

# Ninth District Quarterly

Federal Reserve Bank of Minneapolis  
November 1974

Cattle Cycles — Past and Present



**Third Quarter '74 Review & Outlook**

Finance . . . . .1  
Agriculture . . . . .3  
Construction . . . . .5  
Consumer Spending . . . . .6  
Industrial Activity . . . . .7  
Labor Market . . . . .9  
Energy Outlook . . . . .10

**Cattle Cycles — Past and Present . . . . .13**

The fact that cattle numbers fluctuate over fairly regular cycles is not widely known, but until recently, the cattle industry has been in the expansion phase of its seventh cycle since 1900. After years of expansion, is the industry now ripe for a contraction? Will high costs and low demand complicate it? If so, how prolonged and how painful is it likely to be?

**Ninth District Quarterly Vol. I, No. 4**

Requests for additional copies should be addressed to the Research Department, Federal Reserve Bank, Minneapolis, Minnesota 55480.

# Review & Outlook

## Third Quarter '74

The economic consequences of inflation and tight money appear to have had less impact on the district than the nation during the third quarter.

A strong farm sector earlier in the year continued to support savings inflows into district home financing institutions at greater rates than nationally. As a result, housing unit authorizations have declined less here than in the nation.

The carry-over in farm income has meant that gains in personal income and consumer spending have been greater in the district than the nation. However, price increases have accounted for a large part of sales gains.

District unemployment has edged up slightly and matched the national rate of 5.4 percent in August.

## Fourth Quarter '74

The district's relatively strong economy has experienced some recent weakening, and there will probably be little real growth through fourth quarter '74.

With few exceptions, physical production of crops will be

down from last year. Estimates of farm receipts coupled with higher production costs suggest that net farm income will be far below last year's level. Consequently, rural savings inflows, capital investment, and consumer durable spending will decrease, and borrowings for operating capital will remain strong.

With no substantial increase in savings inflows or new mortgage loan commitments foreseen, any improvement in homebuilding in the fourth quarter is unlikely. The continued drop in building permits and the time lag between permits and starts further suggest no turnaround in construction.

District manufacturers have mixed ideas about future sales, and a slowing of industrial activity has been suggested.

No important increases in employment are likely in the fourth quarter, with the district unemployment rate remaining at or slightly above its current level.

With farm incomes down, no significant increases in employment expected, and prices for most consumer

goods rising, it is not likely that the performance of the district's economy will be significantly different from the nation's for the remainder of 1974.

## Finance

### *Savings Inflows*

Attractive interest rates on U.S. Treasury and other securities continued to adversely affect deposit inflows to savings institutions in both the district and the nation during the third quarter.

Deposit growth at Ninth District S&Ls slowed to a seasonally adjusted annual rate of 4.8 percent in July-August from 6.7 percent in the second quarter. The annual rate of deposit growth at thrift institutions in the nation slowed from 4.1 percent in the second quarter to 2.6 percent in the third.

The district slowdown occurred mainly at Twin Cities S&Ls, which account for about 53 percent of district S&L savings deposits. In April-August savings deposit growth at these S&Ls was at a 2 percent seasonally adjusted annual rate, down considerably from an annual average of 11 percent for the 1969-73 period.

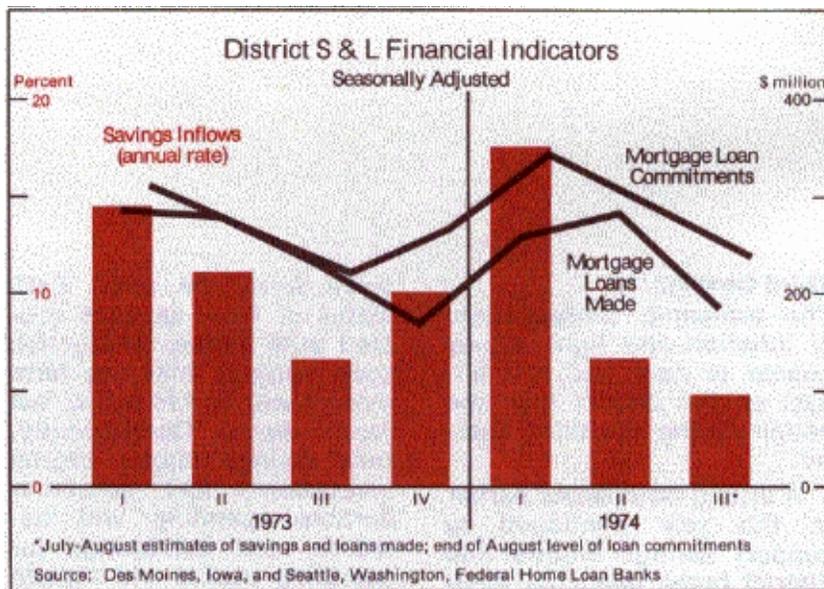
The decline was much less pronounced outside the Twin Cities: from an average annual 14 percent advance in 1969-1973 to a 10 percent annual rate increase during April-August. This decrease was minimized by strong farm incomes and possibly by rural savers' reluctance to shift to other investments.

Consumer-type time deposit growth at district member banks slowed to a 7 percent annual rate in the third quarter from 10 percent in the second, a pattern essentially matching the nation's.

If interest rates on U.S. government and other securities continue to decline as they did in September, inflows to savings institutions should increase. However, the expected decline in farm income suggests that savings deposit growth will be weaker in the district than in the nation.

#### **Mortgage Loans**

The contraction in savings has caused a notable decline in mortgage lending at S&Ls. Compared to a year ago, district S&L mortgage loans made were down 18 percent in June-August after being off only 3 percent in January-May. Nonetheless, the district's performance was stronger than that of S&Ls in the nation where the comparable year-to-year reductions were 26 and 22 percent, respectively. The difference between the district and the nation partly reflected the district's higher rate of savings inflows.



Despite a substantial cut-back in recent months, outstanding loan commitments at district S&Ls are still at a high level. This is due to the large volume of commitments made in early 1974 when savings inflows were unusually heavy and were expected to continue at a high rate. At the end of August unused commitments were 4 percent above a year ago at district S&Ls but 19 percent below a year ago nationally. Thus, in the short run, home construction should hold up somewhat better in the district than in the United States.

Interest rates and nonprice terms on mortgage loans made by Twin Cities financial institutions have stiffened since midyear. Six to seven points were required on 9½ percent FHA and VA loans in late September, compared to

the same number required on 8¾ percent loans in June. In addition, both the loan-to-price ratio and the years to maturity on new home conventional loans have fallen since June.

Since S&Ls are likely to use savings inflows to rebuild liquidity positions before making new loan commitments, mortgage loans made will also remain weak and home construction is likely to be affected accordingly.

#### **Bank Loans**

Loan growth at district member banks declined to a 7 percent seasonally adjusted annual rate in the third quarter from 18 percent in the first half of 1974. It eased off from a 15 percent rate in the first half to 13 percent in the third quarter nationally.

The slowing in the district

since midyear has occurred at larger city banks where business loans declined by an 8 percent annual rate in the third quarter after rising by 17 percent in the first half. The decline mainly reflected stricter terms and conditions on new loan commitments rather than a contraction in borrower demand.

Loan growth at smaller district banks, particularly rural banks, continued at a vigorous pace in the third quarter. This may have reflected the fact that direct government payments to farmers were discontinued in 1974.

Growth in loans to nonbank financial institutions has also slowed since midyear, partly because the shift in real estate investment trust borrowings from commercial paper to bank loans has subsided.

The outlook for loan demand at agricultural banks in the district is being influenced by the prospect of a decline in farm income. First, because of lower net incomes, spending on capital items and consumer durables will fall, resulting in lower loan demand for such purposes. Second, refinancing needs will increase to cover production costs not met by the year's income. Finally, feeder cattle loans will be soft for some time, but cow-calf operators may demand more credit to cover holding their cattle over the winter.

