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CHAPTER VII

Price Movements, 1922-1929

THE generation of men whose business experience covered the quarter century that ended in 1920 had become accustomed, in all their business dealings, to the nourishing influence of rising prices. First there was the relatively gentle rise from the middle 'nineties to the outbreak of the World War, a rise that served nicely to keep labor costs and fixed costs down, that gave that sense of well-being which comes from steadily appreciating capital values and inventories, that gently but persistently lifted business from the doldrums of occasional depression without necessitating liquidation that cut to the heart. Later the stronger stimulus of sharply rising prices carried profits to new levels, swelled the stream of values which is of prime concern to business men, and gave to many the heady experience of sudden wealth.

To a generation thus habituated came in 1920 and 1921 the profound shock of a drop in values more sudden and severe than any they had ever known, a drop which altered overnight the values of the counters in terms of which business is conducted, and changed radically the positions and holdings of all the players in the game. There ensued eight years of comparative calm, during which the conditions left by the readjustment were explored and favorable opportunities were exploited, while those countries and classes unfavorably affected became somewhat inured to the adverse forces released by the war and post-war storms. Then came another catastrophic drop in prices, distorting values, altering profoundly the relative positions of different economic agents, and introducing new uncertainties into business dealings.

An earlier chapter has dealt with some of the consequences of the first great post-war drop in commodity values. Subsequent studies of the National Bureau will be concerned with the character and the effects of the most recent storm. Our present interest lies in the conditions and tendencies prevailing between these two major recessions.

Movements of the Level of Wholesale Prices. Price Trends and Cycles

Changes in the general level of prices between 1922 and 1929 are defined by the following measurements.

TABLE 133

Changes in the Level of Wholesale Prices in the United States, 1922-1929

Year	Index numbers of wholesale prices [a]	Year-to-year change in wholesale prices (per cent)
1922	100.0	——
1923	104.0	+4.0
1924	101.4	−2.5
1925	107.0	+5.5
1926	103.4	−3.4
1927	98.7	−4.5
1928	100.0	+1.3
1929	98.6	−1.4

[a] The index numbers are those of the U. S. Bureau of Labor Statistics, with base shifted to 1922.

The net movement of the level of wholesale prices between 1922 and 1929 was slightly downward, the rate of decline averaging 0.5 per cent a year. But this average does not describe with accuracy the actual course of prices, which were rising from 1922 to 1925, and declining thereafter at an average annual rate of 2.0 per cent. This declining trend of commodity prices, contrasting so sharply with the advance which had persisted during the preceding quarter century, is one of the most striking characteristics of the post-war economic situation. The causes of this movement are both complex and obscure. A decline in the rate of increase in world production of gold, an increasing demand for gold as the restoration of stable monetary standards proceeded, a distribution of gold stocks not accurately proportioned to the monetary and commercial needs of the world, increasing productivity of labor and falling costs in the production of both raw and manufactured goods, a constantly growing volume of production of world staples, and, in the United States at least, the concentration in the markets for securities and for urban realty of much of the new purchasing power represented by expanding credit—these probably contributed in varying degrees

to the decline of wholesale prices which persisted even during the prosperous times preceding the recession of 1929.

This movement, considered in relation to general price changes after 1920, bears the earmarks of a secular trend. We may not say whether this movement will continue, but it is pertinent to inquire into the relation between the trend of average prices and the behavior of commodity prices during periods of business expansion and recession. In doing this we take no account of the prolonged recession which began in 1929. The present study deals only with the record of events occurring prior to 1930.

Between May, 1897, and February, 1919, there were six complete cycles in American business, each including a period of advancing prices and a period of declining prices. The average duration of the period of advancing prices was 31 months. The average duration of the period of falling prices was 12 months. The typical price cycle consisted of two and one-half years of rising prices and one year of falling prices.

Between February, 1919, and May, 1927, three price cycles may be traced. During these cycles the upward movement of prices continued for sixteen months, on the average, while the downswing averaged seventeen months in duration. The price recession which began in 1929 followed sixteen months of advancing prices and ten months of slightly sagging prices.

It is reasonable to conclude that the difference between these records arises out of the differing trends of the level of prices. A persistent secular advance, such as that prevailing between 1897 and 1920, expresses itself in prolonged periods of cyclical price rise, curtailed periods of cyclical decline. Declining prices represent brief intermissions in an era of general advance. A falling price level is similarly manifest in shortened periods of cyclical rise, extended periods of cyclical decline. (Between May, 1892, and May, 1897, there were two cycles, with the period of price advance averaging eight months in duration, the period of price decline averaging twenty-two months.) Under these conditions, it is rising prices which appear as brief departures from the prevailing trend.

§ *World movements of wholesale prices.*—Confirmatory evidence on the prevailing trend of prices is found in the movements of prices abroad. In preparing the following table the records of price changes in twenty-nine countries between 1923 and the beginning of the price drop associated with the recession of 1929 have been surveyed, and the

high point of prices during this period noted in each case. All index numbers cited are on the 1926 base.

TABLE 134

PRE-RECESSION BEHAVIOR OF WHOLESALE PRICES IN 29 COUNTRIES, 1923-1929

(1)	(2) (3) Pre-recession high		(4) (5) Recession high		(6) (7) Pre-recession decline [a]	
Country	Date	Price index 1926=100	Date	Price index 1926=100	Duration (in months)	Percentage
	1923					
Australia	July	112.0	Sept. 1929	101.4	74	9.5
Dutch East Indies	Dec.	110.7	May 1929	94.3	65	14.8
	1924					
Switzerland	Feb.	123.8	July 1929	98.8	65	20.2
New Zealand	Sept.	108.1	Sept. 1929	96.5	60	10.7
British India	Oct.	119.2	Sept. 1929	96.6	59	19.2
British South Africa	Oct.	108.1	Jan. 1929	97.6	51	9.7
Japan	Nov.	119.8	Dec. 1928	97.1	49	18.9
Netherlands	Nov.	111.0	Mar. 1929	101.4	52	8.6
Hungary	Dec.	129.0	Mar. 1929	109.7	51	15.0
Spain	Dec.	109.4	Nov. 1928	97.2	47	11.2
	1925					
Austria	Jan.	119.5	May 1929	109.8	52	8.1
Canada	Jan.	106.0	Aug. 1929	98.4	55	7.2
Czechoslovakia	Jan.	109.9	Feb. 1929	100.9	49	8.2
Denmark	Jan.	149.1	Feb. 1929	97.5	49	34.6
Great Britain	Jan.	115.5	Mar. 1929	94.6	50	18.1
Egypt (Cairo)	Feb.	122.0	Nov. 1928	97.7	45	19.9
Norway	Feb.	141.9	Aug. 1928	81.8	42	42.4
Sweden	Feb.	113.4	May 1928	102.0	39	10.1
Bulgaria	Feb.	117.6	May 1929	120.0	51	+2.1 [b]
Estonia	Mar.	112.3	Mar. 1929	107.9	48	3.9
Poland	Mar.	133.3	Mar. 1929	111.6	48	16.3
Lithuania	Apr.	114.9	Apr. 1929	102.2	48	11.1
Finland	Aug.	105.0	Aug. 1928	103.0	36	1.9
Germany	Sept.	107.4	Mar. 1929	103.9	42	3.3
United States	Nov.	104.5	July 1929	96.5	44	7.7
	1926					
Belgium	July	117.7	Mar. 1929	116.8	32	0.8
France	July	119.0	Mar. 1929	91.0	32	23.4
Italy	Aug.	115.7	Mar. 1929	76.3	31	27.8
	1927					
Peru	May	102.0	Mar. 1929	93.1	22	8.7

[a] To date of beginning of price decline associated with current recession. In most cases this was not a persistent decline, but included some advances.

[b] In Bulgaria the net movement of prices was upward over this period.

It is a noteworthy fact that in each of these twenty-nine countries, with the single exception of Bulgaria, wholesale prices reached a level, at some date prior to 1928-1929, higher than that from which the recession of 1929 began. In nearly all cases this high point was attained in 1924 or 1925, so that before the cyclical recession began prices had been declining for from three to five years. The degree of pre-recession decline of prices ranged from less than one per cent (in Belgium) to more than 40 per cent (in Norway).

These price movements should be viewed in relation to the post-war resumption of the gold standard, which restored the ties between gold and commodity prices. This process began in 1919, when the United States removed war-time restrictions upon gold exports. During the chaos of the years 1920-1923 little more was done, but in 1924 the movement was resumed. By 1927 most of the industrial countries previously on a gold standard were again within the fold and, in addition, certain other countries not previously on a gold standard had sought stability in the same direction. The sequence of restoration is indicated by the following summary:

Country	Date of restoration (or establishment) of gold standard	Date of restoration of stability of exchange on New York
United States [a]	June 1919	———
Lithuania	Aug. 1922	Aug. 1922
Latvia	Nov. 1922	Mar. 1922
Austria * [b]	Jan. 1923	Sept. 1922
Sweden	Apr. 1924	Aug. 1922
Germany *	Oct. 1924	June 1924
Switzerland *	Nov. 1924	Nov. 1924
Netherlands	Apr. 1925	Nov. 1924
United Kingdom	May 1925	May 1925
Australia	May 1925	May 1925
New Zealand	May 1925	May 1925
Union of South Africa	May 1925	May 1925
Hungary * [c]	May 1925	Jan. 1925
Finland *	Dec. 1925	Mar. 1924
Chile *	Jan. 1926	Oct. 1925
Czechoslovakia *	Apr. 1926	Feb. 1923
Canada	July 1926	July 1924
Belgium *	Oct. 1926	Oct. 1926
Bulgaria *	Jan. 1927	Jan. 1924
Denmark	Jan. 1927	Mar. 1926
British India *	Mar. 1927	May 1925
Argentina	Aug. 1927	Mar. 1927
Poland *	Oct. 1927	Nov. 1926
Italy *	Dec. 1927	Dec. 1927
Estonia *	Jan. 1928	Nov. 1924
Norway	May 1928	Sept. 1927
Greece *	May 1928	Jan. 1927
France	June 1928	Dec. 1926
Rumania *	Feb. 1929	Feb. 1929

* Redemption permitted in gold exchange.
[a] Restrictions on export of gold removed.
[b] National Bank under obligation to keep its notes at gold par.
[c] Stabilized with reference to the British pound, Aug. 1924.

All cyclical price declines have certain common characteristics. The prices of some commodities are more sensitive than others to the forces of recession. Raw materials react more sharply than manufactured goods; producers' goods (i.e., goods not yet in shape for final consumption) feel the influence of price changes more promptly than do consumers' goods (goods ready for consumption or use by final consumers). It is among manufactured goods, and particularly, among manufactured consumers' goods, that the process of liquidation is most painful. For among these goods relatively inflexible costs and established prices play far more important parts than they do among raw materials and producers' goods in general. The difficulty of reducing overhead charges in manufacturing and distribution, obstacles to the reduction of labor costs, the inertia of established prices among packaged and trade-marked goods all tend to retard liquidation among fabricated goods and consumers' goods. Yet in a time of general price recession some decline there must be among the prices of these goods in order that reduced aggregate incomes of producers of raw materials, of industrial laborers and of other classes of consumers may be adequate to the moving of goods offered for sale.

These characteristics of periods of price recession are familiar. What is of exceptional interest now, in view of the possibility that the force of a secular price decline is accentuating the cyclical price recession, is the difference between the problems of liquidation during eras of rising and of falling prices. When the long-term movement of prices is upward, lagging liquidation of the prices of manufactured goods is in part compensated by forces related to the long-term trend. For under these conditions the cyclical phase of falling prices is brief, and only a moderate degree of price decline appears to be necessary before readjustment of price relations is established. Drastic price-cutting and forced readjustment of costs by manufacturers are not so essential, because the upward push of cheapening money will help to check the fall of raw materials and of producers' goods, and to start their prices again advancing. For it is just these commodities which are most sensitive to changes in the value of money. The secular force of rising prices serves both as a cushion during recession and as a springboard during revival to these more sensitive commodity groups.

These conditions are reversed during a recession which occurs when the trend of prices is declining. The more sensitive raw ma-

terials and producers' goods still fall first and fall farther during such a recession, but the cushion to the drop and the springboard to revival are no longer there. In their place is an intensification of the cyclical forces responsible for the price decline, an intensification due to the long-term tendency toward a lower price level. If the prices of manufactured goods and of consumers' goods are to stay within hailing distance of those first to fall, reduction of fixed costs and of standard selling prices is essential. For these groups, also, the difficulties of price readjustment are aggravated at such a time. A longer period of liquidation, more severe price declines and the absence of the cushioning influence of a rising trend all serve to accentuate the problem which manufacturers and dealers face. Indeed, the prolongation of the period of cyclical recession during eras of declining prices is probably due in considerable part to the excessive difficulties of price liquidation and cost reduction at such times.

The difficulties of readjusting the prices of manufactured goods to a lower general level will be more severe the greater the investment in capital equipment, the more important the element of overhead costs in the expenses of production. It is these costs which are most difficult to reduce when prices are falling. Because our present investment in industrial equipment is much heavier than at any earlier time, it is probable that the stresses of a continual readjustment among prices and costs necessitated by a protracted period of falling prices would place a more severe strain on the industrial system than did any of the price declines of the eighteenth or nineteenth centuries. In tracing the record of recent price changes we should bear in mind the probability that a secular price decline is accentuating cyclical recessions and intensifying the difficulties of readjustment which prevail after a major check to business prosperity.

The Influence of Price Changes on Aggregate Values, 1922-1929

During the period preceding the outbreak of the World War a steadily rising volume of production was converted into a still more rapidly swelling stream of values through the agency of advancing prices. This process, a generally happy one for producers and traders, continued at a sharply accelerated pace until 1920. During the following year price liquidation cut the stream of values in half,

intensifying the losses which accompanied declining physical output.

The net effect of general price changes in the period now under review was to cause the stream of values to rise less rapidly than physical production. Changes in aggregate values are approximated by the estimates in the following table. These series are plotted in Figure 58.

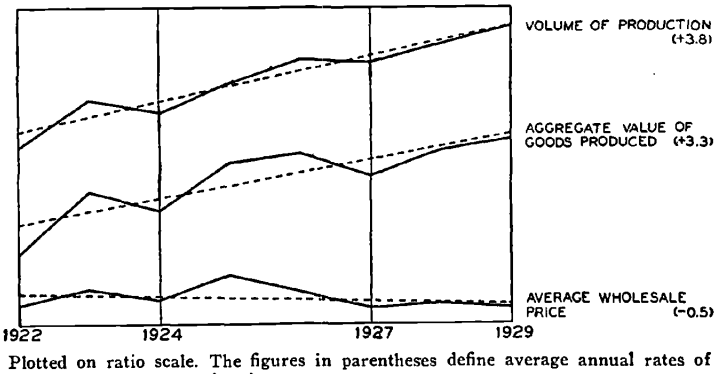
TABLE 135

INDEX NUMBERS OF PHYSICAL VOLUME, PRICES AND AGGREGATE VALUES OF GOODS PRODUCED IN THE UNITED STATES, 1922-1929

Year	Physical volume of production (excluding construction)	Wholesale prices	Aggregate values in wholesale markets
1922	100	100	100
1923	112	104	116
1924	109	101	111
1925	117	107	125
1926	124	103	128
1927	123	99	121
1928	129	100	129
1929	134	99	132
Average annual rate of change (per cent)	+3.8	−0.5	+3.3
Index of instability	2.1	2.0	3.9

FIGURE 58

CHANGES IN VOLUME OF PRODUCTION, AVERAGE PRICE AND AGGREGATE VALUE OF GOODS PRODUCED IN THE UNITED STATES, 1922-1929



Plotted on ratio scale. The figures in parentheses define average annual rates of change (in percentage form).

