

**MONTHLY**

**REVIEW**

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**FEDERAL RESERVE BANK OF MINNEAPOLIS**

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# Postwar business cycles and business stability: II

A difference in the amplitude and in the timing of business cycles among geographic regions of the United States has been recognized as important by businessmen because of the direct bearing on profits of the cyclical expansion and contraction in the volume of business transacted. Very little, however, has ever been written concerning the precise nature of these geographic amplitude and timing factors; and this paucity of description especially holds true for the Ninth district. Now, however, statistical series available for the district economy covering most of the post-World War II period make possible an objective comparison between district and national business cycles.

## **Causes of geographic differences**

Business cycles consist of periods of contraction and of expansion in aggregate economic activity; they are a composite of the cycles of the individual industries. Cyclical fluctuations experienced in specific industries have a basic similarity to those in the general business cycle but they also have characteristic differences. Some industries are particularly subject to cyclical fluctuations while others remain relatively immune because of the nature of the demand for their products. As a result, the kind of industry that is primary in a district has a significant influence on the cyclical behavior of total economic activity in that region.

To illustrate the latter: the amplitude of cycles is much wider in districts where the industrial concentration is on steel and other durable products, the output of which fluctuates widely, than

in districts where the principal production is concentrated in more stable consumer nondurables such as food products. Cycles in the numerous industries vary not only in amplitude but also in turning points—generally they do not reach peaks and troughs at the same time. As a result, in districts where heavy steel production is concentrated, cyclical peaks and troughs generally are experienced ahead of those where nondurables are produced primarily.

Sudden shifts in the demand for specific products or changes in the supply of natural resources leading to an expansion or contraction in specific industries are other causes of variation in business cycle behavior among districts. The rapid expansion in the electronics industry was an impetus to industrial output in the Twin Cities metropolitan area. Employment estimates indicate that the discovery of petroleum in the Williston Basin caused an expansion in business activity in that region offsetting any general business recession at that time and the depletion of high-grade iron ores in the Lake Superior region has accentuated general business recessions there.

## **Structure of Ninth district economy**

In the Ninth district, agriculture has been and continues to be a dominant industry and the processing of agricultural products constitutes a large part of total manufacturing. Fluctuations in crop yields due to good and poor harvests are marked but irregular in occurrence due to unpredictable variations in rainfall and temperature and thus

have no relation to the general business cycle. Even changes in demand for farm products ordinarily are only slightly subject to cyclical swings. The rise or decline in net farm income in the district economy has either offset or accentuated the effect of the business cycles in the district.

The importance of agriculture in the economy of the Ninth district can be gauged by observing the proportion of total personal income derived from farming. In the period between the two World Wars, net farm income in the four states wholly in the district comprised close to one-fifth of the total income (see Table 1). Immediately after World War II, net farm income remained high as a result of high prices for farm products and of the harvesting of exceptionally large crops, and accounted for as much as 30 per cent of the total in 1948. Beginning in 1949, farm product

prices began to recede causing farm income to drop to a lower level. Since 1958 net farm income in the district has ranged from 9 to 14 per cent of total personal income.

In the United States, farm income in the period between the World Wars was less than 10 per cent of the total. In the years following World War II, the proportion of the total income derived from agriculture decreased, and since 1958 it has hovered close to 4 per cent of the total.

Although district manufacturing has expanded rapidly in relation to the total district economy, the income received by persons employed in this industry indicates that it is just now approaching two-thirds the proportional share of the regional economy that it occupies in the United States. Income derived from district manufacturing from 1920 to 1940, in most years, was somewhat less

TABLE 1—THE AMOUNT OF INCOME AND PER CENT OF TOTAL RECEIVED BY PERSONS FOR PARTICIPATION IN THREE PRIMARY INDUSTRIES FOR SELECTED YEARS

(dollars in millions)

