In Brief
Economic Capsules

U.S. Trade with Taiwan and South Korea

The United States has been running large trade deficits with the two Asian economies of Taiwan and South Korea. By 1987 the combined U.S. trade deficit with these economies alone reached $27 billion, equal to 17 percent of the total U.S. trade deficit worldwide (Table 1). Although the U.S. deficit with these economies improved during the first half of 1988, it still remains very high. This note looks at U.S. trade with Taiwan and South Korea. It discusses both the composition of this trade and its recent growth path, giving particular attention to the factors behind the 1988 improvement in the U.S. trade position. The note ends by briefly considering the outlook for U.S. trade with the two economies in light of the current trade performance.

To summarize the main points, the United States exports primarily capital goods and industrial supplies to Taiwan and South Korea. Recent export growth has been across all commodity categories. The United States imports primarily consumer goods and capital goods components from Taiwan and South Korea. The slowdown in imports has been mainly in the consumer goods area. Appreciation of the Asian currencies, import liberalization measures undertaken particularly by Taiwan, and special circumstances in some key trade industries appear to explain most of the recent improvement in U.S. trade with these two economies. Even with this recent improvement, however, the U.S. trade deficits with both Taiwan and South Korea remain large. Further trade improvement with these economies will most likely require significant additional changes in some of the underlying trade determinants.

The Taiwanese and South Korean economies

There are some broad similarities in the Taiwanese and South Korean economies. Neither is endowed with a large natural resource base, but both have a well-educated, skilled labor force. As a consequence, the dominant industries in the two economies focus on manufacturing, both of capital and consumer goods. Both economies have, furthermore, relied on export growth to maintain a rapid pace of development, with exchange rates kept at levels necessary to insure the competitiveness of local products in world markets.

Productivity growth in the manufacturing sectors of both Taiwan and South Korea has been extremely rapid (Table 2). Supported by a very strong investment performance, this growth has kept unit labor costs competitive while wage rates have risen sharply.

Taiwan and South Korea differ somewhat in the composition of their output. Taiwan has tended to concentrate more on the production of consumer goods, while South Korea has devoted a greater percentage of its energy to producing capital goods and automobiles. In part because consumer goods production requires less investment expenditure, Taiwan has not relied as heavily as South Korea on foreign funds to finance development. In fact, while South Korea's foreign debt totaled about $35 billion at the end of 1987, Taiwan was actually a net creditor to the world.

An even sharper distinction between the two economies lies in the area of foreign trade. Taiwan has run current account surpluses since the middle 1970s. South Korea, in contrast, only began to run a current account surplus in 1986. Consequently, although recent surpluses have led both economies to appreciate their currencies, the New Taiwan dollar has appreciated more strongly against the U.S. dollar than has the South Korean won. The New Taiwan dollar rose 27 percent against the U.S. dollar between the first quarter of 1985 and the third quarter of 1988; the South Korean won rose 12 percent during this period. Adjusted for relative inflation rates, the New Taiwan dollar rose

17 percent in real terms against the U.S. dollar, the South Korean won 12 percent (Chart 1).[1]

[1]These changes are calculated in terms of movement in the Asian currency/U.S. dollar exchange rate. Real rates are calculated by deflating with wholesale price indexes. The Asian currency movements compare with nominal rises against the U.S. dollar of 43 percent for the German mark and 48 percent for the Japanese yen over the same period. In real terms the mark rose 38 percent and the yen 36 percent.

Table 1

U.S. Trade Balances with Taiwan and South Korea

(Billions of Dollars, BOP Basis)

	1985	1986	1987	1988†
Taiwan	−11.21	−14.64	−17.50	−10.83
(Percent of total U.S. trade deficit)	(9.2)	(10.1)	(10.9)	(8.3)
Korea	−4.25	−6.98	−9.39	−8.89
(Percent of total U.S. trade deficit)	(3.5)	(4.8)	(5.9)	(6.8)

†First half 1988 values, seasonally adjusted and annualized.

