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households qualified on occupation only (O). This is not because they are earning no income from farming, but the income received is wages, excluding them from the farm income category.

Alternatives Can Focus on Target Populations

For efficient development and implementation of various programs, such as those administered by the Farmers Home Administration or the Extension Service, government officials as well as various farm organizations (farmer cooperatives, suppliers, and marketers) need information on number, location, and characteristics of farm people. With more and more farm-related people living off farms, we must consider ways of identifying them other than by the traditional means. Policies and programs will be more effectively administered if the targeted populations are well defined. In addition to the traditional farm resident population, the farm occupation population and the farm income population are alternative ways of identifying farm-related people, or the three can be pooled to obtain a composite concept.

Each of the alternative concepts has some shortcomings. They are, however, easy to identify and very flexible. They may be used individually or in various groupings developed to best suit the desired end result. If the purpose of a program or policy is to reach persons involved in farming, whether they live on a farm, work in farming, or receive some farm income, these proposed alternatives identify the target populations. **RDP**

For Additional Reading...

Vera J. Banks and Karen M. Mills. *Farm Population of the United States: 1983*, Current Population Reports, Series P-27, No. 57. U.S. Department of Commerce, Bureau of the Census, jointly with U.S. Department of Agriculture, Economic Research Service, Nov. 1984.

Susan L. Pollack. *The Hired Farm Working Force of 1983*, AER-554, Econ. Res. Serv., U.S. Department of Agriculture, June 1986.

Daniel E. Taylor and Edward S. Sekscensk. "Workers on Long Schedules, Single and Multiple Jobholders," *Monthly Labor Review*, Vol. 105, No. 5, pp. 47-55, U.S. Department of Labor, Bureau of Labor Statistics, 1982.

John Kitchen and Frank Zahn

Interest Rates, Farm Prices, and the U.S. Farm Sector

What do interest rates have to do with prices for farm products? In a word, everything. It's a roundabout route, but interest rates are a prime factor behind changes in the demand for and supply of farm products. They affect demand, especially foreign demand, through exchange rates and thereby the prices foreigners pay. They affect supply through farmers' costs of production and thereby the price the farmers must get to stay in business.

Until about about a decade ago, the farm economy, and hence, a large segment of the rural economy was insulated from forces that affected the overall or "macro" economy—or so everyone thought. When analysts began to realize that maybe it was not so insulated, the connections seemed to be all to the good. Foreign countries were buying as much grain as American farmers could produce and farm incomes soared higher than they had ever been before—or since.

Now that the euphoria of the 1970's has passed, analysts can see that the current farm situation is a direct result of changes in the macroeconomic policies of the 1970's and 1980's. And, the farm sector is linked not only with the national economy, but with the world economy as well. The growth of international trade since World War II and the related emergence of well-developed international credit markets mean that the U.S. economy is an integral part of the global economy. The U.S. economy, including the farm sector, now competes more directly with other countries in world markets.

This article explains how interest rates have been the primary channel for transmitting changes in national and interna-

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tional macroeconomic policy to the U.S. farm sector.

What Is Macroeconomic Policy?

Macroeconomic policy has two basic components: monetary policy and fiscal policy. Monetary policy affects the growth of money available for spending in the economy. It is mostly controlled by the Board of Governors of the Federal Reserve System. Fiscal policy affects total spending directly, through government spending, or indirectly, through the after-tax income of consumers and businesses. It is mostly controlled by the Congress and the President. The objective of both policies is to encourage the growth in total spending in the economy that will pro-

Editor's note:

Articles in earlier issues of RDP have dealt with the different aspects of the current farm situation—its effects on rural communities, regions most likely to be affected, rural banks caught in the squeeze, and some of the causes leading up to the present state. All those articles looked at events from the perspective of the "micro" economy (what economists say when they mean small groups of people—a farmer, a small town, rural banks).

