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CHAPTER II

INDIVIDUAL INDUSTRIES AND ENTERPRISES IN THE BUSINESS CYCLE

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NATIONAL BUREAU OF ECONOMIC RESEARCH

I. INTRODUCTION

Knowledge of the business cycle and close attention to its current phases is important to the business man, because general prosperity and depression affect his own particular affairs. But the manner, degree, and intensity with which changes in general business conditions affect different industries in the same cycle and the same industry in different cycles are by no means uniform. Probably there are a few industries in which profits rise during depressions and fall in booms. Such anomalous results may be produced if prices are fixed and demand steady, but costs highly variable (for example, many public utilities); or they may occur in industries providing cheap wares which people substitute for better grades when they must economize. Certainly there are industries which feel the effects of depression slowly and in slight degree, presenting a sharp contrast to other industries in which the effects are sudden and severe.

Furthermore, there is evidence that certain crises and certain revivals have started in one district and spread gradually over the rest of the country. For example, the panic of 1907 appears to have begun in New York City and to have radiated from there to other financial centers. Soon the financial difficulties affected the industrial districts, and within a few months checked business of almost all kinds in almost every section. Similarly, the sudden revival in the autumn of 1891 was first noted in the wheat-growing areas. The "granger" railroads reported an increase of profits some months before the lines in other districts experienced a revival.

Finally, there is a wide diversity of fortunes at the same time and in the same trade among different business enterprises. In every year of deep depression an occasional concern reports that it has had "the best season in its history." And it is notorious that there is never a year, no matter how prosperous, when hundreds of business men do not go bankrupt.

A sketch of the typical business cycle, adequately established upon summaries of general experience is both valid and useful; but the sketch would be more useful if it showed not merely the general run of affairs

but also the diversities. The fortunes of individual industries, districts and enterprises are part of the business cycle, and the business executive, in adapting his policy to his opportunities and requirements, needs to know as much as possible about their peculiarities.

This is a field where the professional economist works at a disadvantage, if he works at all. It is a field which is likely to remain neglected until taken up by statisticians connected with business corporations. Such figures as exist are often difficult for an outsider, who is not intimately familiar with both the technique and history of the business from which they came, to interpret intelligently. To analyze these data in the ways most likely to extract their secrets is generally, moreover, too expensive for anyone to undertake who stands no chance of profiting by the results.

By way of indicating the need of such work we have collected some materials bearing upon the fortunes of different industries in the dramatic business years from 1919 to 1922. There are statistical records of monthly fluctuations of prices, production, and number of employees in various industries. Horace Secrist of the Bureau of Business Research of Northwestern University and John Whyte of the National Association of Credit Men have aided us by collecting a considerable number of questionnaires from business men interested in the problem. We have applied to the secretaries of numerous trade associations for their views, and have received suggestive letters from the executives and statisticians of various corporations.

What follows is an attempt to present a few of the results from these inquiries. None of them must be taken as more than a tentative statement of what seems to have happened to a particular business in a single business cycle. Though these statements possess considerable interest to the trades from which they come, they form only a beginning of work which must cover a far wider range of information and time before generalizations can be made, let alone regarded as proved. The broad general impression left by a study of the problem is one of great diversity among the fortunes not only of different industries but also of different enterprises within the same industry.

II. DIFFERENT ENTERPRISES IN THE SAME INDUSTRY

The questionnaire which Mr. Secrist used in getting information from various groups of business men in the Chicago district included inquiries concerning the date at which enterprises were most unfavorably affected during the recent depression, when the signs of trouble were first noted, and whether the industry in question recovered from the depression relatively early or relatively late.

The following schedule presents the material he collected for all industries from which six or more answers were received. The diver-

TABLE I.—EXPERIENCES OF DIFFERENT ENTERPRISES IN THE SAME INDUSTRIES DURING THE CRISIS OF 1920 AND THE FOLLOWING DEPRESSION^a

(Based upon answers to questionnaires sent out by Horace Secrist)