Between 1922 and 1925 both production and price factors served to swell commercial values; thereafter increasing volume of output alone contributed to expanding values, and the rate of advance was correspondingly reduced. The net rate of gain in aggregate values over the period averaged 3.3 per cent a year, as against a pre-war rate of 4.9 per cent. To one thinking in terms of aggregate values growth was more rapid in pre-war years. But there was more substance to the growth of 1922-29, a more rapid advance in the output of physical goods.

Price Stability and Economic Flexibility

In an individualistic, competitive economy prices perform the rôle that would fall to a dictator under a completely centralized system. The allocation of productive energies among the various fields of economic endeavor, the division of labor among the thousands of occupations practiced in a modern industrial economy, the apportionment of capital, the distribution of goods in time and space so that supply and demand may be properly balanced against each other in each of the tens of thousands of consumption centers of the world—all these are tasks which prices perform. Faultless coördination has, of course, never been attained. Feasts and famines, lean years and fat, plenty here and scarcity there, unemployed capital and unemployed labor—these have always alternated, or rubbed shoulders. But it has been supposed that with the spread of the money economy (and the concomitant development of modern agencies for the dissemination of information, the transportation of goods, the transference of capital) these economic maladjustments would progressively diminish. There is good reason to believe that the general tendency has been in this direction; industrial civilization, under a money economy, has given a higher standard of living to the average man, and has brought greater uniformity and stability of economic standards over broad areas. Instability and uncertainty—the vagaries of weather and of war and the accidents of trade—have persisted, it is true, but in a long view their importance has declined. The price system, developing with modern industrialism, has served to coördinate with a surprising degree of accuracy the elements of the highly complex structure of interdependent parts that constitutes the world economy.

The effective performance of this function is dependent upon

the existence of a number of conditions. Freedom of competition, the full mobility of labor and of capital and, as a condition to which these contribute, the existence of free and uncontrolled prices of commodities, services, capital and credit—all these are essential to the coördination of economic processes in an individualistic and capitalistic economy.[1] To the extent that these conditions are not realized, a nice adjustment of the working parts of national economies and of the world economy will not be attained.

It is difficult to set up standards for determining the degree to which these conditions prevail at given times. It is possible, as we have seen, to measure the variability of prices. In earlier chapters a sustained decline in price variability during pre-war years and a sharp rise in price variability during the war and immediate post-war years have been traced. That the high price variability of the war years was followed by an era of more stable prices is readily demonstrated. But we cannot, on the basis of the statistical evidence alone, define the point at which stability becomes rigidity, nor say when sensitivity to market changes is lost. The pre-war decline in price variability, the excessive instability of the war years and the decreasing variability characteristic of the years between 1922 and 1929 are revealed by the measurements given in Table 136. The indexes of variability are supplemented by an index of year-to-year dispersion.

The entries in column (2) are averages of measurements relating to approximately 200 series of wholesale price quotations. For each of these series the mean deviation of the monthly prices about the average price for the year has been computed, and it is these individual mean deviations which have been averaged to secure the measurements given in the table. The sharp drop in variability which followed the troubles of 1920-21, a drop which carried the index to levels comparable with the lowest prevailing before the war, is the most striking feature of the table.[2]

Inequalities or variations in the year-to-year price movements of the several hundred individual commodities entering into the

[1] Such full mobility and freedom of competition may entail other difficulties, not here discussed. The above statement of the conditions theoretically essential to the working of a competitive economy does not imply that these conditions represent a state of economic perfection, nor that the attainment of a perfectly free price system is necessarily a desirable objective of economic policy.

[2] The rising trend of prices prior to the war would tend to increase slightly (by something less than 0.5) the pre-war measurement of average variability.

TABLE 136

MONTHLY VARIABILITY AND DISPERSION OF WHOLESALE PRICES IN THE UNITED STATES, 1890-1929

(1) Period or year	(2) Average of measurements of monthly variability, individual commodities [a]	(3) Monthly variability, index of U. S. Bureau of Labor Statistics [a]	(4) Index of year-to-year price dispersion [b]
1890-1897	4.6	2.2	9.1 *
1898-1905	4.7	1.9	8.7
1906-1913	4.2	1.7	7.7
1914-1921	8.3	4.3	13.0
1922-1925	5.3	1.8	10.6
1926-1929	4.0	0.9	7.9
1922	6.6	3.1	11.7
1923	4.8	2.0	11.0
1924	5.5	1.6	8.3
1925	4.4	0.7	11.5
1926	4.2	1.1	8.9
1927	4.8	1.0	9.2
1928	3.4	0.7	7.8
1929	3.7	0.8	5.6

* 1891-1897.

[a] The measure of monthly variability is the mean deviation of average monthly prices from the average price for the year, expressed as a percentage of the annual mean. See *The Behavior of Prices*, pp. 39-49. The entries in column (2) are the unweighted arithmetic averages of such measurements relating to 207 price series for the periods between 1890 and 1922, and to 201 price series for the years 1922 to 1929.

[b] The index of dispersion is the antilogarithm of a fractional part (.6745) of the logarithmic standard deviation. It defines, in percentage form, the approximate limits of the zone within which would fall 50 per cent of the price relatives at a given date, and on a given base. Thus a value of 10 for a given date means that, on that date, approximately half the price relatives deviated from the geometric mean of all the relatives by less than 10 per cent. For a full description of this measure see *The Behavior of Prices*, pp. 256-262. The entries in col. (4) relate to 195 price series for the years 1891 to 1902, to 205 price series for the years 1903 to 1913, and to 391 price series for the years 1914 to 1929.

general index are measured by the index of dispersion. The larger the index the greater the inequalities represented and, presumably, the greater the disturbance of established business relations. The average value of the indexes of dispersion for the period 1922-1929 is 9.2, which is somewhat greater than the average of 8.1 for the years 1901-1913. This comparison would indicate greater internal disturbance of the price structure in recent years than during the period before the war. In so far as the average tells the story, this appears to have been the case. The relatively stable price level pre-

vailing between 1922 and 1929 concealed rather wide individual movements. The declining trend of the index of dispersion is significant, however. From 11.7 in 1922 the index drops to 5.6 in 1929, the lowest value recorded during the 39 years for which this index has been constructed. Inequalities of price movements among individual commodities, which were pronounced during the early post-war years, had been materially reduced by 1929.

The stability of the level of wholesale prices during the years immediately preceding the recent recession is evidenced by the entries in column (3). Not only was the general price level less variable than during any preceding period of expansion; it was less variable than at any previous period covered by the present records, which extend back by years to 1890. The price system bore no sign of a rising economic fever prior to the collapse of 1929.[1]

These various measurements tell a story of stability of the price level and of steadily increasing stability among the individual elements of the price structure. The customary signs of inflation in commodity markets were absent, and individual prices were moving within relatively narrow limits. If weaknesses were developing within the price structure before the recession of 1929 they are not immediately discernible in the records we have cited. There remains the possibility that increasing stability concealed underlying faults, that rigidity, not stability, was developing. We have said that within a competitive economy prices play the rôle that would fall to a dictator in a centralized, non-competitive economy. Theirs is the task of securing that delicate adjustment between the working parts of the economy which is essential to the maintenance of equilibrium. When prices lose something of their freedom there may be no immediate signs of faulty adjustment. Under these conditions movements toward disequilibrium may go further before corrective processes are stimulated. There are some reasons for thinking that the price system had become less sensitive to changes in market conditions during the years preceding the recession of 1929, and that the economic system had lost in flexibility and adaptability as a result.[2]

[1] The inclusion of an increasing number of commodities in the index in recent years would tend to reduce the variability of the price index.

[2] The fact that earlier events are viewed from the perspective of 1932 is, of course, an element in this interpretation.

Perhaps the most obvious of the factors which have tended to decrease the sensitiveness of prices are the various valorization agencies which have been established in recent years. Efforts have been made to maintain at constant levels the prices of a large number of raw materials. The powerful aid of governments has been extended to associations of producers in these efforts. Some typical valorization schemes in operation during the period under review are listed in the following summary.

TABLE 137

SUMMARY OF VALORIZATION SCHEMES

Commodity	Period of valorization project	Participants in project	Nature of price control
Crude rubber	1922-28	Great Britain, colonial governments (Stevenson plan)	Restriction of exports from producing areas under British control.
Coffee	1922—	Sao Paulo Coffee Institute, backed by State of Sao Paulo (and Brazilian government to 1924)	Regulation of coffee shipments from interior, financing of stocks held by producers.
Wheat	1923— 1929—	Canadian coöperative pools United States Federal Farm Board	Storage, centralized marketing. Government financing of purchase and storage of excess supply. Attempts to obtain voluntary curtailment of production.
Silk	1914-22 1926-28 1929—	Japan, producers, with government coöperation	Curtailment of production and withdrawal of excess stocks from market.
Sugar	1925-28 1929—	Cuban government Cuban government	Restriction of production, export selling agency. Compulsory single selling agency.
Cotton Long staple	1921-30	Egyptian government	Several occasions of restriction of acreage, government purchase at a fixed price.
Short staple	1929—	United States Federal Farm Board	Government financing of purchase and storage of excess supply.

TABLE 137—*Continued*

Commodity	Period of valorization project	Participants in project	Nature of price control
Copper	1926-30	Copper Exporters, Inc., backed by 90 per cent of world production	Regulation of American export price, other prices at fixed differentials; no longer effective due to defection of smaller producers.
	1929—	Copper producers	Attempts at voluntary curtailment of production.
Nitrates	1919-27	Chilean Nitrate Producers' Association	Limitation of exports and fixing of price.
	1928—	Chilean Nitrate Producers' Association	Selling agency for all Chilean production; manipulation of export tax to meet foreign competition.
	1929—	International agreement of Chilean, British and German producers	Price convention.
Potash	1924-25	Agreement of German and Alsatian cartels	Allotment of sales for several countries.
	1926—	International cartel of German and Alsatian producers	Joint commission of control and common sales agencies for all countries.
Mercury	1928—	International cartel sanctioned by Spanish and Italian governments	Allocation of production of Spanish and Italian mines and establishment of joint sales bureau.
Sulphur	1923—	Agreement of Italian and American producers	Allocation of output, division of markets.
Sisal	1920—	Mexican and Yucatan governments with producers' association	Regulation of production and fixing of prices.
Quinine	1913—	Association of most producers and all manufacturers outside United States; dominated by Dutch	Regulation of production and prices of cinchona bark and prices of quinine.
Camphor	1899—	Japanese and Formosan governments	Government monopoly controlling production; weakened in recent years by competition of synthetic camphor.

TABLE 137—*Continued*

Commodity	Period of valorization project	Participants in project	Nature of price control
Major international cartels, not directly affecting prices in the United States			
Steel	1926—	Producers of Belgium, France, Germany, Luxemburg and Saar Basin and from 1927 Czechoslovakia, Austria and Hungary	Production allotted, with excess production and exports subject to penalty.
Aluminum	1926—	French, British, Swiss and German producers	Allocation of markets.
Margarine	1927—	English and Dutch trusts	Same officers head both companies; joint purchasing and common sales policy.
Rayon	1927-29	English, German, Italian, Dutch and Belgian producers	Agreement restricting process of production and allocating markets; occasional price agreements.
Zinc	1928—	Belgian, Dutch, French, German, Polish, British and Spanish producers	Control of production and markets.

Valorization efforts do not by any means constitute the only developments tending toward greater price stability. The growth of coöperative marketing has reduced price competition among certain groups of producers.[1] Mergers, combines, semi-monopolies and monopolies which are able to enforce price control tend to limit the variability of prices. We lack definite information as to the importance of such combinations today, but there is reason to believe

[1] The total business done by farmers' coöperative associations in the United States, as reported by the U. S. Department of Agriculture, increased from approximately $636,000,000 in 1915 to $2,500,000,000 in the crop year 1929-30 (*Yearbook of Agriculture, 1931,* p. 1080).

Orderly marketing through coöperation may be, of course, quite different from valorization. Coöperation may, indeed, make prices no less sensitive to changing market conditions, though the change in size of the marketing unit may prevent minor fluctuations. It is hard to draw a line between stabilization which reduces variation, without reducing the due sensitivity of prices to market changes, and stabilization which represents loss of freedom to react to market changes.

that their number and scope have been expanding.[1] Trade agreements among producers, the interchange of price and cost information among members of trade associations, informal 'following of the leader', may have somewhat similar results in reducing the flexibility of prices.[2]

Of a different type is that increasing rigidity of the price system which results from the extension of the services of public utilities. The growing use of gas and electricity for heating, lighting, cooking and refrigeration and as sources of industrial power has brought an enormous extension of the area within which regulated rates prevail. If we add to these services those of transportation and other utilities we have a wide range of prices marked by a very high degree of rigidity.

These various pieces of evidence suggest that in recent years the price system may have been less effective as an instrument of economic coördination than at earlier times and that, both internationally and domestically, this may have contributed to the development of a condition of disequilibrium. Internationally, the breakdown of the gold standard as a result of the war, and the failure to re-establish it in full operating efficiency, impeded the attainment of a smoothly-working world economy after the war.[3]

[1] The exemption from the Sherman Anti-trust Law of associations engaged in export trade is a notable development in the direction of price control, and one of increasing importance. Exports by such associations increased from 4.3 per cent of the national total in 1926 to 14.0 per cent in 1929. (L. B. Zapoleon, "International and Domestic Commodities and the Theory of Prices," *Quarterly Journal of Economics,* May, 1931, p. 454.) These associations may fix prices, allocate sales, determine spheres of influence, and become parties to international cartels—all activities tending to reduce price competition. The influence of such associations upon prices has not been restricted to foreign markets.

[2] Without attempting to indicate the precise conditions which give rise to inflexibility in the following cases, we may cite them as illustrations of the stability of prices of various types of products under modern marketing conditions. Prices are those compiled by the U. S. Bureau of Labor Statistics.

