



Macroeconomic Policy Linkages to Agriculture

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This is the first in a series of four fact sheets designed to educate Kentucky farmers and agribusinesses on macroeconomic policies and how they are linked to agriculture.

This fact sheet (#I) provides a general discussion of the domestic policy process, identifies the major players, defines various macroeconomic policy tools, and discusses their linkages to the agricultural sector.

Fact Sheet II reviews the effects of macroeconomic policy changes on U.S. agriculture during the 1970s and 1980s and suggests how potential macroeconomic policy changes could affect U.S. agriculture during the early 1990s.

Fact Sheet III analyzes the impacts of macropolicy changes on Kentucky agriculture and rural communities.

Fact Sheet IV discusses the changing international trade policy environment and its potential impact on the U.S. agricultural economy.

The series also includes a glossary of macroeconomic policy terms.

Introduction

The agricultural industry is extremely vulnerable to risk and uncertainty. Farmers and agribusinesses closely monitor changing weather patterns, farm programs, prices, sales, etc. to reduce their exposure to risk and uncertainty. However, many farmers and agribusinesses are less familiar with one of the major risk variables that can significantly affect their business operation's profitability.

Macroeconomic policy changes often dramatically impact the agricultural economy. Although policymakers try to design policies to improve the national economy, these policies often have unintended and harmful effects on the agricultural economy. Therefore, farmers, agribusinesses, and policymakers must understand the policy process and be aware of the impact that changing macroeconomic policies can have on their business. This knowledge will put them in a better position to react strategically to actual or anticipated changes in the macroeconomy.

In addition, knowing how macroeconomic policy changes impact agricultural markets is the first step in making farmers and agribusinesses active players in the policymaking process. With this awareness, they can begin to influence farm leaders and policymakers to design macroeconomic policies that benefit agriculture.

What is Macroeconomics?

Macroeconomics refers to the study of a nation's overall economic performance. The federal government tries to influence the performance of the national economy through various macroeconomic policies such as changing the level of taxation, government spending, or the supply of money available in the economy.

Changing macroeconomic policies affect national income, prices, interest rates, and exchange rates -- all of which influence the agricultural economy. Before examining these linkages in detail, the next section reviews the domestic policy process and identifies the various macroeconomic policy tools available to policymakers.

Domestic Policy Process and Macroeconomic Policy Tools

The specific goal of macroeconomic policy is to help the nation pursue general goals of full employment, low or zero inflation, and growth in national income and economic output. Macroeconomic policy has three dimensions:

- * ***monetary policy***
- * ***fiscal policy and***
- * ***trade policy.***

Since all of these policies are closely related and interdependent, macroeconomic policy is often described as a “policy mix” of monetary, fiscal, and trade policies. Determining the appropriate policy mix is the responsibility of the main actors in macroeconomic policy: the Federal Reserve Bank, the Congress, and the President.

Monetary Policy

The Federal Reserve Bank, often called “The Fed,” was established in 1913 as the independent central bank for the U.S. It is actually a system of 12 regional banks regulated by the Federal Reserve Board of Governors. Through its chairman and a subcommittee called the Open Market Committee, the Federal Reserve Bank pursues national monetary policy in order to influence:

- * ***interest rates,***
- * ***the supply of money in the economy,***
- * ***the value of the dollar in international financial markets, and***
- * ***the overall health of the banking system and the economy.***

The Open Market Committee determines whether the Federal Reserve Bank will buy or sell government securities in the market to influence the money supply. Suppose that the Open Market Committee decides to buy government securities (e.g., treasury bills). Like any other investor, it

enters a bid for that particular government security in the securities exchange market. If the bid is acceptable, an individual or a corporation exchanges the government security for cash from the Federal Reserve. Upon receipt of payment, the individual or corporation places this money in a commercial bank. This money can then be used for loans. Thus, by buying government securities, the Fed has increased the supply of money available in the economy.

When the Fed decides to sell government securities, the opposite occurs (i.e., the money supply is reduced).

The Fed can also change the banking reserve requirements [the amount of reserves (cash) that the Fed requires a commercial bank to hold] or change the discount rate (the interest rates charged to member banks) to influence the money supply.

