*increasing in terms of one good but falling in terms of the other*. These equations summarize the response of all three factor prices in the short run, when capital and land are specific to each sector but labor is mobile.

## What It All Means

Our results from the specific-factors model show that the earnings of *specific factors* change the most from changes in relative prices due to international trade. Regardless of which good's price changes, the earnings of capital and land show the most extreme changes in their rentals, whereas the changes in the wages paid to labor are in the middle. Intuitively, these extreme changes in factor prices occur because the specific factors are not able to leave their sectors and find employment elsewhere. Labor benefits by its opportunity to move between sectors and earn the same wage in each, but the interests of capital and land are opposed to each other: one gains and the other loses. This suggests that we ought to be able to find real-world examples in which a change in international prices leads to losses for either capitalists or landowners. There are many such examples, and we discuss one in the next application.

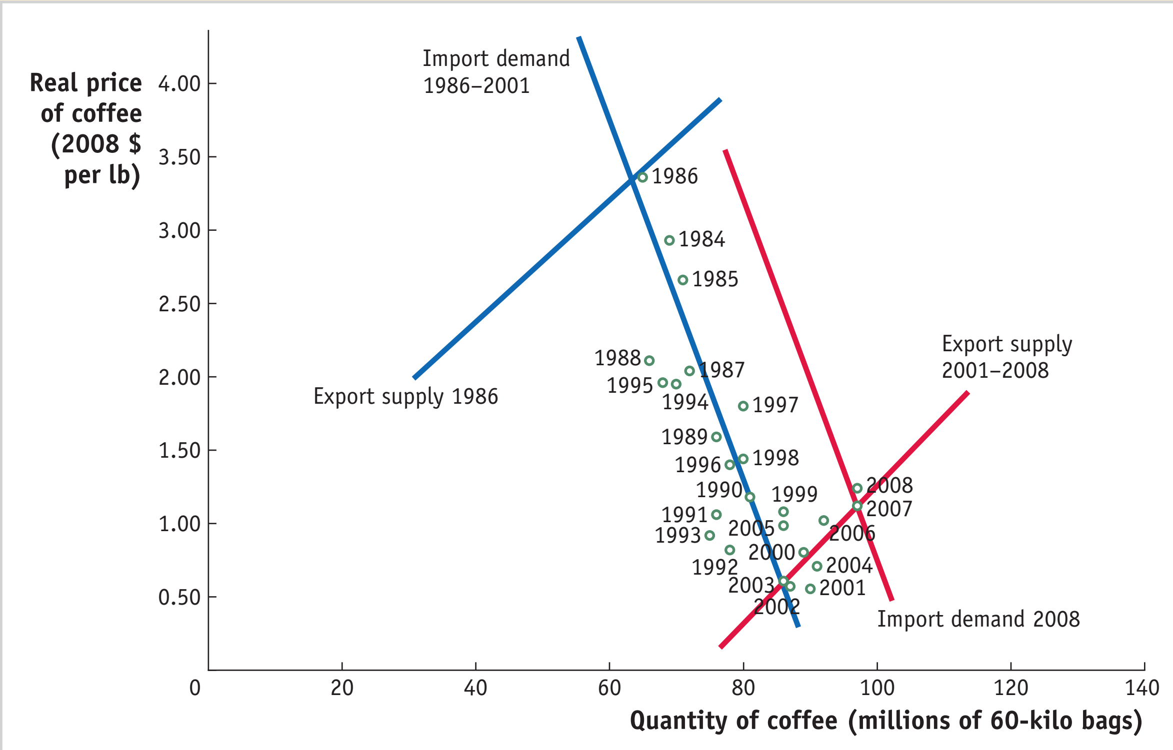
APPLICATION

## Prices in Agriculture

At the end of the previous chapter, we discussed the Prebisch–Singer hypothesis, which states that the prices of primary commodities tend to fall over time. Although we argued that this hypothesis does not hold for all primary commodities, it does hold for some agricultural goods: the relative prices of cotton, palm oil, rice, sugar, rubber, wheat, and wool declined for more than half the years between 1900 and 1998. Generally, agricultural prices fall as countries become more efficient at growing crops and begin exporting them. From our study of the specific-factors model, it will be landowners (i.e., farmers) who lose in real terms from this decline in the relative price of agricultural products. On the other hand, capital owners gain in real terms, and changes in the real wage are ambiguous. Faced with declining real earnings in the agriculture sector, governments and other groups often take actions to prevent the incomes of farmers from falling.

**Coffee Prices** An example of an agricultural commodity with particularly volatile prices is coffee. The price of coffee on world markets fluctuates a great deal from year to year because of weather and also because of the entry of new suppliers in Brazil and new supplying countries such as Vietnam. The movements in the real wholesale price of coffee (measured in 2008 dollars) are shown in Figure 3-8. Wholesale prices were at a high of $3.00 per pound in 1986, then fell to a low of 83¢ per pound in 1993, rose to $1.77 in 1995, and then fell to 50¢ per pound in 2001. Since 2001 there has been a sustained increase in both price and quantity, implying a shift in import demand. By 2008 prices had risen to $1.24 per pound. These dramatic fluctuations in prices create equally large movements in the real incomes of farmers, making it difficult for them to sustain a living. The very low prices in 2001 created a crisis in the coffee-growing regions of Central America, requiring humanitarian aid for farmers and their families. The governments of coffee-growing regions in Central America and Asia cannot afford to protect their coffee farmers by propping up prices, as do the industrial countries.