Taiwan has taken greater steps to remove import restrictions than has South Korea. Although Taiwanese tariffs still remain high on a number of goods, notably automobiles and agricultural products, recent measures have significantly reduced tariff rates for most items. South Korea continues to maintain relatively high tariff rates on a broad range of goods while concentrating recent import liberalization efforts on reducing the number of import items that require restrictive import licenses. Taiwan has no significant import licensing requirements.

Table 2

Growth in Productivity, Real Investment, Unit Labor Costs, and Wages in Manufacturing

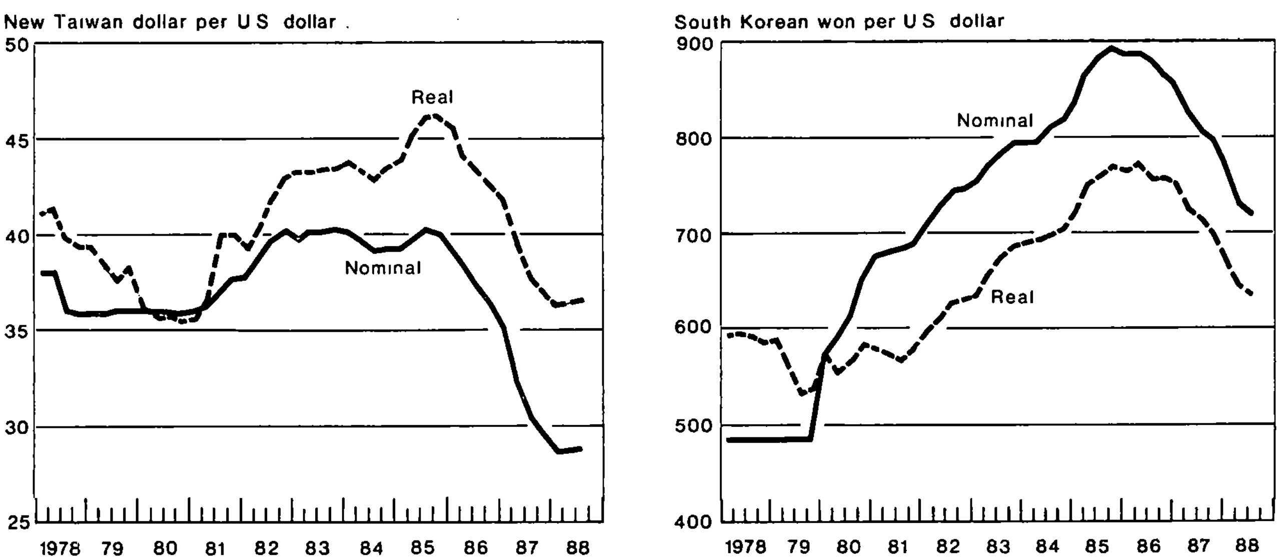
(Averaged Annualized Percent Change 1985-87)

	Productivity Growth	Increase in Investment	Growth in Unit Labor Costs	Change in Average Hourly Wage
Taiwan	10.4	14.2	−1.9	9.5
South Korea	12.7	14.5	1.5	11.5

Chart 1

Asian Exchange Rates versus U.S. Dollar

Quarterly Averages



Note: Real exchange rates are calculated as nominal exchange rates multiplied by the ratio of U.S. to Asian wholesale price indexes with 1980-I=100 for all three price indexes.