Business loan demand in the district is apt to remain strong for the next few

months due to expanded working capital requirements.

### Liquidity

With loans growing faster than deposits, the liquidity positions of smaller district member banks have deteriorated. In September the seasonally adjusted aggregate loan-deposit ratio for these banks stood at 66 percent, up from 64 percent in June and 63 percent a year ago. Consequently, smaller banks' daily average borrowings from the Federal Reserve in the third quarter were about \$50 million, considerably above normal even allowing for the seasonal borrowing privilege. Net federal funds sold have risen slightly since midyear but were 35 percent below the year-ago level in September.

At larger district banks, negotiated funds (net federal funds purchased plus large

negotiable CDs) as a percent of loans and investments stood at 47 percent in September, unchanged from June but up from 44 percent twelve months earlier.

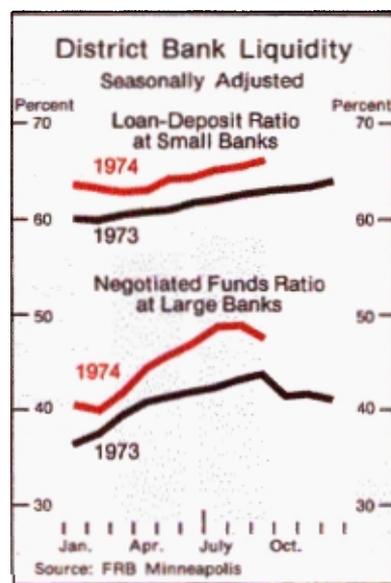
The overall outlook for loans and deposits suggests that bank liquidity positions will not improve soon.

### Agriculture

Despite the adverse impacts of drought, flood, and frost, district gross farm receipts from cash marketings this year should approach—and may even exceed—1973 levels. The main reasons are higher crop prices and increased livestock slaughter over a year ago. However, net farm incomes will be far lower than last year because of higher production costs.

Through July total cash farm receipts (the sum of crop receipts and livestock receipts) were still running well ahead of last year. Crop receipts for the entire year will probably be up from 1973 because of higher prices, but whether the gain will fully offset a sharp second half decline in livestock receipts is not clear.

Higher prices for soybeans and corn are offsetting declines in physical production. Soybean prices at district markets are currently far above the 1973-74 average. Feed grain prices are also up sharply over last year: corn prices have passed \$3.50 after averaging about \$2.50 in the last marketing year; barley and



sorghum prices are also up. Wheat prices, on the other hand, have been relatively stable since midsummer, though some gains were recorded late in the third quarter.

Cash sales of grain have reportedly been slow throughout the district, so that high crop values are not being immediately translated into cash incomes. But less grain will be fed to livestock this year than in the past, making more available for cash sale. This should help support cash receipts in the feeding areas of Minnesota and South Dakota.

Incomes will vary widely across the district. Livestock producers will suffer the greatest losses relative to 1973; on the other hand, producers of corn and soybeans

should fare well, especially if their yields approach normal levels.

Based on early October crop conditions and plausible assumptions about prices, the cash value of Minnesota's 1974 harvest will be up somewhat from last year. Montana crop receipts over the marketing year beginning July 1, 1974, will also be up, with nearly all the gains coming from last summer's bumper winter wheat harvest.

The poor spring wheat harvest in North Dakota will pull cash receipts in the current marketing year down from last year, unless there is an unexpected upsurge in wheat prices. Though yields in many parts of South Dakota are down even more sharply, higher prices for feed grains will offset some of the produc-

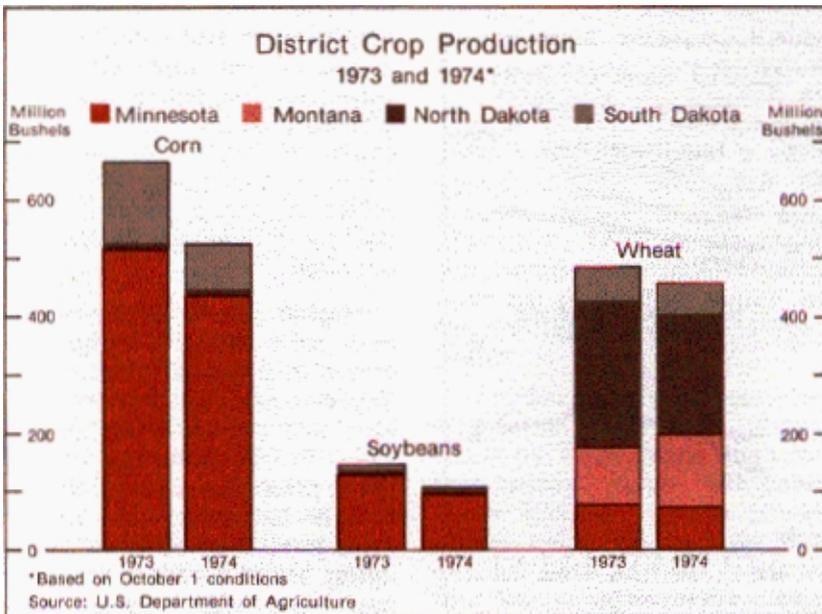
tion declines.

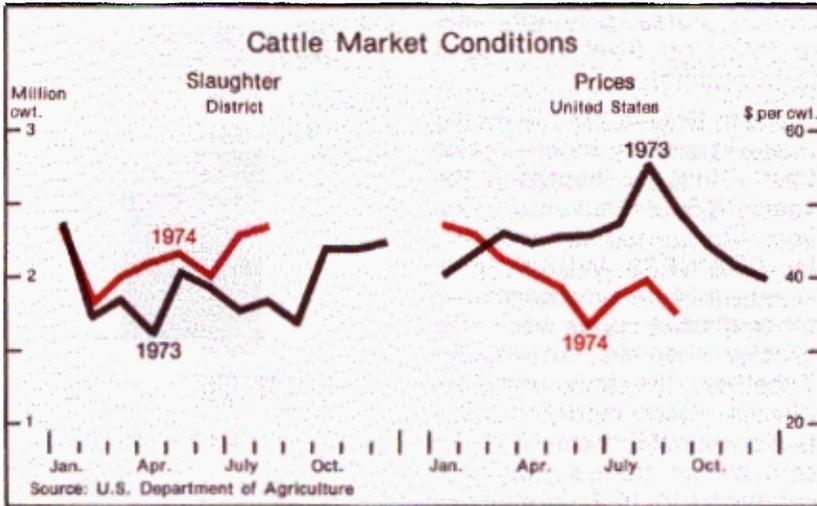
Gross receipts from livestock sales in 1974 will be down perhaps as much as 8-10 percent from 1973. Cow-calf operators have been hardest hit by changing conditions in the farm economy. Prices of feeders are now little more than half the levels of a year ago.

Total feeder sales at major regional markets this year are near 1973 levels, but the direct (nonauction) sales of cattle by Montana ranchers have fallen about 80 percent from last year. (Further, almost no direct sales were recorded over the summer.) Total receipts from livestock sales in Minnesota may approach 1973 levels, but livestock receipts will probably be down rather substantially for the rest of the district.

Midway through the third quarter, cash receipts from cattle and hog slaughter sales were somewhat above 1973 despite lower prices. Slaughter shipments of cattle and hogs through July were up 12 and 11 percent, respectively, over 1973. But fourth-quarter slaughter is expected to be nearer last year's levels, with more grass-fed slaughter to offset the decline in feedlot output.

High dairy prices over the first half contributed some strength to cash receipts, especially in Minnesota. Through July, cash receipts for dairy products were running a third higher than a year ago.





Since dairy producers are facing more competition at the retail level from beef, pork, and poultry products, there is little chance for as strong a rise in prices as occurred in late 1973. Thus, gains in cash receipts in the second half will be far lower than those of early 1974.

For all producers, cost increases in 1974 will cut deeply into cash receipts. Production expenses for the district have not been estimated, but a comparison of mid-1973 prices with mid-1974 prices gives some idea of the cost increases: fertilizer, up 59 percent; farm supplies, up 27 percent; motor supplies, up 30 percent; and building and fencing materials, up 23 percent.

