985	4,078	6,359	641
1916	5,694	125	812	4,757	274	5,030	1.108	4,540	6,365	713
1917	8,045	144	916	6,986	289	7,275	1.409	5,165	6,369	811
1918	9,876	160	1,023	8,692	310	9,002	1.613	5,581	6,374	876
1919	10,561	200	1,173	9,187	359	9,546	1.845	5,175	6,378	811
1920	9,236	238	1,193	7,805	430	8,234	2.001	4,114	6,381	645
1921	5,386	247	1,136	4,002	484	4,486	1.557	2,881	6,387	451
1922	5,928	240	1,016	4,671	477	5,148	1.481	3,475	6,271	554
1923	6,633	238	1,009	5,387	461	5,848	1.452	4,029	6,297	640
1924	6,931	234	1,049	5,647	449	6,096	1.466	4,157	6,344	655
1925	7,676	235	1,073	6,367	431	6,801	1.588	4,283	6,317	678
1926	6,779*	236*	1,055	5,488*	424	5,912*	1.621	3,647*	6,200*	588*
1927	6,958*	238*	989*	5,730*	428*	6,158*	1.529	4,028*	6,124*	658*

[a] See Table XCVII. Excludes imputed rent on owned homes.

[b] Based upon *Census of Agriculture* and reports from U. S. Department of Agriculture.

[c] Derived after study of L. C. Gray's article on "Accumulation of Wealth by Farmers"—American Economic Review, March 1923. Includes imputed rent of owned homes.

[d] See Table VII.

[e] Includes income of farmers and members of their families, but excludes income of hired employees

* Preliminary estimate.

in the four years 1916 to 1919, which were obviously years of abnormal prosperity for the farmers, was this level ever reached before. The available evidence indicates that the condition of the farmer during the period following 1923 was better than it had been before

the World War. Farm incomes in terms of dollars were still very low as compared to those in the city, but this was true in pre-war as well as in post-war days. There seems, then, to be no ground for the frequently repeated assertion that, in recent years, the condition of the farmer has been absolutely worse than it was before 1914, but it is true that he has failed to obtain his proportion of the remarkable increase in income characterizing the period beginning with 1923.

Changes in the Real Value of Farm Property.

As previously stated, the figures in Table XCVIII fail to make allowance for the changes in property value which have occurred during the period in question. These variations in the value of the farmer's wealth have been so tremendous that, when they are taken into consideration, a very different picture is given of the year-to-year changes which have taken place in the income of the farmers of the nation. As in the other studies of property values previously noted in this report, all quantities at all dates have been expressed in terms of command over consumers' goods—that is, the changes in value of property, when measured in terms of 1913 dollars, represent the changes in the amount of direct goods which could have been obtained for the amount of money represented by the value of the property at the various dates.

Column B of Table XCIX shows the tremendous amplitude of the fluctuations in the value of farm property. In 1915, the increase in value amounted to 3 ¾ billions, while, in 1916, the total value of farm property fell off by nearly 5 billions. The value of farm property declined in 10 years and increased in only 7 of the years in this period. Furthermore, in the 17 years covered, the gains aggregated only about 13 billions and the losses about 21 billions. The farmer, therefore, had to deduct from his realized income approximately 8 billions of dollars in order to arrive at his actual total income. When the deductions for the years of heavy losses are made, we find that, in 1916, the farmers actually had a negative total income, for, while the value of farm property was increasing, it was increasing so much more slowly than the value of consumers' goods that the loss in purchasing power exceeded realized income. Column G of Table XCIX shows that, when changes in property values are taken into account, the average income of the farmer and his family varied from a $60 deficit in 1916 to a net income of $1,230 in 1915. On this basis, both 1921

TABLE XCIX

TOTAL INCOME OF FARMERS[d]

Year	A	B	C	D	E	F	G	H
	Entire Realized Income in 1913 Dollars[a] (Millions)	Property Gains in 1913 Dollars[b] (Millions)	Total Income of Farmers in 1913 Dollars (Millions) A+B	Index of Prices of Goods Used by Farmers[c]	Total Income of Farmers in Current Dollars (Millions) C×D	Number of Farmers[a] (Thous.)	Income of Farmer and His Family	
							1913 Dollars C÷F	Current Dollars E÷F
1909	$3,838	$—1,827	$2,011	.968	$1,946	6,289	$ 320	$ 309
1910	3,925	1,206	5,130	.995	5,103	6,307	813	809
1911	3,509	1,012	4,521	.973	4,397	6,322	715	696
1912	3,958	3,027	6,985	.987	6,892	6,336	1,102	1,088
1913	3,699	—708	2,991	1.000	2,991	6,346	471	471
1914	3,617	2,795	6,411	1.008	6,465	6,353	1,009	1,018
1915	4,078	3,743	7,821	.985	7,701	6,359	1,230	1,211
1916	4,540	—4,922	—381	1.108	—423	6,365	—60	—66
1917	5,165	—2,998	2,167	1.409	3,052	6,369	340	479
1918	5,581	—1,710	3,871	1.613	6,244	6,374	607	980
1919	5,175	—930	4,245	1.845	7,831	6,378	666	1,228
1920	4,114	1,097	5,211	2.001	10,429	6,381	817	1,634
1921	2,881	—2,396	485	1.557	755	6,387	76	118
1922	3,475	170	3,646	1.481	5,400	6,271	581	861
1923	4,029	—645	3,383	1.452	4,911	6,297	537	780
1924	4,157	—2,013	2,144	1.466	3,144	6,344	338	496
1925	4,283	—3,243	1,040	1.588	1,651	6,317	165	261
1926	3,647*	218*	3,865*	1.621	6,265*	6,200*	623*	1,010*
1927	4,028*	1,081*	5,108*	1.529	7,810*	6,124*	834*	1,275*