Industry	Number of answers	Dates at which most unfavorably affected	Signs of trouble first noted	Revival early or late
Clothing, men's, manufacturing.	7	May, 1920 (3); June, 1920; Oct., 1920; Sept. to Dec., 1920; Jan., 1922.	Cancellation of orders (2); falling off of orders (4); buyers' strike (1).	Early (3) Late (4)
Clothing, women's, manufacturing.	6	June, 1920 (2); Oct., 1920; early, 1921; fall, 1921.	Cancellations (1); falling off of sales (3).	Early (3) Late (1)
Food for persons	10	Aug., 1920; Sept., 1920; fall, 1920; Jan., 1921; Aug. to Nov., 1921; Sept., 1921; Dec., 1921.	Cancellations (1); falling prices (4); falling off of sales (2).	Early (4) Late (4)
Household furniture	7	June, 1920; Aug., 1920; Sept., 1920; Oct., 1920; first half, 1921; July, 1921.	Cancellations (5); slow collections (2).	Late (7)
General building material including lumber, terra cotta, and structural steel.	6	July, 1920 to Nov., 1921; Aug., 1920; Dec., 1920; April, 1921; May, 1921.	Credit unavailable (1); lowering of prices (1); slump in construction (1); falling off of orders (3).	Late (6)
Paints, varnish, glass, doors, builders' hardware, etc.	9	Oct., 1920; Nov., 1920; Dec., 1920; spring, 1921; March, 1921; June, 1921; July to Aug., 1921; Oct. and Nov., 1921.	Falling off of sales (6); labor agitation (1); falling off of building permits (1).	Early (3) Late (5)
Printing, etc.	8	Oct., 1920; Nov., 1920 to May, 1921; early, 1921; June, 1921; May, 1922.	Cancellations (1); falling off of orders (4); collections bad (1).	Early (4) Late (1)
Publishing and printing, books and magazines.	10	July, 1920 (2); Sept., 1920; fall, 1920 (2); Dec., 1920; June, 1921; 1921.	Cancellation of advertising space (3); falling off of sales (2); falling off of advertising (2).	Early (2) Late (4)
Stationery, pens, etc.	8	Jan., 1920; Sept., 1920; Oct., 1920 (2); Nov., 1920; Dec., 1920; Feb., 1921; summer, 1921.	Cancellations (2); falling off of orders (4); collections slow (1); decrease in prices (1).	Early (2) Late (3)
Boxes, containers, twine, etc.	6	April, 1920; Nov., 1920 (2); 1920; spring and fall, 1921; Nov., 1921.	Falling off of orders (4); labor trouble; price cutting.	Early (3) Late (2)
Tires and rubber goods	6	May, 1920; July, 1920 (3); March, 1921; 1921.	Cancellations (4); falling off of sales (1).	Early (1) Late (5)

^a Numbers in parentheses indicate the number of establishments affected. Not all of the questions were answered on some of the questionnaires.

TABLE I.—(Continued)

Industry	Number of answers	Dates at which most unfavorably affected	Signs of trouble first noted	Revival early or late
Machinery	7	July, 1920; Nov., 1920; 1921; March, 1921; June, 1921; July, 1921; fall, 1921.	Cancellations (2); falling off of orders (4); collections poor (1).	Early (1) Late (6)
Telephone equipment	6	Jan., 1921; Oct., 1921 to Jan., 1922; May, 1922.	Cancellations (2); falling off of orders (1).	Late (3)
Industrial engineering	6	April, 1920; Jan., 1921; March, 1921; Jan., 1922.	Cancellations (2); falling off of orders (2); collections bad (1).	Medium (1) Late (3)
Advertising	18	July, 1920; Aug., 1920; Sept., 1920 (2); fall, 1920; Jan., 1921; spring, 1921; June, 1921; Sept., 1921; Oct., 1921; Nov., 1921.	Cancellations (2); falling off of orders (8); collections difficult (3); lack of credit (2).	Early (8) Late (7)
Insurance	9	July, 1920; Oct., 1920; Nov., 1920; March, 1921; Oct., 1921; Oct. to Dec., 1921; 1921; Jan., 1922; Nov., 1921 to Feb., 1922.	Cancellations (1); falling off of sales (2); labor trouble (1); decline in wages (2).	Early (1) Late (7)
Educational service	10	1920; Nov., 1920 to April, 1921; June, 1921; Jan., 1922. March, 1922.	Cancellations (1); falling off of sales (2); collections difficult (4).	Early (2) Late (4)

sity of these answers is an emphatic demonstration of the differences of opinion among business men on these points—differences presumably arising largely¹ from differences of experience.

Mr. Whyte used a somewhat similar questionnaire at the Indianapolis Convention of the National Association of Credit Men and received equally diverse answers. The following excerpts from his tabulation suffice for the present purpose.

