Weaker Dollar Strengthens U.S. Agriculture

The depreciation of the dollar has helped lift U.S. agricultural exports to record-high levels, despite the gains falling short of their full potential.

*by **Mathew Shane** and **William Liefert***

Between February 2002 and May 2006, the U.S. dollar depreciated almost 18% against foreign currencies. While this depreciation has helped boost U.S. exports to an all-time high, the positive effect has not reached its full potential. Even though the dollar has depreciated against the currencies of some U.S. trading partners, it has been roughly fixed against the currencies of other key trade partners, thereby mitigating gains in export sales. Trade policies and imperfect market conditions in developing countries have further cut into the gains realized from the depreciation of the dollar.

The dollar has depreciated about 30% since 2002 against major developed-country currencies, such as the Canadian dollar, the euro and the Korean won. But against other Asian currencies, it has been a different story.

Since 2002, the dollar has depreciated 1.9% against the Malaysian ringgit and 4.7% against the Singapore dollar; it appreciated 5.2% against the Japanese yen. In real terms, the Chinese yuan has appreciated less than 1% against the dollar over the same period.

These modest changes partly reflect policies of major Asian countries that keep their currencies undervalued relative to the dollar and thus do not permit a correction to trade imbalances.

Stimulating export demand

Since 1970, several substantial periods of persistent appreciation or depreciation of the dollar have mirrored corresponding fluctuations in U.S. agricultural exports. When the dollar appreciates against foreign currencies, U.S. exports cost more in foreign local currencies and thus demand for them declines (see "Exchange rates defined").

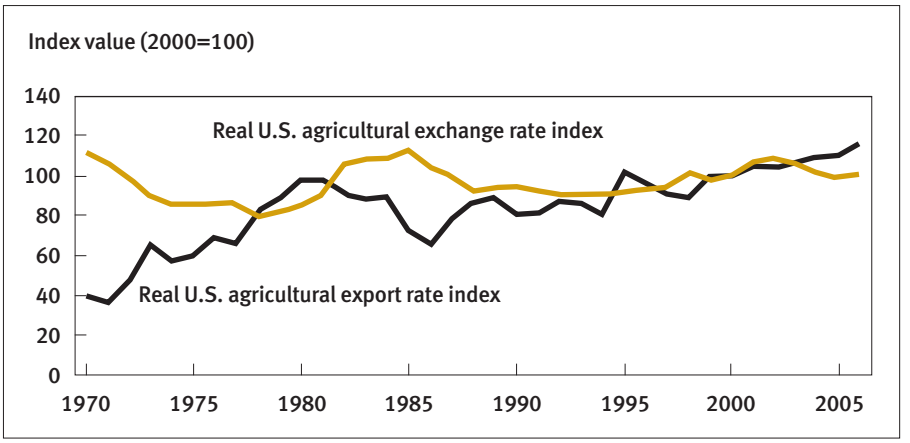
Conversely, a depreciation of the dollar increases U.S. agricultural competitiveness by lowering prices of U.S. products in foreign markets. For example, the period 1970 to 1980, a time of high growth in U.S. agricultural exports, was accompanied by a long period of depreciation of the U.S. dollar.

Effect can be blunted

The decline in the U.S. exchange rate since 2000 has helped boost U.S. agricultural exports to an all-time high of close to $70 billion per year. However, almost all of the depreciation is accounted for by appreciation of currencies in developed countries such as the European Union (EU),

►**Above:** The depreciating U.S. dollar combined with strong economic growth in developing countries has increased the competitive advantage of U.S. agriculture and stimulated export demand for U.S. agricultural products.

Fig. 1: Exchange rates and U.S. agricultural exports fluctuate together



Source: USDA. Economic Research Service. Exchange Rate Data Set and ERS estimates.

Australia, Canada and South Korea. Most developing countries have followed policies of depreciating their currencies in real terms against the dollar.

Developing countries' commodities and goods have thus become particularly competitive in the U.S. market, while U.S. agricultural exports have become more difficult to market in those countries. As a result, these countries (mostly in Asia) have generated substantial trade surpluses mirrored by trade deficits for the U.S. An underlying reason for the large U.S. trade deficits is the systematic undervaluation of developing-country currencies and the funneling of those trade surpluses into dollar-denominated financial and real assets. China has pursued such a policy most persistently.

In 1978, when China began liberalizing its economy, it followed the model of Japan and Korea and pursued an export-led development strategy. Between 1980 and 1995, China devalued the yuan against the dollar in both nominal and real terms. The yuan fell from 1.5 to the dollar in 1980 to 8.35 to the dollar in 1995, resulting in a real depreciation of two-thirds.

Between 1995 and 2005, China maintained a fixed yuan-to-dollar exchange rate of approximately 8.3-to-1. Only after accumulating nearly $1 trillion in dollar reserves and with great political pressure from the U.S. and the EU did China agree to let its currency appreciate. However, while the nominal value of the yuan has appreciated to around 7.9 to the dollar, the downward move has yet to have any noticeable effect on Chinese export levels.