	Agriculture				Manufacturing				Mining			
	District dollar	District per cent	United States dollar	United States per cent	District dollar	District per cent	United States dollar	United States per cent	District dollar	District per cent	United States dollar	United States per cent
1929	\$ 525	21.9	\$ 7,255	8.5	\$ 207	8.6	\$ 16,092	18.8	\$ 59	2.5	\$ 1,515	1.8
1935	423	22.8	5,806	9.6	164	8.8	10,829	18.0	27	1.5	969	1.6
1939	383	17.7	5,305	7.2	198	9.2	13,585	18.5	37	1.7	1,137	1.6
1940	424	18.8	5,599	7.1	210	9.3	15,584	19.7	47	2.1	1,287	1.6
1946	1,398	27.2	16,497	9.3	528	10.3	36,476	20.5	64	1.2	2,368	1.3
1947	1,740	29.5	17,304	9.1	627	10.6	42,500	22.2	81	1.4	2,920	1.5
1948	1,975	29.7	19,769	9.4	684	10.3	46,459	22.2	95	1.4	3,340	1.6
1949	1,131	18.8	15,573	7.5	675	11.2	43,860	21.1	93	1.5	2,931	1.4
1950	1,399	20.6	16,009	7.0	749	11.0	49,393	21.6	103	1.5	3,158	1.4
1951	1,704	22.7	18,938	7.4	861	11.5	58,232	22.7	128	1.7	3,584	1.4
1952	1,328	17.6	17,910	6.6	953	12.7	62,918	23.1	146	1.9	3,643	1.3
1953	1,332	16.9	16,041	5.6	1,036	13.1	69,773	24.3	179	2.3	3,718	1.3
1954	1,246	15.5	15,180	5.2	1,011	12.6	65,948	22.8	146	1.8	3,393	1.2
1955	1,157	13.7	14,474	4.6	1,072	12.6	72,132	23.1	163	1.9	3,676	1.2
1956	1,216	13.5	14,319	4.3	1,174	13.0	77,706	23.1	185	2.1	4,107	1.2
1957	1,300	13.5	14,529	4.1	1,245	12.9	80,644	22.7	194	2.0	4,237	1.2
1958	1,445	14.2	16,403	4.5	1,234	12.1	76,701	21.1	158	1.6	3,774	1.0
1959	949	9.3	14,286	3.7	1,344	13.1	84,720	21.8	147	1.4	3,834	1.0
1960	1,334	12.1	15,008	3.7	1,400	12.7	87,411	21.4	171	1.5	3,832	0.9
1961	1,047	9.3	15,997	3.8	1,450	12.8	87,469	20.6	153	1.4	3,740	0.9
1962	1,568	12.7	16,233	3.6	1,573	12.7	94,174	20.9	154	1.2	3,763	0.8
1963	1,423	11.2	15,986	3.4	1,642	12.9	98,042	20.7	152	1.2	3,798	0.8

Source: United States Department of Commerce, Survey of Current Business.

than 10 per cent of total personal income; in the post-World War II year, it rose to about 13 per cent of the total while in the United States the level over the years has hovered around 20 per cent.

The nature of cyclical swings within a district is affected not only by the size of the industry but also by the type of products manufactured. Food and kindred products constitute the largest manufacturing industry in Ninth district states and the output from this category is quite insensitive to business cycle fluctuations. Since World War I the value added to food and related products has been about one-third of the total value added to all products manufactured in the four district states as compared with 10 to 12 per cent for the nation.

Recently, however, there has been a growing similarity between the type of products manufactured in the district and in the nation. Durable product output, subject to wide cyclical swings, has expanded rapidly in the post-World War II years and now constitutes 57 per cent of total district industrial output, the same proportion as in the nation.

Mineral production is closely tied to the output of durable goods, thus activity in the mining industry is particularly sensitive to the business cycle. Mining in the Ninth district in terms of income derived from it is a small industry compared with agriculture and manufacturing, but is more important in the district economy than in that of the nation.

### **Long-term economic growth**

The rate of economic growth, determined by local and regional economic and sociological developments, has an influence on business cycle movements in the district. Since the end of World War II, the Ninth district has experienced a slow rate of growth in employment and in population as compared with the nation and per capita income has been below the national average.<sup>1</sup> The

<sup>1</sup> This section is based on the studies published by the Upper Midwest Research and Development Council and on articles published in the *Monthly Review* of the Federal Reserve Bank of Minneapolis in the late 1940s.

economies of each of the district states and part-states are weighted heavily by agriculture, mining, forestry, and manufacturing associated with these natural resources. The demand for these products has been growing slowly, but productivity (output per worker) has been growing rapidly. Consequently, employment opportunities in these industries have been declining. Reduction in employment opportunities also has been caused by such other factors as the movement of manufacturers to more concentrated markets. In northwestern Wisconsin and Upper Michigan, for example, manufacturing employment was reduced after the Korean War when several nonresource oriented plants manufacturing fabricated metal products moved their operations out of the area.

The Ninth district experienced an increase in total employment of only 15,390 from 1950 to 1960. For this modest over-all increase to be recorded, it was necessary for nonagricultural employment to grow by more than 192,000 to compensate for a decline of more than 177,000 in agricultural employment.

Because of emigration due to lack of employment opportunities, population in the district has been growing only slowly. The growth from 5,731,000 in 1950 to 6,288,000 in 1960, an increase of somewhat more than one-half million, was only a per annum 0.93 per cent as compared with 1.70 per cent for the United States as a whole. Among district states the population change ranged from an increase of 1.35 per cent in Minnesota to a decrease of 0.04 per cent in northwestern Wisconsin.

The per capita personal income in the district, with the exception of a few years in the late 1940s and early 1950s, has been below the national average. In those years, high farm income boosted average per capita income in district states: in Montana the 1950 per capita income was \$1,600 as compared with only \$1,491 in the United States. Although the number of farmers is declining, the large proportion of the labor force still engaged in agriculture has been a major factor in perpetuat-

ing the low average per capita income in each district state. Farm per capita income in all district states in 1960 was below—in some states less than one-half—the income in urban areas.