FIGURE 3-8




**World Coffee Market** Real wholesale prices for coffee have fluctuated greatly on world markets. Using 2008 dollars, prices were at a high of about $3.00 per pound in 1986, fell to 83¢ per pound in 1993, rose to $1.77 in 1995, and then fell to 50¢ per pound in 2001. Since 2001 there has been a sustained increase in both price and quantity, implying a shift in import demand. By 2008 prices had risen to $1.24 per pound. Corresponding to these price fluctuations, the quantity of world coffee exports was at a low in 1986 (65 million bags) and at a high in 2008 (97 million bags), as supplies from Brazil and Vietnam increased.

*Source: International Coffee Organization, http://www.ico.org.*

According to the specific-factors model, big fluctuations in coffee prices are extremely disruptive to the real earnings of landowners in coffee-exporting developing countries, many of whom are small farmers and their families. Can anything be done to avoid the kind of boom-and-bust cycle that occurs regularly in coffee markets?

**Fair-Trade Coffee** One idea that is gaining appeal is to sell coffee from developing countries directly to consumers in industrial countries, thereby avoiding the middlemen (such as local buyers, millers, exporters, shippers, and importers) and ensuring a minimum price for the farmers. You may have seen "fair-trade" coffee at your favorite coffeehouse. This coffee first appeared in the United States in 1999, imported by a group called TransFair USA that is committed to passing more of the profits back to the growers. TransFair USA is an example of a nongovernmental organization that



Groups like TransFair USA ensure coffee farmers like Santiago Rivera, pictured here, a more stable source of income over time.

is trying to help farmers by raising prices, and the consumer gets the choice of whether to purchase this higher-priced product. In addition to coffee, TransFair USA has been applying its Fair Trade label to imports of cocoa, tea, rice, sugar, bananas, mangoes, pineapples, and grapes.

World coffee prices recovered in 2005, which meant that groups like TransFair USA faced a dilemma: the fair-trade prices that they had guaranteed to farmers were actually less than the world price of coffee. The accompanying article **Headlines: Rise in Coffee Prices—Great for Farmers, Tough on Co-ops** describes how some farmers were tempted to break their contracts with local co-ops (at fixed, fair-trade prices) to deliver coffee to local middlemen at prevailing world prices. TransFair USA and similar organizations purchase coffee at higher than the market price when the market is low (as in 2001), but in other years (like 2005) the fair-trade price is below the market price. Essentially, TransFair USA is offering farmers a form of *insurance* whereby the fair-trade price of coffee will not fluctuate too much, ensuring them a more stable source of income over time. By protecting farmers against the boom-and-bust cycle of fluctuating prices, they are able to enjoy greater gains from trade by exporting their coffee. So when you consider buying a cup of fair-trade coffee at your favorite coffeehouse, you are supporting coffee farmers who rely on the efforts of groups like TransFair USA to raise their incomes, and applying the logic of the specific-factors model, all at the same time! ■

## HEADLINES

### Rise in Coffee Prices—Great for Farmers, Tough on Co-ops

*TransFair USA guarantees a minimum purchase price for coffee farmers, acting as insurance against a falling market price. But during periods when the market price is rising, it is challenging to ensure that farmers deliver their coffee.*

During winter and spring of the 2005 harvest, a dilemma surfaced in rural areas of Central America and Mexico. Fair-trade cooperative managers found it increasingly difficult to get members to deliver coffee to their own organization at fair-trade prices. The co-op managers were holding contracts that were set months before at fixed fair-trade prices of $1.26 per pound, but now the world coffee price was higher. Growers were seeing some of the highest prices paid in five years, and the temptation was great to sell their coffee to the highest local bidder, instead of delivering it as promised to their own co-ops.

In most cases, the co-ops' leaders were able to convince farmers to deliver coffee, but often based on arguments of loyalty, as the fair-trade fixed price was now lower than the premium prices being offered by the local middleman. It was not the model that the founders of fair-trade coffee pricing had envisioned when they created the program.

"It's worth noting that we were pleased to see prices rise in late 2004," says Christopher Himes, TransFair USA's Director of Certification and Finance. "This price rise, in conjunction with the impact fair trade was already having, increased the income and living standards of coffee farmers around the world. The most challenging thing during this time for TransFair USA was the speed with which the local differentials [between the fair-trade price and the world price] rose in Indonesia. They quickly skyrocketed to 80 cents [per pound] or higher, making the market value of farmers' coffee higher than that of some of the . . . fair-trade contracts."

*Source: David Griswold, http://www.FreshCup.com, June 2005.*