This article takes a different tack. It looks at the origins of the farm crisis in terms of the "macro" economy, that is, national and world economies. What makes this such a fresh look is that, for decades, policymakers had worked from the assumption that the farm sector was relatively isolated from the macro economy. Now, it seems, that apparent immunity was just happenstance. The U.S. farm sector in the 1980's is very much influenced not only by the general U.S. economy, but by overseas economic events as well.

S.M.M.

vide full employment without creating inflationary pressures.

When growth in spending exceeds growth in output of goods and services in the economy, the inflation rate rises. This can be thought of as "too many dollars chasing too few goods." A restrictive macroeconomic policy can reduce growth in spending and reduce the inflation rate. Moreover, when additional spending is financed by borrowing rather than by money creation, nominal interest rates rise. More money in the economy or less borrowing may be required to reduce nominal interest rates.

Because macroeconomic policies influence nominal interest rates and the inflation rate, they also affect the difference between them, namely "inflation adjusted" or "real" interest rates. With a given inflation rate, a fall in nominal interest rates will lower real interest rates while a rise in nominal interest rates will raise real rates. Moreover, with given nominal interest rates, a fall in the inflation rate will raise real interest rates while a rise in the inflation rate will reduce real rates. Understanding these relationships is important because real interest rates play a key role in relaying macroeconomic policy to the farm sector.

What Links Macroeconomic Policy to the Farm Sector?

Real interest rates transmit changes in macroeconomic policy to the supply and demand sides of the farm sector. Monetary and fiscal policies primarily influence the total or "aggregate" demand for products in the economy by changing total spending. They also influence aggregate supply by changing costs of production. Aggregate supply and demand interact to determine real interest rates and prices that, in turn, influence the supply of farm products directly by changing costs of farm production and the demand for farm products primarily by changing exchange rates. The supply of and demand for farm products determine farm prices and farmers' income.

Changes in real interest rates affect the demand for farm products under a flexible exchange rate system. When U.S. real interest rates change relative to foreign rates, they affect exchange rates and export demand. For example, when U.S. real interest rates increase, U.S. financial assets become relatively more profitable than foreign financial assets. Foreigners then will demand more U.S. dollars to buy more U.S. financial assets. The increased demand for dollars, in turn, raises the

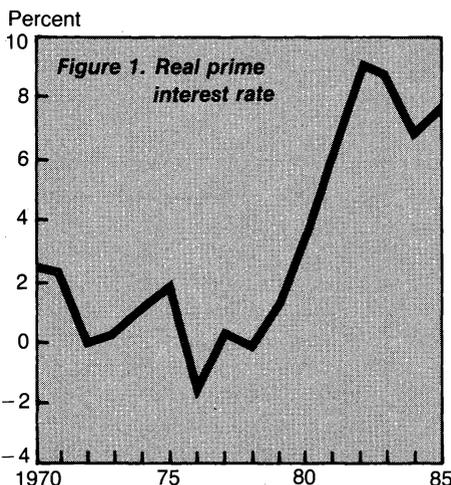
value of the dollar in foreign exchange markets. However, a more expensive dollar reduces foreign demand for U.S. products, including farm products (U.S. exports) and increases domestic demand for foreign products (U.S. imports). Hence, higher real interest rates tend to lead to a higher exchange value of the dollar and U.S. farm products become less competitive in world markets.

Changes in real interest rates affect the supply of farm products by changing costs of production. An increase in real interest rates, for example, raises the costs of credit to finance purchases of new capital, to carry inventories, to finance purchases of inputs such as feeder livestock, seeds, fuel, and fertilizer, and to service variable-interest debt. Just as higher real interest rates increase the value of the dollar and make U.S. farm products less competitive through the demand side of world markets, higher real interest rates also raise costs and make farm products less competitive through the supply side of world markets.

