

## **MONETARY ACTIONS AND AGRICULTURE**

**Speech by  
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**It is good to have this opportunity to discuss with you some issues relative to the impact of monetary actions on agriculture. This subject is of major interest to all and especially to farmers, managers of agribusiness industries, and the nation's policymakers. For more than a decade the United States has experienced accelerating inflation. From 1964 to 1971 average prices rose at a rate of 3.8 percent per year measured by the Gross National Product (GNP) deflator, and at a 2.7 percent rate measured by the wholesale price index of all commodities. Since late 1971 average prices have risen at 6 percent and 12 percent rates respectively.**

**I accept the view that the trend rate of monetary growth is largely responsible for these average price movements. This view is based on the interaction of the demand for and**

supply of money. It holds that demand for money arises as a result of the services that money provides; that is, money facilitates transactions and serves as a store of purchasing power. The quantity of money that people desire to hold depends on such things as wealth, interest rates, prices and price expectations. On the other hand, the supply of money is largely under the control of the Federal Reserve System. The System, through its open market operations, can control the trend growth of the money stock.

If the quantity of money held by the public is greater than desired, the rate of spending will increase until wealth, prices, interest rates, and other factors which determine money demand adjust to the larger stock of money. During this period of adjustment, demand for all types of assets, including goods and services, will rise. In the short run production and employment will be stimulated as inventories decline to less than desired levels and producers bid for additional resources. Over the longer run, as the economy approaches its productive capacity, excessive monetary growth will result only in inflation, wealth transfers and inefficiencies caused by the implicit tax on money.

Cause and effect relationships between monetary actions and agriculture, however, are clouded by a number of non-monetary destabilizing elements which can have a sizable

effect between the planning of production and the realization of output. Output and demand fluctuations occur as a result of unanticipated factors such as unusual weather and other natural disturbances, changes in foreign demand, and imperfect knowledge relative to production plans coupled with the relatively long period between the planning stage and marketing the product. The year-to-year variation in output and prices caused by these factors often overshadows the influence of monetary actions. Consequently there has been much confusion as to the impact of expansive monetary actions on agriculture. The diversity of the views held are almost as varied as the number of discussants.

Evidence, however, indicates that after a short time span agriculture and the nonfarm sector respond to expansive monetary actions in about the same manner. For example during the 11 years ending in 1964<sup>\*/</sup> money grew at the average rate of 2.1 percent per year and the wholesale price index of all commodities rose less than one percent per year. Average prices were relatively stable in all sectors of the economy. The average price of farm products declined at a one percent

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<sup>\*/</sup> Three year averages centered on these dates.

rate and the average price of industrial commodities rose at a one percent rate. This small difference in the rate of price change in the two sectors probably reflected a higher rate of productivity growth in agriculture than in the nonfarm sector.

In contrast to the relatively slow rate of monetary growth and prices from 1953 to 1964, money and average prices in all sectors have increased at a much faster rate since 1964. From 1964 to 1973<sup>\*/</sup> money grew at an average rate of 5.6 percent per year, and the wholesale price index of all commodities rose at a bout a 4 percent rate. Farm prices rose at a 6 percent rate and the prices of industrial commodities at a 3.7 percent rate. A number of special factors, including poor weather conditions, a sharp increase in export demand, and an increase in fuel costs, contributed to the more rapid increase in average farm product prices during this period. When the impacts of these factors are spent, average farm commodity prices will likely rise somewhat slower relative to other prices.

The same forces that cause inflation in the nonfarm sector tend to cause farm product prices to rise. Average price

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<sup>\*/</sup> Three year averages centered on these dates.

increases in all sectors generally reflect rising demand for output caused by an increase in the stock of money. The first symptom of rising demand and inflation is the depletion of inventories in retail establishments. In an attempt to replenish inventories, the prices of goods of all types are bid up. The price increases provide producers with incentive to produce more goods. Managers of factories, mines, and farms will bid up the prices of scarce resources such as land, labor, and capital in their attempt to gain control of such resources.