An ***expansionary monetary policy*** means the Fed is buying government securities, lowering the discount rate, or reducing the reserve requirement. This stance:

- * *increases the money supply,*
- * *lowers interest rates, and*
- * *increases the level of credit available to businesses and individuals.*

A ***restrictive monetary policy*** means the Fed is selling government securities, raising the discount rate, or increasing the reserve requirement. This stance:

- * *reduces the money supply,*
- * *increases interest rates, and*
- * *decreases the level of credit available in the economy.*

The Federal Reserve is constantly trying to balance the supply and demand for money to safeguard the economy from the dangers of inflation. In the early 1980s the Federal Reserve pursued a very restrictive monetary policy, forcing up interest rates and reducing the money supply in order to reduce inflation from its double-digit levels during the Carter administration. The result -- higher unemployment, a stronger dollar, reduced exports, and a major recession -- affected agriculture perhaps more than any other sector of the economy.

Now, in the early 1990s, the Federal Reserve is pursuing a carefully monitored expansionary monetary policy to try to offset recessionary pressure on the economy following an eight-year period of growth.

Fiscal Policy

The main actor in fiscal policy is the Congress. Its taxing and spending decisions are products of the legislative process. Congressional fiscal policy began when President Roosevelt persuaded the Congress to fund ambitious public works programs designed to subsidize jobs and get Americans back to work.

Because this program worked, the Congress has been heavily involved in an active fiscal policy ever since, trying to directly influence full employment and national income. Congressional decisions on the level of taxation and appropriations for government programs do influence national economic activity, although the effects of fiscal policy are slower and less direct than those of monetary policy.

Expansionary fiscal policy is a combination of increased federal spending and decreased taxes, resulting in an increased budget deficit because government expenditures exceed government revenues.

Restrictive fiscal policy is a combination of decreased federal spending and increased taxes, resulting in a decrease in the budget deficit because government revenues exceed government expenditures.

After President Reagan's election in 1980, the Congress pursued a vigorous expansionary fiscal policy. A major tax cut, the Economic Recovery Tax Act of 1981, reduced corporate and personal taxes by \$276 billion over four years. In addition, the level of federal spending increased dramatically in the early 1980s.

While the federal budget had been in deficit from 1965 to 1981, the new rate of spending, coupled with the 1981 tax reduction, caused the budget deficit to soar from \$30 billion a year to more than \$200 billion annually. This doubled the national debt in less than five years and caused the U.S. to become a net debtor nation for the first time since World War I. However, the economy reacted to this expansionary fiscal policy with more than eight years of continued economic growth.

The President, as leader of the Executive Branch, is also a leading actor in macroeconomic policy. The President's Council of Economic Advisors monitors the overall health of the economy and develops plans to achieve full employment, low inflation, and growth in the economy.

The President's power to influence monetary and fiscal policy depends on how much influence the President has in Congress and with the nation. The President can make modest efforts in influencing policy by lowering or raising the rate of government spending, pressuring the Congress for different levels of spending and taxation, or calling on the Federal Reserve Bank to raise or lower interest rates. However, the President cannot establish new federal projects to create new jobs or directly change interest rates or exchange rates.

Trade Policy

Both the Congress and the President can directly influence trade policy as one aspect of macroeconomic policy. The President negotiates and

the Congress ratifies trade agreements and treaties with other countries and organizations like the European Community (EC). The Congress sets tariffs on imported goods and services, determines if quotas will be applied to certain imports, and decides what incentives or subsidies might be paid to exporters of U.S. goods and services.

Trade policy is always controversial in its impact on the overall economy. Advocates of free trade believe all nations benefit from eliminating import tariffs, quotas, and export subsidies. The U.S. has been moving toward a freer trade policy ever since the end of World War II. New trade agreements for agricultural commodities and other manufactured goods have reduced tariffs and quotas in the last four decades. As a consequence, the most competitive and productive sectors of the economy benefit the most from a freer trade policy.

Agriculture, high technology, and financial services have all benefited from freer trade for the U.S. However, the adjustments to free trade policy often mean the elimination of some jobs and the decline of some sectors of the economy and some regions of the country. For example, the U.S. steel and auto industries have been dramatically downsized through freer trade over the last two decades.