[a] See Table XCVIII.
[b] See Table LI.
[c] See Table VII.
[d] Includes income of farmers and members of their families, but excludes income of hired employees.
* Preliminary estimate.

and 1925 appear to have been very bad years for the farmers, the average farm family in 1921 netting only $76 and in 1925 only $165. Next to 1915, the years 1914 and 1912 were, for the farmer, the two best of the 17 years covered by this investigation.

Comparison of Realized and Total Income of Farmers.

In Chart 48, we find pictured the fluctuations which have occurred in the realized income and also in the total income of

farmers. The fact that the last mentioned quantity is much more irregular than the former is brought out vividly by this chart. Those interested in knowing more of the details of the calculations of the income of farmers will do well to refer to Chapter IX of the publication of the National Bureau of Economic Research entitled *Income in the Various States.*

Entrepreneurial Return of Farm Families.

It has been the custom in the past for many students of agricultural income to estimate what is commonly referred to as the "labor income" of the farmer. In calculating this quantity, the procedure normally followed is to subtract from the total income of the farmer an allowance for interest on his investment. The results of a computation of a somewhat similar nature appear in Table C. In this table, an allowance of 5½ per cent of the value at the beginning of the year of the property owned by farmers has been deducted from the total income derived by farmers from agriculture. It may be contended that, logically, the interest rate used should have been varied from time to time. There is good ground for so doing, but it was felt that, since the interest rate on farm mortgages is the one which seems most logical for use in this particular computation, and since the rate on farm mortgages is so inelastic and comes so near to remaining constant year after year, it was scarcely worth while to use different rates for different periods. Column D shows us that, when the deduction calculated in Column B has been made, the remaining income, namely that which is supposed to compensate the farmer for his entrepreneurial services, and also to compensate both the farmer and the members of his family for their physical labor, is an extremely variable quantity ranging from $384 loss in 1916 to $1,161 of positive income in 1920. The variability of this figure is indicated in Chart 48. After eliminating the cyclical fluctuations, the trend is seen to have been distinctly upward during the early part of the period after which it dropped precipitously in 1916, and thereafter remained on a lower level. The years in which the farmer and his family were most adequately rewarded for their services were 1912, 1915, 1919, 1920, and 1927, and the years in which their net reward fell below zero were 1916, 1921 and 1925. In both 1909 and 1917, the incomes did not actually go below the zero mark, but were only $50 and $136 respectively.

TABLE C

TWO HYPOTHETICAL APPORTIONMENTS OF THE AGRICULTURAL INCOME OF FARMERS

Year	A	B	C	D	E	F	G
	Total Income of Farmers from Agriculture[a] (Millions)	5½% of Property Investment of Farmers[b] (Millions)	Income Ascribable to Efforts of Farmers and Members of Family		Wage Allowance for Farmers and Families[d] (Millions)	Income Ascribable to Property (Millions)	Per Cent of Value of Business Property[e]
			Total (Millions)	Per Farm Family[c]			
			A-B			A-E	
1909	$1,714	$1,399	$ 314	$ 50	$3,011	$—1,298	—5.10
1910	4,862	1,442	3,419	542	2,929	1,932	7.37
1911	4,152	1,461	2,691	426	3,072	1,079	4.06
1912	6,643	1,459	5,184	818	3,165	3,477	13.11
1913	2,736	1,548	1,188	187	3,249	—513	—1.82
1914	6,209	1,594	4,615	726	3,206	3,003	10.36
1915	7,437	1,613	5,824	916	3,238	4,199	14.32
1916	—696	1,747	—2,443	—384	3,529	—4,226	—13.30
1917	2,763	1,899	864	136	4,349	—1,586	—4.59
1918	5,935	2,230	3,705	581	5,067	867	2.14
1919	7,472	2,456	5,015	786	6,064	1,408	3.15
1920	10,000	2,593	7,407	1,161	6,950	3,050	6.47
1921	271	2,258	—1,986	—311	5,949	—5,677	—13.83
1922	4,924	1,731	3,193	509	5,594	—670	—2.13
1923	4,450	1,665	2,785	442	5,805	—1,355	—4.48
1924	2,695	1,646	1,049	165	5,959	—3,264	—10.90
1925	1,217	1,619	—402	—64	5,967	—4,750	—16.14
1926	5,841*	1,586*	4,255*	686*	5,958*	—117*	—.41*
1927	7,382*	1,486*	5,896*	963*	5,861*	1,521*	5.63*