For much of 1974, the record 1973 farm harvest sustained a prosperous district economy. In mid-1974, cash receipts were running 11 percent above 1973's. However,

cash receipts in the second half will be down sharply from last year, and the outlook for the rural economy through the fourth quarter and into 1975 is not optimistic.

The squeeze on net farm incomes will decrease spending on consumer durables and capital goods. Spending for current productive inputs will remain strong but will require more debt financing.

There is little hope for a turnabout in the livestock sector as long as feed prices are so high, and feed supplies will be tight until the harvest of 1975. On balance, 1974-75 looks like a year of belt-tightening for many district farmers.

**Construction**

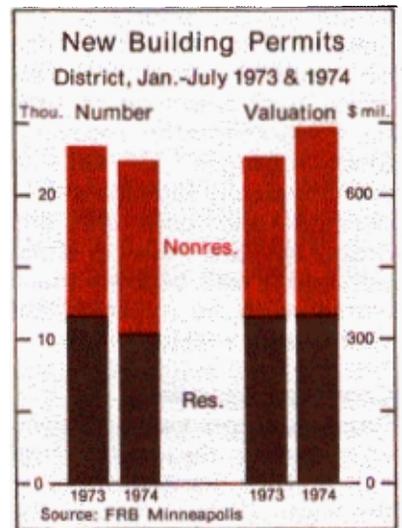
There is little chance for improvement in the construction industry during the last quarter of 1974. However, the district continues to fare relatively better than the rest of

the country.

Declines in various construction industry aggregates have been matched by even greater declines nationally. The number of housing units authorized through July of this year was 9.5 percent lower than a year ago in the district but 38.4 percent lower in the nation—the greatest decline in seven years. National housing starts have also dropped drastically and are now occurring at the slowest rate in four years.

Various indicators of current values for nonresidential construction activity have maintained some strength, with district gains surpassing those for the United States.

District increases in the current dollar value of non-residential building permits issued have been large enough to offset the decline in residential building, creating a net increase in total valua-



tion of 9.1 percent over a year ago in January-July. Non-residential increases in the number of new building permits issued, however, could not compensate for residential permit declines, resulting in a 4.2 percent net drop in permits issued.

Depressed conditions in the construction industry are mainly the result of continued high interest rates and significant price level increases.

Reductions in total capital at S&Ls have been accompanied by reductions in mortgage loans made. And (perhaps more significant for future construction) loan commitments held at S&Ls are lower than a year ago nationally, while district commitments have registered a small gain.

All current indications are that the general rise in prices will continue almost unchecked for the rest of the year. While various efforts on the governmental level may soon be made to lower interest rates, they won't be in time for a fourth-quarter recovery. Since changes in housing starts typically lag changes in permits—and both are still dropping—the housing situation could well become much worse, with no improvement visible until well into 1975.

### Consumer Spending

Personal income and consumer spending during the first half of 1974 were stronger in the Ninth District than in the

United States, primarily due to the high level of district farm income.

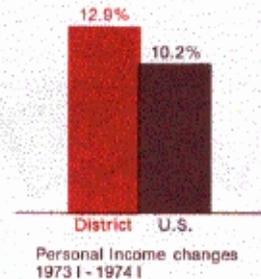
North Dakota led the nation in state personal income gains for the first six months of the year: 18.5 percent above the year-ago period as reported by BUSINESS WEEK. Personal income increases in other district states were also greater than in the nation. Together, the four complete district states recorded first-half personal income 12.9 percent higher than a year ago, compared to 10.2 percent for the nation. Inflation, of course, eroded much of this income rise.

The Minneapolis-St. Paul consumer price index was up 11.9 percent in July over a year ago. The U.S. consumer price index rose 11.8 percent over the same period.

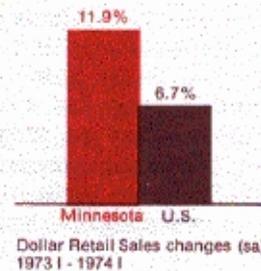
Prices of food, homeownership, fuel oil and coal, and transportation have all risen more sharply in the Twin Cities than nationally over the last year, while medical care, rent, and gas and electricity were up less there than in the United States.

Retail sales (seasonally adjusted and including automobile sales) in Minnesota were almost 12 percent above a year earlier in the first half of 1974, compared to a rise of 6.7 percent in the United States. Total department store sales in the district's metropolitan areas have increased by substantially more than in the nation over the first seven

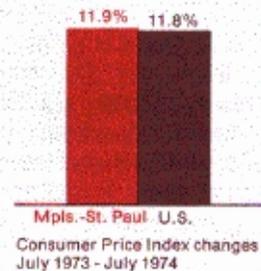
Incomes rose faster in the district than nationally . . .



. . . so consumer spending did too . . .



. . . even though inflation hit this area as hard as the nation.



Sources: BUSINESS WEEK; U.S. Department of Commerce, Bureau of Census; U.S. Department of Labor, Bureau of Labor Statistics

months of 1974 as compared to the year-ago period.

There was a sharp increase in Duluth-Superior attributable to the opening of a major shopping center. It attracted both new customers from the surrounding Iron Range and many tourists whose purchases were not formerly included in that area.

These data are supported by our most recent survey of major district retailers. They reported that 1974 sales through this summer were good but admitted that higher prices accounted for the major part of their sales gains. Good sales of apparel and home improvement items and declines in big ticket merchandise such as furniture and major appliances were also reported. Freezers and other low grade steel items have been in great demand and

very short supply.

Automobile sales were exceptionally good in the third quarter, according to our last survey of area dealerships, but cumulative sales for 1974 were reported as still below 1973. National auto sales experienced renewed strength in August and early September, and most area dealers reported that their share of the national market was slipping toward more normal levels from peaks reached early this year.

The district's resorts reported a good summer. Several resorts noted more visits by local people and group vacationers and longer visits by families.

Consumer spending is unlikely to be a source of strength in the district for the next several months. The combination of an anticipated

decline in net farm income, the prospect of rising unemployment, and a continuing high rate of inflation will probably decrease consumers' ability to purchase more goods and services. Furthermore, two national surveys of consumer confidence showed very pessimistic results in September-October.

The brightest spot ahead is the winter recreation business; resort owners anticipate a very strong winter season. Retailers and auto dealers, however, are more cautious in assessing their future prospects. Retailers expressed some fear that a shorter holiday shopping season this year (26 days) compared with last year (32 days) might cut into their business.

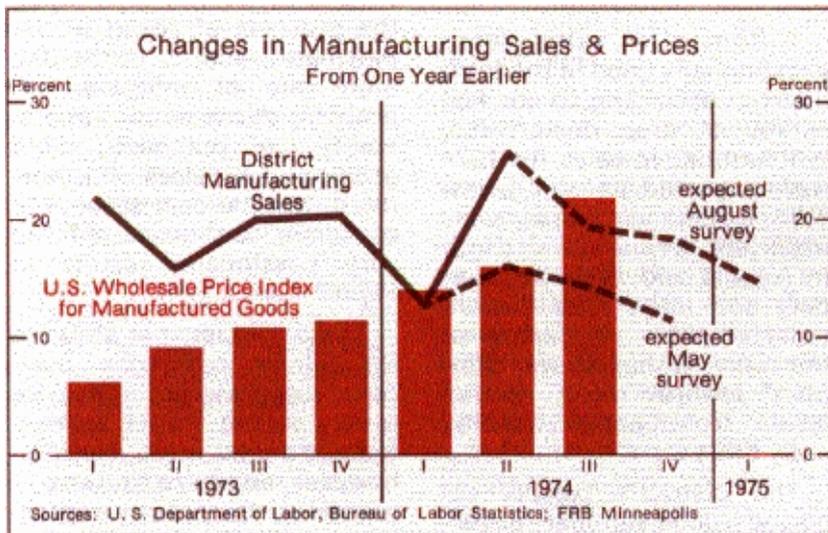
### Industrial Activity

Although manufacturers continue to report sales gains, there are some indications that manufacturing activity may be slowing somewhat.