The slow growth in population and in personal income has retarded expansion of district markets for products and services. A sizable proportion of the production in each Ninth district state is processed and consumed within the state or in neighboring states. In 1958, 82 per cent of the livestock marketed and 65 per cent of the dairy products were consumed within the district. The production of such farm crops as soybeans far exceeds the final consumption in the district states, but even in this case 66 per cent of the bushels harvested was processed by district manufacturers.<sup>2</sup> As fewer individuals are employed in the natural resource industries, fewer are needed to supply services. The slow growth in the number of people residing in the district has held down the demand for a wide range of services.

Because the transition in the basic industries of agriculture, mining, and railroad transportation resulting in declining employment opportunities is expected to continue for another decade, the over-all rate of growth probably will remain low. As the regional specialization of resource-tied industries declines in importance, the economies of district states will be weighted more by industries similar to those in the national economy.

### The inter-World Wars period

In the period between 1920 and 1940, the difference in amplitude and in timing of business cycles was more marked between the Ninth district and the nation than in the post-World War II period. Consequently, an examination of the inter-war period is pertinent in a comparison of regional differences in business cycle movements.

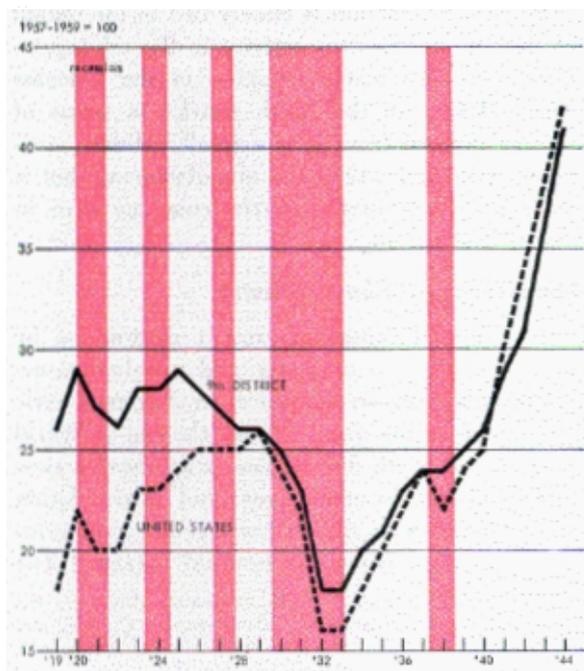
The three most important economic contractions occurring during this period were those from Janu-

ary 1920 to July 1921, from August 1929 to March 1933, and from May 1937 to June 1938. Minor contractions occurred from May 1923 to July 1924, and from October 1926 to November 1927. A comparison of the business cycles in the district and in the nation can only be based on a few statistical series compiled in the district during the 1920s and the 1930s and on information available on the maladjustments that developed in the district economy which affected economic activity.

*Department store sales.* Sales at these retail outlets have been more sensitive to business recessions or depressions than total retail sales which include the very stable expenditures for food. Annual and monthly department store sales indexes have been compiled for the Ninth district and for the nation from January 1919 to date.

In the period between the two World Wars, the fluctuations in the annual indexes of department store sales for both the Ninth district and for the

### District and U.S. Department Store Sales, 1919-44



<sup>2</sup> See B. F. Duncombe, *Upper Midwest Commodity Flows, 1958*, Upper Midwest Economic Studies, Technical Paper No. 4.

United States reflected the five general business contractions (see Chart). The level trend of department store sales in the district during the 1920s differed materially from the rapidly expanding trend in the United States. Annual sales did not rise above the volume of 1920 and beginning in 1926 declined almost steadily through 1932. In contrast, annual department store sales in the United States rose during the 1920s by 19 per cent, reaching a peak in 1929. During the 1930s, the trend of these annual sales in the district and in the nation was quite similar.

The monthly indexes of department store sales, seasonally adjusted, provide a partial measure of the rise and decline in consumer spending. The cyclical movements in these indexes make possible a comparison of such sales between the Ninth district and the United States and both with fluctuations in general business activity in the nation as delineated by the National Bureau of Economic Research.

During the inter-World Wars period, although there was some similarity in the general course of cycle movements for department store sales in the district and in the nation, district sales generally lagged national sales by a few months in reaching the cycle peaks. The upturn of district sales at the end of recessions or depressions also tended to lag national turning points. There was, as well, a variation in the magnitude of the cyclical swings in the district from those in the nation but they were neither consistently larger or smaller than in the United States as a whole.

Cyclical fluctuations in consumer spending, as measured by cycle peaks and troughs in district and United States department store sales, deviated considerably from general business conditions. At the beginning of the five business contractions during the inter-World Wars period, department store sales in the district and the nation reached cycle peaks ranging from a few months before to several months after the peaks which occurred in general business activity. This also was the situation at the beginning of recovery periods. No

marked differences were observed between district and national sales, on the one hand, and general cycle swings, on the other.