Many resources such as capital and labor are interchangeable between the farm and nonfarm sectors. Wages, rents, and interest rates will channel the resources to those uses where expected returns are highest. But returns at the margin will tend toward equality in all uses since resources will be bid away from sectors with low marginal returns by the sectors where marginal returns are higher. Consequently, prices of both farm and nonfarm resources will rise together. Changes in total demand caused by monetary actions thus will have about the same impact on the prices of farm resources as on other resources in the same market. Farm production costs will thus rise at about the same rate as nonfarm production costs shifting the supply curves to the left in both sectors.

Hence, there is little reason to expect monetary actions or inflation to affect agriculture differently from the rest of the economy in the longer run.

Unanticipated inflation, however, results in transfers of wealth from monetary creditors to monetary debtors and to the extent that farmers are net monetary debtors they will receive a "windfall gain" from such an inflation. But, there is no assurance that the majority of farm people are net debtors and receive net gains during their life span. Younger farmers who have gone into debt to purchase farm land and equipment may be net debtors and gainers, whereas retired farmers who have sold their land and farming equipment are probably net creditors and lose during an unanticipated accelerated inflation.

In contrast to the similarity of the effects of monetary actions and inflation on agriculture and the nonfarm economy in the long run, the effects are quite different in the short run. Farm input, output, and farm price movements during NBER (National Bureau of Economic Research) business cycles indicate that agriculture makes major adjustments to changes in the rate of monetary growth. The extent of the adjustments, however, are considerably different from such adjustments in the nonfarm sector.

A statistical study published by this speaker in the December issue of the American Journal of Agricultural Economics indicates that in the short run agriculture responds to changes in monetary actions as follows: 1) Farm output responds less and farm prices more to monetary actions than output and prices in the nonfarm sector. 2) Farm output adjusts largely through changes in such short-lived production inputs as fertilizer, chemicals, etc., which are added annually and have little residual value. 3) Farm employment is more stable in the short run than nonfarm employment but sharper adjustments occur in farm wage rates than in wage rates of nonfarm workers. 4) Farm income responds to monetary actions about the same as does gross national product. 5) On the input side interest rates charged farmers in the short run are less sensitive to monetary actions than rates charged some other major sectors of the economy.

Historical evidence supports these conclusions. Total farm output declined (after adjustment for trend) in nine of the ten NBER business recessions since 1920, and rose in seven of the nine recoveries. During the recessions farm output declined an average of 2 percent per year, whereas industrial production declined 13 percent per year and real

GNP declined 7 percent per year. On the upside of the cycles farm output rose at an average rate of 1 percent, well below the 6 percent rise in industrial production and the 3 percent growth in real GNP.

In contrast to the relative stability of farm output, farm prices changed sharply during the business cycles. The average price of all farm products declined 11 percent per year during the downswings and rose 3.2 percent per year during the upswings. In comparison, wholesale and consumer prices declined 6 and 4 percent per year, respectively, during the downswings and rose 1.5 and .4 percent per year, respectively, during the upswings.

Purchases of lime and fertilizer materials by farmers declined markedly during the business recessions and rose during the business upswings. After adjustment for trend the volume of such fertilizer materials used declined an average of 9 percent per year during the business downswings and increased an average of 4 percent per year during the periods of business expansion.

The fact that farm output responds less and farm prices more than output and prices in the nonfarm sector to short-run changes in aggregate demand probably reflects some basic differences in the production



planning periods, and in the structure of the firms in the two sectors. Agriculture is seasonal by nature. Crop resources must be committed in time for planting, cultivating, and harvesting, and once committed to farm production, they cannot be readily changed without sizable losses. Most livestock resources must be committed for even longer periods than crops. The structure of farming likewise inhibits sharp output changes in the short run. In farming the three inputs -- management, labor, and capital -- are often vested in one person. Major resource adjustments are thus difficult to make in the short run without incurring major losses. Since the owner's labor often constitutes a major portion of the labor input, labor adjustments cannot be made without the firm going out of business. Thus, farmers have chosen to take a long view of costs and returns. They are willing to accept lower wages in the short run than similar quality nonfarm labor rather than liquidate the firm and accept employment elsewhere. In contrast, nonfarm firms adjust to declining demand by laying off workers and reducing output. Such firms in many cases are bound by wage contracts which prevent sufficient wage adjustments for the maintenance of stable employment and major short-run cost adjustments can only be made through layoffs.