According to our August Industrial Expectations Survey, second-quarter district manufacturing sales were up 25.5 percent from a year ago, compared to an 11.7 percent increase nationally. An additional 19.3 percent district rise is expected in the third quarter.

These sales gains are noticeably above the 15.9 and 14.2 percent sales increases anticipated for the second and third quarters in our May survey. Price increases probably accounted for much of





turing activity. The percentage of manufacturers considering inventories high in light of anticipated sales has risen progressively over the past twelve months, as their shortage problems have improved and/or sales expectations weakened more than anticipated. In August, for the first time since 1971, more respondents reported inventories high than low.

However, many manufacturers continue to look for their business to increase and consider their inventories too low to adequately respond to expected sales demand. Furthermore, comparatively more respondents have considered their plant and equipment inadequate.

District manufacturers foresee their sales increasing 18.2 percent from a year earlier in the fourth quarter. But given price increases, these gains probably represent little if any

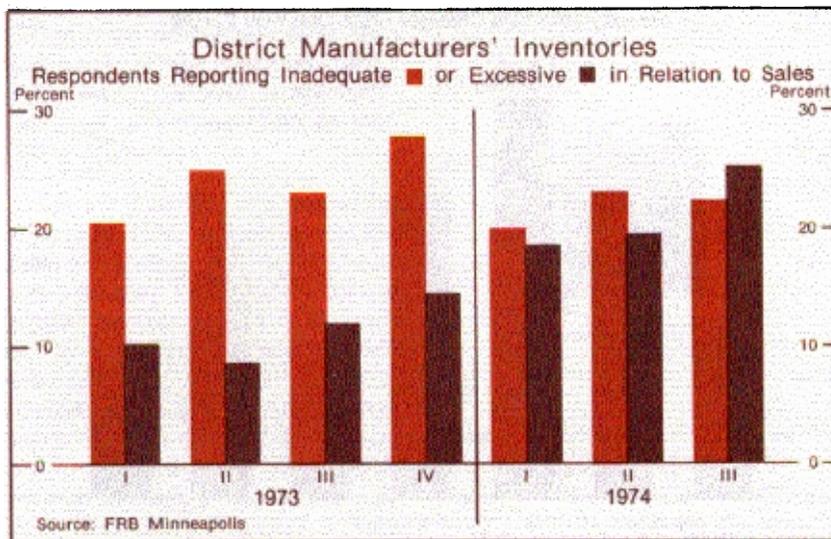
the upward revision. Also, the minimal increase in district manufacturing employment this year indicates a recent slowdown in manufacturing growth.

Sales are expected to remain strong in some industries and to soften in others. Third-quarter sales in the electric and nonelectric machinery industries, which account for about a third of district manufacturing activity, are expected to be up 37.0 and 32.7 percent over year-ago levels. Large sales gains are also anticipated in the paper and allied products, petroleum products, and fabricated metals industries.

On the other hand, sales in the food and kindred products industry, which accounts for about 20 percent of district manufacturing activity, will probably advance only 2.4 percent in the third quarter.

The district's lumber and wood products industry, feeling the effects of the current slump in housing, expects little sales growth.

Manufacturers' attitudes about their inventories support the view that some slowing has occurred in manufac-



increase in the volume of goods sold. Consequently, district manufacturing activity will probably not increase significantly through the rest of 1974.

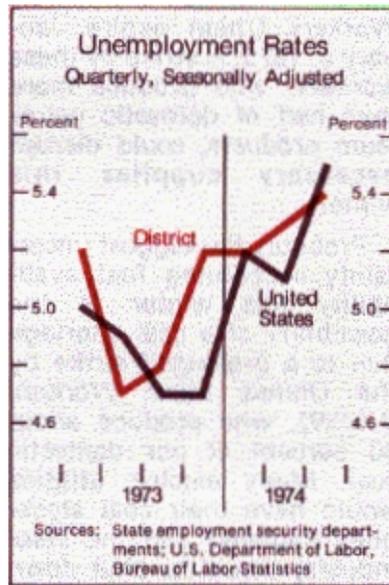
### Labor Market Conditions

Although Ninth District employment was 3.1 percent above a year ago in the third quarter, essentially no growth has occurred since the first quarter of the year. This is due primarily to marked declines in the construction and government sectors.

District service employment rose 2.4 percent in the same time span, surpassing the 1.7 percent U.S. gain. But manufacturing and trade employment in both the district and the nation have changed very little since the beginning of the year.

As a result of the recent slowdown in employment growth, the district seasonally adjusted unemployment rate has edged upward during the year from 5.2 percent in the first quarter to 5.3 in the second and 5.4 in the third. This increase would have been more pronounced if the labor force had advanced at 1973's pace.

Other labor market indicators remained quite strong, however. The district help wanted advertising index increased 8.6 percent between the first and second quarters and in July-August was up another 5.4 percent. Also, initial claims for unemployment insurance in the third

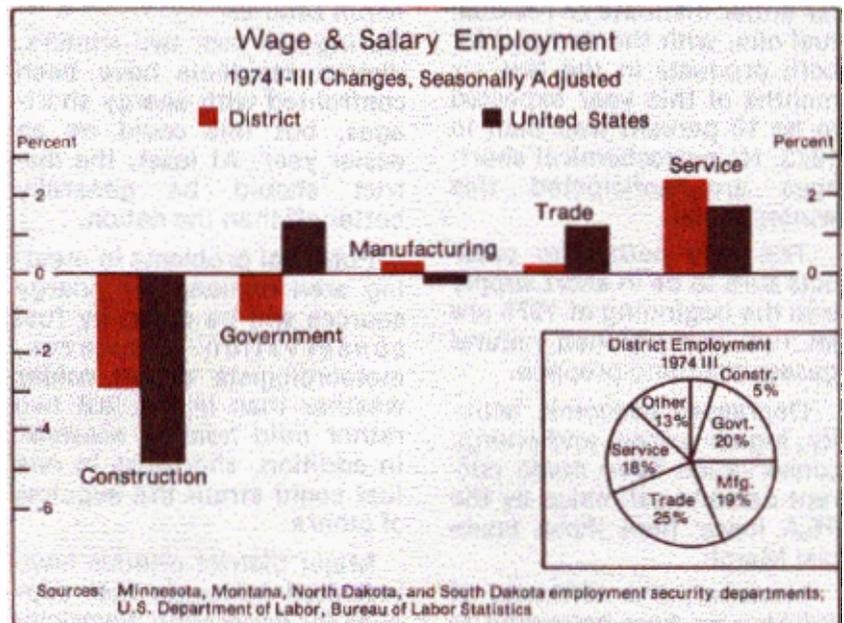


quarter were down 8.0 percent from a year ago, after being 9.6 and 24.3 percent over a year ago in the first and second quarters, respectively.

Both these aggregate indicators point toward stronger employment growth ahead. However, the average number of weekly hours worked in manufacturing has been trending downward since the fourth quarter of 1973, and declines in this indicator are usually followed by easing in manufacturing employment growth.

The prospects for the district's economy do not include any substantial employment gains. Manufacturing and government employment will probably not increase significantly. The outlook for the trade sector is uncertain. And no job expansion is near in the construction industry.

Still, aggregate indicators such as help wanted advertising and initial claims do not



point toward any significant employment decline. Nevertheless, some increase in unemployment is foreseen in the fourth quarter, and the district unemployment rate will probably move higher.

## **Energy Outlook**

### *United States*

With the Federal Energy Administration (FEA) reporting that winter demand expectations are down and major petroleum product inventories are up from a year ago, the national energy outlook seems encouraging.