Macroeconomic Policy Linkages to Agriculture

Directly, agriculture comprises a small part of the U.S. economy. Farm businesses accounted for just slightly more than 2% of the U.S. gross national product (GNP) during the 1980s. Policymakers usually change macroeconomic policies with little consideration of the impact on the agricultural economy. However, both domestic and foreign macroeconomic policy changes can significantly affect the financial performance of a highly capital-intensive and trade-dependent sector like agriculture. Figure 1 provides a general outline of macroeconomic policy linkages to agriculture.

Changes in monetary, fiscal, and trade policies affect the performance of the agricultural economy through their respective influences on input and output prices, land prices, and exchange rates. The following sections concentrate on specific monetary and fiscal policy linkages to agriculture. Trade policy linkages are discussed in detail in Fact Sheet IV.

How Monetary Policy Impacts Agriculture

The agricultural economy is very sensitive to changes in interest rates and inflation -- and thus monetary policy changes (Figure 2). An expansionary monetary policy by the Federal

Reserve increases the supply of money available in the economy which drives down both nominal and real interest rates (nominal interest rates minus inflation).

Operating Expenses

Lower interest rates reduce a farmer's cost of borrowing money for short-term operating expenses (e.g., fertilizer, seed, livestock expenses) and long-term capital investments (e.g., machinery, land). Lower interest rates also benefit agribusinesses. They result in lower credit costs to customers due to lower operating costs of capital and higher demand for goods and services.

Land Values

Changing interest rates also influence the price of farmland and agricultural wealth. A simple expression to estimate the current value of an asset such as land is:

$$V = R/i$$

where **V** is the current value of a unit of land, **R** is the expected return per unit of land in each future time period and **i** represents the discount (or interest) rate. This expression estimates the current or "present" value of land (V) by "discounting" expected future returns per unit of land (R) into current dollars. The discount rate reflects the "opportunity cost" of money, or what an individual could earn by investing this money in other assets, such as stocks or bonds, instead of land. The current interest rate on bonds is often used as the discount rate.

For example, assume that a farmer expects an acre of farmland to generate \$100 annually and the current rate of interest on bonds is 10%. According to the above equation, the value of this acre would be $(100/.10)$ or \$1,000. If the interest rate falls to 5%, then the value would increase to \$2,000/acre. If the interest rate increased to 15%, the value of land would fall to \$666.67/acre. Therefore, land prices vary inversely with interest rates.

Exchange Rates

Monetary policy, through its impact on exchange rates, plays a major role in determining the competitiveness of U.S. agricultural goods in international markets. Exchange rates represent the price of one currency in terms of another. The exchange rate (or the value) of the U.S. dollar in a particular market is determined by the supply and demand for U.S. dollars in that market.

A major factor affecting the demand for U.S. dollars is the financial return (i.e., the interest rate) an investor expects from investing in U.S.-dollar-denominated assets (e.g., U.S. government securities). If interest rates are low in the U.S.

relative to foreign interest rates, investors will invest in alternative assets (e.g., foreign government securities), thus decreasing the demand and value of the U.S. dollar.

In fact, it is the real return (or real interest rate) that influences investors' decisions. Expansionary monetary policy lowers real interest rates, putting downward pressure on the value of the dollar relative to foreign currencies. A decline in the value of the U.S. dollar effectively makes U.S. agricultural commodities less expensive in foreign markets. If U.S. commodities are less expensive in that market, the demand for U.S. exports increases.

For example, assume that it costs 600 German marks to purchase a metric ton of U.S. wheat valued at \$200. Thus, the exchange rate is 3 German marks for each 1 U.S. dollar (3:1). Now assume that the dollar depreciates (i.e., declines in value) in the German market, falling from an exchange rate of 3:1 to 2:1. Now it only takes 2 German marks to purchase 1 U.S. dollar, or 400 German marks to purchase a metric ton of U.S. wheat. With a lower price, holding all other factors constant, the Germans will import more U.S. wheat.

A lower-valued dollar will accordingly make foreign agricultural imports more expensive and will discourage importing goods into the U.S. Therefore, U.S. competitiveness is strengthened in both domestic and foreign markets when the value of the dollar declines.