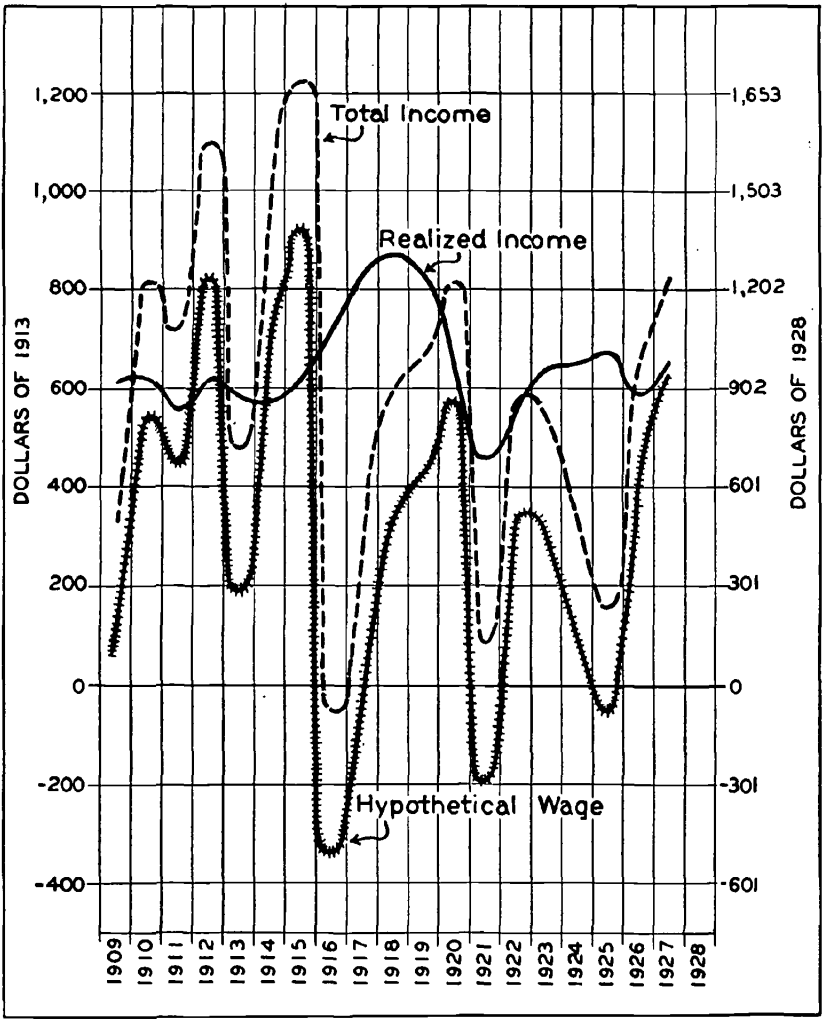
[a] Column D of Table XCVIII + (Column B × Column D of Table XCIX).
[b] 5½ × Column K of Table XCIV.
[c] Column C ÷ number of farmers.
[d] Number of farmers × 1½ × average wage of hired men.
[e] Column F ÷ Column K of Table XCIV.
* Preliminary estimate.

Percentage Return on Farmers' Investments.

Farm income may also, with equal logic, be viewed from an entirely different angle. If, instead of allowing interest on the farmer's investment as a primary charge, we calculate instead a minimum wage allowance for the services of the farmer and his family, and deduct this allowance from the total income of the

CHART 48

REALIZED INCOME, TOTAL INCOME, AND HYPOTHETICAL WAGE PER FARMER AND HIS FAMILY[a]



[a] For data, see Tables XCVIII, XCIX and C.

farmers, we shall have an estimate of the amount of income ascribable to farm property. By dividing this remaining income by the value of the property at the beginning of the year, we can ascertain the farmer's rate of return on his investment. In Column E of Table C, we have calculated the wage allowance for the farmers by assuming that the services of the farmer and his family together should be worth 1½ times the wage of a hired man, an allowance which certainly seems low enough. On this basis, it appears from the figures in Column G that, in 9 years out of the 17, the return on the farmer's investment was less than nothing, the highest net loss being more than 16 per cent in 1925, with losses of 13 per cent in both 1916 and 1921, and 11 per cent in 1924. The maximum gain, which occurred in 1915, amounted to 14 per cent. Gains of 10 per cent in 1914, and 13 per cent in 1912, were also recorded. When the percentages for the 19 years are added algebraically, we find that the aggregate of losses exceeds the aggregate of gains, the sum showing an average annual net loss on the farmers' investment of about 0.3 per cent.