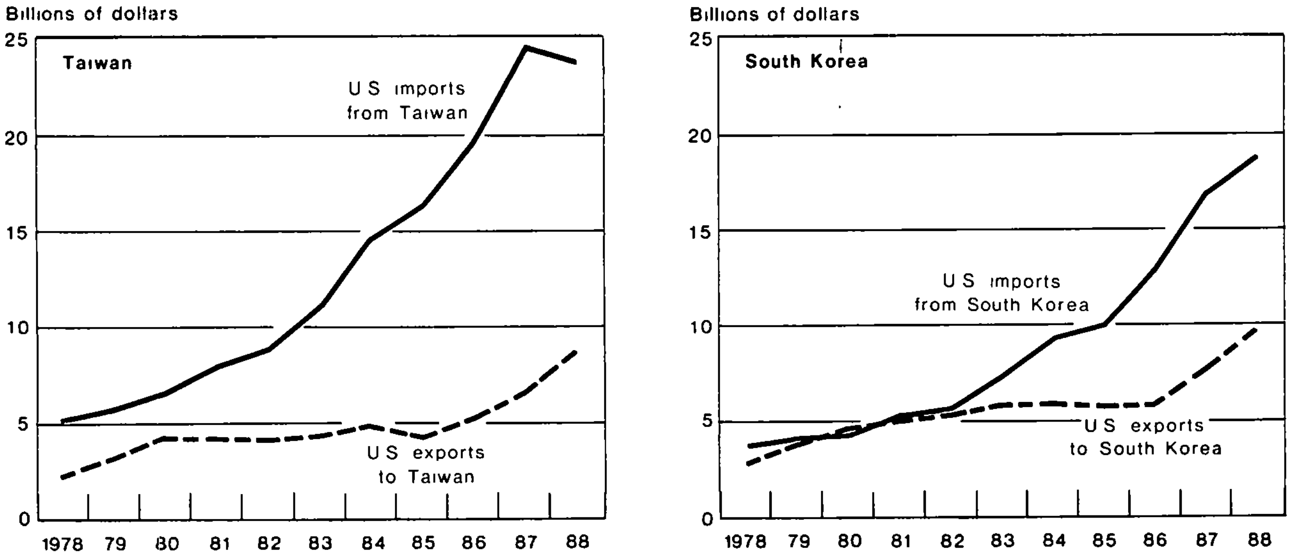
Composition and growth of U.S. trade with Taiwan and South Korea

U.S. trade with Taiwan and South Korea has grown rapidly during the 1980s, on both the export and the import side. However, U.S. imports have until recently outpaced U.S. exports, leading to growing U.S. bilateral trade deficits with both economies (Chart 2).

The United States exports primarily capital goods and industrial supplies to Taiwan and South Korea (Table 3). Agricultural sales are the next largest U.S. export category despite strong agricultural import protection by both Asian economies. U.S. automobile exports are effectively limited by high tariff rates in both Taiwan and South Korea.

Chart 2

U.S. Trade with Taiwan* and South Korea



Note: The 1988 point represents the first two quarters' value annualized and seasonally adjusted. Exports are on a f.o.b. basis and imports are on a customs basis.

*Excluding gold

Table 3

Composition of U.S. Exports to Taiwan and South Korea in 1987

	Total	Capital Goods	Industrial Supplies	Autos	Other Consumer Goods	Agricultural Products
Taiwan (In billions of dollars)	6.5†	2.2	2.6†	0.2	0.4	0.9
South Korea (In billions of dollars)	7.5	2.5	3.6	0.2	0.2	0.9
Exports to Taiwan and South Korea as a percent of total U.S. exports	6	6	9	2	3	8

†Excluding gold

U S export growth to Taiwan and South Korea has been remarkably fast over the last few quarters In part this reflects an artificial boost to exports in 1988 from transshipment of foreign gold through the United States to Taiwan, a development that caused a sharp increase in reported U S sales to Taiwan Even abstracting from gold sales, however, U S exports to Taiwan grew at an average annual rate of 47 percent and to South Korea at an average annual rate of 33 percent over the last half of 1987 and the first half of 1988 These rates contrast with average annual U S export growth rates of 9 and 13 percent to Taiwan and South Korea respectively from the beginning of 1985 through mid-1987 Recent growth was spread across most export categories (Table 4).

