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The Impact of the Asia Crisis on U.S. Industry: An Almost-Free Lunch?

- The large devaluations experienced by Korea, Malaysia, Thailand, and Indonesia beginning in the summer of 1997 raised concerns that imports from these countries would soar while demand for U.S. exports weakened, causing U.S. industries to suffer.
- As it turned out, manufactured imports from the four countries rose only slightly, and the decline in U.S. exports was not large enough to have a significant effect on trend output for most industries.
- The one exception to this pattern was the steel industry: there, sharply rising imports and falling exports led to a drop in output and prices.
- Overall, the United States enjoyed an “almost-free lunch” in the wake of the Asia crisis. Cheaper imports benefited consumers, and domestic production and employment were largely unharmed.

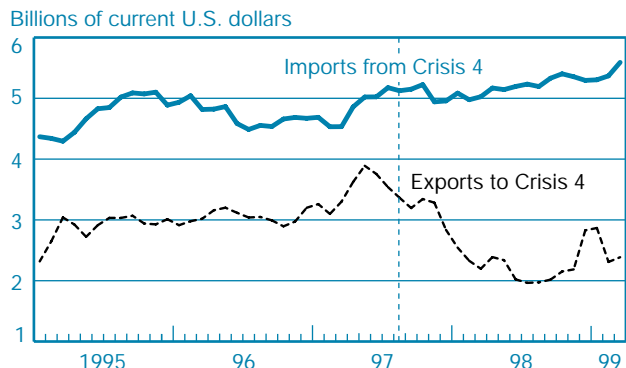
When the Asia crisis erupted in the summer of 1997, many forecasters predicted that one effect would be an end to the economic boom in the United States. Surely, it was argued, the drop in demand for U.S. exports combined with surging import volumes would finally be enough to slow the U.S. economy. It did not happen. Indeed, the Asia crisis’ overall effects on the United States were small.¹ In terms of trade flows, total manufactured imports from the Asian countries affected by a currency collapse—Indonesia, Korea, Malaysia, and Thailand, which I will refer to as the “Crisis 4” countries—grew only slightly, while exports to these countries fell sharply (Chart 1).²

Although the overall effects of the Asia crisis on the United States were modest, they could have obscured other, larger effects in particularly vulnerable U.S. industries. Accordingly, this article looks beyond the aggregate data associated with the crisis and instead focuses on these potentially larger effects at the sector level. It arrives at four key findings. First, dollar prices of imports from the Crisis 4 countries fell substantially after the currency collapses of summer 1997. In a few cases, the drops were accompanied by a fall in U.S. relative output prices. Second, most U.S. industries experienced a decline in exports to Asia, but in no case was the decline in export demand big enough to have a noticeable impact on the trend in U.S. shipments. Third, in only a few cases was there a sharp rise in import volumes resulting from the crisis. And finally, in only one case—the steel industry—was there clear evidence of a

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Chart 1
Total U.S. Manufacturing Trade with the
Crisis 4 Countries



Source: United States International Trade Commission.

Notes: The Crisis 4 countries are Indonesia, Korea, Malaysia, and Thailand. The dashed line indicates the start of the Asia crisis.

pattern of rising imports, falling exports, and an associated drop in domestic prices and employment.

These findings suggest, for the most part, that imports from Asia do not compete directly with U.S. production. Therefore, an appreciation in the dollar with respect to Asian currencies leads to gains in consumption with little or no domestic pain. (For example, consumer videocassette recorders are not produced in the United States, so a fall in their price benefits consumers without pressuring U.S. producers.) This consumption feast amounts to an almost-free lunch.

Analytical Framework

The basic supply-and-demand framework is adequate for presenting a discussion of the sectoral impact of the Asia crisis. In such a framework, the analysis looks at prices and quantities for one industry or firm at a time, holding all other prices (including wage costs and the prices of competing goods) constant. From the point of view of U.S. industry, the crisis represents a drop in demand for two reasons. First, demand by Asians for U.S. imports decreases due to the recessions in Asia and the higher Asian currency prices of U.S. imports after the devaluations of the Asian currencies. Second, demand by Americans for U.S.-produced goods falls because the dollar price of Asian goods, which are substitutes for U.S.-produced goods, also falls. This means that if we hold other factors that

affect demand and cost constant, we should expect to see a drop in U.S. shipments and in U.S. prices (Exhibit 1). The fall in domestic output and prices is a measure of the crisis' impact on U.S. industry.

However, there are problems with applying this framework to the events of the last three years. The most obvious one is that, for whatever reason, domestic aggregate demand in the United States has continued to grow briskly in the wake of the Asia crisis. (Indeed, as van Wincoop and Yi [2000] observe, the growth in domestic demand may in part be an endogenous response to the crisis.) The growth in domestic aggregate demand may have offset, or even reversed, the decline in industry demand caused by the crisis. It is important to keep this caveat in mind as we look at the data.

Although I do not focus on the effects of the crisis on Asian exporters, it is helpful to clarify the empirical results to consider the effects of a currency devaluation on them.³ From the exporters' perspective, a devaluation increases their domestic currency price for any given dollar price received in the world market. From the standpoint of the U.S. market for Asian goods, this change amounts to an outward shift in the supply of Asian goods (Exhibit 2). Generally, this change will prompt exporters to raise the profit margin on their exports, which would lower their dollar price less than proportionately with the devaluation.⁴ Thus, we would expect to see falling import prices and rising import volumes in the United States.