*Agriculture.* Although, as previously indicated, business cycles generally do not originate in the agricultural sector, the rise and decline in farm income had an important bearing on the level of economic prosperity or depression in the district in the 1920-40 period. Annual estimates of cash farm income—the gross receipts received by farmers from the marketings of crops, livestock, and livestock products—are available for the Ninth district states beginning in 1924. From general information accumulated on the agricultural situation in the district, it can be inferred that cash farm income declined as sharply in the district as in the nation during the general business contraction of 1920 and 1921. The recovery in farm income which began in 1922 in both the district and the nation was unaffected by the minor general business contraction of 1923 and 1924. Both district and United States farm income declined in the three general business contractions during the late 1920s and the 1930s. In the Great Depression of the early 1930s, however, farm income declined sharply to a lower level in the district than in the nation and remained at a relatively lower level throughout the 1930s. In addition to the effect of low agricultural prices, drought conditions which reduced crop yields in the Ninth district added to the depressed agricultural income.

In an agriculturally oriented region such as the Ninth district, cash farm income estimates alone do not reveal the full impact of agricultural conditions on general business fluctuations in the district as compared with that in the nation. The large demand for agricultural products during World War I to meet the needs not only of American and allied forces but also of civilian populations of some Western European countries led to a rapid expansion in production and a sharp rise in prices of farm products in domestic markets. The boom in agriculture was accompanied by a speculative

rise in farm land prices and a heavy increase in farm mortgage debt.

When demand for American farm products decreased following the end of the war and the output of European agriculture returned to near the prewar volume, prices of farm products declined sharply. Because of the general price decline during the business contraction of 1920-21, the price distortion was not serious for the farmers at that time. However, in the subsequent recoveries of the latter 1920s, farmers suffered from an inability to cut back production and did not share in the general prosperity of the economy. As a consequence, farm real estate prices collapsed and the high farm indebtedness led to mortgage foreclosures. As a result, many commercial banks with large amounts of frozen farm mortgage loans were forced to close. In communities serving primarily farming areas, the closing of banks transmitted much of the deflation in agriculture to the other sectors of the economy.

*Personal income.* Beginning with 1929, the series of annual personal income estimates, which provide a measure of the yearly volume of economic transactions, are available by states. These data reveal that personal income in the Ninth district states, already at a low level in 1929, dropped even more than in the nation during the Great Depression of 1929-1933. Beginning in 1933, however, it rose faster than in the nation, and by the end of the decade it had recovered to a level about 5 per cent more than in the nation.

Per capita income, a measure of the level of economic prosperity, also was low in the district states in 1929, reflecting mainly the depressed farm income. In North Dakota and South Dakota, it was down as much as 47 per cent and 41 per cent respectively from the national average. In Minnesota and Montana where a larger share of the income was derived from forest products, minerals, and manufacturing, income was down only 15 per cent. Per capita income rose significantly in the late 1930s in the farming regions where levels had been extremely low.

*Summary.* The Ninth district enjoyed less prosperity during the 1920s than the nation as a whole because agricultural income did not recover until the late 1930s. Much of the deflation in agriculture was transmitted to the rest of the economy. Business depressions in the district lagged such periods in the nation, but the lag was never more than a few months since it was not reflected in annual economic series.

### **The post-World War II period**

Five moderate business contractions followed by vigorous expansions in the nation have occurred in the United States since the end of World War II. A short contraction in business activity occurred in 1945, over a period of eight months from February to October, as a result of the transition from war to civilian production. The other four recessions — one in the late 1940s, two in the 1950s, and one in the early 1960s — were caused by inventory liquidations, large declines in business fixed capital outlays, or sharp cuts in defense expenditures which, in turn, affected total short-term private business investments.<sup>3</sup>

*Personal income.* The most comprehensive measure of business activity in the district is personal income estimates. Monthly data reveal the peak, trough, and amplitude of the business cycle but they have been compiled only since January 1962. Annual estimates, which have been compiled since 1929, however, permit a comparison of the general course of business cycle in the district and in the nation.

On the basis of the fluctuations in personal income, the post-World War II business cycles have been less severe in the Ninth district than in the nation. All district states experienced a severe slump in economic activity during the 1948-49 recession but some did not experience the other recessions due to the mitigating effect of the changing level of annual farm income. During the 1950s and early 1960s, North Dakota and South Dakota experienced prosperous conditions (the

<sup>3</sup> See Part I, Monthly Review, March 1965.

personal income indicator did not decline) while the nation underwent three recessions. These states experienced dips in annual personal income due to changing conditions in agriculture, but these were not associated with the nation's business cycles. The recessions in the mining region and in the industrial centers affected the Minnesota economy as reflected by the decline in employment, but the state's personal income was only slightly reduced. Although both Michigan and Wisconsin were affected by the recessions, the portions of these states in this district were not influenced as much as were the more industrialized areas.