Gasoline consumption, for example, is expected to be down 5 percent from a year ago during the last half of 1974 and is also expected to match year-ago levels in the first half of 1975. Also, no shortfalls during the winter heating season are projected for either distillate or residual fuel oils, with the demand for both products in the last six months of this year expected to be 10 percent less than in 1973. No petrochemical shortages are anticipated this winter either.

The only petroleum products sure to be in short supply into the beginning of 1975 are jet fuel and liquified natural gases, including propane.

Depressed economic activity, higher prices, and energy conservation have made current demand estimates by the FEA lower than those made last March.

However, the contracts of refinery workers belonging to

the Oil, Chemical, and Atomic Workers Union expire January 5, 1975. A strike by these workers, who produce more than half of domestic petroleum products, could disrupt necessary supplies this winter.

Probably the biggest uncertainty concerning fuel availability this winter is the possibility of a coal shortage due to a prolonged strike by the United Mine Workers (UMW), who produce about 80 percent of our domestic coal. Many electric utilities would have their coal stockpiles depleted and the steel industry would be shut down if a prolonged strike occurred. But the FEA, currently monitoring coal production and inventories, is developing contingency plans in case of a strike.

### *Ninth District*

During the past two winters, district residents have been confronted with energy shortages, but this could be an easier year. At least, the district should be generally better off than the nation.

Potential problems in meeting area demand for energy sources will be eased by fuel conservation. However, meteorologists expect colder weather than in the last two rather mild heating seasons. In addition, shortages in one fuel could strain the supplies of others.

Major district utilities have indicated adequate fuel supplies for generating electricity

this winter. A coal strike, however, could threaten the operation of several generating plants in the district.

Since conservation is expected to ease natural gas supply problems this winter, district suppliers foresee no serious difficulties in meeting customer demand—unless, that is, the 1974-75 winter is abnormally cold.

In the event of a coal strike, the district is expected to fare better than other regions of the nation since much of our coal comes from western fields not heavily organized by the UMW.

Much of the eastern coal used by the district arrives by barge. Since the shipping season will end before the November strike deadline, stockpiles will be set for the winter.

In general, the outlook for petroleum products is quite favorable. District inventories are up from a year ago, and given a normal winter, supplies of gasoline and fuel oil should be adequate.

However, several possible developments could adversely affect petroleum supplies. The extent to which natural gas users may have to rely on fuel oil is not known and could cut into fuel supplies if the weather becomes extremely cold. A national coal strike would increase the demand for petroleum stocks and affect the supply of fuel oil in the district. The additional prospect of a strike by refinery

workers would also lessen the availability of petroleum products in the district and the nation.

Furthermore, propane from Canada, the traditional source for Upper Midwest suppliers, is becoming increasingly difficult to obtain. Transporting the gas from secondary supply areas as far away as the southwestern United States is a problem, and some spot shortages may develop as a result.

Given that fuel inventories are up from a year ago and energy conservation is expected to curb usage, the prospects for avoiding energy shortages this winter are quite good. The weather during the 1974-75 heating season and the possibility of prolonged strikes by either coal miners or refinery workers are the major factors that could disrupt district fuel supplies this winter.

## Cattle Cycles — Past and Present

John Rosine

Many people, even those not directly involved in agriculture, are aware of the famous hog cycle—the tendency of hog numbers and prices to fluctuate regularly. Few are aware, however, that cattle numbers and prices also fluctuate over fairly regular long-run cycles. Since 1900 there have been six complete cattle cycles, and at least until recently, the industry has been in the expansion phase of a seventh (see Figure 1).

As is true of business cycles, no two cattle cycles are alike, but most are similar. This century's typical cycle has lasted ten or eleven years, with expansions lasting six to seven years and contractions three or four. Many cycles have peaked near the midpoint of a decade and bottomed out late in the same decade. In the past 50 years, cycles peaked in 1934, 1945, 1956, and 1965; troughs occurred in 1928, 1938, 1949, 1958, and 1967.

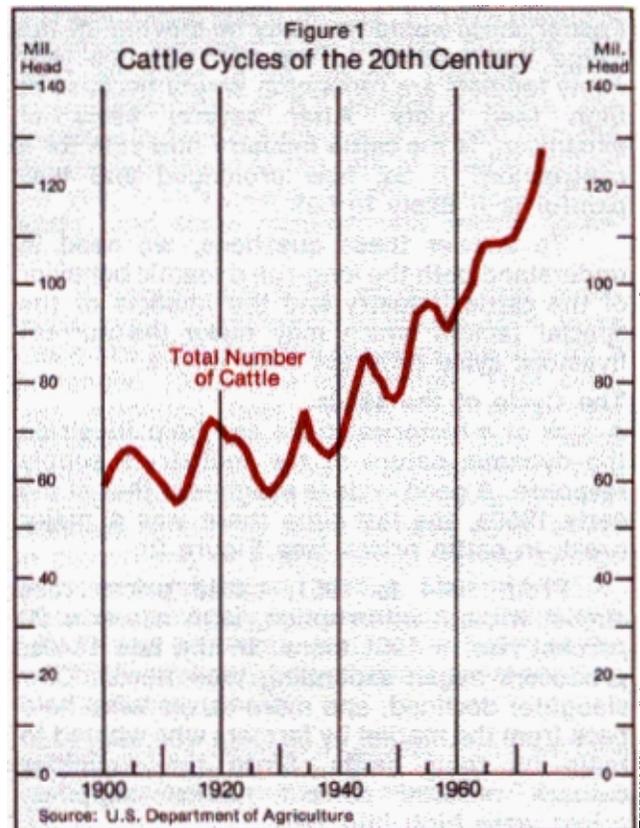
Not all cycles have been typical, though. The longest of the century lasted from 1912 to 1928. The expansion phase lasted six years and was so sharp that the entrenchment lasted a decade.

The 1960s' cycle also had its own peculiar characteristics. After seven years of expansion, cattle numbers turned down slightly in 1966. But the decline was short lived. The boom of the late sixties kept consumer buying power high; per capita beef consumption moved upward; and after only two years of decline, the cattle herd was set for at least another seven years of expansion.<sup>1</sup>

<sup>1</sup>This paper uses U.S. Department of Agriculture (USDA) data on cattle numbers. Some market observers agree that the herd has grown rapidly but believe that USDA figures overstate the true rate of growth. Data on cattle numbers are published in annual issues of AGRICULTURAL STATISTICS.

That brings us to 1974, the current situation, and the main purpose of this discussion: to put the events of the past year in a long-run perspective. This view will contend that:

- The expansion phase of the most recent cattle cycle may have run its course, so that a contraction is imminent.
- Special factors such as high feed costs, high labor and energy costs, and lagging



demand will complicate the normal contraction process.

- Increases in costs at any stage of the production process must ultimately be passed on to customers or back to those who supply cattle to feedlots. If consumer resistance is high, then these cow-calf operators will suffer the most.

Current price indicators point to an impending contraction. The economic position of cow-calf operators has steadily deteriorated in 1974. A year ago, feeder cattle were bringing nearly \$70 per hundredweight (cwt). They are now being sold in the low \$30s, with some price dips to the \$20s. Break-even prices are reported between \$45 and \$50 per cwt.

Feedlot operators have been losing money on cattle that cow-calf operators sold at a good profit, but the problem eventually shifts to the ultimate supplier, the cow-calf operator. Feeder cattle would normally be moving off the range into feedlots in the fall, but this year many feedlots are remaining empty because of high feed costs. After several years of expansion, is the cattle industry now ripe for a contraction? If so, how prolonged and how painful is it likely to be?

To answer these questions, we need to understand both the long-run dynamic behavior of the cattle industry and the impacts of the special factors which may make the current livestock cycle different from others.

### **The Cycle of the 1950s**

A look at a historical cycle can help illustrate the dynamic nature of the industry's supply response. A good cycle to examine is that of the early 1950s, the last time there was a major break in cattle prices (see Figure 2).