The fall in dollar prices should also lead to a rise in import values, since the elasticity of demand with respect to price in

Exhibit 1
Effect of Asian Devaluations on Demand
for U.S. Goods

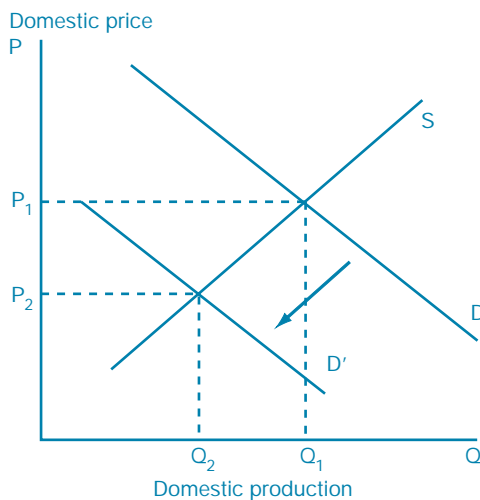
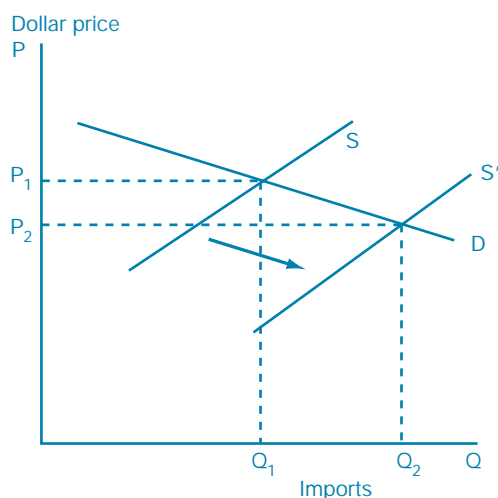


Exhibit 2
Effect of Asian Devaluations on U.S. Imports



imperfectly competitive markets is greater than one: Exhibit 2 shows that a 1 percent drop in price will lead to a more than 1 percent increase in imports, and hence an increase in the dollar value of imports (price \times quantity).⁵ Although a devaluation certainly will increase domestic currency revenues for Asian exporters, it may also directly increase their costs if the exporters import many of their inputs. This cost-increasing effect of a devaluation comes about because the local price of imported inputs will increase with the devaluation. Even in such a case—which might be relevant for sectors in which Asian export industries are based on the assembly of imported parts—the rise in cost will not outweigh the effects of the rise in demand, and Asian exporters will increase their shipments to the United States. Consequently, the dollar value of exports to the United States will rise.

The above analysis assumes that the elasticity of demand facing exporters is greater than one, which will be the case for individual firms. However, what is true for an individual firm need not be true for the market as a whole. If all exporting firms were to expand their output at the same time, total market demand might increase only slightly. In such a situation, firms would find themselves lowering prices at the same time as their competitors, so that each individual firm's gain in sales in the export market would be lower than it would be if it was the only firm cutting prices. If total market demand is inelastic, then the dollar value of exports will fall, as prices decrease proportionately more than the quantities sold increase.

In summary, this brief theoretical discussion suggests that U.S. import volumes from Asia should rise as dollar import

prices fall, with the dollar value of imports either rising (the most likely case) or falling (if total import demand is inelastic). It also suggests that U.S. production, U.S. output prices, and U.S. exports to Asia should fall.

Data Construction and Definitions

The Asia crisis began in the summer of 1997 with the devaluation of the Thai baht, followed closely by currency collapses in Korea, Malaysia, and Indonesia. Although the timing across countries varied, for consistency of analysis I use August 1997 as the first month of the crisis. To evaluate the impact of the crisis on U.S. industries, I look at monthly data on manufacturing production and trade at the finest possible level of detail. An important limitation, however, is the absence of reliable U.S. data on the prices of imports and exports, particularly at the industry level.

For U.S. production, data on output and prices are available for the two-digit Standard Industrial Classification industries.

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I deflate production by the appropriate industry-level producer price index (PPI). Data on the value of imports and exports are available at a somewhat finer degree of detail.

A partial solution to the lack of reliable U.S. import and export price data is to look at export prices in the Crisis 4 countries. Korea, Malaysia, and Thailand have some sectoral data (Korea's are the most detailed), although no data at all are available for Indonesia. These prices are reported in the domestic currencies and are converted to dollars using the nominal exchange rate.

To construct real import and export data, I deflate nominal exports by the domestic PPI, which is a good approximation if exports do not differ much from goods sold domestically. I deflate imports from Korea, Malaysia, and Thailand by the most appropriate sectoral export price index from each

country; for imports from Indonesia, I use an import-weighted average of prices from the other three countries.

All data series are seasonally adjusted. To smooth some of the noise left over even after removing seasonal factors, I use data that are a two-month moving average. That is, for each month, the value of the series in question is equal to an average of the current month's and the previous month's value.