Year	Bread, loaf before baking, pound, N. Y.	Steel rails, standard, gross ton, mill, open hearth	Hammers, Maydole, dozen, N. Y.	Gloves, dozen pairs, factory, men's	Shingles, 16 in. long, M, mill, cypress	Tobacco, smoking, granulated, 1 oz. bags, per gross, N. Y.
1925	$0.070	$43.000	$12.243	$33.840	$5.804	$8.320
1926	.070	43.000	11.400	33.840	5.825	8.320
1927	.070	43.000	11.400	33.840	5.833	8.320
1928	.070	43.000	11.400	33.840	5.750	8.320
1929	.066	43.000	11.400	33.840	5.750	8.320

[3] Defective working of international credit instruments should doubtless be coupled with the failure of the gold standard, in explaining the faults in inter-

This failure is manifest in the condition of the world price structure during the decade of the 'twenties. Domestically, we possessed, and still possess, a price system half slave and half free. The area of controlled and regulated prices had been steadily expanding during the years preceding the war, while the fixed element of costs had been growing. This movement was speeded up after the war. If we take account of the growth of public utilities, the increasing variety of services rendered by municipalities and other public bodies, with their expanding armies of employees, the combination movement, the growth of trade associations and coöperative bodies, the increasing emphasis upon non-price factors in merchandising, the various valorization schemes recently attempted and still unliquidated, we may not doubt that the system of mobile and freely competing economic agents and of fluid economic forces envisaged by the classical economists was far from realization in our post-war economy.

The possible consequences of such a situation are numerous. Rigidity in one part of the price structure may involve excessively wide fluctuations in other parts. The variability characteristic of the prices of raw materials, and the exceptional fluctuations to which those prices have recently been subject, may be in part the result of price rigidity elsewhere. More important is the possibility of serious maladjustment among economic factors. When the nervous system of prices is functioning smoothly slight faults lead immediately to corrective action. A price system rigid and inelastic over wide areas may permit discordant and unbalanced developments to proceed until the task of rectification is of major proportions.

The statistical record does not definitely establish the existence of harmful price rigidity. We have no test for distinguishing between inelasticity and stability. It is clear that during the period 1922-1929 there was a steady decline in the degree of movement occurring in the prices of individual commodities. This trend may have resulted from increasing stability. But other evidence supports the conclusion that necessary sensitivity to changing market conditions was being lost. Many of the troubles arising out of the present

national price coördination. The pre-war system for the dissemination and control of capital and credit, centering at London, had been evolved through years of growth. Shifts of political and economic power resulting from the war dislocated this system. A smoothly-working alternative system had not been developed prior to the difficulties of 1929. The weakness of the existing instruments was a factor of no small importance in the international collapse of prices.

world depression, and out of our domestic difficulties, had their origin in the failure of the price system to preserve an efficient adjustment of the working parts of the world economy and of the national economy of the United States, at a time when there were no adequate alternative instruments of coördination.

Price Movements, Major Commodity Groups

We know that the general trends defined by index numbers of production, of prices and of values are in some degree mathematical abstractions, only distantly related to the many-sided realities of economic life. We pass now to some of the more realistic details of post-war price changes.

Raw Materials and Manufactured Goods

Index numbers measuring changes in the average prices of raw and manufactured goods between 1922 and 1929 are given in the following table.[1] These are shown graphically in Figure 59.

[1] These index numbers, constructed by the National Bureau of Economic Research from price quotations compiled by the U. S. Bureau of Labor Statistics, are unweighted geometric averages of relative prices. The reduction to purchasing power form (that is, to measurements in terms of dollars of constant purchasing power) has been effected by dividing the group index numbers by an 'all commodities' price index, constructed from the same set of quotations and by the same method.

The Bureau of Labor Statistics publishes index numbers of the prices of raw materials, semi-finished and finished goods. These, with base shifted to 1922, are given below.

Year	Raw materials	Semi-finished goods	Finished goods
1922	100.0	100.0	100.0
1923	102.6	119.9	102.8
1924	101.7	109.9	99.8
1925	111.1	106.5	104.2
1926	104.2	101.1	103.6
1927	100.5	95.3	98.4
1928	103.2	95.6	99.4
1929	101.6	94.9	97.9

As regards raw materials, the explanation of the differences between these measurements and those in the text lies, primarily, in differences in the weights employed. The index numbers of the National Bureau are geometric averages of relative prices, unweighted except through the use of several quotations on important commodities; those of the Bureau of Labor Statistics are weighted aggregates of actual prices, weights being based upon quantities entering into trade. The effect of the latter system is to give to eight commodities (wheat, corn, cattle, hogs, cotton, anthracite and bituminous coal and crude petroleum) some 60 per cent of the total weight for all raw materials. For certain purposes this method

(*Footnote continued on page 334*)

TABLE 138

INDEX NUMBERS MEASURING CHANGES IN THE PRICES AND PURCHASING POWER OF RAW MATERIALS AND OF MANUFACTURED GOODS, 1922-1929 [a]

(1) Year	(2) Index numbers of wholesale prices	(3)	(4) Index numbers of per-unit purchasing power [b]	(5)
	Raw materials	Manufactured goods	Raw materials	Manufactured goods
1922	100.0	100.0	100.0	100.0
1923	106.3	105.3	100.8	99.8
1924	105.5	102.8	101.9	99.3
1925	114.8	104.9	106.6	97.4
1926	107.9	101.7	104.3	98.4
1927	105.2	98.2	105.0	98.1
1928	108.1	98.9	106.7	97.6
1929	105.6	97.9	105.6	97.9
Average annual rate of change (per cent)	+0.5	−0.7	+0.9	−0.3

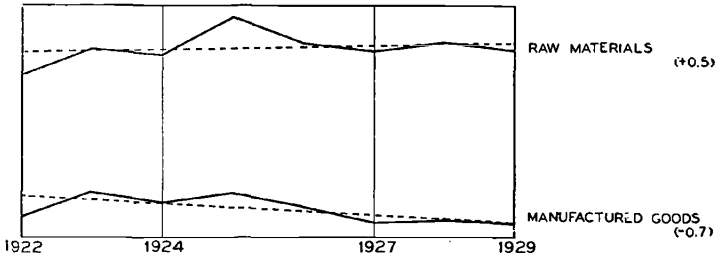
[a] The numbers of items in these commodity groups varied between 136 and 142 price series for raw materials, between 330 and 350 series for manufactured goods.

[b] As measured in terms of the 'all commodities' index constructed by the National Bureau of Economic Research. This index declined at an average annual rate of 0.4 per cent between 1922 and 1929.

FIGURE 59

MOVEMENTS OF WHOLESALE PRICES IN THE UNITED STATES, 1922-1929

RAW MATERIALS AND MANUFACTURED GOODS



Plotted on ratio scale. The figures in parentheses define average annual rates of change (in percentage form).

The record of price changes over this eight-year period is in some respects like that of the years 1901-1913. Raw materials gained in purchasing power, while manufactured goods declined. The margin of advantage of raw materials, on the basis of net

(*Footnote continued from page 332*)

of weighting is proper, but it gives somewhat insufficient weight to the commodities which bulk large as materials of fabrication.

In addition, it is to be noted that the raw materials index of the National Bureau includes certain commodities classed as semi-finished by the Bureau of Labor Statistics.

There are more important differences between the index numbers of prices of manufactured goods, as constructed by the National Bureau and by the Bureau of Labor Statistics, and these differences affect the 'purchasing power' measurements. Among processed goods, the commodities entering into the National Bureau's index numbers are those classed as finished products by the Bureau of Labor Statistics, and some of those classed as semi-finished. Automobiles, which are given heavy weight in the index of the Bureau of Labor Statistics, are excluded, however, while a selected list from a rather numerous group of commodities for which prices are gathered by the Bureau of Labor Statistics but which are not used in the construction of that Bureau's index, have been included in the commodities entering into the present calculations. This latter group provides more adequate representation of lumber and of an important class of finished goods, primarily steel products, such as trowels, saws and hammers. Commodities of this class are relatively inflexible in price.

It is difficult to measure with any high degree of accuracy changes in the prices of automobiles over such a period as that from 1913 to 1930. Important quality changes have occurred, and there have been striking shifts in the proportion of cars of different price classes marketed. Taking the figures as they stand, they show a material reduction (amounting to about 25 per cent) in the average price of automobiles between 1913 and 1929. The omission of this commodity tends to make the general index higher, with reference to the 1913 base, and to increase the index numbers of prices of manufactured goods, consumers' goods, non-foods, and all other groups into which automobiles would go.

The exceptional character of automobile price movements since 1913 constitutes another important reason for omitting automobiles from the present index numbers. No other commodity of like importance declined 25 per cent in average price between 1913 and 1929, when the general price level was advancing by some 40 per cent. The inclusion, with heavy weights, of this exceptional commodity would tend to distort an index number, particularly the index number of a sub-group in which automobiles would be of predominant importance. The prices of other manufactured goods, and of other consumers' goods, did not follow the course of automobile prices. It is, of course, of great economic significance that automobile prices were reduced so drastically, but it does not seem proper to allow such an exceptional movement to dominate the various group index numbers computed in the present investigation. Automobiles, then, are to be considered a class apart; they do not enter into the present analysis.

The inclusion of a considerable number of finished steel products has tended to raise the index numbers of the groups into which these products fall. Though marked by fairly fixed prices, these commodities should be included as representative of the important group of tools and hardware.

average annual gain, was greater in the recent period. (The pre-war rates of change in purchasing power were + 0.3 per cent a year for raw materials, — 0.1 per cent for manufactured goods.) But we are not justified in considering the post-war period in isolation. We have seen that the events of 1914-1921 profoundly modified many economic relations, among them the price relations prevailing among producers of raw materials and agents of fabrication. Changes of recent years must be seen against this background. Index numbers of purchasing power on the 1913 base provide a broader view of these developments.

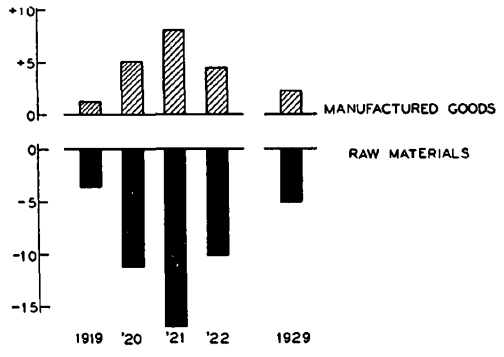
Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1929
Raw materials	100.0	96.4	88.7	83.0	89.8	94.9
Manufactured goods ...	100.0	101.3	105.1	108.0	104.4	102.2

These measurements are plotted in Figure 60.

FIGURE 60

CHANGES IN THE REAL VALUES, PER UNIT, OF RAW MATERIALS AND OF MANUFACTURED GOODS, 1913-1929

(CHANGES ARE MEASURED AS PERCENTAGE DEVIATIONS FROM 1913 PURCHASING POWER.)



The story of the decline in the real per-unit value of raw materials has been told in an earlier chapter. In 1921 each unit of raw materials was worth approximately 17 per cent less than in 1913, in exchange for goods in general, while each unit of manufactured goods was worth approximately 8 per cent more. The margin had been narrowed by 1922, but it is clear that the advance recorded in the prices of raw materials between 1922 and 1929 was a movement which started from a level of values far below that of 1913. The

year 1929 found the per-unit purchasing power of raw materials still some 5 per cent below the pre-war standard. The decline from 1922 to 1929 for manufactured goods, on the other hand, was a drop from the position of superior advantage in which the recession of 1920-21 had left goods of this class. In some degree this advantage continued through 1929.[1]

[1] Index numbers, like all averages, sometimes conceal more than they reveal. For this reason it is well to follow the changes occurring between 1913 and 1929 in the prices of specific raw materials, in comparison with changes in the average prices of commodity groups. (These index numbers relate to actual prices and not to purchasing power, as in the preceding text.)

	1913	1919	1920	1921	1922	1929
All commodities index (National Bureau of Economic Research)	100	203	228	151	148	148
All manufactured goods	100	206	240	163	155	151
All raw materials	100	196	202	125	133	141
Aluminum	100	140	141	91	79	101
Anthracite coal	100	156	179	198	200	204
Apples	100	268	227	190	212	190
Bananas	100	263	198	174	147	115
Barley	100	195	202	102	101	98
Beans	100	202	186	130	191	250
Bituminous coal	100	187	266	207	236	154
Cattle	100	206	170	103	111	159
Clover seed	100	295	218	114	122	166
Cocoa bean	100	147	134	66	76	101
Coffee	100	189	145	79	109	168
Copper, ingot	100	122	114	80	85	115
Copra	100	84	87	46	44	43
Corn	100	257	227	92	100	151
Cotton	100	251	260	111	161	146
Cottonseed	100	301	237	102	161	160
Crushed stone	100	189	212	214	188	365
Eggs	100	212	229	162	139	148
Ferromanganese	100	244	332	136	123	179
Flaxseed	100	336	281	137	184	205
Gravel	100	193	224	203	180	183
Hay	100	225	214	142	144	173
Hemp	100	164	174	89	79	121
Hides	100	214	170	76	98	93
Hogs	100	217	174	105	115	126
Hops	100	323	426	115	81	81
Iron ore	100	165	190	177	155	131
Lead, pig	100	131	184	104	132	155
Lemons	100	95	75	90	117	149
Milk	100	190	191	169	164	194
Nitrate of soda	100	144	142	100	103	87
Oats	100	186	212	103	105	129
Onions	100	228	135	155	239	189
Oranges	100	109	142	118	178	148
Peanuts	100	208	229	149	118	139
Pepper	100	186	131	84	93	317
Petroleum, crude	100	244	364	185	192	132
Phosphate rock	100	147	268	164	90	91
Pig iron	100	189	280	157	169	125
Potatoes	100	232	424	175	165	157
Poultry	100	204	225	190	161	186
Quicksilver	100	214	190	106	139	291

(Footnote continued on following page)

These figures represent one of the most remarkable reversals of economic tendencies which has occurred in modern times. As we have seen, the story of the years before the war was a story of constantly cheapening manufactured goods. Refinement of technical methods, development of mass production, improvement of management, were all tending to lower the prices paid by consumers for the services of fabricating agents. Raw materials as a class, on the other hand, were rising in value, relatively to manufactured goods. The margin of production was being pushed further out, and no widespread improvements of technique at all comparable to those so familiar in manufacturing had been developed. After 1913 the reversal we have noted occurred. Productive technique improved in the cultivation and extraction of raw products. Rich new territories were exploited; temporary war demands and a sharply rising price level stimulated rapid expansion in the output of certain of these goods. The termination of the war checked these temporary demands. Perhaps more important, the world-wide deflation of prices in 1920-21 found raw material producers unprepared for or unable to adapt themselves to a new order through prompt liquidation, readjustment of costs and adjustment of production to changed demand conditions.