Moreover, farm prices are more flexible than other prices, so they adjust more quickly to economic changes. For example, when an expansionary monetary policy puts upward pressure on prices, farm

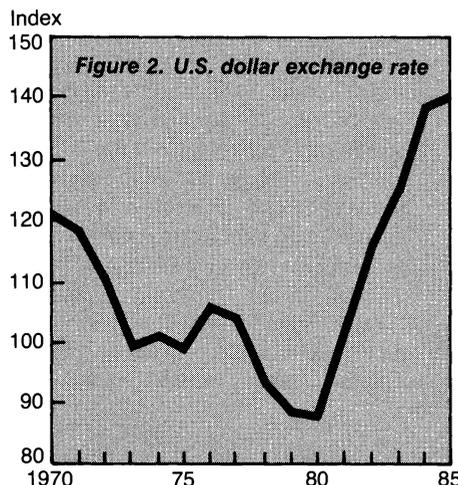
How macroeconomics contributed to the farm boom of the 1970s and the bust of the 1980s

Abetted by low interest rates in early 1970s



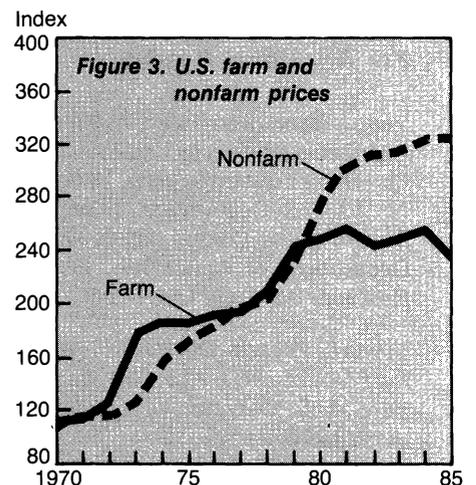
But when interest rate started rising in the late 1970s,

... and generally declining value of the dollar,



... and pulled the value of the dollar up with them,

... overseas demand for U.S. products expanded, pushing prices up



... farm prices leveled off and started to drop, in part because of lower export demand for (now) more expensive U.S. products.

prices at first increase more rapidly than other prices. In this situation, farmers tend to produce more than will clear world markets when prices again stabilize. In contrast, in the absence of price supports contractionary policies would push prices down, leading farmers to produce too little. This "overshooting" of farm prices lends credibility to the argument that macroeconomic policy should be formulated with an eye on the disproportional impact of policy on the farm sector in the short run.

What Happened During the 1970's and 1980's to the Farm Sector?

The markets for farm products were relatively stable during the 1950's and the 1960's. Government regulation of credit markets and macroeconomic policy promoted low and stable real interest rates, which stabilized costs of production on the supply side of markets for farm products. Moreover, international monetary policies maintained fixed exchange rates, which helped stabilize the demand side. Beyond the underlying stability created by a stable macroeconomic environment, Government price supports ensured that farm prices would not fall below an "unreasonable" level in case of

substantial shocks to either the demand or supply sides of markets for farm products.

The stability of the 1950's and early 1960's gave way to boom and bust in the 1970's and the 1980's. Beginning in the mid-1960's the growth in economy-wide spending began to exceed the growth in the capacity of the economy to produce. There was not only rapid growth in private sector spending but government spending as well. The growth in spending was supported by the Federal Reserve's pumping more money into the economy. The late 1960's and 1970's demonstrated that when spending persistently outweighs the ability to produce, inflation results.

Additional factors helped increase prices of farm products. In the early 1970's several short crops overseas reduced world stocks of farm products. Moreover, income growth in Third World economies increased the demand for food. As a result, demand for U.S. farm exports increased dramatically and prices of farm products soared, more quickly than other prices.