From 1944 to 1951, cattle prices rose almost without interruption, with nearly a 20 percent rise in 1951 alone. In the late 1940s, producers began expanding their herds. Cow slaughter declined, and more calves were held back from the market by farmers who wanted to build up their herds. Since the slaughter cutback reduced current market supplies, prices were high into 1951.

But in 1952, the Korean War ended, demand slowed, and prices broke sharply. The first response of producers was cautious: both cow and calf slaughter increased slightly. But the beef cow herd itself increased, as heifer replacements outnumbered cows slaughtered, and the number of calves born increased by nearly 15 percent in 1952.

The next year, 1953, was more disastrous as prices averaged only about 60 percent of the 1951 level. Producers became panicky, and the slaughter of cows and calves rose sharply. But once again, even in the face of falling prices, the number of calves born kept increasing.

A recession in 1954 postponed any recovery, and cattle prices fell until 1957. The calf crop didn't level off until 1955, and the cow herd grew until 1957. Thus, in a time of falling prices, producers found themselves locked in by decisions they had made years before.<sup>2</sup>

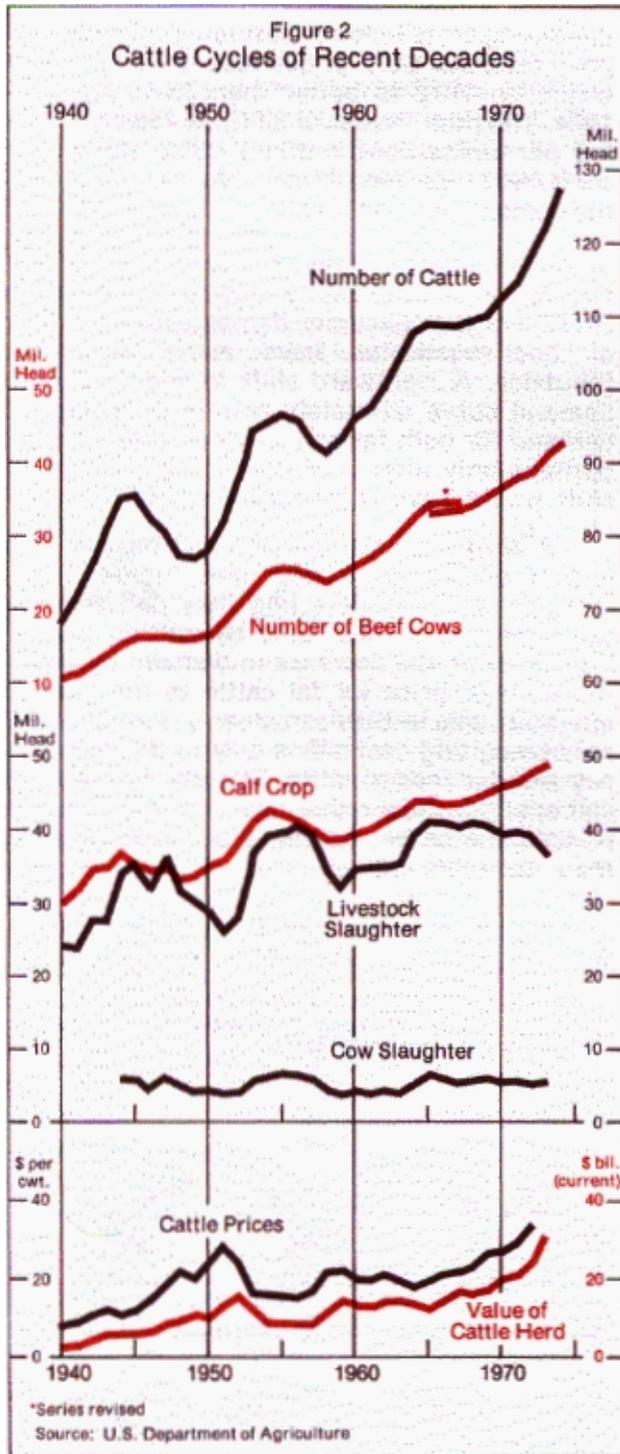
What were the financial repercussions of the 1950s' contraction? First, as cattle prices fell, asset values also declined. From 1952 to 1956 cattle owners sustained a decline in assets of \$7.4 billion. Since other livestock prices declined with cattle prices, the total asset loss was \$8.9 billion—5.9 percent of total proprietors' equities and 12.4 percent of the farm sector's nonreal estate assets. Moreover, losses were more concentrated than asset ownership, so livestock producers undoubtedly sustained even greater losses.<sup>3</sup>

Total farm debt in 1952 was \$14.7 billion, and overall, producers were apparently able to turn over their debt out of normal cash flows without reducing liquid assets.<sup>4</sup> However, individual producers probably experienced more

<sup>2</sup>In determining why the industry takes so long to adjust to falling prices, one must not forget its competitive structure. Each producer maximizes profits, and understandably no producer wants to slaughter a herd so that a neighbor can enjoy profitable prices in the future.

<sup>3</sup>Data are from U.S. Department of Agriculture, BALANCE SHEET OF THE FARM SECTOR, ERS Information Bulletin No. 359, January 1973.

<sup>4</sup>Ideally, one would like to zero in on the losses suffered by cow-calf operators. Unfortunately, only aggregate data are available, and the increases in financial assets held by the sector really give little indication of the problems livestock producers may have experienced during the 1950s' contraction.



severe liquidity problems.

### The Cycle of the 1970s

Might the livestock sector be headed into a 1950s-style contraction? And if so, what are the implications for the farm sector?

In many respects the livestock sector in the early 1970s has resembled a typical boom period before a contraction. Calf slaughter has declined since 1965 as animals were held back to build up herds. Cow slaughter has fallen from mid-1960s' levels. The industry's productive capacity has increased, with a sustained rise in the beef cow herd continuing through the 1960s and into the 1970s.

As capacity has increased, so has the calf crop. By 1973 the gap between the number of calves born annually and the total number of cattle slaughtered had grown to disturbing proportions. In 1972, 48 million calves were born, 39 million cattle and calves were slaughtered, and death loss was 5 million. In 1973 livestock slaughter declined to 36 million, but the calf crop increased to 49 million. Despite 1973's large death loss of 6.5 million animals, the excess of potential supply over current demand has been growing at the rate of several million per year.<sup>5</sup> This clearly cannot continue indefinitely, and some retrenchment seems necessary.

It should again be stressed that every cattle cycle is different. Because 1974 looks much like 1952 does not mean we are due for a prolonged 1950s-type contraction. That cycle was extended long after prices had broken. Range conditions, too, can slow or accelerate the rate at which herds are cut back. Moreover, general business conditions seem to have some effect in moderating or exacerbating cyclical swings in cattle numbers and prices. The mid-1950s' recession probably compounded the industry's adjustment problems, just as the boom of the late 1960s probably helped arrest an impending contractionary phase.

<sup>5</sup>Data are from U.S. Department of Agriculture, CATTLE, SRS Report LvGb 1, February 1974; U.S. Department of Agriculture, LIVESTOCK SLAUGHTER, ANNUAL SUMMARY, 1973, SRS Report MtAn 1-2-1, April 1974.

### Factors Complicating the Current Cycle

True, every cycle is different. However, the characteristics distinguishing the current cattle cycle may impede the normal adjustment process. To understand why, we need to look at the structure of the cattle industry in more detail.

Some simplifying assumptions about the industry's structure will help focus attention on the key relationships. First, assume that the cattle industry consists of three sequential markets—the markets for feeder cattle, fat cattle, and beef. There are buyers and sellers in each market. Cow-calf operators own cows, raise calves and yearlings, and sell them as feeder cattle to feedlot operators. Feedlot operators, in turn, buy corn and feeder cattle and sell fat cattle. Intermediaries—including packers, wholesalers, and retailers—buy fat cattle and, using additional energy and labor inputs, process them into beef, then distribute the beef to consumers. Final demand originates with consumers who buy beef products.