U S imports from Taiwan and South Korea are primarily consumer goods, although capital goods and, in the case of South Korea, automobiles are becoming increasingly important (Table 5) Clothing and footwear are still the largest consumer goods imports, followed by consumer electronics Capital goods imports are mainly parts and components such as semiconductors

U S imports from Taiwan and South Korea grew rapidly through mid-1987 before slowing significantly in pace by year end and through the beginning of 1988 (Table 6) After growing at an average annual rate of 28 percent over the previous two and a half years, imports from Taiwan actually fell 3 percent during the four quarters ending 1988-II Imports from South Korea grew only 10 percent over these last four quarters, after growing at an average annual rate of 34 percent during the previous period Although imports of industrial supplies and agricultural products declined recently, these commodity imports are relatively small, the marked slowdown in total imports from mid-1987 until mid-1988 was primarily the result of weakness in consumer goods and automobile sales

Overall, the U S trade deficits with Taiwan and South

Table 4

U.S. Export Growth to Taiwan and South Korea 1988-II/1987-II

(In Percent)

	Total Growth	Capital Goods	Industrial Supplies	Autos	Other Consumer Goods	Agricultural Products
Taiwan	47 2†	29 8	37 9†	292 5	93 8	54 6
(Export share‡)	(100)	(31 2)	(37 9)	(6 8)	(6 8)	(14 7)
South Korea	33 5	18 2	42 6	−25 0	70 4	46 4
(Export share‡)	(100)	(30 7)	(51 4)	(1 3)	(3 0)	(10 6)

†Excluding gold
‡Percentage share of each commodity category in total U S exports to each Asian economy in 1988-II

Table 5

Composition of U.S. Imports from Taiwan and South Korea in 1987

	Total	Capital Goods	Industrial Supplies	Autos	Other Consumer Goods	Agricultural Products
Taiwan (In billions of dollars)	24 6	5 8	1 9	0 4	15 6	0 5
South Korea (In billions of dollars)	16 9	3 0	1 6	2 5	9 3	0 3
Imports from Taiwan and South Korea as a percent of total U S imports	10	10	3	3	28	3

Korea, at $11 billion and $9 billion respectively in the first half of 1988,[2] still remain exceptionally large relative to the size of the actual export and import flows between the United States and these two economies U.S. imports from Taiwan are still three times the level of U.S exports to Taiwan while U.S. imports from South Korea are more than double the level of U.S. exports to that economy

Factors behind the recent strength in U.S. exports and moderation in U.S. imports

Several factors lay behind the recent strength in U S exports to Taiwan (abstracting from gold sales) and to South Korea and the moderation in U S imports from these economies Policy decisions, general economic developments, and special circumstances in some key trade industries all played a role. Econometric analysis, described in the Box, suggests the relative importance of these various factors in improving U S trade with Taiwan and South Korea over the four quarters ending 1988-II (Table 7)

The Taiwanese and South Korean policy decisions to let their currencies appreciate relative to the U S dollar and to undertake import liberalization measures appear to have been the most important factors boosting U S export sales to Taiwan and South Korea during this period. The fall in U.S prices relative to Taiwanese and South Korean prices that resulted from New Taiwan dollar and won appreciation significantly increased demand in both Asian economies for U S. products. Import liberalization measures, along with some special policies to promote purchases of U.S. products, apparently had an even larger impact on Taiwanese demand for U S goods Much weaker liberalization efforts in South Korea had a correspondingly smaller impact

[2]These figures are seasonally adjusted and annualized

The two other major factors raising the dollar value of U S exports to Taiwan and South Korea were Asian economic growth and a rise in U S export prices. Domestic economic growth in Taiwan and South Korea, entailing heavy investment expenditure, was particularly beneficial to U S exporters concentrated in capital goods and industrial supplies. U.S. export prices were up because of a significant rise in commodity prices as well as U S inflation in general The commodity price factor was important because industrial supplies are a major U S export item to Taiwan and South Korea U.S. export prices also appeared to be up because the dollar prices of competing Japanese products rose with yen appreciation, providing U.S. producers a little leeway to raise their own prices.