Prices

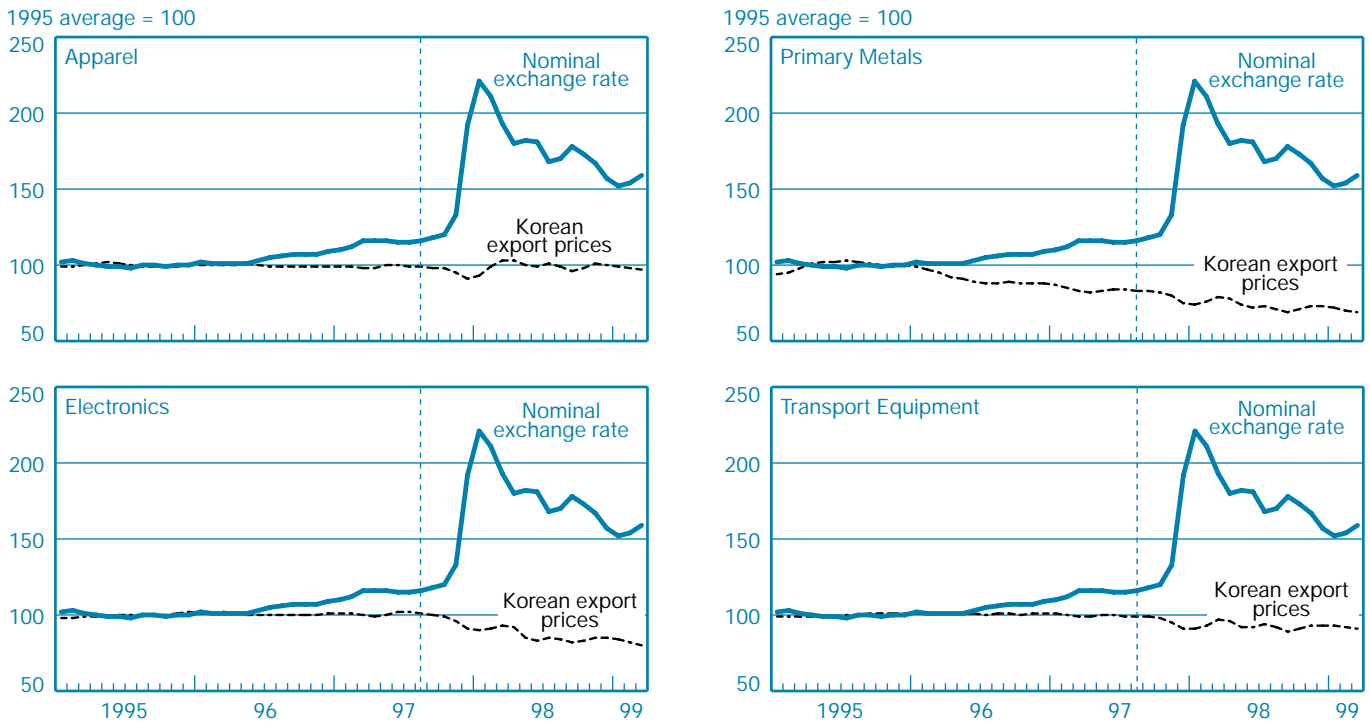
As expected, the fragmentary data that are available confirm that Crisis 4 export prices from Asia generally fell quickly after the currency devaluations. Chart 2 presents dollar export prices for selected Korean export industries plotted against the won exchange rate. In every sector, dollar prices fell when the won collapsed. What is striking about the Korean data is the

evidence that prices in many sectors had been falling even before the won collapsed. For example, prices of apparel and transport equipment began to drop shortly after the won started to depreciate in the summer of 1996. Malaysian dollar export prices also fell rapidly when that country's currency

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collapsed (Chart 3). The evidence for Thailand is mixed: a small response of export prices to the baht devaluation occurred in the manufacturing (other than machinery) sector, and there was no response at all for machinery (Chart 4).