It is anticipated China will allow some real appreciation of its currency during the coming years, although at a slow and measured pace.

An appreciation of the Chinese yuan is even more critical to boosting U.S. exports to Asia because most of the other Asian developing countries, including Taiwan, Thailand, Malaysia, Indonesia and the Philippines, will allow an appreciation of their currencies only if the yuan appreciates. This policy was most likely shaped by the effects of the Asian financial crisis of 1997-1998.

Developing-country markets

Imperfect markets in developing market countries can also mitigate increases in U.S. agricultural exports resulting from the depreciation of the dollar. Exchange rates affect trade to the extent that they can influence countries' domestic prices for products, at both the producer and consumer level, and thereby change the volume of goods produced, consumed and traded. For example, if the U.S. dollar depreciates against other currencies, consumers in other countries will be able to pay lower prices for U.S. imports and will then buy more U.S. goods.

To remain competitive with the imports, producers within these countries will have to lower their prices, which, in turn, will lead them to produce less.

The degree to which changes in exchange rates affect prices within countries is called pass-through or transmission. If an exchange rate change has a strong effect on domestic prices for products, the transmission is said to be high; if the price effect is weak, the transmission is low.

Trade policies and imperfect markets can also reduce the effects of depreciation, further diminishing gains.

Weak (or low) transmission can be a problem because it blunts the relationship between exchange rates and countries' domestic prices. In the case of a depreciation of the dollar, low transmission would weaken the price signals for foreign consumers to increase their demand for U.S. imports, and U.S. exports would decrease. Weak transmission, therefore, works to cut countries off from foreign economic interaction and world markets. As a result, those countries do not maximize their potential gains from trade.

A number of factors can cause weak exchange rate transmission for agricultural products. Governments often adopt policies that reduce transmission. During the postwar

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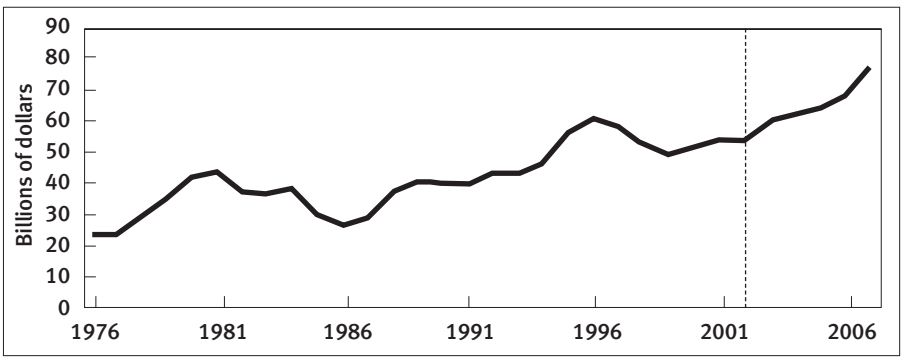
period, many countries, including the U.S. and the EU, have pursued managed-price policies for many agricultural products. The common feature of these policies is that governments set domestic prices for products, so changes in trade prices or exchange rates have little or no effect on those prices.

Import quotas can also hurt transmission. If a product is subject to an import quota, a drop in the trade price or exchange rate will not increase the quantity of the good imported, which means the price or exchange rate change will not affect domestic prices. During the last 15 years, however, under pressure from the Uruguay Round Agreement on Agriculture of 1994, the U.S., the EU, and other countries have significantly reduced policies that either prevent or weaken price and exchange rate transmission.

Low exchange rate transmission also results from the weak market infrastructure that often characterizes the broader food and fiber systems in developing and transition economies. Physical infrastructure, such as transportation and storage, may be inadequate in developing countries, and these countries also tend to lack market information, rural credit and commercial law adequate to enforce contracts and protect property. Underdeveloped infrastructure isolates regional markets within countries from each other and cuts them off from the world market, thus weakening the transmission of exchange rate signals to domestic prices.

Fig. 2: Nominal U.S. agricultural exports responded to the depreciation as expected



Source: Foreign Agricultural Trade of the United States and USDA projections.

Empirical research indicates price and exchange rate transmission for agricultural products is low in many developing and transition economies, whether they are in Asia, Africa, Latin America, or countries of the former Soviet bloc.

One study that analyzed 56 developing countries during a 30-year period found that about one-third (18) experienced almost no transmission of changes in agricultural trade prices to domestic prices, even after allowing for an adjustment time of five to seven years. This group includes such important foreign markets as India, Bangladesh, Tunisia, Zaire and Colombia.

In the other countries, after five years, no more than half of the change in trade prices was transmitted to domestic prices. This group includes Pakistan, Indonesia, Egypt and Venezuela. According to Economic Research Service (ERS) analysis of Russia's transition from a planned to a market economy during the 1990s, trade price and exchange rate transmission for most agricultural products in that country was between 25% and 50%. (A 100%

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Exchange rates defined

A **nominal exchange** rate is the amount of one currency that can be traded for another. Thus, the euro-to-dollar exchange rate is the amount of euros required to purchase one dollar. For currencies with flexible exchange rates, this amount can fluctuate daily or even on an hourly basis. This exchange rate is called nominal because no attempt is made to adjust for inflation in the two economies.