On the import side, currency appreciation and problems in specific consumer goods industries were apparently the main factors behind the slowdown in Asian sales to the United States. Foreign currency appreciation has two effects: it raises the price of imports while reducing the volume of demand The price effect occurs first In the case of Taiwan, the volume effect of appreciation over the four quarters ending 1988-II appears to have been greater than the price effect. Thus, Taiwanese currency appreciation significantly depressed the value of U S purchases from Taiwan.[3] For South Korea, whose appreciation timing pattern was different, the price effect apparently offset the volume effect during this period (although further volume effects are presumably yet to come) South Korean appreciation, therefore, seemingly did not change the value of U S import purchases over these

[3]During this period Taiwanese and South Korean prices rose relative to Japanese prices because of the timing of new Taiwan dollar, won, and yen appreciation This relative price movement depressed the volume of U S demand for Taiwanese and South Korean goods as some purchasers switched over to Japanese items This switch is included in the volume effect described above

Table 6

U.S. Import Growth from Taiwan and South Korea 1988-II/1987-II

(In Percent)

	Total Growth	Capital Goods	Industrial Supplies	Autos	Other Consumer Goods	Agricultural Products
Taiwan	−2 9	14 7	−6 6	4 3	−9 0	−8 0
(Import share†)	(100)	(26 9)	(8 0)	(2 0)	(60 2)	(1 7)
South Korea	10 5	36 4	20 1	−4 2	6 6	−3 6
(Import share†)	(100)	(20 2)	(9 8)	(15 0)	(52 8)	(1 7)

†Percentage share of each commodity category in total U S imports from each Asian economy in 1988-II

four quarters.

Special industry factors clearly depressed U.S. purchases from both Taiwan and South Korea. The 1987-88 slump in U.S. clothing demand significantly cut apparel imports from the two Asian economies. Financial difficulties of two U.S.-owned toy companies manufacturing in Taiwan lowered Taiwanese toy sales to the United States. An automotive industry strike in South Korea dramatically cut U.S. imports of South Korean cars. The saturation of demand in the United States for microwave ovens and VCRs also hurt sales from both Asian economies.

Appreciation and special industry factors depressing U.S. imports were balanced against two factors promoting U.S. purchases from Taiwan and South Korea—robust U.S. economic growth and growing Asian supply capacity.[4] For Taiwan, currency appreciation and special industry problems more than offset these latter factors supporting U.S. import growth, producing the outright decline in imports noted earlier. For South Korea, special industry factors cut the growth in U.S. import purchases to about half the rate suggested by these import-supporting factors alone.

[4]Growing Asian supply capacity is used here to refer to the rapid economic development of the two Asian economies that has enabled them to increase their share in world markets substantially over the

Box: Estimating the Impact of the Various Factors Affecting U.S. Export and Import Growth Rates with Taiwan and South Korea

The text assessments of the importance of the various factors underlying bilateral trade growth rates between the United States and Taiwan and South Korea were primarily based on regression analysis. Regressions for export and import price and volume were run for U.S. trade with Taiwan and South Korea over the period 1979 to 1987. On the whole, the regression results are fairly robust, but in some cases they are sensitive to significant changes in the sample period.

The regression coefficients for the major factors mentioned in the text are shown in the table. The t-statistics are given in parentheses.