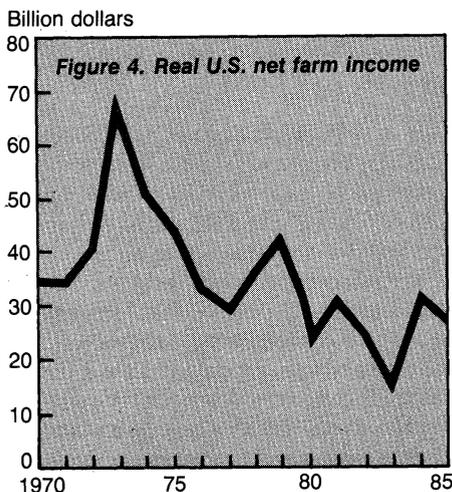
As the inflation rate increased in the 1970's, nominal interest rates did not adjust enough to offset the higher inflation

rate. As a result, real interest rates fell (fig. 1). With low and even negative real interest rates in the United States, the demand for higher yielding foreign assets increased. The shift from U.S. dollars into foreign currencies brought downward pressure on the value of the dollar (fig. 2).

As the value of the dollar fell, the purchasing power of foreign currencies rose and foreigners demanded more U.S. products, including U.S. farm products. Abundant credit, at low real interest rates, promoted growth in exports to developing countries as well. The increase in farm export demand forced farm prices up—faster than prices of other products (fig. 3)—and U.S. farmers responded with substantial increases in farm production. The increased demand for farm products and the general increase in demand for real assets (to serve as hedges against inflation) increased the demand for, and prices of, farmland. Rising farm equity served as additional collateral for credit, which farmers used to finance capital investment to increase production.

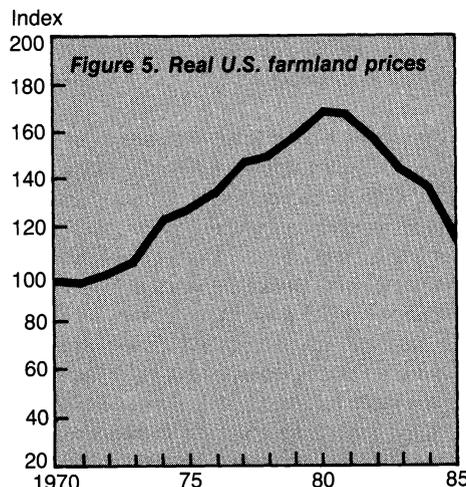
The expansion of demand for farm products in the early 1970's brought prosperity to the farmer, but it soon gave way to contraction and despair for many farmers in the 1980's. Although the trend

... and pushed farmers' income up, too.



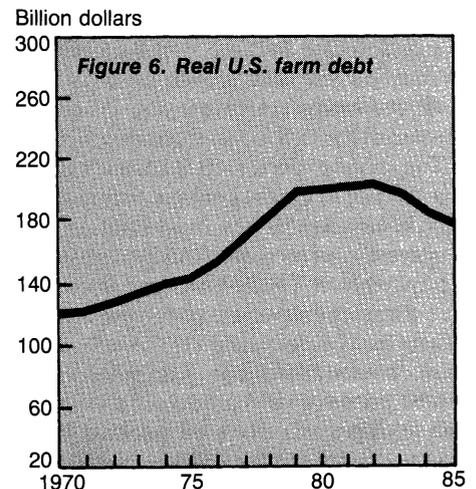
And farmers' income slipped.

Favorable farm prices and rising farm income stimulated demand for farmland, pushing its prices higher as well.



All these events caused farmland prices to slump,

And with farmers buying more farmland, total farm debt also rose.



... leaving many farmers with high levels of debt outstanding at now higher interest rates on farmland no longer worth what it was bought for.



Photo by J. Norman Reid

Profitability of Iowa corn farms hinges on macroeconomic forces, especially interest rates and exchange rates.

of nominal net farm income, including government payments, has been relatively flat since the late 1970's, the dramatic increase in both net farm income (fig. 4), between 1970 and 1973 set off a period of farmland speculation that left many farmers heavily indebted in the 1980's. Rising farmland prices during the 1970's (fig. 5) and rising interest rates during the late 1970's and into the 1980's (fig. 1) meant farmers needed increasing amounts of cash to meet current obligations. The growth in farm debt, particularly debt on farmland (fig. 6), and failure of net cash income to continue growing as it had during the early 1970's made it extremely difficult for some farmers to service their debt and to continue their farm operation.