The impact of fluctuations in farm income in the district economy was apparent when the severity of the 1948-49 business recession was increased by the sharp drop in farm income in 1949 resulting from the first adjustment in farm product prices following World War II. Stability or expansion in district farm income during the subsequent recessions either reduced or completely offset the contraction in the industrial sector. The record district crop production in 1962 increased farm income by 51 per cent from the preceding year and had a stimulating influence when it led to a marked expansion in the purchase

TABLE 2—PERCENTAGE RISE AND DECLINE IN ECONOMIC SERIES DURING RECESSIONS AND EXPANSIONS NINTH DISTRICT AND UNITED STATES

Economic Series	1948	— Downturn —			1949	— Upturn —		
		1953	1957	1960		1954	1958	1961
1. Average weekly hours worked								
a. Ninth District	n.a.	— 5	— 6	— 3	n.a.	+ 5	+ 5	+ 4
b. United States	— 5	— 4	— 6	— 5	+ 7	+ 4	+ 5	+ 6
2. Average weekly earnings								
a. Ninth District	n.a.	— 1	— 1	0	n.a.	+16	+17	+11
b. United States	— 15	— 14	— 18	— 11	+65	+30	+25	+28
3. Employment in Manufacturing								
a. Ninth District	— 8	— 8	— 9	— 3	+20	+10	+ 8	+ 8
b. United States	— 12	— 10	— 10	— 6	+28	+ 9	+ 9	+ 8
4. Industrial Production								
a. Ninth District	n.a.	n.a.	— 4	— 4	n.a.	n.a.	+28	+32
b. United States	— 10	— 10	— 14	— 8	+50	+21	+27	+28
5. Nonmanufacturing Employment (excluding agriculture)								
a. Ninth District	— 2	— 1	— 2	— 1	+11	+ 7	+ 7	+ 6
b. United States	— 3	— 1	— 2	— 1	+14	+10	+ 7	+10
6. Employment in Nonagricultural Establishments								
a. Ninth District	— 3	— 2	— 3	— 1	+13	+ 7	+ 7	+ 7
b. United States	— 5	— 3	— 4	— 2	+18	+ 9	+ 8	+10
7. Unemployment <sup>1</sup>								
a. Ninth District	+212	+242	+190	+ 61	—67	—55	—49	—32
b. United States	+184	+157	+171	+ 73	—67	—47	—50	—37

<sup>1</sup> This series moves inversely to the general business cycle.

Note: The percentage change in each series was computed from the index at the cycle peak to the index at the cycle trough and from the trough to the succeeding peak of each post-World War II cycle. The particular months in which cycle peaks and troughs occurred were selected by inspecting the turning points—the change in the direction of the movement of each series, either downward from the peak of the former expansion or upward from the trough of the former recession. The peaks and troughs in the individual economic series do not necessarily fall in the same months.

n.a.—Not available.

of farm equipment and consumer goods. On the other hand, the production of an average crop in 1963, following the record in 1962, had a depressing effect. As farm income fell off by 15 per cent in the district, so did purchases made by farmers.

*Other comparable economic series.* Seven monthly series measure fairly large aggregates of economic activity and so can be used to make comparisons of the relative severity of the recessions and vigor of the expansions and also to estimate the turning points in the cycles between the Ninth district and the United States. All but one of the district series are identical to those for the nation, although some are not computed back over all the post-World War II cycles. The exception is industrial production which in the district is measured by consumption of electric power in manufacturing plants and in the nation by the Federal Reserve Board's index of industrial production based on physical output and manhour series. The cyclical movements in the district and national series are compiled in Tables 2 and 3.

Since 1946 the amplitude of the minor business cycle has been consistently smaller in the district than in the United States (see Table 2). The per cent decrease of nonagricultural employment from cycle peak to trough during the four post-World War II recessions has been less than that of the nation; likewise, the per cent increase from cycle trough to peak during the four recovery periods also has been less. Paradoxically, however, unemployment in the district has risen more during two recessions and has decreased more during one recovery than in the nation. This apparent inconsistency between employment and unemployment is due to interdistrict migration. During periods of recession when workers are being laid off, the net migration of workers is back into the Ninth district thus swelling the ranks of the unemployed. During periods of recovery when more employment opportunities are opening up elsewhere, the net migration again is out of the district.

District manufacturing series have declined less during the post-World War II periods of recession

than in the nation and have expanded somewhat less during periods of recovery. As compared with the national trend, district manufacturing employment has declined less during recessions and in the three most recent recoveries has expanded at about the national rate. Average weekly earnings in the district have decreased less in recessions and then increased less in recoveries although cyclical fluctuations in average weekly hours worked in the district and in the nation have had a high degree of similarity. District industrial output, as measured by the use of electric power in manufacturing plants, has decreased less during recessions in the district than in the nation but has expanded sharply during recoveries.

In addition to the amplitude of the business cycles, the timing also has varied between the Ninth district and the United States (see Table 3). Since World War II the beginning of recessions, as indicated by the monthly series in the district, has tended to lag by a few months such periods in the nation. This situation has existed often enough to cause many business managements to rely on it in their decision making. Now, according to available statistical information for the post-World War II period, the beginning of recessions have followed more closely the cycle turning points in the nation than they did in the earlier period.

District employment in nonagricultural establishments, the most inclusive monthly series available, turned downward one month after the turning points in this series occurred for the nation as a whole in 1948 and in 1953 and five months later in 1960. In the other recession, the turning point in the district series led by one month the downturn in the national series. When manufacturing is excluded, this series has led as much as it has lagged the national downturn. The cyclical rise in insured unemployment has led as much as lagged the rise in the nation.