The ending of war demand and the deflation of prices struck manufacturing interests just as sharp a blow as that suffered by raw material producers. Manufacturing producers, however, were able to liquidate more promptly, and to adapt production schedules to marketing possibilities more readily. In some degree, also, manufacturing producers readjusted costs to the new price level. But, partly because of the weak position of raw material producers, a thoroughgoing readjustment of costs was not necessary. Labor costs

(*Footnote continued from preceding page*)

	1913	1919	1920	1921	1922	1929
Rubber, crude	100	59	44	20	21	25
Rye	100	241	294	191	139	160
Sand	100	178	203	182	159	154
Sheep	100	207	204	128	169	176
Silk, raw	100	232	232	159	193	135
Spiegeleisen	100	168	280	125	135	130
Sugar, raw	100	215	372	135	133	107
Sulphur	100	127	108	72	64	82
Tankage	100	233	277	106	159	155
Tin, pig	100	146	112	66	72	101
Wheat	100	276	280	151	138	134
Wood pulp	100	158	296	157	115	114
Wool	100	148	82	54	101	92
Zinc, slab	100	127	139	88	104	117

remained high, being, in 1923, some 87 per cent above the 1914 level. Tendencies prevailing thereafter reduced these price disparities somewhat but, by and large, manufactured goods enjoyed a distinct advantage, during the ensuing six or seven years, and sellers of raw materials were at a corresponding disadvantage.[1]

§ *Price variability of raw and processed goods.*—In earlier pages (Chapters II and V) raw materials and manufactured goods have been compared in respect of price variability. The measurements given confirmed everyday experience in showing that the prices of raw materials are distinctly more variable, and are subject to more frequent changes,

[1] This conclusion is supported by index numbers of the prices of 'identical' goods in raw and processed form, formerly computed by the U. S. Bureau of Labor Statistics. In purchasing power form, these give us the following results:

Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1926
Raw materials	100.0	100.3	97.8	92.1	97.4	95.9
Goods manufactured from these raw materials	100.0	99.6	103.5	112.2	104.2	106.4

These index numbers show the marked decline in the real values of industrial raw materials in 1920-21. In 1926, the last year covered by these index numbers, the per-unit purchasing power of these materials was 4 per cent below the level of 1913, while the purchasing power of manufactured goods, per unit, was 6 per cent above the 1913 level.

Twenty-seven price series are included in the index of raw material prices, seventy in the index of prices of manufactured goods.

Index numbers secured from the Bureau of Labor Statistics classification of commodities into raw, semi-finished and finished goods do not yield the same results for the later years of the period. The existence of a special group of semi-finished goods prevents direct comparison of the raw and processed groups in the two classifications. The group of semi-finished goods has shown persistent price weakness in the post-war era. Certain important commodities in this group (notably pig iron) have been classed as raw materials in the division made by the National Bureau. The removal of these commodities from the Bureau of Labor Statistics raw materials group gives relatively more weight in that group to raw consumers' goods, which, as we have seen, gained materially in purchasing power since 1921.

One defect of the general comparison made above is that manufactured goods as a class are not well represented. Complicated machines, which vary in character and quality from time to time, cannot well be included in index numbers of the usual type. The commodities here included among manufactured goods are limited, in the main, to standardized goods not subject to great changes in quality. As regards such goods the conclusions suggested above are probably valid. They do not hold with the same force for those classes of mechanical equipment (of which the automobile is an outstanding example) which have been materially improved in quality since 1913 and which, in many cases, were actually reduced in price during the general advance from the pre-war level. Further consideration is given in the next chapter to price changes among a broader sample of manufacturing goods.

than are the prices of manufactured goods. The rather significant fact was noted, however, that the margin between the two groups was narrowed during the disturbed years from 1914 to 1921. The crystallized prices of processed goods were broken open by the fluctuations of the war years, and under the exigencies of those revolutionary times these goods acquired a new degree of price flexibility. Subsequent developments are of more than passing interest for the light they may throw on the presence of new tendencies toward more stable (or more firmly controlled) prices, under recent economic conditions.

TABLE 139

VARIABILITY OF PRICES OF RAW MATERIALS AND OF MANUFACTURED GOODS UNDER PRE-WAR, WAR-TIME AND POST-WAR CONDITIONS [a]

(1) Period	(2) Measurements of monthly variability of prices [b]	(3)	(4) Measurements of frequency of price change [c]	(5)
	Raw materials	Manufactured goods	Raw materials	Manufactured goods
1898-1913	8.2	3.6	.82	.34
1914-1921	10.9	7.4	.83	.47
1922-1929	7.8	3.7	.83	.42
1922-1925	9.0	4.0	.88	.44
1926-1929	6.5	3.3	.79	.40

[a] The numbers of price series upon which these measurements are based are as follows:

	1898-1921	1922-1929
Raw materials	49	46
Manufactured goods	158	148

[b] Each measurement is an average of the mean percentage deviations of monthly prices of individual commodities about their annual averages. See *The Behavior of Prices*, pp. 39-49.

[c] Each measurement is an average of measurements for individual commodities. For each commodity the measure is the ratio of the number of times a price changed, from month to month, to the total possible number of changes. See *The Behavior of Prices*, pp. 56-60.

A movement toward post-war price stability is indicated by these measurements. For raw materials, the average of the monthly variability measurements for the years 1926-29 is 21 per cent below the average of the pre-war figures; the last entry for manufactured goods is 8 per cent below the average of the earlier figures. In respect of frequency of change the differences are less pronounced. For manufactured goods, indeed, the evidence indicates more frequent changes (but narrower fluctuations) than during the pre-war era.

These measurements define a movement, but they do not reveal the forces back of it. An extension of the area of control within the field of prices would bring just such reductions in amplitude of variations as the measurements indicate. But whether these reductions are mani-

festations of a desirable stability, or of an undesirable loss of sensitivity to changing conditions of supply and demand, this evidence does not tell us.

Products of American Farms and Other Products

In surveying events of the period 1901-13, we traced alterations in the terms of exchange between domestic agricultural producers and other producers. Corresponding price data for the post-war period appear in the following table. These index numbers are plotted in Figure 61.

TABLE 140

PRODUCTS OF AMERICAN FARMS AND ALL OTHER PRODUCTS

Index Numbers of Wholesale Prices in the United States, 1922-1929 [a]

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Year	Products of American farms		All other products		All products of American farms	All other products
	Raw	Processed	Raw	Processed		
1922	100.0	100.0	100.0	100.0	100.0	100.0
1923	104.8	103.7	108.7	106.6	104.1	106.9
1924	106.8	104.2	104.1	101.7	105.2	102.1
1925	116.4	111.7	112.9	99.9	113.4	102.6
1926	105.3	106.0	112.1	98.4	105.8	101.3
1927	105.6	104.9	105.2	93.2	105.1	95.7
1928	113.8	107.7	100.9	92.4	109.9	94.2
1929	109.9	105.2	100.2	92.5	106.9	94.1
Average annual rate of change (per cent)						
In price	+1.1	+0.6	−0.4	−1.8	+0.8	−1.5
In purchasing power	+1.5	+1.0	0.0	−1.4	+1.2	−1.1

[a] The maximum and minimum numbers of price series included in each of the commodity groups are given below:

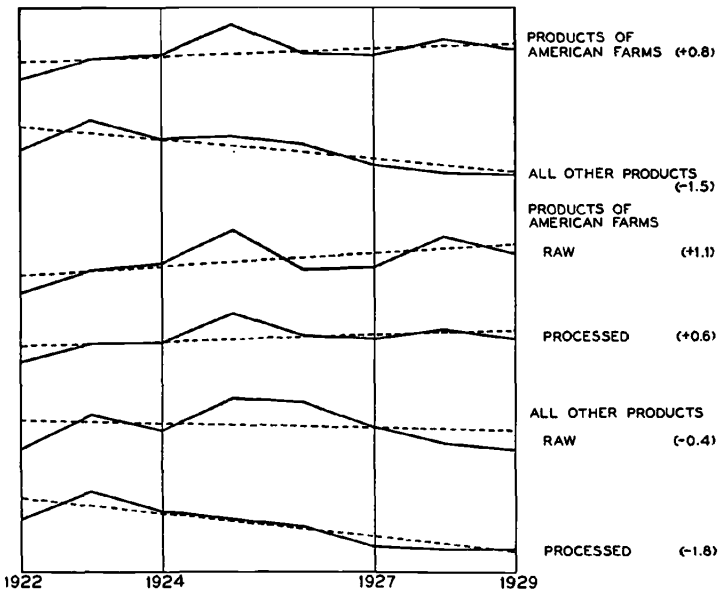
Products of American farms		All other products	
Raw	83	Raw	53 to 59
Processed	143 to 152	Processed	187 to 198
Total	226 to 235	Total	240 to 257

The index of American farm products shown above covers not only all raw materials produced on American farms, but processed

FIGURE 61

MOVEMENTS OF WHOLESALE PRICES IN THE UNITED STATES, 1922-1929

PRODUCTS OF AMERICAN FARMS AND ALL OTHER PRODUCTS



Plotted on ratio scale. The figures in parentheses define average annual rates of change (in percentage form).

forms of these materials as well.[1] Considering first this combination of raw and processed goods, we find an increase in average price per unit at an annual rate of 0.8 per cent. This represents an increase in purchasing power (in terms of commodities in general at wholesale) at a rate of 1.2 per cent.[2] For all products not originating on

[1] The Bureau of Agricultural Economics has constructed an index of agricultural prices from a weighted combination of the Bureau of Labor Statistics index numbers of the wholesale prices of farm products, foods and cattle feed. Processed articles such as textiles and leather products, which have been included in the National Bureau's averages, have been classed as non-agricultural. This index shows an average annual increase of 1.5 per cent in the wholesale prices of agricultural products between 1922 and 1929, and a decrease of 2.2 per cent for non-agricultural products.

[2] In determining the change in purchasing power, the index of all commodities constructed by the National Bureau of Economic Research has been employed. This index showed a net decline between 1922 and 1929 at a rate of 0.4 per cent a year, as compared with a rate of 0.5 per cent for the U. S. Bureau of Labor Statistics index.

American farms the movement of prices was downward between 1922 and 1929 at a rate of 1.5 per cent a year, a loss in purchasing power, per unit of product, at an average annual rate of 1.1 per cent.

More illuminating are the results secured when each of these major groups is broken into raw and processed classes. Raw farm products were rising in price, at wholesale, at an annual rate of 1.1 per cent between 1922 and 1929; goods of the same type in processed form rose in price at a rate of 0.6 per cent a year. Both raw and fabricated non-farm products fell in price, at average annual rates of 0.4 and 1.8 per cent a year. It was, thus, raw farm products and processed non-farm products which dominated price movements in the general groups of raw and manufactured goods, giving them their respective advancing and declining trends during this period.

To measure changes in the real rewards of these groups, movements must be followed in terms of purchasing power. These are summarized below, with corresponding pre-war measurements.

Commodity group	Average annual rate of change in purchasing power			
	1901-1913 (per cent)		1922-1929 (per cent)	
Products of American farms				
Raw	+1.0		+1.5	
Processed	+0.6		+1.0	
Total		+0.7		+1.2
All other products				
Raw	−0.4		0.0	
Processed	−0.8		−1.4	
Total		−0.7		−1.1

As regards the two main groups the records of purchasing power changes during the two periods are somewhat similar. For farm products per-unit purchasing power was advancing, while non-farm products showed corresponding declines. Among farm products, both raw and processed commodities gained in real value; processed non-farm products declined. Raw non-farm products lost in purchasing power in the pre-war era, remained constant in the later era.

The reason for the cheapening of non-farm products in both periods is found, in part, in the growing importance of large-scale production, the widening of markets and the accompanying lowering of manufacturing costs, per unit of product. In some degree, however, the post-war movements of both farm and non-farm

prices are direct outgrowths of the situation left by the recession and price adjustment of 1920-21, which was described in an earlier chapter. As is well known, war-time conditions stimulated the demand for farm products in general, but the withdrawal of this stimulus brought a reaction which put agricultural prices at a lower level, relatively, than that which had prevailed before the war. These changes are shown by the following table, in which the prices of products of American farms and of all products not originating on American farms are expressed in terms of dollars of constant purchasing power, for certain selected years.

Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1929
Products of American farms...	100	110.0	101.2	95.2	98.3	105.1
All other products.....	100	90.8	98.6	104.7	101.3	95.3

In 1919 products of American farms stood, in real value, 10 per cent above the 1913 level, while other products, on the average, had lost some 9 per cent in purchasing power. In 1921 the situation was reversed. Farm products were then almost 5 per cent below the 1913 level, in purchasing power, while the real per-unit value of products of non-farm origin was enhanced by a corresponding amount. The rise in the prices of farm products between 1921 and 1929, and the decline recorded for non-farm products, again altered these relations, carrying the average purchasing power of all goods originating on American farms to a level some 5 per cent above that of 1913, while the purchasing power of goods of non-farm origin was reduced to a point about 5 per cent below that level.

Each of the above groups includes both raw and processed goods, and the averages define the composite position of raw material producers and of manufacturers. Movements of the separate elements should be followed. Changes in purchasing power for the four constituent groups are shown below. The measurements are plotted in Figure 62.

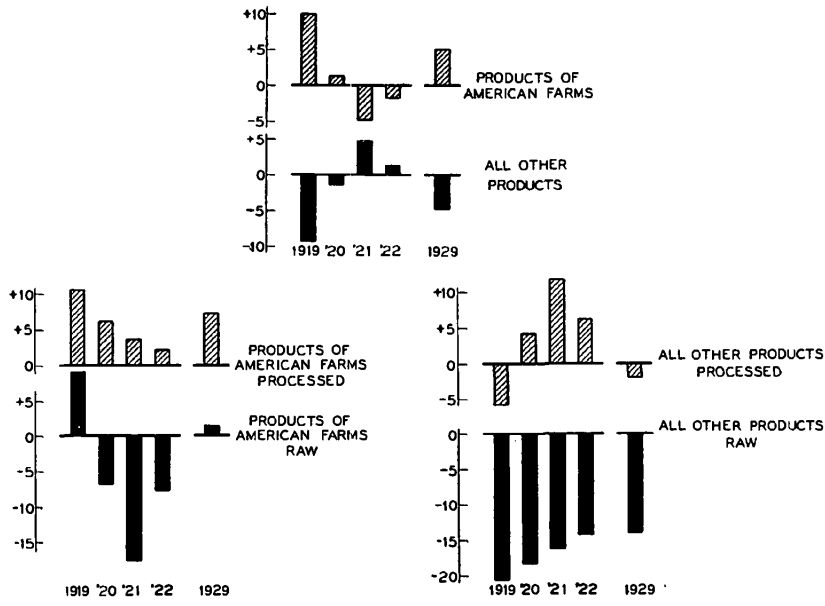
Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1929
Products of American farms						
Raw	100	109.1	93.2	82.4	92.3	101.4
Processed	100	110.6	106.1	103.5	102.1	107.3
All other products						
Raw	100	79.4	81.9	83.9	85.9	86.1
Processed	100	94.4	104.2	111.7	106.2	98.2

FIGURE 62

GRAPHIC REPRESENTATION OF CHANGES IN THE REAL VALUES, PER UNIT, OF COMMODITIES IN SELECTED GROUPS, 1913-1929

PRODUCTS OF AMERICAN FARMS AND ALL OTHER PRODUCTS

(CHANGES ARE MEASURED AS PERCENTAGE DEVIATIONS FROM 1913 PURCHASING POWER.)



This table puts recent changes in a somewhat different light. Raw farm products, the prices of which are of far more concern to agricultural producers than are the prices of processed goods, fell sharply from the favored position they occupied in 1919, when they commanded almost 9 per cent more in terms of other goods than they had in 1913. By 1921 the per-unit value of these products, at wholesale, was almost 18 per cent below the 1913 level. In 1922, when the record of the earlier tables begins, they were still some 8 per cent below the pre-war level of purchasing power. The recovery following that date, as recorded by the gain in purchasing power at a rate of 1.5 per cent a year, had brought these products in 1929 to a level slightly more than one per cent above that of 1913.