¹ A few answers suggest that Mr. Secrist's first question was interpreted in different ways.

TABLE II.—EXPERIENCES OF DIFFERENT ENTERPRISES IN THE SAME INDUSTRIES DURING THE CRISIS OF 1920 AND THE FOLLOWING DEPRESSION^a

(Based upon answers to questionnaires used by John Whyte)

Industry	Number of answers	Dates when depression began		Dates when sales increased again	
		Range covered by answers	Commonest dates among the answers	Range covered by answers	Commonest dates among the answers
Automobile	6	March, 1920 to June, 1921.	March, 1920 (2); Oct., 1920 (2).	March, 1921 to April, 1922.	April, 1922 (2).
Building, plumbing, etc.	10	May, 1920 to Jan., 1922.	Dec., 1920 (2); Jan., 1921 (2).	Dec., 1921 to April, 1922.	March, 1922 (4).
Clothing	13	Feb., 1920 to Nov., 1920.	May and June, 1920 (5); Aug. to Oct., 1920 (6).	July, 1921 to May, 1922.	April and May, 1922 (4); fall, 1921 (3).
Dry goods	8	May, 1920 to June, 1921.	Nov., 1920.	Jan., 1921 to May, 1922.	Jan., 1922 (2).
Electrical supplies	6	June, 1920 to Jan., 1921.	Dec., 1920 and Jan., 1921 (3).	Sept., 1921 to May, 1922.	April, 1922 (3).
Furniture	10	July, 1920 to Feb., 1922.	Oct., 1920 (3).	Nov., 1921 to May, 1922.	March, 1922 (4).
Groceries	28	Oct., 1919 to June, 1921.	July to Nov., 1920 (15).	Jan., 1921 to May, 1922.	March, 1922 (6); April, 1922 (5); May, 1922 (6).
Hardware	13	Jan., 1920 to June, 1921.	Sept., 1920 to Jan., 1921 (13).	Aug., 1921 to May, 1922.	March, 1922 (5); May, 1922 (4).
Agricultural implements.	6	June, 1920 to Nov., 1920.	June, 1920 (3).	Sept., 1921 to May, 1922.	March, 1922 (2); May, 1922 (2).
Metals	21	Aug., 1919 to April, 1921.	Sept., 1920 (3); Oct., 1920 (5); Nov., 1920 (4).	Feb., 1921 to April, 1922.	Jan., 1922 (5); Feb., 1922 (5); April, 1922 (5).
Paper	12	Oct., 1920 to June, 1921.	Oct., 1920 (4); Nov., 1920 (3).	Sept., 1921 to April, 1922.	April, 1922 (3); March, 1922 (2).
Shoes	8	March, 1920 to April, 1921.	March to July, 1920 (6).	Sept., 1920 to March, 1922.	Feb., 1922 (2); March, 1922 (2).

^a Numbers in parentheses indicate the number of establishments affected.

III. VARIATIONS IN DIFFERENT INDUSTRIES—FLUCTUATIONS IN INDIVIDUAL COMMODITY PRICES

To make a rough presentation of the diversity of fluctuations among the prices of basic materials handled by different industries, we have computed for the commodities which are quoted by the Bureau of Labor Statistics in 1913 and the *Survey of Current Business* from 1919 to 1922 the

TABLE III.—PERCENTAGE RISE OF PRICES FROM 1913 TO THE POST-WAR PEAKS AND PERCENTAGE DROP FROM THE PEAKS TO THE LOWEST LEVELS REACHED BY JUNE 1, 1922

(Commodities Arranged in Order of Percentage Declines. Data from U. S. Bureau of Labor Statistics, *Bulletin* 269, and U. S. Department of Commerce, *Survey of Current Business*, May and July, 1922.)