The cyclical decline in district manufacturing in the post-World War II period consistently has lagged the turning points of the nation.<sup>4</sup> District

<sup>4</sup> Some of the district series are available only for the more recent recessions and recoveries.

industrial production, as measured by the industrial use of electric power, lagged the downturn in the nation's index of industrial production by nine months in 1957 and by seven months in 1960. Employment in district manufacturing firms at only one cycle peak, May 1960, turned downward at the same time as in the nation. At the other three cycle peaks, the decline in district manufacturing employment lagged the national series from three to five months. The turning points in district average weekly earnings has lagged from six to eleven months while the district series on

average weekly hours worked led the turning points in the nation at two cycle peaks.

Cyclical recovery in district manufacturing has led as much as lagged the recovery in the nation. In the two recent cyclical troughs for which data are available, industrial production, as measured by the industrial use of electric power, led by ten months in 1958 and by three months in 1961 the upturn in the national index of industrial production. Employment in manufacturing plants led the upturn by one month at one cycle trough and lagged from one to two months at the other

TABLE 3—NUMBER OF MONTHS THAT THE PEAKS AND TROUGHS OF ECONOMIC SERIES IN THE NINTH DISTRICT AND IN THE UNITED STATES PRECEDE OR FOLLOW THE CYCLE REFERENCE DATES<sup>1</sup>

Economic Series	— Downturn —				— Upturn —			
	Nov. 1948	July 1953	July 1957	May 1960	Oct. 1949	Aug. 1954	Apr. 1958	Feb. 1961
1. Average weekly hours worked (Mfg.)								
a. Ninth District	n.a.	+ 18	+ 22	+ 4	n.a.	0	+ 2	+ 10
b. United States	+ 11	+ 4	+ 20	+ 13	+ 6	+ 4	0	+ 2
2. Average weekly earnings (Mfg.)								
a. Ninth District	n.a.	- 5	+ 1	- 6	n.a.	+ 7	+ 5	0
b. United States	+ 2	+ 4	+ 7	+ 5	+ 5	+ 1	0	0
3. Employment in Manufacturing								
a. Ninth District	+ 5	- 1	0	+ 3	+ 1	- 2	- 2	- 1
b. United States	+ 10	+ 2	+ 4	+ 3	0	0	- 1	0
4. Industrial Production								
a. Ninth District	n.a.	n.a.	- 4	- 3	n.a.	n.a.	+ 10	+ 3
b. United States	+ 4	0	+ 5	+ 4	0	+ 4	0	0
5. Nonmanufacturing Employment (excluding agriculture)								
a. Ninth District	+ 1	- 5	+ 5	- 3	+ 7	+ 7	0	- 2
b. United States	- 1	- 3	0	+ 1	0	+ 6	0	+ 1
6. Employment Nonagricultural Establishments								
a. Ninth District	+ 1	0	+ 5	- 4	0	- 5	- 2	- 2
b. United States	+ 2	+ 1	+ 4	+ 1	0	0	- 1	0
7. Unemployment								
a. Ninth District	+ 10	+ 3	+ 1	0	+ 1	- 2	- 2	- 3
b. United States	+ 10	0	+ 4	+ 3	0	- 1	- 3	- 3

<sup>1</sup> Number of months of lead is indicated by a plus sign and number of months of lag by a minus sign.

Note: The National Bureau of Economic Research has estimated the specific months in which general business cycle turning points occurred in the nation on the basis of a composite of numerous economic series. The specific months established as cycle turning points for the several individual economic series for the district and the nation were compared with the composite cycle reference dates established by the National Bureau to determine the number of months of lead or lag. By this technique, the pertinent comparison was made of the lead or lag between the individual district and national series.

n.a.—Not available.

troughs. Average weekly earnings have led the turning points of the national series by five and six months, respectively, and coincided with it at one trough. Average weekly hours led at one cycle trough by eight months, led at another by two months, and lagged by four months in a third.

### Conclusion

The characteristics of the business cycle in the Ninth district have been particularly affected by the influence of a dominant industry, agriculture, and its allied industries. The highly volatile income from agriculture rarely has a part in originating a business cycle but it accentuates or offsets the cyclical movement. In the decades between the two World Wars, the district had less prosperity during the 1920s and a more severe depression in the early 1930s than in most other regions of the United States. Since World War II, net farm income, due to government price support and sub-

sidy programs after postwar high foreign demand had subsided, has had a high degree of stability as compared with the fluctuations in the 1920s and 1930s. The contractions during the recessions have been less severe and of shorter duration than in the nation but the expansions during the recovery periods also have been at a slower rate. The downturn from cycle peaks generally has lagged slightly the turning points in the nation but the beginning of recovery periods has tended to coincide with those in the nation.

The long-term rate of economic growth has been slower in the district than in the nation due to the technological transition occurring in agriculture, mining, and forestry. Nevertheless, the rate of growth in the economy of the district is more closely approximating that of the nation and the business cycle movements are becoming more similar in amplitude and timing.