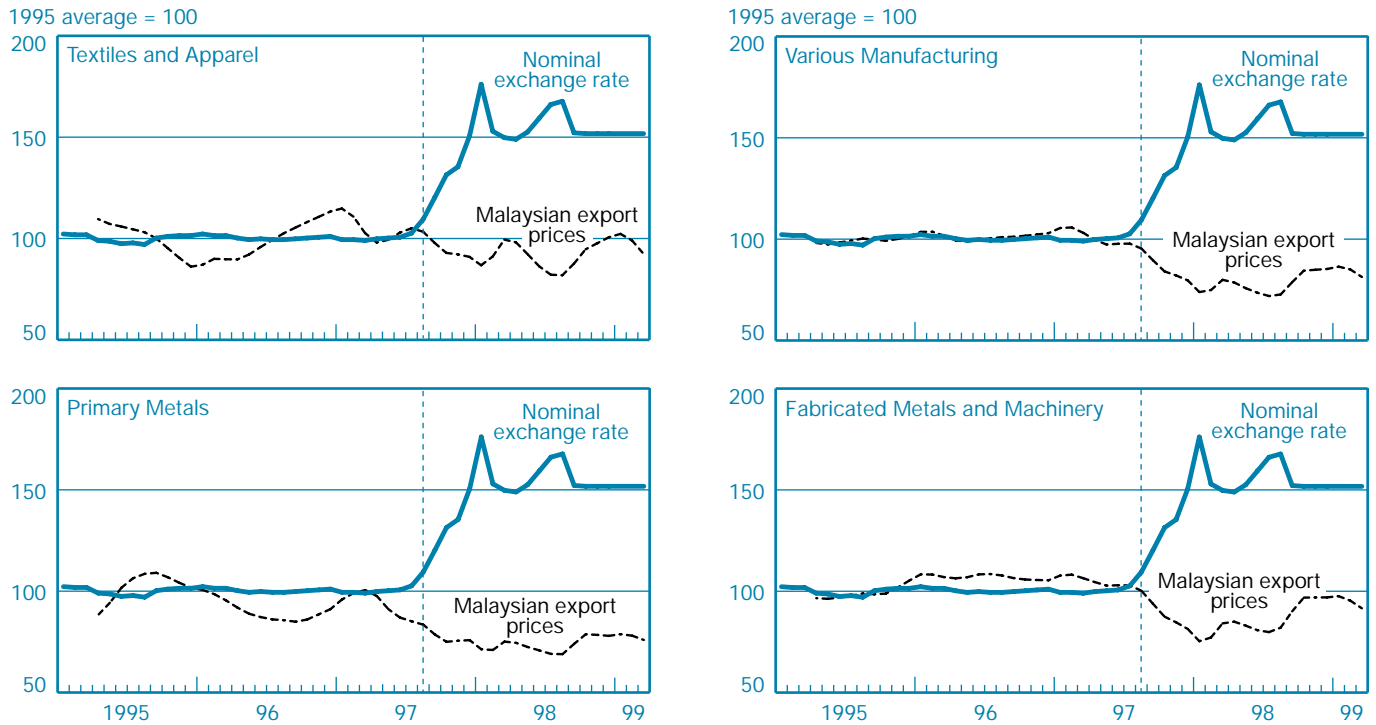
Chart 2
Korean Export Prices and the Nominal Exchange Rate
Selected Industries



Source: Data Resource International, Asia.

Notes: Standard Industrial Classification codes: apparel, 23; electronics, 36; primary metals, 33; transport equipment, 37. The dashed lines indicate the start of the Asia crisis.

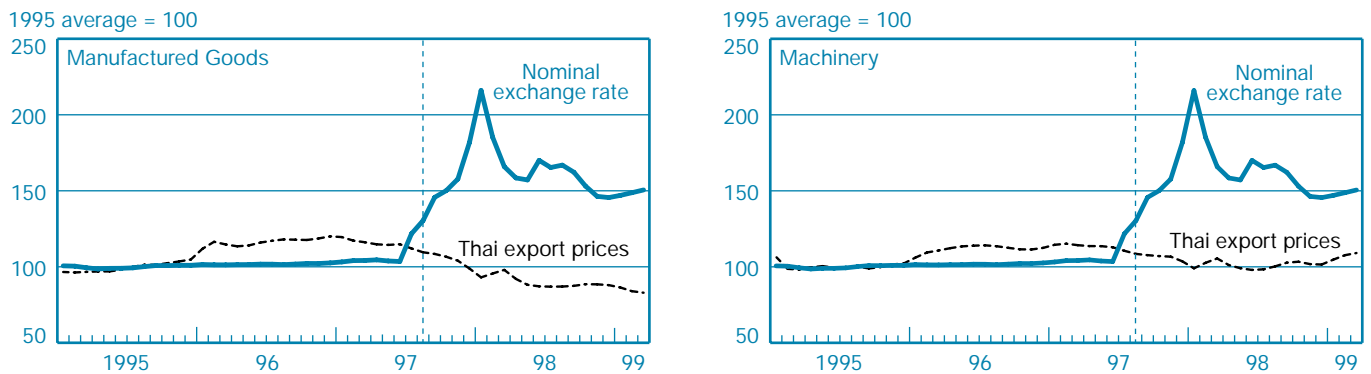
Chart 3
Malaysian Export Prices and the Nominal Exchange Rate
 Selected Industries



Source: Data Resource International, Asia.

Notes: Standard Industrial Classification codes: textiles and apparel, 22, 23; primary metals, 33; various manufacturing, 29, 32, 38, 39; fabricated metals and machinery, 34-37. The dashed lines indicate the start of the Asia crisis.

Chart 4
Thai Export Prices and the Nominal Exchange Rate
 Selected Industries



Source: Data Resource International, Asia.

Notes: Standard Industrial Classification codes: manufactured goods, 22, 23, 26, 34; machinery, 35-37. The dashed lines indicate the start of the Asia crisis.

The decline in the prices of goods imported from Asia, however, did not have much impact on output prices in the United States. Chart 5 shows the relative price of sectoral output for selected industries, where each industry's price is expressed relative to the consumer price index for the entire U.S. economy.⁶ As illustrated by the downward trends in the chart, manufacturing prices have been falling relative to nonmanufacturing prices for many years.⁷ The onset of the Asia crisis might have been expected to accelerate this trend, as falling prices for imports put pressure on U.S. manufacturers. In fact, this did not occur in most sectors. For example, the path of prices in the transport equipment sector was unchanged after August 1997. Even the electronics sector simply saw a continuation of the long-term (and steep) decline in relative prices.