Each of the three markets has an aggregate supply curve and an aggregate demand curve. Prices over time are determined by the shifts in these supply and demand curves.<sup>6</sup> Many of the curves are interrelated; for example, any shift in consumer demand also shifts the demand curves for fat and feeder cattle, and any increase in cost shifts the supply curves at subsequent stages in the production process. External factors cause shifts in the supply and demand curves, and because of the events of the past year, we are particularly interested in three such factors: lagging consumer demand, rising marketing costs, and rising feed costs.

The downturn in per capita consumption of beef in 1973 was an exception to long-run trends. (Per capita consumption in 1974 is apparently going to be up somewhat from depressed 1973 levels.) Sharp increases in

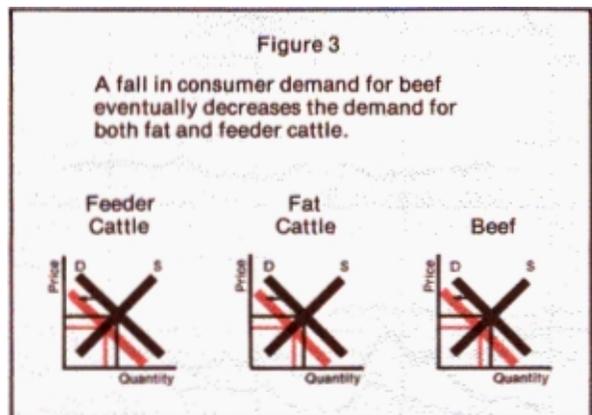
<sup>6</sup>The dynamics of price adjustments in the cattle industry are far more complex than indicated here. For instance, the behavior of producers will greatly depend on shifting expectations of future feed prices and cattle prices. The age distribution of the cattle herd will also influence the dynamic pattern of price adjustments.

marketing costs followed last fall's relaxation of price controls. Corn prices rose from \$1.25 per bushel in 1972 to better than \$3.50 by mid-1974. The final impact of all three factors—falling per capita consumption, rising marketing costs, and high feed costs—has been to lower the demand for feeder cattle.

### Shifts in Consumer Demand

Population and per capita income are the main shifters of the consumer demand curve. Prices of beef-substitutes have some additional influence. A rightward shift in the consumer demand curve ultimately results in increased demand for both fat and feeder cattle, though perhaps only after some time lag; a leftward shift would have the opposite effect.<sup>7</sup>

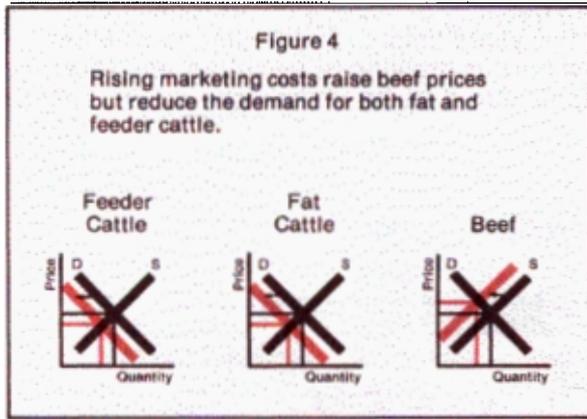
A shift in consumer demand has its first impact at the retail level (see Figure 3). If demand falls, retailers find they can sell the same amount of beef only by cutting prices. They pass on the decrease in demand by offering a lower price for fat cattle to the feedlot operator, who in turn can clear a normal profit only by cutting costs. One way to do this is to pay less for feeder cattle. Therefore, the cow-calf operator must either take a short-term loss or hold the cattle, hoping that prices will be more favorable in the future.



<sup>7</sup>It is not clear that the demand curve for beef has in fact shifted leftward. It's true that the per capita consumption of beef declined in 1973, but nominal dollar expenditures on beef increased, as did the percentage of real per capita income spent on beef.

### *Increases in Marketing Costs*

An increase in marketing, transportation, or processing costs of the intermediaries causes a leftward shift in the supply curve of beef. The subsequent effects are leftward shifts in the demand curves for fat and feeder cattle (see Figure 4).



If consumer demand for beef is sufficiently inelastic, the cost increase could be passed on to consumers and the markets for fat and feeder cattle would not be disturbed. But if the increase cannot be passed on, in order to maintain a profit margin, the retailer must cut costs and, therefore, bid a lower price for fat cattle.

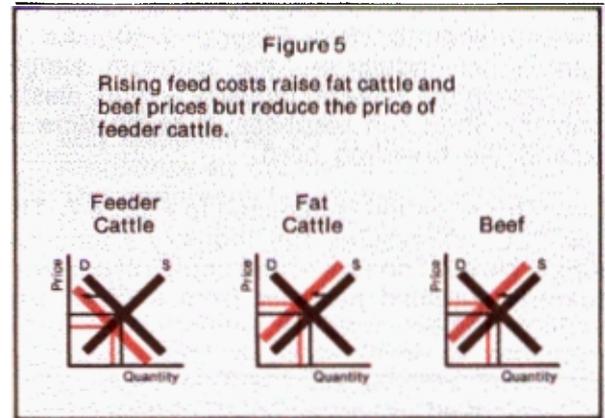
### *Rising Feed Costs*

Rising feed prices cause leftward shifts in the supply curve of fat cattle, the demand curve for feeder cattle, and the supply curve of beef, resulting in higher consumer prices (see Figure 5).

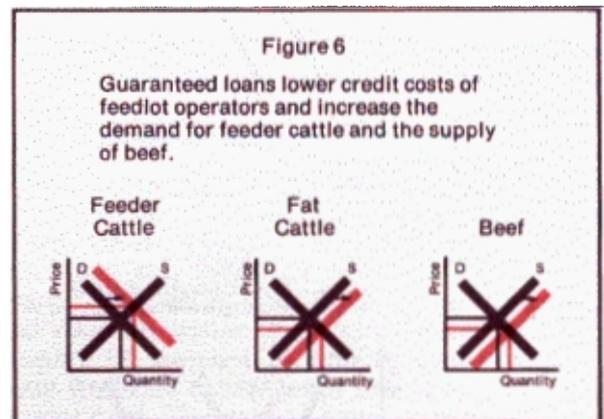
The feedlot operator is the first to feel the impact of high grain costs. Again, if the demand for beef were strong enough, retailers would happily absorb the cost increases, knowing they could pass all expenses along to eager consumers. But if consumers balk at rising beef prices, the feedlot operator must absorb losses, at least for a while. Eventually though, the higher costs are passed back to the cow-calf operator.

### *Guaranteed Loans*

A guaranteed loan program such as that



recently enacted by Congress grants a risk subsidy to agricultural lenders. Cattle feeders can therefore presumably obtain credit on more favorable terms, and the costs of feeding decline. The supply curve of fat cattle shifts to the right, and the demand for feeder cattle increases, as does the supply of beef to consumers (see Figure 6).



Reportedly the guaranteed loan legislation has so far had little effect in increasing the flow of cattle to feedlots, though loan activity picked up somewhat in late September.