Processed farm products shared the war-time gain with raw materials, but the recession of 1920-21 left them in 1922 with a

per-unit purchasing power more than 2 per cent above the 1913 level. The gain since then has been a real one. In 1929 the prices of processed farm products represented a purchasing power 7 per cent above that which they possessed in 1913. The difference in the price behavior of raw and processed goods in the group of products originating on American farms provides an illuminating example of the play of economic forces, and of the incidence of economic change.

The striking decline which occurred during the 'twenties in the prices of manufactured goods of non-farm origin was emphasized in preceding pages. The above figures permit a just interpretation of this movement. In 1919 such goods possessed a per-unit purchasing power almost 6 per cent below that of 1913. This loss was rectified in good measure during the ensuing readjustment. By 1921 processed non-farm products had a per-unit purchasing power almost 12 per cent above that of 1913. From 1919 to 1921 the command over commodities in general exercised by the average unit of goods of this type had increased by more than 18 per cent. Producers of goods of this type (and this group includes, of course, industrial workers, as well as the owners of industrial plants) were most favored by the conditions following in the wake of the great recession. The nominal and actual cheapening of processed non-farm products between 1922 and 1929 constituted a restoration of the relations prevailing in 1913 between the prices of these goods and of other commodities at wholesale.

Notable among the four groups represented above are raw products of non-farm origin. In 1916 such goods possessed an average per-unit purchasing power slightly exceeding that of 1913. In no year since 1916 has this been true. Prices prevailing in 1921 represented a purchasing power for such goods 16 per cent below that of 1913. The slight gain in value recorded between 1921 and 1929 left this group in 1929 with per-unit purchasing power 14 per cent below the 1913 standard. The weakness of this general group of raw materials in recent months has, of course, been an outstanding feature of the current depression.

§ *Price variability of farm and other products.*—The increased variability imparted to prices by the disturbances of the war years and of the post-war recession has been described, and the return to later stability noted. The following measurements relate to the groups now under discussion.

TABLE 141

PRODUCTS OF AMERICAN FARMS AND ALL OTHER PRODUCTS

Comparison of Measurements of Monthly Price Variability, 1898-1929 [a]

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Period	Measurements of monthly price variability, products of American farms			Measurements of monthly price variability, all other products		
	Raw	Processed	Total	Raw	Processed	Total
1898-1913	9.0	3.7	4.9	5.4	3.4	3.9
1914-1921	12.5	8.2	9.1	9.4	6.6	7.3
1922-1929	9.7	4.0	5.3	5.8	3.2	3.9
1922-1925	10.4	4.3	5.6	7.5	3.8	4.7
1926-1929	8.9	3.7	4.9	4.1	2.7	3.1

[a] The numbers of price series upon which these measurements are based are as follows:

Products of American farms	1898-1921	1922-1929	All other products	1898-1921	1922-1929
Raw	24	23	Raw	25	23
Processed	83	81	Processed	75	67
Total	107	104	Total	100	90

Products of American farms returned, between 1926 and 1929, to precisely the points on the scale of variability that they had occupied during the sixteen pre-war years. The prices of non-farm products moved to much more stable positions during the four years preceding the 1929 recession. Indexes defining the magnitudes of month-to-month price fluctuations among non-farm products were lower in these years than in any earlier period covered by the record. The average decline in variability, from the pre-war to the most recent period, amounted to approximately 21 per cent for all goods of non-farm origin. It was among these classes of commodities, if anywhere in the price structure, that price rigidity was increasing.

Changes in Farm Prices.—Changes in the economic situation of the farmer are not necessarily reflected in the movements of wholesale prices, for these are not the prices the farmer actually receives, nor the prices he pays. There are available index numbers of farm prices, and of the prices paid by farmers for commodities used in production and for family maintenance, which define more accurately the effect of price changes upon the actual economic life of the farmer.[1] These are given in the following table. They are plotted in Figure 63.

[1] These index numbers are constructed by the U. S. Bureau of Agricultural Economics. *Yearbook of Agriculture, 1931,* pp. 1018, 1021.

TABLE 142

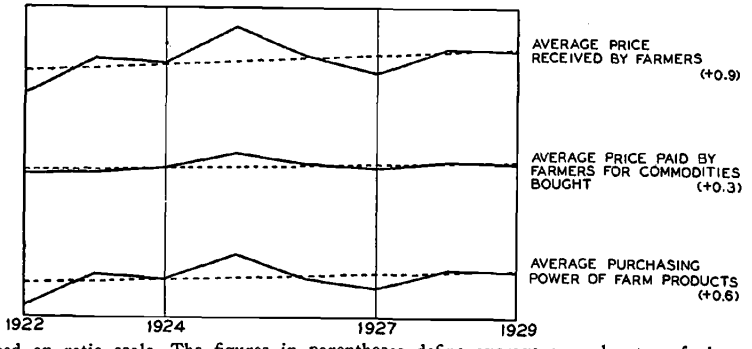
INDEX NUMBERS MEASURING CHANGES IN FARM PRICES AND IN THE PER-UNIT PURCHASING POWER OF FARM PRODUCTS, 1922-1929

Year	Farm prices (30 commodities)	Prices paid by farmers [a]	Purchasing power of farm products
1922	100.0	100.0	100.0
1923	108.9	100.7	108.1
1924	108.1	101.3	106.7
1925	118.5	104.6	113.3
1926	109.7	102.6	106.9
1927	105.6	101.3	104.2
1928	112.1	102.6	109.3
1929	111.3	102.0	109.1
Average annual rate of change (per cent)	+0.9	+0.3	+0.6

[a] Retail prices paid by farmers for commodities used in living and production.

FIGURE 63

CHANGES IN FARM PRICES AND IN THE PURCHASING POWER OF FARM PRODUCTS, 1922-1929



Plotted on ratio scale. The figures in parentheses define average annual rates of change (in percentage form).

Prices received by farmers increased between 1922 and 1929 at a rate somewhat lower than that at which the prices of raw farm products at wholesale advanced, and the gain in purchasing power, measured in terms of the commodities actually bought by farmers, was smaller. This gain, per unit of product, was at the rate of + 0.6 per cent a year.[1]

Here, again, we secure only a distorted picture if we restrict ourselves to the developments of recent years. The violent change which occurred between 1920 and 1921 in the economic status of the American farmer must appear in the background of any comprehensive view of the farm situation. With reference to an earlier base, we have the following record.

TABLE 143

INDEX NUMBERS MEASURING CHANGES IN FARM PRICES AND IN THE PER-UNIT PURCHASING POWER OF FARM PRODUCTS, 1913-1929

Year	Farm prices	Prices paid by farmers	Purchasing power of farm products
1913	100	100	100
1917	176	150	118
1920	205	206	99
1921	116	156	75
1922	124	152	81
1929	138	155	89

The index numbers in the last column are shown graphically in Figure 64.

The story of the war-time drop is familiar. The advance indicated by the figures in Table 142 is of the nature of a partial

[1] There was considerable variation among farm products in respect of trends in farm prices between 1922 and 1929. Measurements relating to the prices of six groups of products follow.

Commodity group	Average annual rate of change, 1922-1929 (per cent)
Meat animals	+ 5.7
Grains	+ 1.5
Poultry products	+ 1.1
Fruits and vegetables	+ 0.5
Dairy products	+ 0.1
Cotton and cottonseed	− 5.0

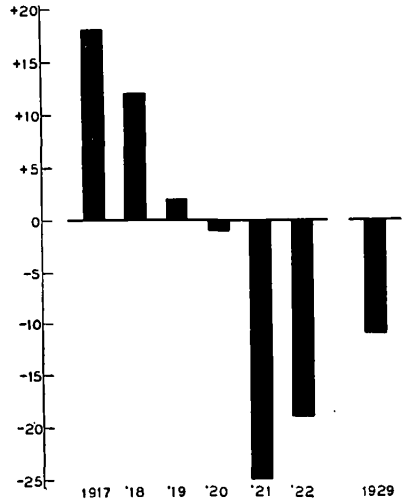
Cotton and cottonseed suffered the sharpest decline. Meat animals, at the other extreme in trend, rose in price at a rate of 5.7 per cent a year. The wide diversity of conditions among agricultural producers, and the difficulty of treating this group as a whole, are emphasized by these differences in price trends.

FIGURE 64

CHANGES IN THE AVERAGE PER-UNIT PURCHASING POWER OF FARM PRODUCTS, 1913-1929

BASED ON PRICES RECEIVED AND PRICES PAID BY FARMERS

(CHANGES ARE MEASURED AS PERCENTAGE DEVIATIONS FROM 1913 PURCHASING POWER.)



recovery from a position of marked disadvantage for farmers. The net result of the improvement which took place between 1921 and 1929 was to leave the farmer with products worth some 11 per cent less, in terms of purchasing power per unit, than in 1913, and approximately 25 per cent less than at the peak of agricultural prosperity in 1917. Since 1929 the hole out of which the farmer was painfully climbing has again been deepened.

Farm Crops, Animal Products, Mineral Products and Forest Products

Notable among the changes occurring in the pre-war era was a cheapening of mineral products, raw and processed, and an enhancement of the per-unit purchasing power of farm crops, animal products and forest products. (See Tables 28 and 29, Chapter II.) Index numbers showing the post-war price movements of these commodity groups are given below. They are presented graphically in Figure 65.

TABLE 144

FARM CROPS AND ANIMAL, FOREST AND MINERAL PRODUCTS

Index Numbers of Wholesale Prices in the United States, 1922-1929 [a]

(1) Year	(2) Farm crops (raw and processed)	(3) Animal products (raw and processed)	(4) Forest products (raw and processed)	(5) Mineral products (raw and processed)
1922	100.0	100.0	100.0	100.0
1923	104.4	104.0	112.4	105.4
1924	108.6	102.1	100.2	101.8
1925	116.0	111.2	102.2	100.7
1926	107.0	105.4	97.3	100.6
1927	103.4	106.1	91.1	95.5
1928	105.2	112.6	88.2	94.6
1929	102.5	109.0	87.3	95.7
Average annual rate of change (per cent)				
In price	0.0	+1.3	−2.9	−1.2
In purchasing power	+0.4	+1.7	−2.5	−0.8

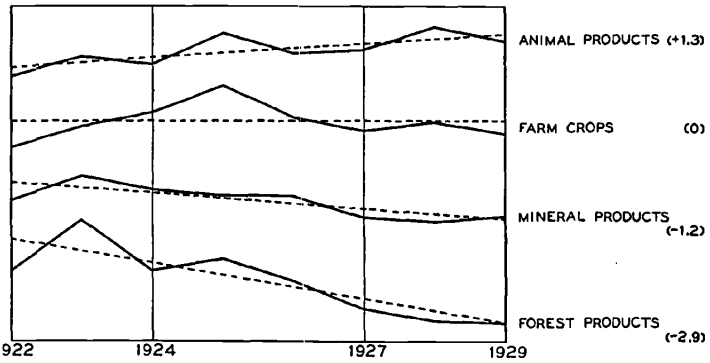
[a] The numbers of price series in the various groups are given below:

Farm crops	124
Animal products	122 to 131
Forest products	53 to 55
Mineral products	158 to 171

FIGURE 65

MOVEMENTS OF WHOLESALE PRICES IN THE UNITED STATES, 1922-1929

ANIMAL PRODUCTS, FARM CROPS, FOREST PRODUCTS AND MINERAL PRODUCTS



Plotted on ratio scale. The figures in parentheses define average annual rates of change (in percentage form).

As in the period 1901-1913, the per-unit real value (i.e., the purchasing power) of farm crops and of animal products increased between 1922 and 1929, while that of mineral products declined. The only reversal of tendency appears in the movements of forest products. An average annual increase in purchasing power at a rate of 1.2 per cent in pre-war years was succeeded by an average annual decline of 2.5 per cent from 1922 to 1929. But we shall do well to study separately the movements of raw and processed goods in each of these divisions.

TABLE 145

FARM CROPS AND ANIMAL, FOREST AND MINERAL PRODUCTS
RAW AND PROCESSED

Index Numbers of Wholesale Prices in the United States, 1922-1929 [a]

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Farm crops		Animal products		Forest products		Mineral products	
	Raw	Processed	Raw	Processed	Raw	Processed	Raw	Processed
1922	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1923	104.8	104.2	105.9	103.3	138.0	110.5	105.3	105.6
1924	112.4	106.3	103.4	101.7	114.0	99.0	100.3	102.5
1925	125.3	110.7	111.1	111.5	190.4	97.2	103.0	100.0
1926	114.0	102.9	101.5	107.9	157.5	93.5	104.4	99.4
1927	110.6	99.2	103.5	107.9	133.2	88.2	99.0	94.4
1928	113.6	100.5	114.6	111.8	101.1	87.1	96.5	94.0
1929	111.5	97.2	108.3	109.5	97.6	86.3	97.1	95.2
Average annual rate of change (per cent)								
In price	+1.2	−0.8	+1.0	+1.4	−1.6	−3.1	−0.8	−1.4
In purchasing power	+1.6	−0.4	+1.5	+1.8	−1.2	−2.7	−0.4	−1.0

[a] The numbers of price series in the various commodity groups are as follows:

Farm crops		Forest products	
Raw	47	Raw	4
Processed	77	Processed	49 to 51
Animal products		Mineral products	
Raw	47	Raw	38 to 44
Processed	75 to 84	Processed	120 to 127

As regards changes in purchasing power, the most pronounced divergence of trends among raw and processed goods appears in the group of farm crops. Between 1922 and 1929 there was a dis-

tinct gain in the real per-unit value of raw farm crops, a net loss in the per-unit value of goods of this type in processed form. Among mineral and forest products, the loss of per-unit purchasing power was greater for processed goods than for raw materials.[1] Processed animal products emerged with a net gain exceeding that of raw animal products.

As in dealing with price changes in other commodity groups, recent movements must be interpreted against the background of war-time changes and of pre-war relations. In the next table purchasing power changes of commodities in the groups listed above are referred to a pre-war base.

TABLE 146

FARM CROPS AND ANIMAL, FOREST AND MINERAL PRODUCTS

Index Numbers of Purchasing Power in Relation to a Pre-war Base, Selected Years

Commodity group	1913	1919	1920	1921	1922	1929
Farm crops	100.0	110.2	104.2	93.2	95.8	98.2
Animal products	100.0	106.5	93.5	92.1	96.4	105.0
Forest products	100.0	92.8	117.2	102.3	105.3	91.9
Mineral products	100.0	90.5	97.8	112.0	105.1	100.5
Farm crops						
Raw	100.0	110.2	98.7	85.5	91.4	102.0
Processed	100.0	110.2	107.9	98.3	98.7	96.0
Animal products						
Raw	100.0	103.5	82.8	75.1	88.5	96.0
Processed	100.0	108.2	100.8	104.6	101.5	111.1
Forest products						
Raw	100.0	46.4	54.6	39.3	35.6	34.8
Processed	100.0	99.5	126.5	112.1	116.6	100.5
Mineral products						
Raw	100.0	81.2	89.4	98.3	98.9	96.0
Processed	100.0	93.7	100.7	116.8	107.0	101.9

We have seen that the per-unit purchasing power of farm crops and animal products stood in 1922 some 4 per cent below the 1913 level, while that of forest and mineral products was about 5 per cent above that standard. The changes occurring between 1922 and

[1] The group of raw forest products includes only four price series, two quotations for crude rubber (latex crêpe, and plantation, ribbed, smoked sheets), and two for wood pulp (mechanical and sulphite). The sample is too small to justify detailed comparison of index numbers for raw and processed goods of this type.