Commodity	Percentage rises from 1913 to high	Percentage declines from high to low	Number of months between high and low points
Hides, calfskins country No. 1.....	390.5	86.5	19
Sugar, raw, 96° centrifugal, N. Y.....	498.0	82.8	20
Coke, Connellsville.....	537.0	82.3	16
Sheep, ewes, Chicago.....	204.0	81.1	14
Pine, yellow, flooring.....	258.8	80.8	9
Hides, green, salted, packers' heavy native steers....	182.8	80.6	20
Sugar, granulated, in bbls., N. Y.....	426.0	78.7	20
Cottonseed oil, summer, yellow, prime.....	274.2	78.2	21
Oak, white, plain.....	279.6	77.2	15
Corn, cash, contract, grades No. 2.....	219.0	76.5	17
Cotton, price to producer (weighted average of all grades).....	214.1	75.1	11
Cotton print cloth, 27", Boston.....	378.3	73.9	12
Raw silk, Japanese, Kansai, No. 1, N. Y.....	366.4	72.9	6
Cotton sheetings, $\frac{3}{4}$ Ware shoals, LL, N. Y.....	327.0	72.9	13
Cotton, middling upland, N. Y.....	231.4	72.2	11
Douglas, fir, No. 1.....	307.3	72.0	15
Crude petroleum, Kansas-Oklahoma.....	275.0	71.4	7
Oats, cash, Chicago.....	196.0	68.9	16
Barley, by sample, fair to good, malting, Chicago....	176.0	68.2	19
Cotton yarn, carded, white, Northern, mule spun, $2\frac{3}{4}$ cones, Boston.....	248.4	67.7	11
Leather, chrome calf, "B" grades, Boston.....	373.0	67.5	25
India rubber, Para Island, N. Y.....	-40.2	66.7	28
Newsprint, spot market, domestic.....	145.0	66.2	21
Pork, loins, fresh, Chicago.....	171.0	65.0	15
Shingles, red cedar.....	247.7	64.8	13
Rye, No. 2, cash, Chicago.....	251.0	64.0	16
Wool, Ohio, fine unwashed, Boston.....	250.0	63.6	17
Wheat, No. 1 northern spring, Chicago.....	254.0	62.0	18
Beef, steer rounds, No. 2, Chicago.....	111.0	60.9	17
Composite pig iron (<i>American Metal Market</i> index)....	218.0	60.7	18
Wheat, No. 2 red winter, Chicago.....	202.0	60.5	18
Pig iron, foundry No. 2 northern.....	220.0	59.3	17
Hogs, heavy, Chicago.....	98.0	59.1	15
Sheep, lambs, Chicago.....	163.0	58.7	20
Tin, pig, N. Y.....	42.0	58.2	19
Pig iron, Bessemer.....	195.0	57.5	17
Structural steel beams, etc., Pittsburgh.....	114.0	56.3	21
Wheat flour, winter straights, Kansas City.....	249.0	56.3	19
Lead, pig, desilverized, N. Y.....	110.0	55.4	12
Steel billets, Bessemer, Pittsburgh.....	142.0	55.2	18
Wheat flour, standard patents, Minneapolis.....	228.0	54.2	19
Iron and steel (<i>Iron Trade Review</i> index).....	162.0	52.3	18
Zinc, prime western, N. Y.....	66.0	51.5	19
Worsted yarn, $\frac{3}{2}$'s crossbred stock, Philadelphia....	189.7	51.1	10
Composite finished steel (<i>Iron Age</i> index).....	139.0	49.4	18
Bituminous coal.....	223.0	49.3	14
Hemlock.....	135.3	49.1	8
Copper ingots, electrolytic, N. Y.....	45.0	48.7	24
Cattle, steers, good to choice, corn fed, Chicago.....	81.0	47.4	11
Newsprint, contract, Canadian.....	77.0	46.3	11
Composite steel (<i>American Metal Market</i> index)....	121.0	45.0	18
Beef, good native steers, Chicago.....	101.0	44.2	17

TABLE III.—(Continued)

Commodity	Percentage rises from 1913 high	Percentage declines from high to low	Number of months between high and low points
Women's dress goods, storm serge, all wool, double warp 50", N. Y.....	152.6	42.6	15
Common brick, red, N. Y.....	281.0	42.0	10
Newsprint, contract domestic.....	63.0	41.7	16
Leather, sole hemlock, middle No. 1, Boston.....	102.0	40.4	13
Suitings, wool-dyed, blue, 5% ⁶ "/, Middlesex, Boston.....	191.3	37.0	14
Sulphuric acid, 66°, N. Y.....	20.0	33.3	19
Common brick, salmon, run of kiln, Chicago.....	151.0	32.4	14
Boots and shoes, men's black calf, blucher, Boston....	208.0	32.3	22
Tobacco, Burley, good leaf, dark red, Louisville.....	195.0	29.5	17
Portland cement, net, without bags, Chicago.....	95.0	23.1	10

percentage rise from the pre-war levels to the highest peaks attained after the war and the percentage drop from those peaks to the lowest points yet reached.¹ Table III shows these results and also the number of months during which the decline from the peak lasted in each case.