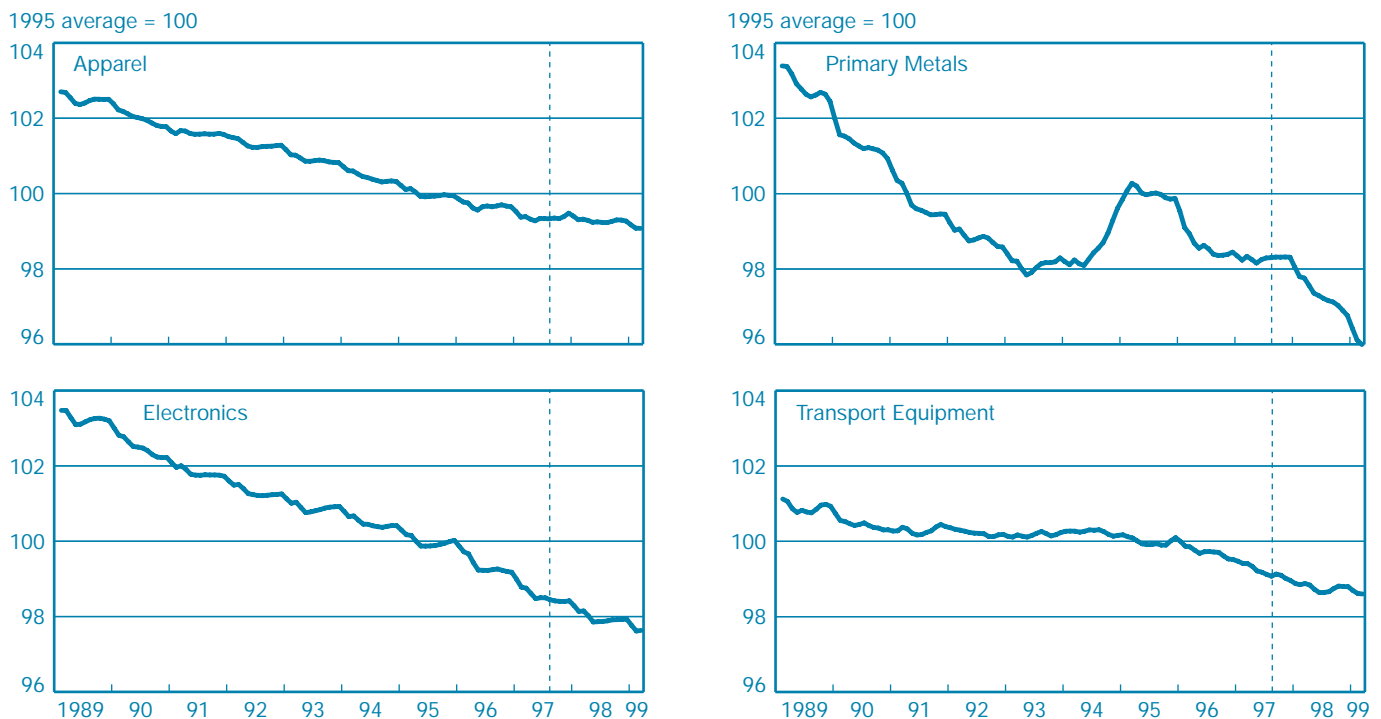
The one major exception was the primary metals sector, where the collapse in steel prices clearly coincided with the onset of the crisis and can plausibly be linked to import

competition, as I will show. Two other sectors, not shown here, that saw price declines are food and paper. The share of imports from Asia in U.S. domestic consumption of these products was near zero, however, so it is clear that imports were not responsible for the price declines.⁸ Nevertheless, the Asia crisis may have affected these prices less directly: the recession in Asia was accompanied by a drop in world commodity prices, which likely helps to explain the drop in domestic food and paper prices.

Imports and Exports

In most cases, prices of imports into the United States fell after August 1997 without corresponding drops in U.S. domestic prices. Such a pattern should be associated with an increased

Chart 5
U.S. Domestic Relative Output Prices
Selected Industries



Source: United States Department of Commerce.

Notes: Standard Industrial Classification codes: apparel, 23; electronics, 36; primary metals, 33; transport equipment, 37. The dashed lines indicate the start of the Asia crisis.