1929 carried animal products to a level 5 per cent above 1913 parity, while the purchasing power of forest products was reduced to 8 per cent below the pre-war standard. The advance in the real value of farm crops and the decline of mineral values left these groups very close to the relations with all commodities which had prevailed in 1913.

The commodities in these groups include both raw and processed goods. Index numbers for the sub-groups are more illuminating. (These index numbers do not relate, however, to identical commodities in raw and processed forms.) Changes occurring between 1913 and 1929 in the purchasing power of goods in each of these sub-groups may be followed in detail in the table. We may note, in summary, that the advances between 1922 and 1929 in the purchasing power, at wholesale, of raw farm crops carried these goods slightly above their pre-war value; the advance in raw animal products left them, in 1929, 4 per cent below their 1913 purchasing power. Processed animal products were lifted to exceptionally high levels in 1929. In general, the effect of the changes occurring during the eight-year period was to narrow the margins which existed in 1921 and 1922 between the purchasing power of raw and processed goods in the same broad categories. Only among animal products was this not true.[1]

Foods and Non-Foods

The division between foods and non-foods is one which is of importance rather from the point of view of the consumer than of the producer. In some respects it corresponds to a preceding classification, since the majority of farm products fall in the group of food products, but the differences are pronounced enough to render the separate consideration of the two divisions desirable. Index numbers of prices for the post-war period are given in Table 147, following. They are shown graphically in Figure 66.

The period under review was characterized by a sharp divergence between the trends of food and of non-food prices. In current dollars the prices of foods rose at a rate of 1.6 per cent a year, while the prices of non-foods declined at a rate of 1.5 per cent a year.

[1] The striking margin between the purchasing power of raw and processed forest products is not as significant as it appears to be. The group of processed goods of this class is not properly comparable with the very small group of raw materials, in which rubber predominates.

TABLE 147

FOODS AND NON-FOODS

Index Numbers of Wholesale Prices in the United States, 1922-1929 [a]

(1) Year	(2) Food products	(3)	(4) Non-food products	(5)	(6) All foods	(7) All non-foods
	Raw	Processed	Raw	Processed		
1922	100.0	100.0	100.0	100.0	100.0	100.0
1923	102.4	100.1	109.8	107.4	101.1	108.0
1924	107.6	101.5	103.1	103.4	104.1	103.3
1925	120.9	112.4	108.5	102.2	116.0	103.5
1926	113.5	108.9	102.0	99.1	110.9	99.7
1927	111.9	107.3	98.4	94.8	109.2	95.6
1928	117.8	109.3	98.7	95.1	112.9	95.9
1929	117.5	106.5	94.4	94.8	111.1	94.7
Average annual rate of change (per cent)						
In price	+2.2	+1.2	−1.3	−1.5	+1.6	−1.5
In purchasing power	+2.6	+1.6	−0.9	−1.1	+2.0	−1.1

[a] The numbers of price series upon which the above index numbers are based varied within the limits given below:

Foods		Non-foods	
Raw	71	Raw	65 to 71
Processed	90 to 96	Processed	240 to 254
Total	161 to 167	Total	305 to 325

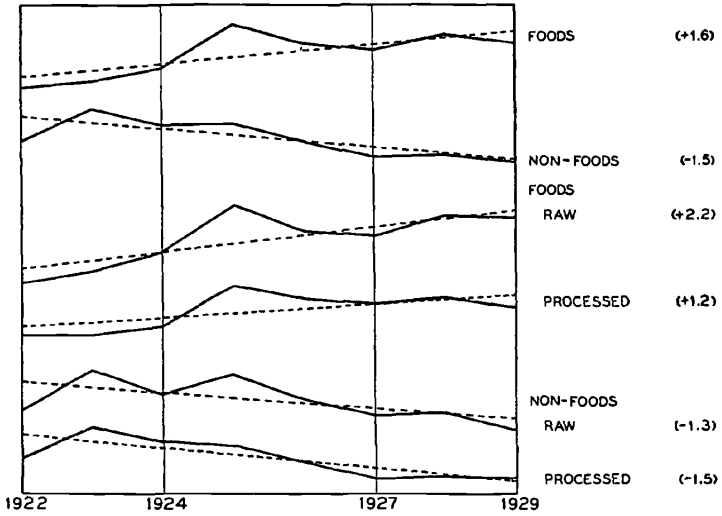
These figures define with precision the actual tendencies of the two groups of commodities, as is clearly shown by the graphs in Figure 66. The per-unit purchasing power of commodities in the food group was rising at a rate of 2.0 per cent a year; the corresponding movement of non-foods was downward at a rate of 1.1 per cent a year. The explanation of this divergence is to be found, in part, in conditions of production and of marketing. The expanding wants of this period were wants for articles other than food, and the conditions of mass production which conduce to the lowering of price were more fully realized among non-foods. But in part, as we have seen, the explanation is to be found in the situation left by the recession of 1920-21.

The advance in prices was distinctly greater for raw than for processed foods; raw and processed non-foods declined by about the same amounts.

FIGURE 66

MOVEMENTS OF WHOLESALE PRICES IN THE UNITED STATES, 1922-1929

FOODS AND NON-FOODS



Plotted on ratio scale. The figures in parentheses define average annual rates of change (in percentage form).

These various measurements must be set against the corresponding pre-war figures.

Commodity group	Average annual rate of change in purchasing power	
	1901-1913 (per cent)	1922-1929 (per cent)
Foods	+0.7	+2.0
Non-foods	−0.3	−1.1
Foods, raw	+1.3	+2.6
Foods, processed	+0.4	+1.6
Non-foods, raw	−0.6	−0.9
Non-foods, processed	−0.2	−1.1

Rising food values (i.e., real values), per unit, and declining values of non-foods were characteristic of both pre-war and post-war periods. The margin of difference was much wider in the recent than in the earlier period. Both raw and processed foods gained in purchasing power between 1922 and 1929 at rates exceed-

ing the pre-war rates. Processed non-foods declined at a much higher rate in the period just passed. Pre-war tendencies seem to have persisted in recent years, with enhanced force.

In a survey of the situation prevailing immediately after the recession of 1920-21 we find a partial explanation of the intensification of these tendencies. This will be facilitated by the following index numbers, which are shown graphically in Figure 67.

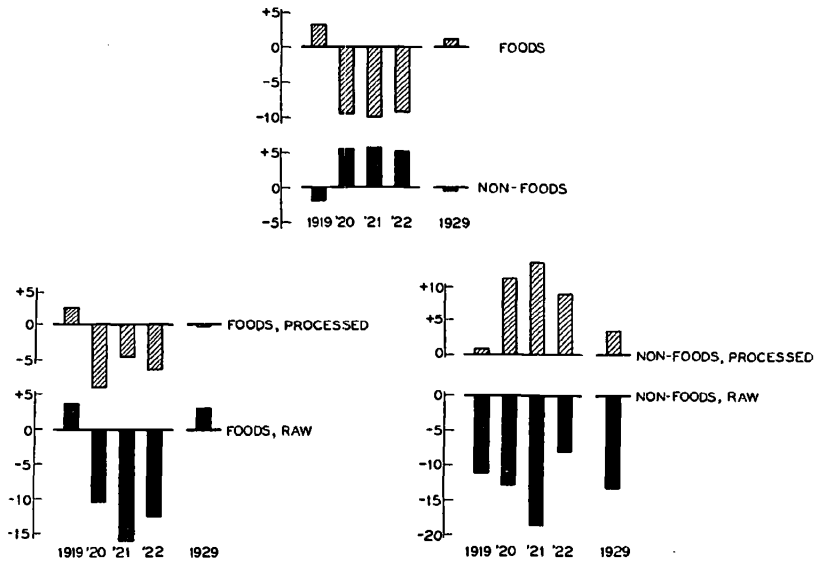
Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1929
Foods	100.0	103.2	90.6	90.2	90.9	101.0
Non-foods	100.0	98.2	105.6	105.6	105.2	99.6

FIGURE 67

GRAPHIC REPRESENTATION OF CHANGES IN THE REAL VALUES, PER UNIT, OF COMMODITIES IN SELECTED GROUPS, 1913-1929

FOODS AND NON-FOODS

(CHANGES ARE MEASURED AS PERCENTAGE DEVIATIONS FROM 1913 PURCHASING POWER.)



The pronounced increase in the per-unit purchasing power of food products between 1922 and 1929, and the corresponding decline of non-foods from the particularly advantageous position in which they were left by the recession of 1920-21, served approximately to restore the relations prevailing in 1913 between foods and

non-foods. The statistics for the sub-groups help to define these changes.

Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1929
Foods						
Raw	100.0	103.7	89.8	84.1	87.6	103.0
Processed	100.0	102.9	91.2	95.6	93.7	99.8
Non-foods						
Raw	100.0	88.9	87.2	81.5	92.0	86.9
Processed	100.0	100.9	111.2	113.5	109.0	103.4

The purchasing power in wholesale markets of raw foods, in terms of commodities in general, increased from 84.1 to 103.0 between 1921 and 1929 (the situation in 1913 being represented by 100). Processed food products suffered much less severely during the recession of 1920-21, and gained thereafter by a much smaller amount. The notable decline after 1921 in the per-unit purchasing power of processed non-foods did no more than carry these goods from a position in which the average unit commanded 13 per cent more of commodities in general than in 1913 to a position in which it commanded only 3 per cent more than in 1913. Raw non-food products were persistently below all other groups after 1919. The decline in their purchasing power between 1922 and 1929 intensified a position that was relatively bad at the beginning. This group contains most of the commodities falling in the class of raw materials not originating on American farms, changes in which have already been commented upon.

Producers' Goods and Consumers' Goods

The classification of commodities into producers' goods and consumers' goods is of obvious economic significance, and their respective price movements are of peculiar interest. Consumers' goods are, of course, those which are in shape for final consumption. Their prices at wholesale are not the prices at which final consumers will purchase them, but no further processing charges will be incurred before they are marketed. Producers' goods are the materials of industry, raw or semi-processed, to be fabricated further before consumption or to be used in the construction of articles of capital equipment. Producers' goods are bought for purposes of profit, and the buyers are business men, not ultimate consumers.

(The present distinction between producers' goods and consumers' goods is not strictly a division between goods bought for profit and goods bought for use, because we are dealing with wholesale prices throughout, but it is an approach to such a classification.) The two classes of consumers' goods, raw and processed, are, of course, mutually exclusive. They do not represent different stages at which the same goods are priced, but two quite different types of goods—those consumed in a raw state and those consumed in a fabricated form.

Index numbers for the period 1922-1929 are given in the following table. Net movements are defined by the average annual rates of change cited in the table. The measurements are plotted in Figure 68.

TABLE 148

PRODUCERS' GOODS AND CONSUMERS' GOODS

Index Numbers of Wholesale Prices in the United States, 1922-1929 [a]

(1) Year	(2) Producers' goods	(3) Producers' goods	(4) Consumers' goods	(5) Consumers' goods	(6) All producers' goods	(7) All consumers' goods
	Raw	Processed	Raw	Processed		
1922	100.0	100.0	100.0	100.0	100.0	100.0
1923	107.8	108.2	101.9	102.2	108.0	102.1
1924	105.7	103.6	105.4	102.1	104.3	102.7
1925	113.5	102.4	119.7	108.0	106.3	109.8
1926	106.0	99.2	114.4	104.7	101.6	106.3
1927	104.3	94.9	108.6	101.9	98.3	103.0
1928	107.5	95.1	110.3	103.2	99.5	104.4
1929	103.3	94.8	113.6	101.6	97.9	103.5
Average annual rate of change (per cent)						
In price	+0.1	−1.6	+1.6	+0.1	−0.9	+0.4
In purchasing power	+0.5	−1.1	+2.0	+0.6	−0.5	+0.8

[a] The numbers of price series included in the above groups varied within the limits given below:

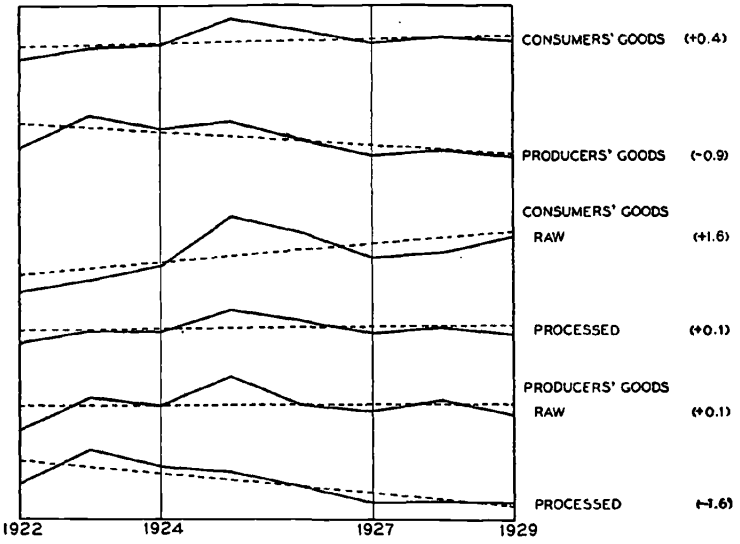
Producers' goods		Consumers' goods	
Raw	105 to 108	Raw	31 to 34
Processed	179 to 184	Processed	151 to 166
Total	284 to 292	Total	182 to 200

Producers' goods showed a net decline in price between 1922 and 1929, at a rate of 0.9 per cent a year. Consumers' goods rose in

FIGURE 68

MOVEMENTS OF WHOLESALE PRICES IN THE UNITED STATES, 1922-1929

PRODUCERS' GOODS AND CONSUMERS' GOODS



Plotted on ratio scale. The figures in parentheses define average annual rates of change (in percentage form).

price at a rate of 0.4 per cent. In terms of purchasing power producers' goods decreased at a rate of 0.5 per cent a year, while consumers' goods increased at a rate of 0.8 per cent. These purchasing power trends represent a wider margin than that which was opening up between 1901 and 1913.

Among the sub-groups, both classes of raw materials rose in price, the sharpest advance occurring in those which were in shape for consumption. The prices of processed producers' goods declined markedly, while prices advanced for manufactured consumers' goods. But all these figures must be interpreted with reference to purchasing power changes, and to earlier trends, if we are to appreciate their significance. The summary table at the top of page 360 permits this interpretation.