A **real exchange** rate is a nominal exchange rate adjusted to reflect changes in relative inflation in the two economies. Thus, each nominal currency is divided by some common price index, usually the consumer price index (CPI). The base year is arbitrarily chosen, and the real and nominal exchange rates are set equal for this year. For the exchange rates referred to in this article, the base year is 2000. For economic analysis, real exchange rates are preferred and, therefore, used more often than nominal rates.

Trade-weighted or **effective exchange rate** indices are average exchange rate indices across a group of countries. Trade weights are derived by taking trade for a particular commodity or commodity group and converting it to shares by dividing individual trade weights for a particular country by the total across countries, so the weights add up to one.

The trade weights most often used are total merchandise exports and total agricultural exports. Other weights can also be used, such as country exports to the world or imports. The exchange rate index is derived by multiplying each country exchange rate index by its relevant trade weight and summing them.

An **appreciation** of a currency occurs when the ratio of a given currency declines relative to the reference currency. In this article, the U.S. dollar is the reference currency. Accordingly, the euro is said to appreciate against the dollar if fewer euros are required to purchase one dollar, that is, if the euro exchange rate goes from 1-to-1 to 0.8-to-1. A depreciation of the currency occurs when the ratio of a given currency increases relative to the reference currency, that is, the opposite of an appreciation.

A **real appreciation (depreciation)** of a currency occurs when the inflation-adjusted ratio of a currency declines (increases) relative to a reference currency. A **revaluation** (devaluation) is a situation in which the appreciation (depreciation) occurs because of specific action taken by a country. A real appreciation (depreciation) can occur even if nominal exchange rates do not change. This would be caused by differential rates of inflation between a foreign country and the United States. For example, if inflation is greater in a foreign country than in the United States, this would lead to a real appreciation of the foreign currency even when the nominal rates are fixed.

In instances where high rates of inflation are occurring in a foreign country, and where the nominal exchange rate is not being depreciated at the difference in the rates of inflation, the nominal exchange rates and real exchange rates move in opposite directions. Such a situation occurred in Russia and Ukraine between 1990 and 1992.

transmission is perfect, meaning that all of the change in the trade price or exchange rate is transmitted to domestic prices.)

Although policies within the developing and transition economies certainly account for some of the weak transmission, poor market infrastructure is also a major factor. While there is evidence of some improvement in market infrastructure, suggesting that price transmission might be improving, the process of full market integration is one that takes a long time to accomplish.

Other factors maintain demand

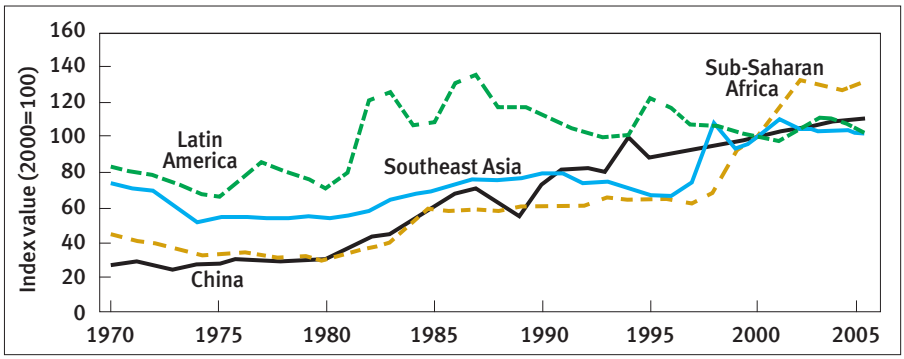
The depreciation of the U.S. dollar since 2002 has helped improve U.S. agricultural export performance, and this effect will likely continue for some years to come. The rise in U.S. exports, however, has fallen short of its potential due to fixed exchange rate policies pursued by China and other key trading partners and weak transmission of changes in exchange rates to domestic prices in developing-country markets. China, in particular, has only recently allowed its currency to appreciate. Imperfect markets, on the other hand, would need many years to correct, even if a determined effort were made to overcome them.

As a result, the conditions that are reducing the benefits to U.S. agriculture from a depreciating currency might be slow to change. Yet, other longer-term factors can help boost U.S. agricultural exports. High-income growth in developing countries is the most important. However, pursuing and maintaining high rates of productivity growth

in U.S. agriculture is equally important. These two factors combine to create a strong potential for the future growth in U.S. agricultural exports, regardless of how the exchange rate fluctuates in the short to medium term.

Editor's Note: *Reprinted with permission, this article is adapted from the article "Weaker Dollar Strengthens U.S. Agriculture" first appearing in* Amber Waves, *published online and in print by the ERS.*

Fig. 3: Developing countries have a long-term pattern of currency depreciation



Source: USDA. Economic Research Service. Exchange Rate Data Set.