Regression Coefficients

U.S. Export Growth

	Growth in Asian Industrial Production	Change in U.S./Asian Relative Prices	Change in U.S. Wholesale Price Index	Change in Japanese/Asian Relative Prices
To Taiwan	1.16	−1.15	0.83	−.20
	(3.5)	(2.8)	(3.7)	(1.0)
To South Korea	0.37	−1.45	0.81	−.44
	(1.1)	(3.0)	(3.9)	(2.4)

U.S. Import Growth

	Growth in U.S. Industrial Production	Change in Asian Supply Capacity and Other Trend Effects	Change in Asian/U.S. Relative Prices	Change in Japanese/Asian Relative Prices
From Taiwan	1.09	12.22	−1.07	0.53
	(3.3)	(5.5)	(3.7)	(2.4)
From South Korea	1.21	13.78	−0.72	0.51
	(4.9)	(2.9)	(2.3)	(2.9)

The factor labeled "Change in Asian Supply Capacity and Other Trend Effects" was run in the regressions as a simple trend growth term. The reason is that manufacturing capacity in Taiwan and South Korea has been growing fairly steadily over the regression period and is, consequently, difficult to separate from other trend effects. The other factors are fairly standard. Some factors were entered with a lag in the regressions, with t-statistics used to choose the appropriate lag length.

The estimated impact of other important factors affecting U.S. trade flows with Taiwan and South Korea was derived separately. The effect of Asian import liberalization was determined by applying the regression-derived price coefficients to the average change in tariff rates and to other policy-induced price changes in each Asian economy. Because tariff and other price changes did not apply to all product categories equally, these estimates should be viewed more as order of magnitude figures than as precise numerical results. In combination with the regression analysis, this estimation procedure works well in explaining U.S. export growth over different quarters in the recent past.

Estimates of the impact of special industry factors were based on deviations in U.S. import growth in the affected industries from rates expected given overall U.S. import growth from Taiwan and South Korea. Specifically it was assumed that, in the absence of special industry problems, the import growth rates for clothing, toys, and automobiles would have slowed relative to their 1986-87 growth rates by the same percent as total import growth rates slowed. The derived growth rates based on this assumption were then compared to actual growth rates for these industries to gauge the magnitude of special problems.

* * * *

The outlook for U.S. trade with Taiwan and South Korea

The U.S. trade balance with Taiwan and South Korea has improved significantly in recent quarters However, given the still large discrepancy between the size of U S. exports and U S. imports with these two economies, trade improvement can only be sustained if U S exports continue to grow rapidly while U S import growth remains more subdued.

In the absence of further policy adjustment this required growth pattern may be difficult to achieve. Some of the key factors behind the recent strength in U.S. exports and moderation in U.S. imports are apt to diminish over time The effect of past currency appreciation on trade growth rates fades with time The same holds true for the effect of import liberalization measures The effects of special industry factors that were favorable to trade adjustment appear to have begun to dissipate already—for example, the South Korean automobile industry strike is over.

On the positive side, at least two possible developments favorable to trade adjustment are on the horizon Current U.S. discussions with Taiwan and South Korea may lead to further Asian trade liberalization, while U S demand growth may moderate as the U S economy slows from its very strong recent rate of expansion The foreseeable impact of these two developments by themselves, however, is unlikely to prove sufficient to eliminate, or perhaps even reduce substantially, the U S trade deficits with Taiwan and South Korea.

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Footnote 4 continued
last decade In the regression analysis, the contribution that Asian economic development has made to U S import growth is estimated by a trend growth rate (see Box)

Table 7

Accounting for U.S. Trade Growth with Taiwan and South Korea

(Percentage Point Contributions over the Period 1987-II to 1988-II)

		Due to				
U S Export Growth	Total	Relative Price Changes	Asian Trade Policy Changes	Asian Economic Growth	U S Price Increases Including Special Price Factors	Other†
To Taiwan (Excluding gold sales)	47	10	15	8	7	7
To South Korea	33	10	5	7	7	4
		Due to				
U S Import Growth	Total	Relative Price Changes	Special Clothing, Toy, and Automobile Factors	U S Economic Growth	Increased Asian Supply Capacity and Other Trend Factors	Other‡
From Taiwan	−3	−10	−5	7	13	−7
From South Korea	10	−2	−7	7	17	−6

†Trend and unexplained residual
‡Market saturation in specific consumer goods products and unexplained residual