These figures indicate that during both periods consumers were giving every year a little more, in terms of goods in general, for the articles they purchased. The rate of advance was more rapid in the recent period. Producers, on the other hand, were giving a

Commodity group	Average annual rate of change in purchasing power 1901-1913 (per cent)		1922-1929 (per cent)	
Producers' goods				
Raw	+0.4		+0.5	
Processed	−0.5		−1.1	
Total		−0.2		−0.5
Consumers' goods				
Raw	+0.1		+2.0	
Processed	+0.2		+0.6	
Total		+0.2		+0.8

little less, in terms of goods in general, for the articles they purchased for further fabrication or for use in capital equipment. Breaking up consumers' goods into the two classes shown, it appears that there was no appreciable difference during the pre-war period between the changes in the two groups. In the post-war period both raw and processed goods in shape for consumption were becoming increasingly more expensive, but the rate of advance was sharper for raw materials. For producers, raw materials were rising in real value per unit during both periods. Processed producers' goods were declining in purchasing power in both periods, but more rapidly in the second.

Again we need information as to the conditions prevailing immediately before the post-war period begins. The following index numbers of changes in purchasing power, for selected years between 1913 and 1919, furnish this information and provide a tie between the pre-war and post-war records. They are shown graphically in Figure 69.

Commodity group	Index numbers of purchasing power, per unit 1913	1919	1920	1921	1922	1929
Producers' goods	100.0	98.4	99.7	95.0	97.0	94.9
Consumers' goods	100.0	102.1	100.2	107.9	104.4	108.0

Boom conditions in 1919 found consumers paying some 2 per cent more, in terms of dollars of constant purchasing power, for the articles they purchased,[1] while producers were paying somewhat less than they had paid, per unit, in 1913. By 1921 the margin had been materially widened, with producers' goods 5 per cent lower in

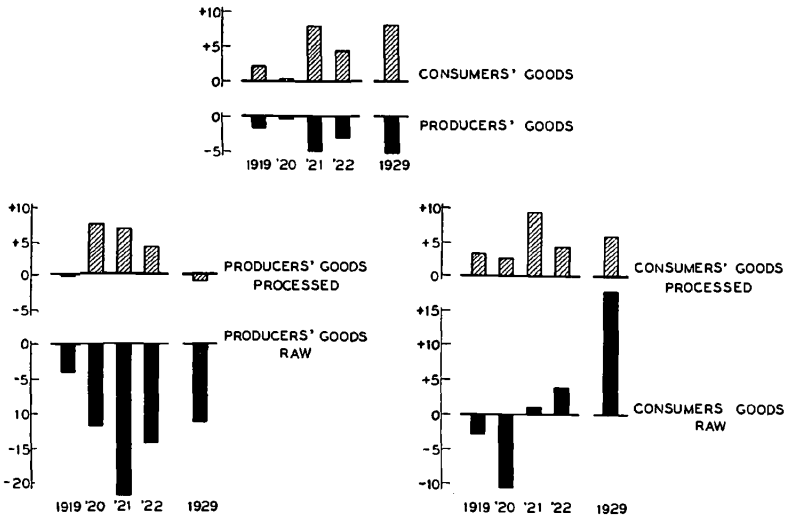
[1] For convenience of exposition, the assumption is made that actual consumers were buying at the quoted prices. Since the prices with which we are dealing are quotations in wholesale markets, this is not strictly true.

FIGURE 69

GRAPHIC REPRESENTATION OF CHANGES IN THE REAL VALUES, PER UNIT, OF COMMODITIES IN SELECTED GROUPS, 1913-1929

PRODUCERS' GOODS AND CONSUMERS' GOODS

(CHANGES ARE MEASURED AS PERCENTAGE DEVIATIONS FROM 1913 PURCHASING POWER.)



real value than in 1913, and consumers' goods about 8 per cent. higher. The effect of the recession had been to cheapen substantially goods not yet in shape for final consumption, and to add materially to the per-unit real cost to consumers of goods in shape for consumption. This situation obviously favored manufacturing interests, once the necessary readjustment to the new price situation had been completed.

The story, thus far, resembles that relating to farm and non-farm products. The recession of 1920-21 left farm products, particularly raw farm products, undervalued, with reference to the 1913 situation, and non-farm products correspondingly overvalued. From this point on the stories differ. The tendencies prevailing between 1922 and 1929 served to restore, by 1929, the approximate relations prevailing in 1913 between the prices, at wholesale, of goods of agricultural and of non-agricultural origin. But there was no such restoration of the pre-war relations between producers' goods and consumers' goods. Between 1921 and 1922 the values of producers' goods, in dollars of constant purchasing power,

advanced slightly, and the values of consumers' goods declined slightly, but from 1922 to 1929 there was a resumption of the downward movement in the purchasing power of producers' goods, and of the upward movement in the purchasing power of consumers' goods. In 1929 producers' goods were approximately 5 per cent cheaper, in terms of commodities in general, than in 1913. That is, the manufacturer, buying raw materials or semi-finished goods for fabrication, or goods for use in capital equipment, paid 5 per cent less than in 1913 (values being expressed in terms of 1913 dollars). The dealer buying goods at wholesale for retailing to the final consumer paid 8 per cent more per unit (again in terms of 1913 dollars).

This situation is clearly one which has favored manufacturing profits during the whole period we are studying. The dollar expended by manufacturers for materials, raw and semi-processed, has had a higher purchasing power during this whole post-war period than it had before the war, while the dollar spent for consumers' goods in wholesale markets has had a lower purchasing power. If the samples used are representative,[1] the results indicate that rising wages and increasing purchasing power on the part of ultimate consumers have been very essential features of the economic processes of this period.[2]

The details of this situation deserve notice.

Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1929
Producers' goods						
Raw	100.0	96.0	88.2	78.2	85.8	88.6
Processed	100.0	99.9	107.5	106.9	104.4	99.1
Consumers' goods						
Raw	100.0	97.1	89.5	101.0	103.8	117.9
Processed	100.0	103.2	102.5	109.4	104.4	106.0

These figures appear graphically in Figure 69.

[1] For the post-war period the number of price series employed has varied from 284 to 292 for producers' goods, from 182 to 200 for consumers' goods.

[2] These figures relate, of course, only to commodities, not to the numerous services for which a goodly percentage of consumer income is spent. Furthermore, greater efficiency in merchandising may have made it possible for the retailer to pay the higher prices which have prevailed for consumers' goods without putting the ultimate consumer in the position of relative disadvantage which the present figures suggest. Index numbers of living costs, however, indicate that the cost of living has gone up at least as much since 1913 as the prices of consumers' goods at wholesale. (The index of general living costs constructed by the U. S. Bureau

The low price of raw materials has kept down the general average for producers' goods. At the low point in 1921 the raw materials used in manufacture were worth, in dollars of constant purchasing power, almost 22 per cent less than in 1913. There was some advance thereafter, but in 1929 these goods remained more than 11 per cent below the 1913 standard, in terms of real values. Cheap industrial raw materials were an important feature of the post-war business situation.

There is is a sharp contrast between the price movements of raw materials entering into manufacture and those of raw materials ready for final consumption without change of form. In 1919 and 1920 raw consumers' goods were almost on terms of equality with raw producers' goods, with reference to the 1913 base. The recession of 1920-21 left raw consumers' goods about one per cent above parity with goods in general (judged with reference to a 1913 base), and by 1929 they stood 18 per cent above that level. It would be interesting to inquire into the precise conditions which caused raw materials in shape for final consumption to increase in purchasing power, per unit, 32 per cent between 1920 and 1929, while the real value of raw materials requiring fabrication remained practically constant, at a level well below pre-war parity with other commodities. Differences in the conditions under which producers' and consumers' goods are marketed, as well as differences in the conditions of supply, have probably been influential factors in this divergence of movement.

Goods Entering into Capital Equipment and Articles of Human Consumption

In dealing with producers' and consumers' goods we were concerned with the immediate form of certain classes of goods quoted, whether in shape for consumption, or requiring further fabrication. We now inquire into the ultimate purpose for which goods will be used—for direct consumption by human beings, or for the purpose of building up (or replacing) capital equipment. Whether a good is or is not in final form for consumption does not affect its classification in this case. There is not, of course, a clear line of demarcation

of Labor Statistics averaged 170.8 for 1929, on the 1913 base. The index of prices of consumers' goods, at wholesale, for 1929, on the same base, was 160.2. The cost of living index number constructed by the National Industrial Conference Board averaged 161.3 for 1929, on the base July, 1914.)

between goods which will be used for capital equipment and goods which will be used directly by consumers but, though some trouble is experienced with border-line cases, the classification may be made.[1]

Index numbers of prices of these two groups of commodities, with subdivisions into raw and processed forms, are given in the following table. They are plotted in Figure 70.

TABLE 149

GOODS ENTERING INTO CAPITAL EQUIPMENT AND ARTICLES OF HUMAN CONSUMPTION

Index Numbers of Wholesale Prices in the United States, 1922-1929 [a]

(1) Year	(2) Goods entering into capital equipment	(3)	(4) Articles of human consumption	(5)	(6) All goods entering into capital equipment	(7) All articles of human consumption
	Raw	Processed	Raw	Processed		
1922	100.0	100.0	100.0	100.0	100.0	100.0
1923	108.1	110.2	105.6	102.7	109.8	103.5
1924	100.2	104.5	107.3	101.9	103.5	103.6
1925	103.8	103.1	118.5	105.9	103.3	109.8
1926	104.2	101.3	109.1	101.9	101.9	104.2
1927	100.1	96.4	106.9	99.1	97.1	101.6
1928	97.1	95.9	111.9	100.5	96.2	104.1
1929	97.5	97.0	108.3	98.5	97.0	101.5
Average annual rate of change (per cent)						
In price	−0.8	−1.4	+0.9	−0.4	−1.3	0.0
In purchasing power	−0.4	−1.0	+1.3	0.0	−0.9	+0.4

[a] The numbers of price series entering into the various group averages ranged between the limits given below:

Goods entering into capital equipment		Articles of human consumption	
Raw	32 to 35	Raw	104 to 107
Processed	120 to 125	Processed	210 to 225
Total	152 to 160	Total	314 to 332

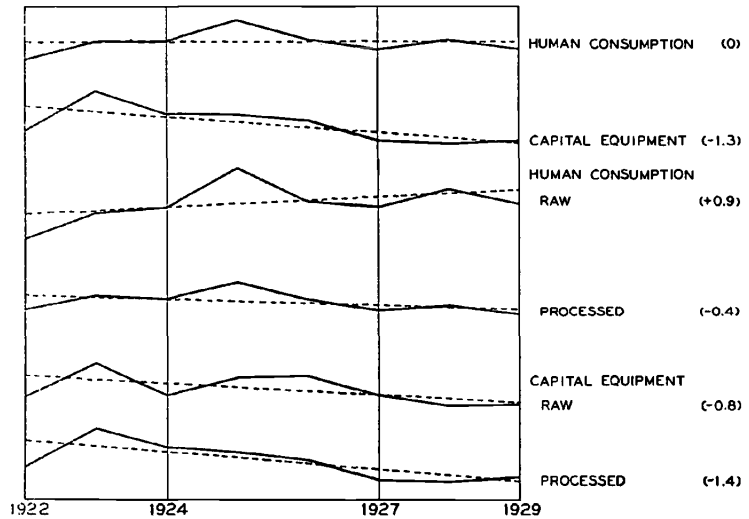
Articles entering into capital equipment declined in price between 1922 and 1929 at a rate of 1.3 per cent a year; the drop in purchasing power averaged 0.9 per cent a year. For articles of human consumption the price index for 1929 was 1.5 per cent higher than in

[1] Details of this and of other classifications of commodities here employed are given in Appendix II.

FIGURE 70

MOVEMENTS OF WHOLESALE PRICES
IN THE UNITED STATES, 1922-1929

ARTICLES OF HUMAN CONSUMPTION AND GOODS ENTERING INTO CAPITAL EQUIPMENT



Plotted on ratio scale. The figures in parentheses define average annual rates of change (in percentage form).

1922. The intervening years were marked by a rise of almost 10 per cent between 1922 and 1925, a decline thereafter. The line defining the price tendency over the whole eight-year period shows no net change. In terms of purchasing power there was a net annual advance of 0.4 per cent. Processed goods in both groups became relatively cheaper, but among raw materials the trends diverged. Raw materials destined for human consumption increased in real value; raw materials destined for use as capital equipment showed a small net downward movement.

These movements gain significance from comparison with pre-war tendencies. Relevant figures appear at the top of page 366.

In both periods articles entering into capital equipment were cheapened, in terms of real values, while articles intended for ultimate human consumption were rising in value. (Measurements of post-war tendencies among articles of human consumption define net changes, rather than persistent trends. The year 1925 marked a clear turning point in price movements among goods of this class.) The terms of exchange between these two broad groups of com-

Commodity group	Average annual rate of change in purchasing power 1901-1913 (per cent)		1922-1929 (per cent)	
Goods entering into capital equipment				
Raw	−1.0		−0.4	
Processed	−0.4		−1.0	
Total		−0.5		−0.9
Articles of human consumption				
Raw	+0.8		+1.3	
Processed	+0.1		0.0	
Total		+0.2		+0.4

modities were subject to the same general tendencies in the two periods. Investment in capital equipment was facilitated by a cheapening of capital goods, while the real per-unit value of consumers' goods showed net advances.

But again we must know what occurred during the war years, and during the first great post-war recession. The following measurements, which define changes in purchasing power, per unit, of goods falling in the two main classes, tell this story. These changes are shown graphically, for the sub-groups as well as the totals, in Figure 71.

Commodity group	Index numbers of purchasing power, per unit 1913	1919	1920	1921	1922	1929
Articles of capital equipment..	100.0	93.9	104.1	109.9	107.0	103.8
Articles of human consumption	100.0	102.9	98.3	95.9	97.0	98.4

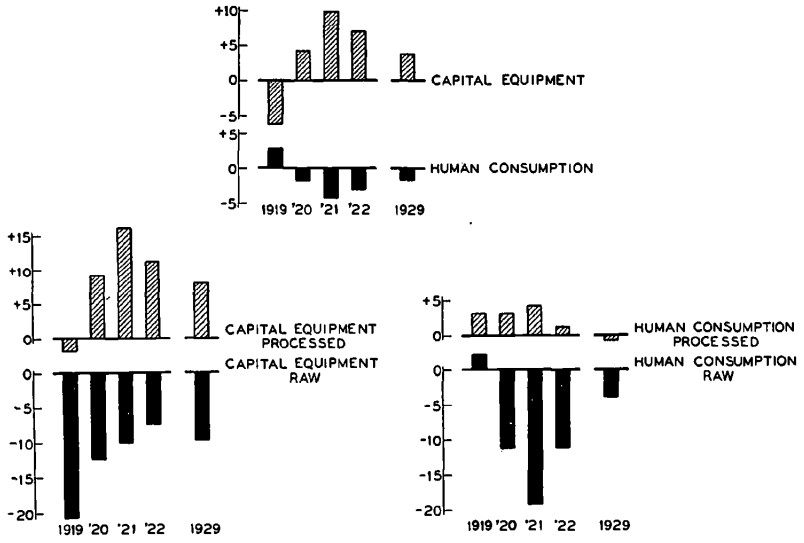
There is not found here the same contrast that existed between producers' and consumers' goods. The boom prices of 1919 carried the prices of articles destined ultimately for human consumption above those of articles entering into capital equipment, but this situation was reversed in the following year. Deflation in 1920 and 1921 left articles of capital equipment almost 10 per cent higher, in purchasing power, than in 1913, and articles entering into consumption some 4 per cent below the 1913 level. After 1921 the two groups moved somewhat closer toward pre-war parity. The post-war decline in the prices of articles destined for use in capital equipment has been, therefore, a movement toward the price relations prevailing in 1913, not, as in the case of producers' goods in general, a widening of the price differences prevailing in 1922.