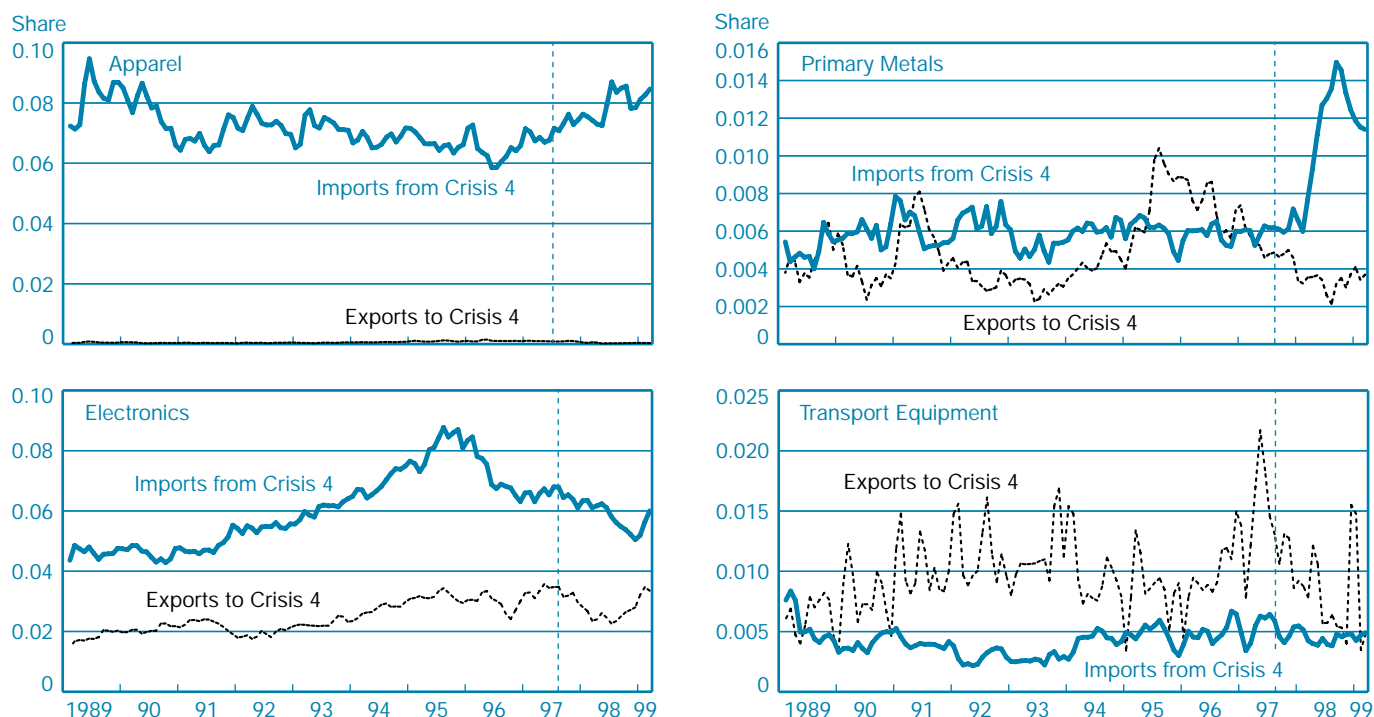
share of imports in domestic consumption. At the same time, the devaluations and recessions in the Crisis 4 countries should trigger a drop in U.S. exports to those countries. Chart 6 shows imports and exports divided by domestic shipments for selected industries. (I scale by domestic shipments to give a sense of how important import competition is for each sector.) In three sectors—paper (not shown), primary metals (a sector that includes the steel industry), and nonelectrical machinery (not shown)—the pattern of rising imports and falling exports is very clear. The surge in imports is most dramatic in primary metals, but this surge underestimates the pressure that the sector was experiencing in the wake of the crisis since it does not include imports from the rest of the world, which were also rising at this time. The sharp drop in primary metals imports in late 1998 came in the wake of antidumping duties, which were imposed during the summer of 1998, along with strong political pressure from U.S. trade negotiators.

In the apparel sector, exports were near zero, so they could not fall much, but imports rose. A common pattern of sharply falling exports but no deviation from trend imports is evident in a number of sectors not shown here, including textiles, chemicals, fabricated metals, and precision instruments.

The most surprising pattern occurs in the electronics sector, where import values actually *fell* in the wake of the crisis. Two-thirds of the decline is accounted for by a fall in the value of semiconductor imports, with the remainder attributed to a drop in household audio-video equipment. Certainly in the case of semiconductors, and most likely in the case of audio-video equipment, these drops in import value reflect steep drops in prices: even though real imports most likely rose, the value of imports fell because prices fell more quickly than the quantities imported increased.

As the example of electronics trade illustrates, the absence of reliable, comprehensive import price data makes it difficult to

Chart 6
U.S. Trade with the Crisis 4 Countries as a Share of Domestic Output
Selected Industries



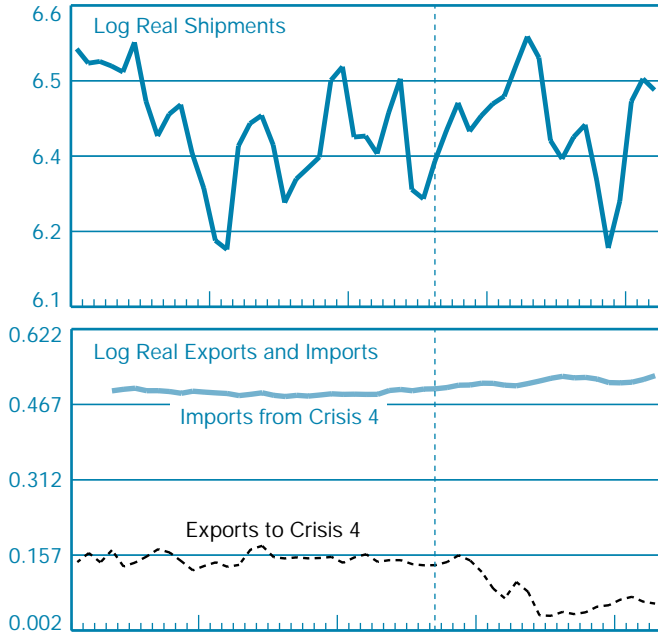
Sources: United States International Trade Commission; United States Department of Commerce.

