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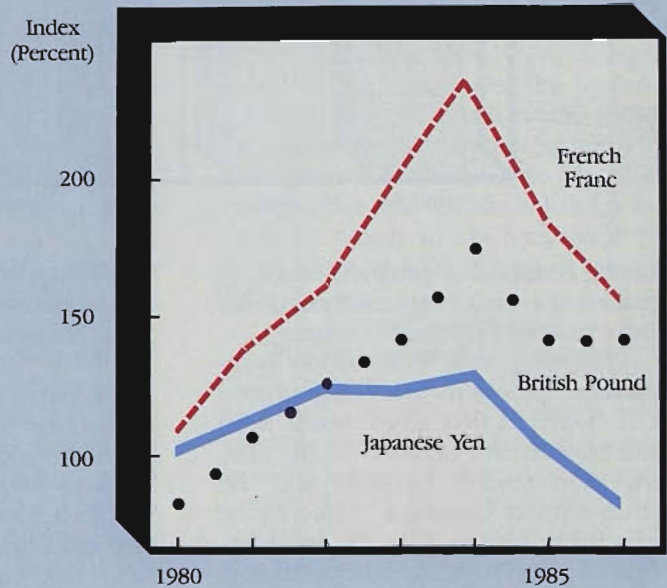
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## Indices of Exchange Rates Foreign Currency/U.S. Dollar



### The Dollar Appreciated, Then Depreciated

The value/price of currencies change; they appreciate and depreciate.

For example, from 1980 through 1984, the U.S. dollar appreciated in value relative to the Japanese Yen, the British Pound, and the French Franc. The number of French Francs and British Pounds one could buy with a U.S. dollar more than doubled from 1980 to 1984. During the same period the U.S. dollar appreciated by 24 percent against the Japanese Yen. However, the U.S. dollar then subsequently declined in value against all three currencies beginning in early 1985. In a two year period the U.S. depreciated by more than 30 percent against the Franc and Yen and by more than 20 percent against the Pound.

Another important bilateral currency measure is the "real" exchange rate. The "real" exchange rate corrects the nominal exchange rate for contrasting inflation rates in different countries. Some argue that the "real" exchange rate is the relevant exchange rate in explaining changes in trade patterns.

# Exchange Rates and Agricultural Trade

by Colin Carter and Daniel Pick

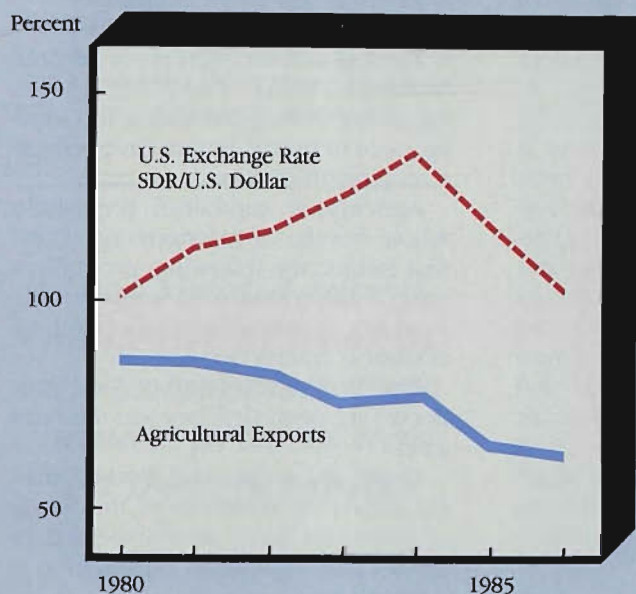
"The American agricultural sector is 35 percent worse off now than in early 1985. This is because more than 30 percent of its competition comes from countries with weak currencies such as Canada, Australia, Mexico, and Brazil." *The Wall Street Journal*, January 30, 1987.

This quote from *The Wall Street Journal*, and others like it, show how exchange rate fluctuations have come to be considered a primary cause of the slump in U.S. agriculture during the early 1980's. Exchange rates affect how much we pay in U.S. dollars for foreign goods, such as Japanese cameras, German cars, or Brazilian coffee. Rates also affect how much foreign consumers pay in their own currencies for U.S. products, such as computers, machinery, or agricultural commodities.

The exchange rate is normally defined as the price of a foreign currency in terms of domestic currency units (or vice versa). For example, in January 1986 \$1 purchased 200 Japanese Yen. The \$/Yen nominal rate was therefore 1/200 (0.005), which means that it cost \$0.005 to buy 1 Yen. Therefore, a Japanese car price tag of 500,000 Yen cost the U.S. consumer \$10,000. Alternatively, U.S. wheat with a price tag of \$150 per ton cost the Japanese Food Agency 30,000 Yen.

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## Indices U.S. Exchange Rate and U.S. Agricultural Exports



### The Dollar Appreciated; Exports Declined

U.S. farm exports are affected by changes in exchange rates in two major ways. First, prices of U.S. exports in terms of the importers' currencies adjust with changes in exchange rates. If the U.S. dollar appreciates, as it did relative to many currencies from 1980 to 1984, importers of U.S. commodities will have to pay more in their currency for the same U.S. dollar priced commodity. This is true whether or not the price change is passed on to consumers in foreign countries.

Second, exchange rates affect the competitiveness of U.S. farm products in foreign markets. Even though U.S. farm prices declined in the early 1980s, returns to farmers in many competing countries in the 1980-84 period did not decline (or even increased) in terms of their own currencies. In turn, the crop area harvested in competing countries increased, creating increased competition for U.S. farm products in the world markets.

The area harvested of wheat in the U.S. declined by 3.8 million hectares between 1980 and 1983. At the same

time the area harvested in other competing exporters (Argentina, Australia, Canada, and the EEC) increased by 6.4 million hectares. The United States' share of wheat exports fell from 45 percent in 1980-81 to 38 percent in 1983-84.

Prices of U.S. imported wheat in the United Kingdom (in Pound Sterling) increased consistently in the 1980-84 period, while in fact U.S. export prices in U.S. dollars were declining during the same period. At the same time many other agricultural commodities became more expensive to foreign buyers in terms of their own currencies even though the commodity priced in U.S. dollars declined.

As the U.S. dollar appreciated in the 1981-84 period, U.S. agricultural exports declined. Then, even though the dollar value began to fall in early 1985, U.S. agricultural exports continued to deteriorate.

This delay in response may be due to factors such as lags in exchange rate effects (the so called "J" curve) and declining U.S. competitiveness. In addition, even though the U.S. dollar has declined almost continually for the last two years against importing regions' currencies, it has not fallen against competing countries' currencies such as the Australian Dollar, the Argentinian Peso, and the Canadian Dollar. The failure of the U.S. dollar to weaken against these currencies has hindered U.S. competitiveness in the international wheat market.

#### Purchasing Power Parity

There are a number of different theories explaining exchange rates. One of the simplest is the Purchasing Power Parity (PPP) theorem. The PPP asserts that the exchange rate is in equilibrium when it equates the relative purchasing power of money for similar goods in two different countries.

This theorem implies that after converting with the current exchange rate, the price of corn in Japan should be equal to the price in the U.S., adjusted for transportation and handling costs. Hence, any changes in the Yen/\$ exchange rate will have a pronounced effect on the price of corn in Japan.

The PPP assumes that prices between the two countries are not distorted by tariffs or other trade barriers. Of course this is not the case with most agricultural trade. These distortions reduce the strength of the relationship of exchange rates to agricultural prices and trade. Thus, the causal relationship between exchange rates and the fall in U.S. farm exports may be overstated by many observers, as represented by *The Wall Street Journal* article quoted above.