The Federal Reserve initiated, in late 1979, a major change in policy designed to curb inflation. The Fed brought the growth in spending into line with growth in the economy's output by reducing the growth in the money supply. As a result, the inflation rate fell, the gap between nominal and real GNP growth rates narrowed, real interest rates rose (fig. 1) and the value of the U.S. dollar increased (fig. 2). The more expensive U.S. dollar cut short the rise in export demand that had begun in the early 1970's. In addition, rising interest rates increased the debt service payments of Third World countries. Since these countries are prime growth markets for U.S. farm exports, growth in export demand fell further. With reduced exports, prices of farm products fell and again farm prices were more responsive than other prices to the change in macroeconomic policy, this time on the down side (fig. 3). In a free market, prices and quantities supplied would have declined enough to balance supplies with current demands for farm products. But, government price supports prevented much of

the adjustment in the 1980's, so the surpluses persisted.

Later, in the 1980's, the Federal Reserve eased monetary policy once it became convinced that inflationary pressures had subsided. And in response, both nominal and real interest rates again fell. However, because of continued growth in government, as well as private, borrowing, nominal interest rates in the early 1980's were at historically high levels. More than any other factor, high real interest rates eroded the competitive advantage of U.S. agriculture in world markets. If there had been no large deficits, monetary policy could have been much easier, real interest rates lower, the value of the dollar lower, and U.S. economic growth and foreign economic growth larger—which all could have meant larger farm exports, higher real farm prices, and, in time, less downward pressure on farmland prices. The current efforts of the Congress and the President to reduce the Federal deficit, the fall in oil prices, and accommodative monetary policy will help to keep nominal, and thereby, real interest rates low and stable.

On the supply side of the agricultural markets, U.S. farm output continued to grow in the 1980's as farmers continued to respond to government program incentives rather than to market signals. So large surpluses persisted. Ample farm commodity stocks in conjunction with high interest rates created downward pressure on farm prices. Historically high interest rates for farm loans also resulted in higher operating costs for farmers as the cost of acquiring and servicing credit increased. Lower prices and higher production costs combined to depress net farm income (excluding government payments) in both nominal and real terms. Government payments continue, however, to help maintain nominal net

farm income, although the trend of real net farm income (including government payments) continues to fall (fig. 4).

Prospects for U.S. Agriculture

Expansionary monetary policy has been particularly important in explaining the recent decline in U.S. interest rates relative to foreign interest rates. In response, the value of the dollar has fallen against other currencies and, with a lag, there should be further improvement in our balance of trade as exports rise and imports decline.

While the value of the dollar is important in assessing changes in export demand, it is not the only factor. Foreign income is also important. Income growth in Third World countries stagnated in the 1980's as their debt burdens rose. In response, these countries have had to constrain imports because their foreign exchange earnings have been used to repay debt. This situation will probably not improve much in the near future, so the outlook for increased exports to such countries is not encouraging in the short run.

Another factor constraining U.S. farm exports is increased foreign production of farm products, which has taken a larger share of the world market. Technology and productivity improvements have allowed more nations that used to be importers to become self-sufficient and even exporters in some years. India and China, for example, with their large populations used to be large importers of agricultural products, but have recently become more self-sufficient. Trade restrictions, such as those imposed by the European Common Market, also restrain growth in U.S. exports.

The near term export outlook is not bright and large supplies will tend to keep commodity prices low. However, from the macroeconomic perspective, the general outlook for the farm economy is now the best it has been in several years. Fiscal and monetary policies that promote continued income growth in the general economy and low and stable real interest rates are together the best hope for a *sustained* farm recovery. Not only do low and stable interest rates improve the demand for farm products by encouraging growth in exports, they also improve the supply of farm products by holding down farm costs. These factors will help improve the competitive advantage of U.S. farm products in world markets. **RDP**