### **Special Problems of the Cow-Calf Operator**

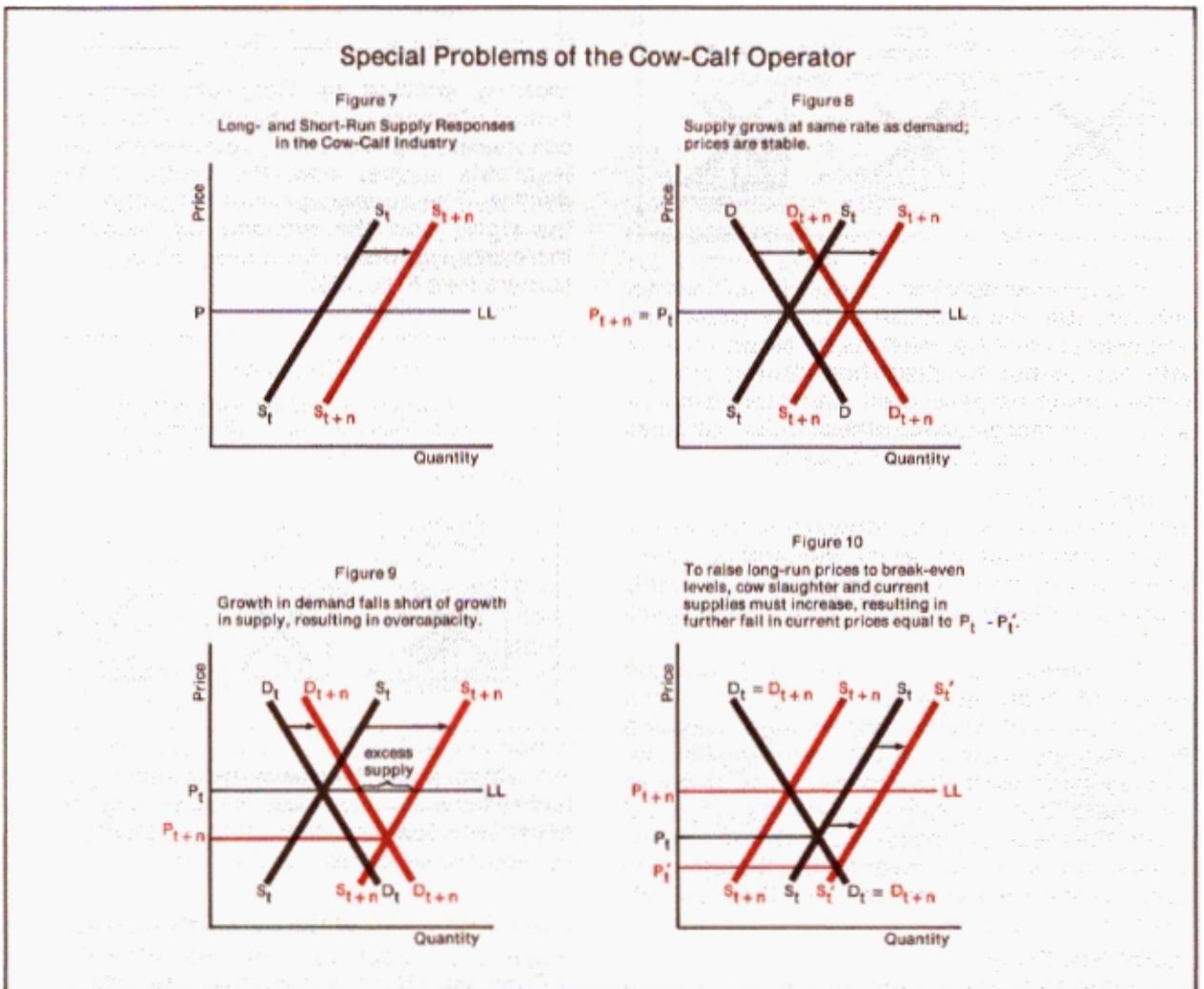
Since the effect of most recent externally influenced changes has been to reduce the

demand for feeder cattle, we need to look more closely at the adjustment problems facing the cow-calf operator (see Figures 7-10). As in many other industries, the long-run supply response in the cow-calf industry is more elastic than the short-run response; it takes time to expand the breeding herd.

(This situation is depicted in Figure 7. The line "LL" represents the industry's long-run supply curve. The short-run supply response — quantity supplied per year from a given cow

herd — is measured along the short-run supply curve "SS." The "t" subscripts denote the time period; the subscript "t+n" refers to future time periods.)

At any point in time, the position of the short-run curve is determined by the number of calves born two or three years earlier which in turn depends on expansion decisions made four or five years before. Depending on whether the cow herd is growing or declining, the short-run supply curve shifts to the right or left, respec-



tively.

Stable cattle prices result when the increase in supply matches the increase in consumer demand (see Figure 8). At breakeven prices, supply currently exceeds demand (see Figure 9). As suggested previously, the gap may be due either to an excessive rate of growth in cow herds or to a slowdown in the demand for feeder cattle. Ranchers will lose money until the gap is eliminated, and that can happen only by reducing the cow herd over time, by maintaining the cow herd while raising fewer calves, or by increasing the demand for feeder cattle.

Judging from past cycles, producers typically respond first by getting rid of old or unproductive cows and slaughtering more calves (cow replacements). Since the buildup of a cow herd takes several years, producers are reluctant to cut back their herds unless feed or water shortages force marketings. Producers also resist cutting back because an increased (and unplanned) slaughter of cows would shift the short-run supply curve of beef to the right, further depressing current prices. This effect discourages the very cutbacks needed to shift the future short-run supply curve leftward to a new equilibrium point and raise future prices (see Figure 10). The reduction in the cow herd, if it does occur, means that the industry is consuming its capital stock and that future productive capacity will be reduced.<sup>8</sup>

Short-term problems such as high feed costs are likely to complicate adjustments in livestock numbers by forcing structural changes in the feeding industry. Though these changes are the market's way of adjusting to soaring feed prices and therefore seem necessary, they create uncertainties, disrupt normal commodity flows, and will probably delay needed adjustments in cattle numbers.

- Cheaper feeds are being substituted for corn. Some animals are coming directly to

<sup>8</sup>The distinctive feature of the livestock industry is not so much the long lead times involved as the fact that the existing capital stock can quickly be converted into current consumption. This is not generally true of other industries and helps explain much of the livestock industry's cyclical instability.

slaughter off grass; this is in effect a substitution of hay for corn. Feeding of silage and other roughages will also increase.

- The animals which do go through feedlots are being brought in at heavier weights and slaughtered off at lighter weights to economize on the use of high-priced corn. The preference for heavier feeder stock is currently helping support the market for yearlings while the calf market is slumping badly.
- The marketing of lower weight animals means that a given level of consumer demand requires more animals. Therefore, the flow from the range can be maintained at fairly high levels, serving to help avert any further buildup in cattle numbers.
- Revisions in beef grades have been proposed in hopes of maintaining consumer demand for the leaner cuts which some predict will be flooding the market in coming months. As leaner cuts become more plentiful, price differentials between highly marbled and cheaper cuts will probably increase.

These adjustments to high feed costs probably cannot by themselves restore the sector to equilibrium, as long as cattle numbers continue to grow faster than demand.

The financial implications of an acute contraction in the 1970s might be more severe than in the 1950s. Today's farmer is more heavily leveraged and therefore more vulnerable to a sharp reduction in cash flows. Total farm debt had risen to better than \$80 billion by 1974, roughly 80 percent of annual cash receipts. Total financial assets were less than one-third of total debt. The debt-to-asset ratio on January 1, 1974, was about 18 percent for the farm sector, up from 9 percent in 1952, and the debt-to-asset ratio of some individual operators is undoubtedly much higher.<sup>9</sup>

Over the longer run, a major contraction in the livestock sector might have far-reaching—

<sup>9</sup>Data are from U.S. Department of Agriculture, AGRICULTURAL FINANCE OUTLOOK, ERS Report No. AFO-14, March 1974.

but as yet uncertain—implications for grain demand, the financial solvency of farmers and ranchers, the stability of farm prices, and even beyond that scope, for the nation's rate of inflation and balance of payments.

---

## **Glossary**

<b>Hog numbers</b>	The total inventory of hogs and pigs in the United States
<b>Cattle numbers</b>	The cattle herd; the total inventory of cattle in the United States
<b>Cow herd</b>	The number of female cattle which have calved
<b>Calf crop</b>	The number of calves born per year
<b>Death loss</b>	The number of unintended cattle deaths incurred per year
<b>Feeder cattle</b>	Cattle which are supplied to feedlot operators by farmers and ranchers
<b>Fat cattle</b>	Cattle which have been fattened for slaughter on grass, grain, or high-protein supplements
<b>Grass-fed cattle</b>	Cattle which have been fattened for slaughter without passing through feedlots
<b>Beef</b>	The ultimate product of the cattle industry; the product which is purchased by consumers at the retail level