FIGURE 71

GRAPHIC REPRESENTATION OF CHANGES IN THE REAL VALUES, PER UNIT, OF COMMODITIES IN SELECTED GROUPS, 1913-1929

ARTICLES OF HUMAN CONSUMPTION AND GOODS ENTERING INTO CAPITAL EQUIPMENT

(CHANGES ARE MEASURED AS PERCENTAGE DEVIATIONS FROM 1913 PURCHASING POWER.)



Changes in purchasing power occurring among the raw and processed sub-groups of these major classes are shown by the following measurements.

Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1929
Articles of capital equipment						
Raw	100.0	79.4	87.6	90.0	92.6	90.3
Processed	100.0	98.2	109.1	116.1	111.3	107.9
Articles of human consumption						
Raw	100.0	102.2	88.9	80.9	88.9	96.2
Processed	100.0	103.2	103.2	104.2	101.1	99.6

The most striking feature of this exhibit is that raw materials of both groups have been consistently below pre-war parity with processed goods of corresponding types since 1919. The gap was widest in 1921, and has narrowed since then. Among articles of capital equipment the margin remained wide in 1929. The weakness of raw material prices, notably those of industrial raw materials,

has, of course, been an outstanding characteristic of the recent economic situation.

The marked difference between the price relations among the above categories and those prevailing between producers' and consumers' goods calls for some comment. The broad group of producers' goods is made up of two divisions—articles which will ultimately enter into capital equipment and articles intended for human consumption, but not yet in final shape. Over the period under review the prices of these two groups of commodities followed quite different courses. These movements are plotted in Figure 72.

Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1929
Producers' goods destined for human consumption[a]	100.0	104.2	95.9	81.6	87.9	86.9
Producers' goods destined for use in capital equipment[b] ..	100.0	93.9	104.1	109.9	107.0	103.8

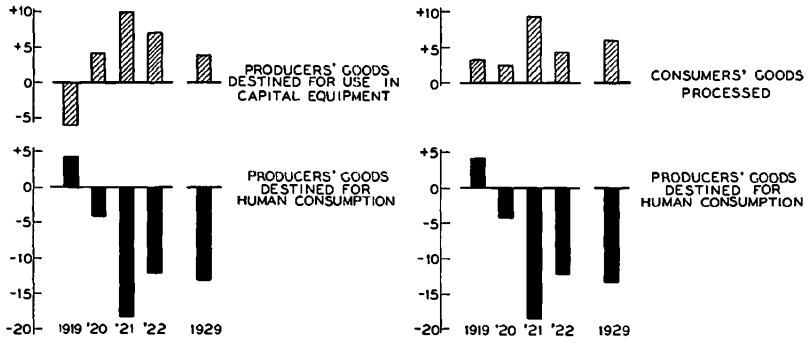
[a] Index numbers based on 132 price series.
[b] Index numbers based on samples of from 152 to 160 price series.

FIGURE 72

GRAPHIC REPRESENTATION OF CHANGES IN THE REAL VALUES, PER UNIT, OF COMMODITIES IN SELECTED GROUPS, 1913-1929

SELECTED CLASSES OF PRODUCERS' GOODS AND CONSUMERS' GOODS

(CHANGES ARE MEASURED AS PERCENTAGE DEVIATIONS FROM 1913 PURCHASING POWER.)



The recession of 1920-21 carried to a point 18 per cent below the 1913 level the purchasing power of goods meant for human consumption, but not yet in final shape. By 1929 this margin had been reduced to 13 per cent, but commodities of this class were still materially below their pre-war real value, per unit. Goods to be used in the construction of capital equipment were low in value in 1919,

but during the next ten years were consistently above pre-war parity with goods in general.

This last comparison suggests another line to follow, in attempting to trace significant price relations during the post-war period. The price quotations on producers' goods meant for ultimate human consumption refer to prices paid by producers (or by middlemen acting for them) on goods to be fabricated further before final sale to consumers. With the index numbers of these prices we may compare index numbers of prices of processed consumers' goods—prices of manufactured goods which are in shape for final consumption. The prices employed do not refer necessarily to the same goods in different stages of fabrication, but they do refer to two distinct stages in the manufacturing-merchandising process leading up to the sale of goods to the final consumer. The changes in the price relations between these two stages are shown in Figure 72; the index numbers appear in the following table.

Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1929
Producers' goods destined for human consumption [a]	100.0	104.2	95.9	81.6	87.9	86.9
Consumers' goods, processed [b]	100.0	103.2	102.5	109.4	104.4	106.0

[a] Index numbers based on 132 price series.
[b] Index numbers based on samples of from 151 to 166 price series.

Both groups of goods shared in the revival of 1919, and had their purchasing power raised above the 1913 level. In the ensuing recession goods meant for consumption but not yet in final shape lost 22 per cent of their per-unit purchasing power (i.e., declined 22 per cent further between 1919 and 1921 than did goods in general), while fabricated consumers' goods gained an additional 6 per cent in per-unit purchasing power. This constitutes a very wide divergence, for the figures relate to purchasing power, not to actual price movements. The opening of this spread between the prices paid by producers for important materials and the prices received by producers for finished goods meant greatly widened profit margins, once revival got under way and the volume of trade picked up. It is a notable feature of this exhibit that the margin persisted, although it was narrowed somewhat during the later years of the period under review.[1]

[1] If in 1913 producers' goods destined for human consumption had been relatively high-priced, while processed consumers' goods had been relatively low-priced,

On the Levels of Operating and Capital Costs, 1922-1929.— If we consider the costs of the manufacturing producer under two heads, those involved in normal operating processes and those involved in the construction or extension of capital equipment, we find a rather sharp contrast prevailing during the period 1922-1929. The available evidence indicates that, as regards current productive operations, the average producer was in a relatively strong position in these years. Material costs, as measured by index numbers of the prices of raw materials and of producers' goods destined for human consumption, were low, in comparison with earlier standards, and selling prices of processed consumers' goods were high. Labor costs, as we shall see in the next chapter, were high, but these were declining rapidly under the stimulus of a sharp increase in productivity. Here were conditions conducing to large operating profits, and such profits were in fact realized.[1]

As regards the cost of capital equipment the picture is quite different. The prices of goods entering into such equipment, particularly processed goods, stood at a high level during this whole period. Some decline occurred between 1922 and 1929, but the period ends with the real values of such goods well above pre-war parity with other goods. If we take account also of the relatively high costs of construction during this period [2] we have an impressive picture of the changes involved in constructing or extending capital equipment.

The figures relating to the production of capital equipment which were cited in the preceding chapter take on added significance in the light of these price and cost records. The construction of capital equipment increased at a rate of 6.4 per cent a year between 1922 and 1929. The volume of such construction in 1929 was 70 per cent greater than in 1922. The productive energies of the country were being devoted to the production of capital equipment to a degree not approached in pre-war years, or during the war. And

the condition prevailing between 1922 and 1929 might not be significant. In fact, goods of the first class were in 1913 slightly lower in price than processed consumers' goods, with reference to the years preceding. On 1901 as base, the index of wholesale prices for producers' goods destined for human consumption stood in 1913 at 117.9; the index for processed consumers' goods was 119.6.

[1] See Chapter IX.

[2] The *Engineering News Record's* index shows a high level of construction costs during this period:

1922	100	1926	119
1923	123	1927	118
1924	123	1928	118
1925	118	1929	119

this tremendous volume of capital equipment was being constructed on a high price and high cost basis. We shall not understand the developments of this period, nor the events which followed, if we fail to take account of these facts. For the existence of a large volume of high-cost capital equipment contributed materially to the weight of the subsequent debt burden and to the difficulties in the way of prompt liquidation and of ready readjustment of costs to lower price levels.

§ *Other commodity groups.*—We may, finally, compare pre-war and post-war price changes among the various commodity groups appearing in the classification of the United States Bureau of Labor Statistics. To simplify comparison, these changes have been expressed as variations in purchasing power, per unit.

TABLE 150

COMPARISON OF AVERAGE ANNUAL RATES OF CHANGE IN PURCHASING POWER, 1901-1913 AND 1922-1929

Commodity Groups of the United States Bureau of Labor Statistics

Commodity group	Average annual rate of change in purchasing power	
	1901-1913	1922-1929
Foods	+0.5	+2.3
Hides and leather products	+0.8	+2.0
Farm products	+0.9	+1.7
Chemicals and drugs	−2.2	−0.5
Metals and metal products	−2.2	−0.8
Building materials	+0.4	−0.8
House-furnishing goods	−0.9	−1.4
Miscellaneous	−0.5	−1.5
Textiles	−0.7	−1.7
Fuel and lighting	−1.4	−2.6

Commodities falling in three commodity groups, food products, farm products, and hides and leather products, gained in purchasing power, on the average, between 1922 and 1929. All other groups declined in purchasing power, with the fuel and lighting group losing in relative position at the rate of 2.6 per cent a year. The three groups that gained in the post-war period advanced also between 1901 and 1913. Building materials gained slightly during the earlier period, declined in the later period. Metals and metal products, chemicals and drugs, house-furnishing goods, fuel and lighting, textiles, and commodities in the miscellaneous group were becoming steadily cheaper, in terms of other goods, during both periods.

To complete the picture we need to trace recent changes against a pre-war base.

Commodity group	Index numbers of purchasing power, per unit					
	1913	1919	1920	1921	1922	1929
Foods	100.0	101.6	96.7	100.9	98.5	114.0
Hides and leather products	100.0	128.8	113.7	114.7	110.9	117.4
Farm products	100.0	111.0	95.3	88.4	94.7	107.5
Chemicals and drugs	100.0	98.6	92.9	102.6	90.3	86.1
Metals and metal products	100.0	72.6	74.4	92.6	81.8	81.1
Building materials	100.0	102.7	119.7	122.9	123.9	123.3
House-furnishing goods	100.0	94.7	113.9	143.6	132.7	122.7
Miscellaneous	100.0	75.2	81.3	83.9	72.0	65.0
Textiles	100.0	118.9	130.0	118.0	126.3	115.6
Fuel and lighting	100.0	85.6	120.7	112.9	126.4	99.2

The post-war boom of 1919 found metals, fuel and lighting, house-furnishings and the group of miscellaneous goods materially lower in purchasing power than in 1913. Chemicals and drugs were slightly below that standard. All other groups had higher purchasing power per unit than in 1913, with hides and leather products and textiles standing in particularly favorable positions. In the depression year, 1921, farm products, metal products and the 'miscellaneous' group stood below pre-war parity with other goods. The shifts occurring between 1921 and 1929 elevated farm products and improved the standing of foods.[1] Chemicals and drugs and fuel and lighting declined notably. In 1929 these two groups, together with metals and miscellaneous goods, were at a disadvantage, with reference to the 1913 standard, while all other groups were better off. Highest in unit value, in terms of commodities in general, were building materials, house-furnishings, hides and leather products, textiles and foods.

The price averages for the major industrial groups show substantial changes in relative position over the sixteen-year period here covered. These changes have been important factors in shaping the flow of monetary payments upon which prosperity depends. But they have not been the only factors; the condition of various groups of producers cannot be determined from the evidence of price movements alone. We return later to this subject.

Summary: Post-war Movements of Commodity Prices

A general characterization of the post-war period, in respect to the trends and changing relations of commodity prices, is deferred to the final chapter. Only a brief summary is given at this point.

Post-war production tendencies, we have seen, represented a

[1] The group of American farm products, raw and processed, which appears in an earlier classification, includes commodities which here fall among foods, farm products, hides and leather products and textiles.

continuation of tendencies prevailing before the war. The recent period was not unlike the earlier, except as regards the tempo of change and the degree of difference among the rates of change in the production of goods of different categories. In the realm of prices certain pre-war tendencies continued, but in the main the story of recent years is sharply different from that of the earlier period. The persistent upward movement of the price level, a rise that played a leading rôle in the economic processes of the years before the war, was succeeded by a declining movement, world-wide in its reach. Relatively favorable exchange conditions for raw material producers in general, and for farmers in particular, were replaced by unfavorable conditions which prevailed, despite some improvement, during the entire decade. Agents of fabrication, on the other hand, improved their status materially in post-war years. Gains due to the steadily advancing productivity of manufacturing industries were substantial. In addition, the real values of manufactured products had been increased during the general price recession of 1920-21, and a large part of this advantage persisted during the years which followed. Economic groups drawing their incomes from these industries stood in positions of relative advantage during the post-war decade.

Another aspect of the same change is seen in the widened margin between the prices of producers' goods and of consumers' goods which marked this period. In general, producers' goods were cheapened by the price shifts of the 1920-21 recession, while the real per-unit value of consumers' goods was enhanced. This meant that the incomes of those selling materials to manufacturers were reduced (in so far as per-unit returns were concerned), while the real cost of goods sold to final consumers was raised. The charge to consumers for the services of fabrication and distribution represented by the margin between the prices of these two broad classes of goods was higher than before. What is perhaps most significant here is that there was no apparent tendency for this particular margin to be reduced during the years from 1922 to 1929. Consumers' goods remained high in price, in relation to other goods, over this entire period. Not all producers' goods were low in real cost during these years, however. The cost of capital equipment was relatively high, and remained high to the end of the period. Abundant capital and an optimistic business attitude toward the future combined to stimulate a heavy program of capital construction under these high-cost

conditions. A swelling debt burden, the weight of which was acutely felt during the subsequent liquidation, was an accompaniment of this expansion.

The consequences of these shifting price relations were far-reaching. They affected capital values and investment opportunities and rewards; they altered the terms of exchange between city and country, and between industrial centers and raw material producing areas the world over. The course of events during the decade of the 'twenties was profoundly influenced by the changes in economic relations represented by movements of prices and costs, and by the alterations of rewards which accompanied them.

During these years divergent production trends, involving continual shifts of labor and of capital, were placing upon our economic system requirements of flexibility and adaptability. But, concurrently, constantly greater capital investment, a constantly widening area of regulated and controlled prices, a steady reduction of the area within which free price competition prevailed were tending, apparently, to reduce the flexibility of prices. Though unequivocal quantitative evidence of this change is not available, and though a precise distinction between decreasing flexibility and increasing stability cannot be drawn, yet the existence of this tendency during the years prior to 1929 may hardly be doubted. Internationally and domestically prices were becoming less effective as instruments of economic coördination. In the absence of alternative instruments of social control, the maintenance of working relations among the elements of the economic structure was becoming correspondingly more difficult. The problem posed by these circumstances persists, for the present generation to face in the years beyond the depression.