Volatile exchange rates affect the U.S. agricultural economy significantly since many U.S. agricultural commodities depend strongly on the export market. Fact Sheet II illustrates the dramatic effects of large swings in the value of the U.S. dollar on U.S. agricultural and nonagricultural exports during the 1970s and 1980s.

Prices

Monetary policy also affects the general level of prices in the economy (i.e., the inflation rate). In the short run, an expansionary monetary policy generally causes farm commodity prices to increase more rapidly than input and nonfarm prices. Consequently, expected net returns from agriculture increase (R), while interest rates decline (i). This combination increases the value of farmland (V). ($V = R/i$). Therefore, farmers may consider inflation to be beneficial in the short run due to higher farm commodity and land prices. However, in the long run, prices of other goods, including farm inputs, become more flexible and may increase more than farm prices.

Attempts to reduce inflation through restrictive monetary policies will harm the agricultural sector because higher interest rates will result in higher costs of production, lower demand for agricultural

inputs, a stronger-valued U.S. dollar, a reduction in export demand, and lower land prices. Therefore, a prolonged restrictive monetary policy stance by the Federal Reserve usually causes farm income to fall and increases cash flow instability.

How Fiscal Policy Impacts Agriculture

Fiscal policy changes reflect the balance between government spending and government revenues. Expansionary fiscal policy (e.g., an increase in government expenditures or a decrease in government revenues through lower taxes) increases the demand for money in the economy. Thus, like restrictive monetary policy, expansionary fiscal policy leads to higher interest rates, and adversely impacts production costs, investment demand, exports, and farmland values (Figure 3).

Expansionary fiscal policy does promote economic growth, which effectively increases consumers' purchasing power for agricultural and other goods. However, expansionary fiscal policy can be inflationary, which tends to offset some or all of the benefits of economic growth. Therefore, an expansionary fiscal policy that causes inflation is usually viewed as harmful to the agricultural economy.

The agricultural industry has benefited over the years from many tax policy changes implemented by the federal government (e.g., accelerated depreciation methods, capital gains, investment tax credits). Through these tax breaks, the agricultural sector has benefited from lowered tax payments and increased demand for agricultural land, machinery, and equipment.

The current movement to reduce the government budget deficit (i.e., restrictive fiscal policy) will likely benefit the agricultural sector. This policy direction will cause real interest rates to go down, increasing the demand for agricultural short and long-term investments, improving the U.S. agricultural trade balance (due to a lower-valued dollar), and increasing the value of farmland and agricultural wealth. However, reductions in government spending may impact funding for farm programs. Furthermore, any increases in inflation during this period might force the Fed to decrease the money supply to halt further inflationary pressure on the economy (See Fact Sheet II for more details on macropolicy outlook).

Monetary and Fiscal Policy Mixes

In evaluating the impact of macroeconomic policy changes, one has to evaluate the mix of monetary and fiscal policies.¹ A combination of both restrictive

fiscal and monetary policies will restrict the growth of an economy and may lead to a recession or depression with harmful impacts on all sectors.

An overly expansionary fiscal policy combined with an excessively expansionary monetary policy will lead to rapid inflation and, thus, is another policy mix which is generally not followed. The other two combinations, expansionary fiscal policy coupled with restrictive monetary policy or restrictive fiscal policy coupled with expansionary monetary policy, are policy mixes which have been implemented during recent administrations.

One policy mix that was adopted during the Carter administration (1976-1980) was restrictive fiscal policy and expansionary monetary policy. This policy mix causes real interest rates to fall as nominal interest rates decline while inflation increases. The decline in real interest rates reduces foreign demand for U.S. securities, causing a decline in the value of the dollar, resulting in an improvement of the U.S. agricultural trade surplus and a reduction of the overall U.S. trade deficit.

In addition, restrictive fiscal policy tends to lower the federal budget deficit. However, the reduced economic activity generated by a very restrictive fiscal policy could force the economy into a recession.

Expansionary fiscal policy and restrictive monetary policy [the macropolicy mix adopted during the Reagan administration (1980-1988), see Fact Sheet II] are usually implemented to fight inflation and induce economic growth. However, this policy mix increases real interest rates, strengthens the value of the dollar, and tends to reduce commodity prices and land values, thus offsetting the potential benefits to agriculture from a stronger economy.