Notes: The Crisis 4 countries are Indonesia, Korea, Malaysia, and Thailand. The chart depicts total imports from and exports to the Crisis 4, divided by domestic shipments. Standard Industrial Classification codes: apparel, 23; electronics, 36; primary metals, 33; transport equipment, 37. The dashed lines indicate the start of the Asia crisis.

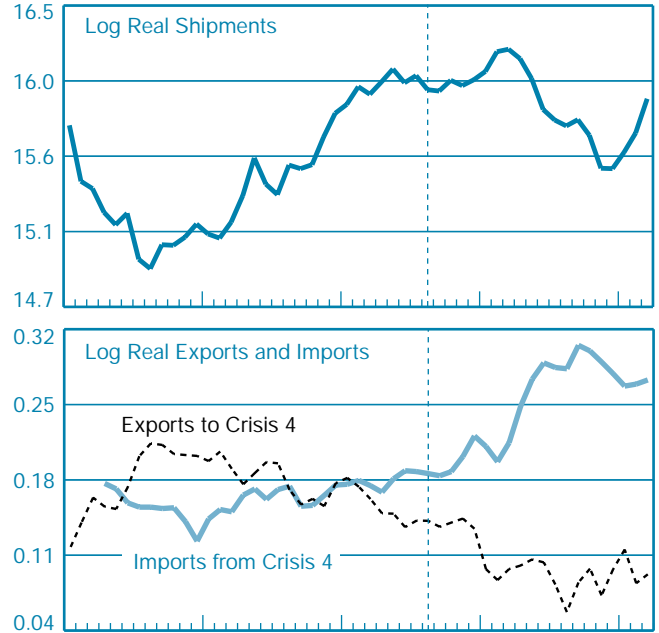
Chart 7

Domestic Shipments and Exports to and Imports from the Crisis 4 Countries
Selected Industries

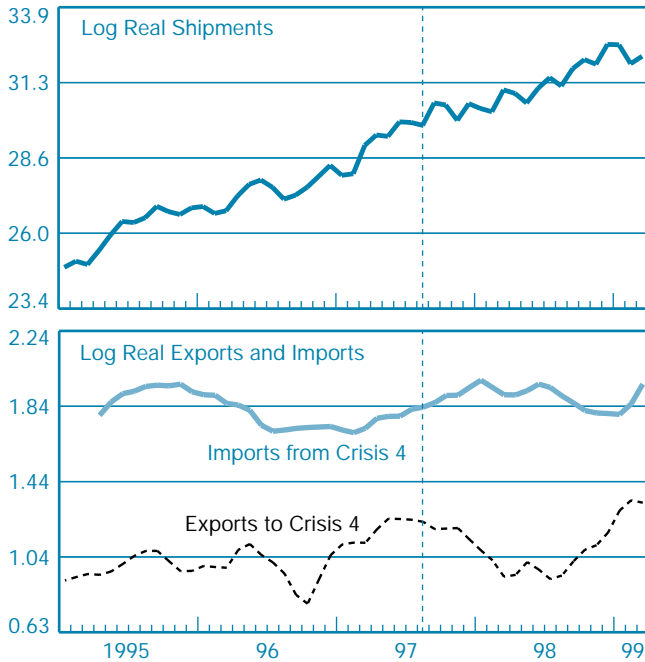
Apparel (billions of 1995 U.S. dollars)



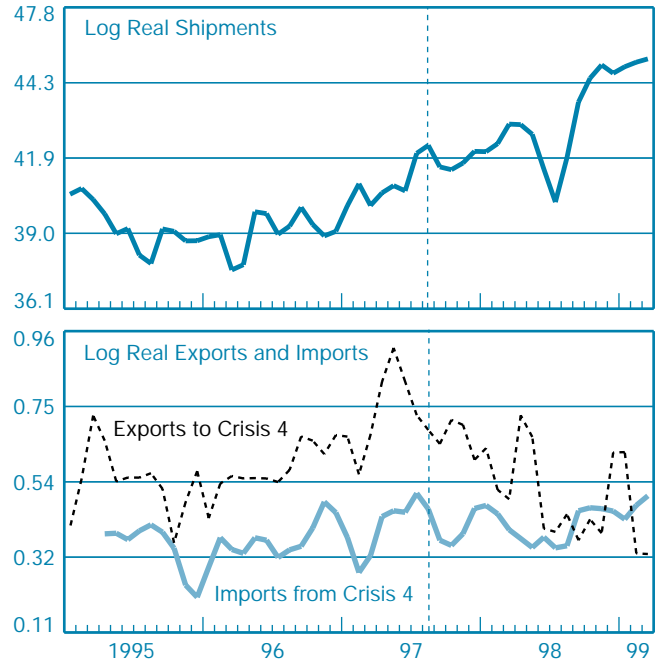
Primary Metals (billions of 1995 U.S. dollars)



Electronics (billions of 1995 U.S. dollars)



Transport Equipment (billions of 1995 U.S. dollars)



Sources: United States International Trade Commission; United States Department of Commerce; Data Resource International, Asia.