Once more, the outstanding result is an array of wide differences. One observes, however, that the commodities which fell most in price were generally articles that had risen violently since 1913, and conversely the articles which fell slightly were generally those which had risen but slightly. The coefficient of correlation between the percentages of rise and fall is -0.67 on a scale where perfect agreement between rise and fall would be expressed as -1.0 .²

Another way of presenting these facts, and one which is at least as significant from the viewpoint of business cycles, is shown by the following schedules giving the months in which each commodity attained its highest price and its lowest price from January, 1919 to June, 1922. The peak months for different commodities run all the way from July, 1919 to March, 1921, and the lowest points from July, 1920 to June, 1922. Thus the highest months for some commodities overlapped the lowest months for others. Of the whole list of sixty-two commodities eighteen reached their peaks after one article (raw silk) has touched bottom.

¹ It will be noted that the two sets of percentages are computed on different bases. A commodity that quadrupled in price and then receded to its pre-war level would show a 300 per cent rise and a 75 per cent drop.

² The coefficient of correlation was calculated from the logarithms of the percentages that the highs were of the 1913 averages and the logarithms of the percentages that the recent lows were of the preceding highs. As the regression is more nearly linear on a logarithmic than on a natural scale and as sound theory would lead us to expect a logarithmic rather than a natural relationship between such percentages, the above procedure seems defensible. Rubber was omitted from the calculations.

TABLE IV.—MONTHS IN WHICH SIXTY-TWO IMPORTANT COMMODITIES TOUCHED THEIR HIGHEST AND LOWEST PRICES JANUARY, 1919 TO JUNE, 1922

Months	Commodities reaching highest prices	Months	Commodities reaching lowest prices
1919			
July	Cottonseed oil, summer, yellow, prime		
Aug.	Hides, green, salted, packers' heavy native steers Hides, calf skins, country No. 1 Copper ingots, electrolytic, N. Y. India rubber, Para Island, N. Y.		
Nov. 1920		1920	
Jan.	Tobacco, Burley, good leaf, dark red, Louisville Raw silk, Japanese, Kansai, No. 1, N. Y. Tin, pig, N. Y. Zinc, prime western, N. Y.		
Feb.	Worsted yarn, $\frac{3}{32}$'s crossbred stock, Philadelphia Sheep, lambs, Chicago Shingle, red cedar		
Mar.	Wool, Ohio, fine, unwashed, Boston Leather, chrome calf, "B" grades, Boston		
Apr.	Lead, pig, desilverized, N. Y. Cotton, middling upland, N. Y. Cotton print cloth, 27", Boston Sheep, ewes, Chicago		
May	Cotton, price to producer Cotton yarn, carded, white, northern, mule spun, $\frac{3}{32}$ cones, Boston Cotton sheetings, $\frac{3}{4}$ Ware shoals, L. L., N. Y. Boots and shoes, men's black calf, blucher, Boston Corn, cash, contract, grades No. 2 Sugar, raw, 96° centrifugal, N. Y. Sugar, granulated, in bbls., N. Y. Douglas fir, No. 1 Oak, white, plain Wheat, No. 1 northern spring, Chicago Wheat, No. 2, red winter, Chicago Wheat flour, standard patents, Minneapolis Wheat flour, winter straights, Kansas City Barley, by sample, fair to good, malting, Chicago		
June	Suitings, wool-dyed, blue $\frac{5}{16}$ ", Middlesex, Boston Oats, cash Chicago Sulphuric acid, 66°, N. Y. Structural steel beams, etc., Pittsburgh		
July	Cattle, steers, good to choice, corn fed, Chicago Beef, steer rounds, No. 2, Chicago Rye, No. 2, cash, Chicago Leather, sole hemlock, middle No. 1, Boston Pine, yellow, flooring Newsprint, spot market, domestic Common brick, red, N. Y. Steel billets, Bessemer, Pittsburgh Women's dress goods, storm serge, all wool, double warp 50", N. Y. Iron and steel (<i>Iron Trade Review</i> index) Composite finished steel (<i>Iron Age</i> index)	July	Raw silk, Japanese, Kansai, No. 1, N. Y.
Aug.	Coke, Connellsville Hogs, heavy, Chicago Beef, good native steers, Chicago Pork loins, fresh, Chicago Pig iron, foundry No. 2, northern Pig iron, Bessemer Composite pig iron (<i>American Metal Market</i> index) Composite steel (<i>American Metal Market</i> index)		
Sept.			
Dec.	Hemlock Common brick, salmon, run of kiln, Chicago Portland cement, net, without bags, Chicago	Dec.	Worsted yarn, $\frac{3}{32}$'s, crossbred stock, Philadelphia