— OSCAR F. LITTERER



## Current conditions . . .

**B**ased on statistical evidence Ninth district business activity during 1965's first half improved moderately from year earlier levels. Nonagricultural employment during April and May totaled about 2.5 per cent above the year-earlier figures. Industrial output, as measured by the industrial use of electric power, advanced on a month-to-month basis and with substantial gains registered (about 7 per cent) over the same period in 1964. Other indices showing gains above a year earlier included a longer work week, less unemployment,

and an 8 per cent cumulative advance in bank debits for the first five months. District building permit valuations, which averaged about 28 per cent less than a year earlier during the first four months of the year, staged a comeback in May and construction activity improved further during the early summer period.

Department store sales increased during most of the first half but the trend tended to lag the national series. This was also true of personal incomes which for the first five months of 1965

averaged about a 4½ per cent gain from the same period in 1964 compared with a national average gain of slightly better than 6 per cent. Most of the district's business indicators for the first half of 1965, although showing advances, nearly but not quite kept pace with those of the nation as a whole.

Agricultural income lagged somewhat in the district because of the relatively poor crop output in 1964 and, until quite recently, lower price trends for farm products. Total district net farm income, for example, in May was substantially less than in May 1964: cumulatively since the first of the year the decline has averaged nearly 3½ per cent.

Based on June conditions, the Department of Agriculture rated 1965 crop prospects in most Ninth district areas as good to excellent. The exceptions were some areas of southern Minnesota and parts of the Red River Valley where excessive moisture was a problem and in a relatively small area in south central South Dakota where rainfall was light. Even in these regions, however, conditions were rated as fair. Crop development during June was generally favorable throughout most of the district although row crops were late in areas of excessive moisture, and growth was slow due to relatively cool temperatures. A particularly good wheat crop in the district seems to be in prospect based on the June government estimates and crop conditions of mid-year. The critical period for all district crops, however, usually comes in July and August when temperatures and rainfall patterns largely determine final crop output.

District banks experienced an unusually heavy expansion in outstanding loans during the first five months of 1965. Total loans increased \$190 million, about double the normal growth for the period. Most of the above-average loan expansion took place in the early part of the year resulting in great part from heavy additions to city bank business loan portfolios. Beginning in mid-April the rise in outstanding loans followed the seasonal pattern.

The outflow of deposits from district banks during the first five months of 1965 was somewhat stronger than usual. This situation arose because the inflow of time deposits — ordinarily expected to offset much of the seasonal demand deposit losses — was noticeably weaker. Thus, in order to finance the expansion in loans, district banks found it necessary to liquidate a greater portion of their investment portfolios than they have in recent years; and, in addition, they resorted to increased borrowing both from the Federal Reserve Bank and in the federal funds market.

*The following selected topics describe particular aspects of the district's current economic scene:*

### **Pig crop lower**

The June 1 pig crop report issued by the U.S. Department of Agriculture indicated a substantial cutback in numbers. For 10 major hog producing states total number of hogs and pigs on farms was down 11 per cent from June 1, 1964. In Minnesota, where more than 60 per cent of the district's swine are produced, the decline amounted to 18 per cent; in South Dakota, the district's next largest producing state, 12 per cent.

#### **NUMBER OF HOGS AND PIGS ON FARMS, JUNE 1**

	(thousand head)		1965 as % of 1964
	1964	1965	
Minnesota	3,896	3,195	82
South Dakota	2,211	1,946	88
Total	6,107	5,141	84
10 States	47,668	42,480	89

The cutback in hog production in the district has been more severe than that occurring throughout the U.S. The number of pigs born December 1964 through May 1965 declined 15 per cent from a year earlier in the four district states while the national figure was off 10 per cent.

Hog production is likely to continue at reduced levels throughout the year. According to reported

farmer intentions, sow farrowings in the district will be down 12 per cent from last year for the June-November period. Declines of between 11 and 14 per cent are expected in all district states except Montana where a moderate expansion of 6 per cent is indicated. If all farmers in the U.S. carry out their reported plans, total farrowings will be down 7 per cent during the last six months of 1965.

#### DECEMBER 1964-MAY 1965 PIG CROP

	(thousand head)			1965 as % of 1964
	Average 1959-63	1964	1965	
Minnesota	3,767	3,380	2,898	86
Montana	133	126	112	89
North Dakota	476	428	350	82
South Dakota	1,949	1,859	1,586	85
4 States	6,325	5,793	4,946	85
48 States	50,993	47,871	43,184	90

#### Cash farm receipts show increase

Cash receipts from farm marketings in April totaled \$241 million in the Ninth district, an increase of 2 per cent over April 1964. Larger livestock receipts accounted for the gain, with marked

improvement in prices moving the monthly total 5 per cent ahead of a year earlier. Crop receipts continued to lag those of a year earlier: the April total was 7 per cent under that of April 1964. April livestock sales, following the district pattern, advanced cash receipts 6 per cent above April 1964 in Montana and 3 and 2 per cent in Minnesota and South Dakota respectively. The pattern was reversed in North Dakota; April livestock receipts there were off 7 per cent and crop receipts were up 8 per cent.