Farmers thus pay for instability caused by monetary actions by taking major fluctuations in income and wages rather than by accepting unemployment. For example, on the upside of the business cycles since 1920, farm wages increased 2 percent per year and on the downside declined 10 percent per year after adjustment for trend. In contrast, nonfarm wages rose less than one percent on the upside and declined only four percent on the downside of the cycles. Farm employment remained stable with hours worked on farms changing less than one percent per year on either the upside or downside of the cycles after adjustment for trend. In contrast the number of workers in manufacturing declined 9 percent per year on the downside of the cycles and rose 4 percent per year on the upside.

The impact of changes in the rate of monetary growth on net farm incomes was relatively large. Realized net farm income declined 13 percent per year during the business downswings since 1920 and rose 4 percent per year during the upswings after adjustment for trend. These rates of change were four times as great as the change in hourly wage rates in the nonfarm sector.

Such fluctuations in farm income are a major handicap in farm production planning. They are not only hazardous to

farmers, but also increase the risks of farm credit suppliers. While bankruptcy and failure caused by such risks may be looked upon as a disaster to individual farmers, the consumer must ultimately pay the costs of such risks through higher food prices.

Expansive monetary actions tend to temporarily reduce interest rates paid by farmers, but cause an increase in rates over the longer run. Consequently, any effort on the part of the monetary authorities to reduce interest rates today by increasing the growth of money will result in higher rates a few months ahead. The increased stock of money will have an impact on prices and the expected rate of inflation, which after a few months will result in higher interest rates.

Nominal interest rates will eventually approach the rate of inflation plus the real rate of return on savings. Both supply and demand factors tend to increase interest rates during periods of rising prices. Demand for credit will rise as borrowers observe opportunities for investing funds in assets that they expect to appreciate in value. The amount of loan funds supplied will, in turn, tend to decline as savers find opportunities for more profitable investments directly. The rising demand for, and declining supply of, loan funds during rising price expectations will thus reach an equilibrium position when

the rates rise to levels equal to the expected rate of inflation plus a normal real rate of return. Farm financing costs will reflect these supply and demand forces over the longer run in the same manner as nonfarm financing costs. Farmers must eventually pay a real rate of interest plus an additional increment equal to the expected rate of inflation.

In the short run, however, interest rates charged farmers neither rise nor fall as rapidly as rates charged other borrowers. Interest rates on most farm loans were about the same or higher than rates on business loans in early 1972. But following the uptrend in rates in early 1974, rates on business loans rose faster than rates charged farmers.

This tendency of rates charged farmers to lag other rates may be caused partly by the lower lending margins charged by the Farm Credit Banks during periods of rising interest rates than during periods of declining rates. The smaller commercial banks which are the major farm lenders are also reluctant to change rates, although this reluctance may be weakening, in view of the expanded participation of smaller banks in the Federal funds market.

In summation, farmers do not receive any long-run benefits from expansive monetary actions and inflation. The

industry is well integrated with the rest of the economy and over the longer run, prices of farm resources, farm products, and nonfarm goods and services rise at about the same rate as a result of expansive monetary actions. Farm expenses and farm incomes both rise with the general price level and no real gains accrue to farmers.

In the short run, however, farm product prices adjust faster and farm output adjusts slower than prices and output in the nonfarm sector. Farmers accept relatively lower prices rather than unemployment when monetary actions are restrictive and receive relatively higher prices in the early stage of expansive monetary actions. The apparent gain to farmers during the expansion phase, however, is largely an illusion since the terms of trade between agriculture and the nonfarm sector soon return to their earlier relative positions.

In the long run those who are net debtors will benefit from unanticipated expansive monetary actions and inflation and those who are net creditors will lose, but there is no assurance that the majority of farm people are net debtors during most of their life span. Consequently more farm people may be losers than gainers from unanticipated general price

**increases. Furthermore, changes in the growth rate of money, which cause relatively wide fluctuations in farm income, greatly increase the risks in farming and result in higher food costs to consumers.**