TABLE IV.—(Continued)

Months	Commodities reaching highest prices	Months	Commodities reaching lowest prices
1921	Bituminous coal	1921	
Jan.	Crude petroleum, Kansas—Oklahoma	Mar.	Lead, pig, desilverized, N. Y. Cotton, middling upland, N. Y. Hides, calfskins country, No. 1. Shingles, red cedar
Mar.	Newsprint, contract domestic Newsprint, contract Canadian	Apr.	Cotton, price to producer Cotton yarn, carded, white, northern, mule spun, $2\frac{3}{4}$ cones, Boston Cotton print cloth, 27", Boston Cottonseed oil, summer, yellow, prime Hides, green, salted, packers' heavy native steers Pine, yellow, flooring Common brick, red, N. Y.
		May	Cattle, steers, good to choice, corn fed, Chicago
		June	Sheep, ewes, Chicago Cottons, sheetings, $\frac{3}{4}$ Wareshoals, LL, N. Y. Tobacco, Burley, good leaf, dark red, Louisville
		July	Crude petroleum, Kansas—Oklahoma
		Aug.	Copper ingots, electrolytic, N. Y. Tin, pig, N. Y. Zinc, prime western, N. Y. Wool, Ohio, fine, unwashed, Boston Suitings, wool-dyed, blue, $5\frac{3}{8}$ "', Middlesex, Boston Leather, sole hemlock, middle No. 1, Boston Douglas fir, No. 1 Hemlock
		Oct.	Oak, white, plain Oats, cash, Chicago Corn, cash, contract, grades No. 2 Sheep, lambs, Chicago Portland cement, net, without bags, Chicago
		Nov.	Wheat, No. 1, northern spring, Chicago Wheat, No. 2, red winter, Chicago Rye, No. 2, cash, Chicago Women's dress goods, storm serge, all wool, double warp 50", N. Y.
		Dec.	Barley, by sample, fair to good, malting, Chicago Wheat flour, standard patents, Minneapolis Wheat flour, winter straight, Kansas City Beef, steer rounds, No. 2, Chicago Hogs, heavy, Chicago Pork, loins, fresh, Chicago Coke, Connellsville
		1922	
		Jan.	Sugar, raw, 96° centrifugal, N. Y. Sugar, granulated in bbls., N. Y. Sulphuric acid, 66°, N. Y.
		Feb.	Steel billets, Bessemer, Pittsburgh Beef, good native steers, Chicago Common brick, salmon, run of kiln, Chicago Pig iron, foundry No. 2, northern Pig iron, Bessemer Iron and steel (<i>Iron Trade Review</i> index) Composite finished steel (<i>Iron Age</i> index) Newsprint, contract Canadian Bituminous coal
		Mar.	India Rubber, Para Island, N. Y. Composite pig iron (<i>American Metal Market</i> index) Composite steel (<i>American Metal Market</i> index)
		Apr.	Structural steel beams, etc., Pittsburgh Newsprint, spot market, domestic Boots and shoes, men's black calf, blucher, Boston Leather, chrome calf, "B" grades Boston
		May	Newsprint, contract domestic

IV. VARIATIONS IN DIFFERENT INDUSTRIES—FLUCTUATIONS IN PRODUCTION

The fluctuations in physical production among different industries have been nearly as varied as the fluctuations among prices.¹

One difference between these fluctuations of production and the price fluctuations may be pointed out. The dates of the high points of production are less scattered than the dates of peak prices, and they do not overlap upon the dates of lowest production in the way that the price quotations do.² It is also interesting to note that fourteen out of the eighteen industries covered had passed their highest points of production before the Bureau of Labor Statistics wholesale-price index attained its peak (May, 1920) and that fourteen of the eighteen had passed their lowest points by July, 1921 (when the wholesale-price index of the Bureau of Labor Statistics touched its lowest point for the time being) and were on the up-grade once more.