Conclusions

Macroeconomic policy changes have affected the U.S. agricultural economy greatly in recent years through their impacts on interest rates and inflation. Changing interest rates influence variable production costs, long-term capital investments, cash flow, land values, and exchange rates, while inflation affects input prices, commodity prices, real interest rates and land prices.

Given the growing integration of the world economy, future domestic and foreign policy changes may play an even greater role in determining the financial performance of the agricultural industry. Therefore, it is becoming increasingly important that farmers and agribusinesses understand the linkages between the macroeconomy and agriculture in making sound business decisions.

¹The impact of trade policy in the macroeconomic policy mix is discussed in Fact Sheet IV.

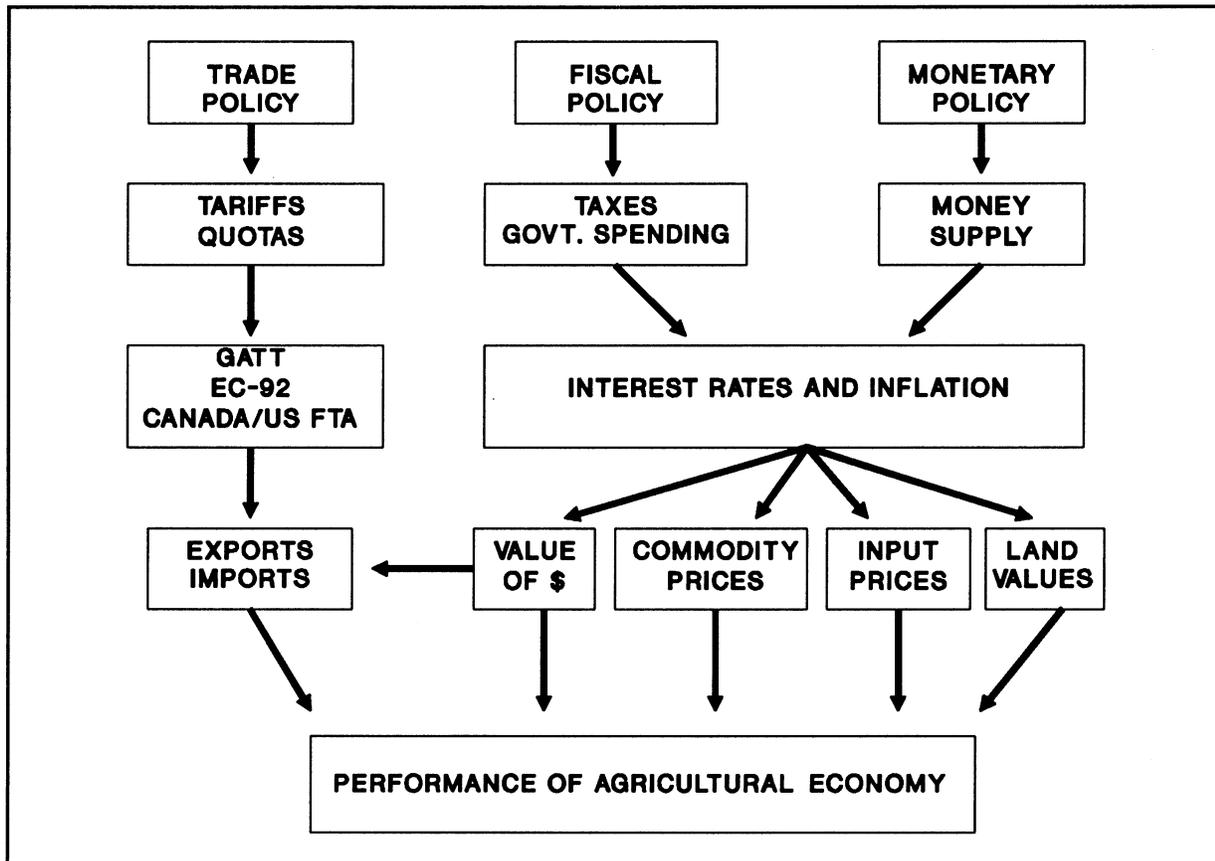


Figure 1: Macroeconomic Policy Linkages to Agriculture

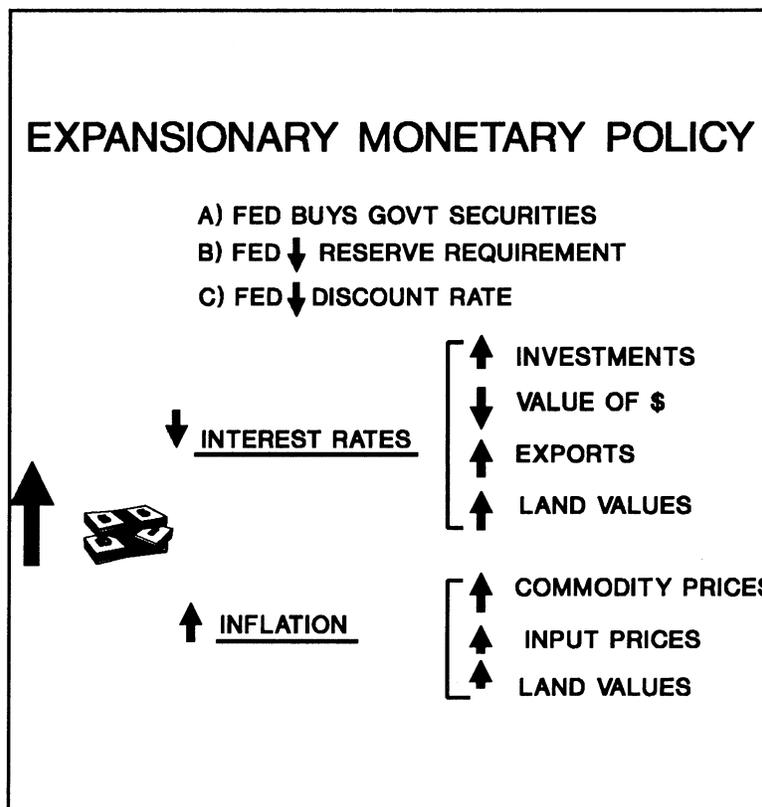


Figure 2: Expansionary Monetary Policy

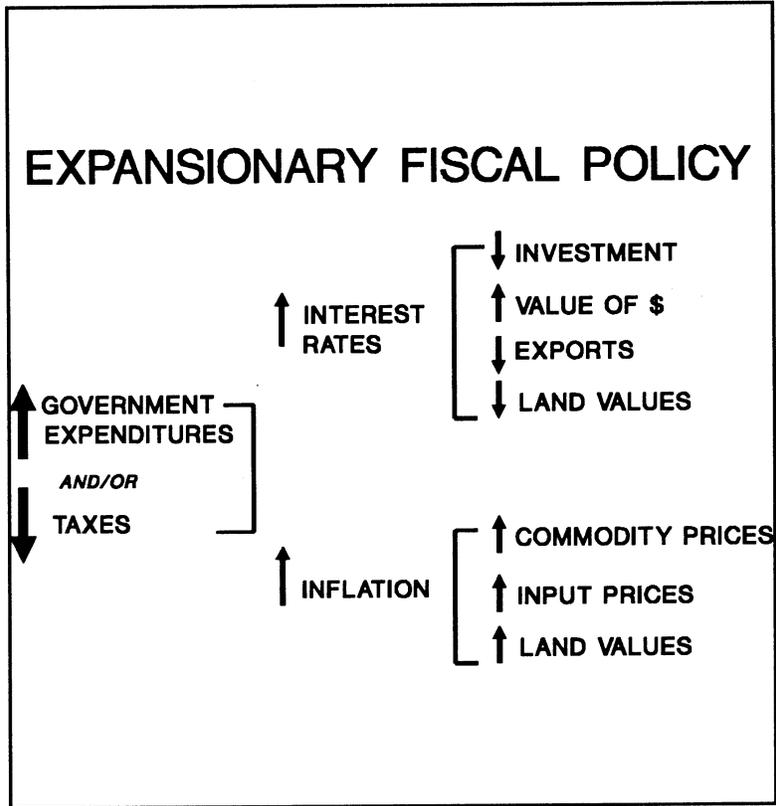


Figure 3: Expansionary Fiscal Policy

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