Notes: The Crisis 4 countries are Indonesia, Korea, Malaysia, and Thailand. Standard Industrial Classification codes: apparel, 23; electronics, 36; primary metals, 33; transport equipment, 37. The dashed lines indicate the start of the Asia crisis. Variables are scaled by 100 times the average value of the log real shipments in 1995.

interpret changes in import values. The fairly modest growth in import values may be obscuring large increases in real imports accompanied by falling prices. What is clear, though, is that the bulk of the trade response to the Asia crisis is accounted for by falling exports, rather than rising imports.

Domestic Production

I now present a brief examination of the changes in domestic shipments. Chart 7 depicts real domestic shipments from 1995 through early 1999, along with real exports and real imports. These real trade data should be viewed skeptically because true price deflators are not available, as noted earlier.

In several sectors, there was a slowdown in shipments in 1998, and in some cases the timing of the slowdown coincided with changes in the Crisis 4 countries' imports and exports. Examples of this pattern in sectors not shown in Chart 7 are textiles, paper, and chemicals: in each industry, production slowed soon after exports to the Crisis 4 fell. The clearest example, however, is primary metals, where a drop in exports to the Crisis 4, a substantial import surge, and a falling of domestic prices and shipments all coincided in the first half of 1998.

In many other sectors, however, there was no discernible impact of the Asia crisis on shipments. Output growth in transport equipment showed continued strength through 1998 and into 1999. Among industries not shown in Chart 7, fabricated metals, nonelectrical machinery, electronics, and instruments all exhibited a similar pattern.⁹ This pattern occurred despite the fact that Crisis 4 exports fell sharply in most of these sectors and real imports from the Crisis 4 countries held steady or grew.

Conclusion

The impact of the Asia crisis on U.S. industries was small and localized. Only one sector, the steel industry, experienced falling prices and output in the wake of the crisis, and political action mitigated this impact within a few months. Although the Crisis 4 countries of Indonesia, Korea, Malaysia, and Thailand cut back on their purchases of U.S.-manufactured goods across the board starting in late summer 1997, the drop in foreign demand was offset by strong domestic demand as well as demand by noncrisis foreign countries in almost every sector.

Import volumes from the Crisis 4 expanded only modestly after the onset of the crisis, an outcome that is likely due in part to relatively inelastic U.S. demand for Crisis 4 exports. The increased supply drove prices down almost as much as it increased sales in most instances; in the case of semi-conductors, prices fell so fast that the value of exports actually fell.

Two key points can be derived from this analysis. First, imports from developing Asia do not seem to compete directly with most U.S. manufacturing sectors. This phenomenon is evident from the modest impact that the currency devaluations of 1997 had on U.S. output prices and shipments, even as U.S. consumers benefited from less expensive imports. In this sense, the crisis was good news: consumers got lower prices and producers did not suffer. The only exception was the steel industry, which was directly hit by the crisis. Second, U.S. export markets in developing Asia are still so small that even a collapse in demand there does not have a large effect on total demand for U.S.-manufactured goods.

Endnotes

1. These effects are discussed extensively in van Wincoop and Yi (2000). The small impact should not have come as a complete surprise. In 1996, exports to the four Asian countries affected by the crisis accounted for only 0.6 percent of U.S. GNP, while imports from these countries represented 0.8 percent of GDP. Even if exports had fallen by half and imports had doubled, the effect on U.S. GDP would have been a slowing of growth by only 1 percentage point.
2. As a share of total U.S. imports, the imports from the Crisis 4 hardly grew at all, while the share of total U.S. exports to the Crisis 4 declined from almost 8 percent when the crisis hit to slightly more than 4 percent by mid-1998.
3. Throughout this article, “devaluation” refers to a devaluation of Asian currencies with respect to the dollar: an increase in the Asian currency price of one U.S. dollar or, equivalently, a fall in the dollar price of an Asian currency.
4. For the simple analytics of exchange rate pass-through, see Marston (1990). This result holds if marginal costs are constant.
5. Throughout this article, “elasticity” refers to the magnitude of the change in demand for a good with respect to a change in the price of the good.
6. The relative price compares the output price of a sector with the overall price level. This is the relevant comparison, since we want to know how each sector is doing compared with the economy as a whole. Conceptually, it would be better to express industry prices relative to the GDP deflator, but the GDP deflator is not available monthly. Changes in the CPI, which *are* available monthly, are extremely highly correlated with changes in the GDP deflator.
7. Charts 5-7 focus on only four industries: apparel, electronics, primary metals, and transport equipment. These sectors are representative of the behavior of other sectors, as shown in a longer version of this study available from the author.
8. A similar pattern of falling prices and domestic output starting in late summer 1997 is visible in the oil sector, where the share of imports from East Asia is zero.
9. The drop in output of the transport equipment sector in mid-1998 was due to a strike at General Motors.

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