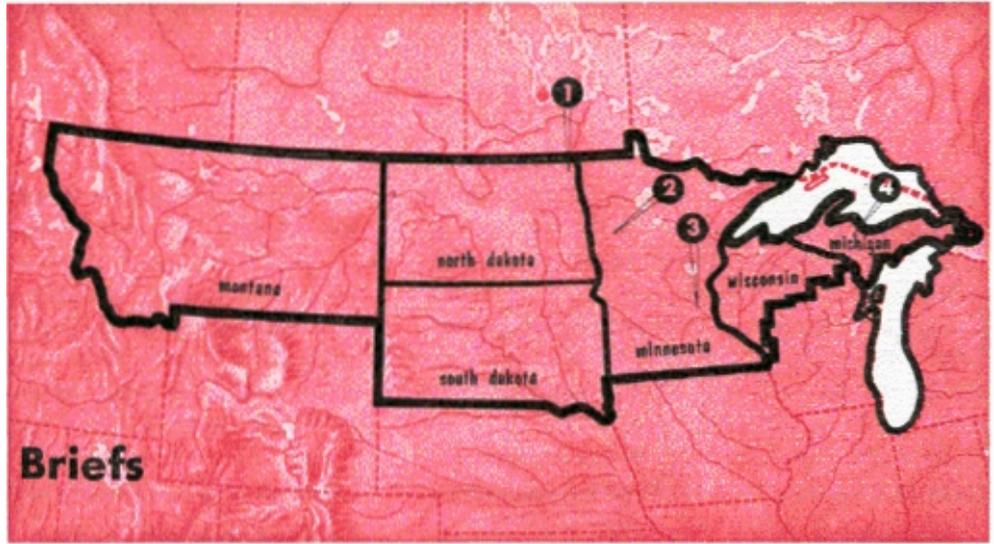
Accumulated district receipts for the January-April period fell 2 per cent short of those for the same period of the year earlier. Receipts were off 8 per cent in Montana, 5 per cent in South Dakota, and 2 per cent in Minnesota. Accumulated receipts through April in North Dakota were up 3 per cent from a year ago.

The 4-month pattern among district states was generally that of improved livestock receipts and lower crop receipts. Livestock receipts were up 22 per cent in Montana, 8 per cent in South Dakota, and 2 per cent in Minnesota. Crop receipts in those three states were down sharply from year-earlier levels with the January-April comparison indicating drops of 29 per cent in South Dakota, 20 per cent in Montana, and 8 per cent in Minnesota.

# Recently published . . .

Board of Governors of the Federal Reserve System, Washington, D.C.	20551	Consumer income, spending, and saving <i>Federal Reserve Bulletin</i> , April, 1965
		Construction and mortgage markets <i>Federal Reserve Bulletin</i> , May 1965
		Developments in consumer credit <i>Federal Reserve Bulletin</i> , June 1965
Federal Reserve Bank of Chicago, Illinois	60690	Patterns of private debt growth <i>Business Conditions</i> , May 1965
Federal Reserve Bank of Cleveland, Ohio	44101	Input-output relations of the steel industry <i>Economic Review</i> , June 1965
Federal Reserve Bank of Kansas City, Missouri	64106	Foreign agricultural trade of the United States <i>Monthly Review</i> , May-June 1965
Federal Reserve Bank of New York, New York	10045	A primer on federal budgets <i>Monthly Review</i> , April 1965
Federal Reserve Bank of Richmond, Virginia	23213	Silver supply and demand <i>Monthly Review</i> , April 1965
Federal Reserve Bank of St. Louis, Missouri	63166	Implementation of Federal Reserve open market policy in 1964 <i>Review</i> , June 1965

## Economic Briefs



### 1. Bus plant to expand

Motor Coach Industries, Inc. is expanding its Pembina, North Dakota plant and will increase production in the near future. The plant assembles passenger buses from American parts and from body shells shipped in from Canada. Current production figures were not given, but when the plant opened in the fall of 1963 the firm was aiming for a production of one bus per day.

### 2. Space added to handle turkeys

Swift & Company is adding 15,300 square feet on its turkey-dressing plant at Detroit Lakes, Minnesota, the fourth expansion since 1954. The new construction has been described as a "blast-freeze" addition. Officers of the company said that more than 30 million pounds of turkeys will be processed in 1965 at the plant.

### 3. Convention Hall nears completion

The \$7 million Convention Hall addition to Minneapolis Auditorium is nearing completion. The hall, with more than two acres of ground floor exhibition space, is booked for a number of conventions in September and its first national convention in October. Work to update the existing auditorium will begin when the new hall is completed.

### 4. New pellet plant finished

Cleveland-Cliffs Iron Company has completed its new \$15 million Pioneer agglomerating plant at Eagle Mills, Michigan. The owner company, Pioneer Pellet Company, is a joint venture of Republic Steel Corp., McLouth Steel Corp., Bethlehem Steel Corp., as well as the operator, Cleveland-Cliffs. The plant is designed to produce 1.2 million tons of iron ore pellets per year.