¹ The production data given in Tables V and VI are based on more refined figures than the raw price quotations already presented. These production data are from the "adjusted relatives indicative of the volume of manufacture" prepared by the Harvard University Committee on Economic Research. Secular trends and seasonal fluctuations, both important factors in the physical output of many industries, were eliminated before the relatives on which these percentages are based were computed.

² Practically all commodities seem to have reached points of maximum production in the year 1920.

TABLE V.—MONTHS IN WHICH EIGHTEEN COMMODITIES INDICATIVE OF THE VOLUME OF MANUFACTURE REACHED THEIR HIGHEST AND LOWEST PRODUCTION JANUARY, 1919 TO FEBRUARY, 1922^a

(Secular trend and seasonal variations both eliminated)

Dates	Commodities reaching highest output	Dates	Commodities reaching lowest output
1919			
June	Leather, sole		
Nov.	Cattle, slaughtered		
Dec.	Small cigarettes		
1920			
Jan.	Paper board		
	Cotton, consumed		
	Wool, consumed		
	Wheat flour		
	Hogs, slaughtered		
Feb.	Lumber, cut, total three varieties		
Mar.	Tobacco and snuff		
	Large cigars		
	Pig iron		
	Steel ingots		
	Sugar, meltings		
July	Book paper		
	Fine paper		
	Wrapping paper		
Aug.	Newsprint paper		
		1920	
		Oct.	Sugar, meltings
		Nov.	Tobacco and snuff
			Wheat flour
		Dec.	Cotton, consumed
			Wool, consumed
		1921	
		Jan.	Wrapping paper
		Feb.	Leather, sole
		April	Fine paper
		May	Newsprint paper
			Book paper
		July	Lumber, cut, total three varieties
			Paper board
			Pig iron
			Steel ingots
		Dec.	Cattle, slaughtered
			Large cigars
		1922	
		Jan.	Hogs, slaughtered
		Feb.	Small cigarettes

^aBased upon "adjusted relatives indicative of the volume of manufacture," Harvard University Committee on Economic Research. *The Review of Economic Statistics*, prel. vol. 4, April, 1922, supplement 1, pp. 133 ff.

TABLE VI.—PERCENTAGE DECLINES IN THE PHYSICAL OUTPUT OF THE EIGHTEEN COMMODITIES FROM THE HIGHEST POINTS TO THE LOWEST POINTS IN THE PERIODS JANUARY, 1919 TO FEBRUARY, 1922
(Commodities arranged in order of percentage declines)

Commodity	Percentage decline	Number of months declining
Steel ingots.....	74.5	16
Pig iron.....	72.7	16
Wool, consumed.....	64.8	11
Paper board.....	61.1	18
Sugar, meltings.....	60.3	7
Fine paper.....	58.2	9
Small cigarettes.....	54.6	26
Book paper.....	52.8	10
Tobacco and snuff.....	46.1	9
Cattle, slaughtered.....	44.3	25
Wrapping paper.....	43.2	6
Cotton, consumed.....	42.9	11
Sole leather.....	42.2	20
Newsprint paper.....	41.0	9
Lumber, cut, three varieties.....	37.5	17
Wheat flour.....	37.4	10
Large cigars.....	35.6	21
Hogs, slaughtered.....	34.9	24

V. TERRITORIAL DIFFERENCES IN BUSINESS

One bit of evidence is available concerning the fluctuations in volume of retail business in different parts of the country from 1919 to 1922.

Lawrence B. Mann has analyzed the sales of department stores as reported by seven of the twelve Federal Reserve Banks, eliminating seasonal fluctuations.¹ His results are summarized in Table VII below.

TABLE VII.—ANALYSIS OF DEPARTMENT STORE SALES

Federal Reserve District	Peak month of department store sales in dollars
Atlanta.....	November, 1920
Dallas.....	November, 1920
Minneapolis.....	November, 1920
Richmond.....	February, 1921
San Francisco.....	February, 1921
New York.....	March, 1921
Boston.....	March, 1921

¹ Seasonal Trends in Department Store Trade, *Journal of the American Statistical Association*, June, 1922, pp. 255-8.

According to these figures retail business, among department stores at least, did not pass its peak in any district until six months after wholesale prices had culminated, and until after physical production had begun to decline in all of the manufacturing industries for which we have good data. When the decline in retail sales did begin, it started in the southern sections affected by the fall in cotton prices and in the northwest wheat growing area where another group of farmers had been hard hit by a price drop. Not until four months later did the great cities of the northeast see a similar decline in retail buying.