Changing U.S. trade patterns

The last year in which the U.S. merchandise trade balance recorded a back-to-back annual surplus was twenty years ago, in 1970. That surplus was $2.6 billion on the balance-of-payments basis. In 1987, the merchandise trade deficit bottomed out at $160 billion. By 1989, the deficit had been reduced to around $110 billion (see Figure 1). Much has been made of the persistent U.S. trade deficit, why it became so large, why it has improved in recent years, and why, finally, it has not improved more.

Underlying and shaping these statistical changes in the U.S. trade sector is a complex matrix of global economic and political structure changes. This article examines a portion of that matrix; specifically, it looks at the changing pattern of U.S. trade with other major geographic regions, in terms of important commodity groupings.

Such a discussion is particularly appropriate now. Recent political and economic developments in Europe make likely major new developments in trade structures and patterns within the near term. World trade relationships are once again on the threshold of significant change.

The economic and political rebirth of Eastern Europe, the movement toward the economic and political integration of Western Europe in 1992 and beyond, and the interaction of these two developments will leave the European canvas with quite a different appearance than would have been thought possible as little as a year ago. These developments, in turn, will have a profound impact on world economic and trading relationships.

The revision and restoration of Europe has only just begun. How this different but integral part of the world picture will fit into the overall scheme can only be speculated upon—but not in this article. Here, we will examine the changes in the flow and direction of U.S. trade over the past twenty years or so. In doing so, perhaps we can make out where these flows will go—and how large they might be—in coming years.

Setting the stage

During the decade of the 1960s, the international economic environment changed as it never had before. Western European countries were drawn more closely together economically in the form of the European Economic Community (EEC) and the European Free Trade Association (EFTA). The extent of this economic integration would have been hard to imagine a few years earlier as the region struggled to recover from World War II.

Japan, also recovering from the war, was not yet a major force in the world economy. Nonetheless, it was on its way to becoming an economic power as it regularly recorded annual real economic growth rates in the 10-to-15 percent range.

Jack L. Hervey is a senior economist at the Federal Reserve Bank of Chicago.
The Kennedy Round trade negotiations were initiated and completed during the decade. Large reductions in tariffs on manufactured goods were begun. World trade growth accelerated. Manufactured-goods exports worldwide tripled in value from $64 billion in 1960 to $190 billion by 1970. The physical volume of manufactured-goods trade expanded 2.7 times between 1960 and 1970, according to estimates by the Secretariat of the General Agreement on Tariffs and Trade (GATT).

U.S. investment abroad, especially direct investment, increased at a rapid pace. The dollar dominated international exchange, although it was widely considered to be overvalued under the then existing exchange rate system. The high foreign exchange value of the dollar made the dollar price of foreign acquisitions attractive. Indeed, it was common to read critical foreign commentary on the undesirable aspects of U.S. companies “buying up” the economic base of Western European countries.

By the late 1960s evidence was plentiful that times and the world were changing, and rapidly. But how rapidly no one would have dared guess.

U.S. dominance dwindles

In 1968 and 1969 the U.S. merchandise trade surplus dropped from the $5-$7 billion range that had held during much of the decade to near balance. Concern in official circles intensified about the high value of the dollar and its increasingly detrimental impact on the ability of the U.S. to compete effectively in world markets.

Early in the 1970s the environment began to change quickly. The U.S. merchandise trade moved into deficit in 1971, by $2.3 billion. The gold window was closed; foreign holders of dollars could no longer claim U.S. gold reserves in return for dollars (August 1971). The dollar was twice officially devalued (effectively in August 1971 but formally at the beginning of 1972, then again in early 1973 prior to the general “floating” of exchange rates in March of 1973). The dollar depreciated further over the course of the decade. Meantime, OPEC gained effective control of sufficient crude oil supplies to enforce a quadrupling of world petroleum prices in late 1973. Large quantities of dollars acquired by the oil-exporting countries, especially the Arab oil exporters, were subsequently recycled to the developing countries of Latin America and Southeast Asia.

U.S. merchandise exports increased more than five times between 1970 and 1980. But during the same period imports increased more than six-fold and the trade balance slipped into constant deficit—averaging $26 billion annually during the last half of the decade.

Exports peaked in 1981, bottomed out in 1985, and not until 1987 did they exceed the 1981 level. Exports in 1989 are thought to have exceeded the 1981 peak by about 50 percent. All of that gain has occurred during the last three years.

Unlike exports, imports grew steadily throughout the 1980s and are estimated to have exceeded the 1981 level by about 80 percent during 1989. The divergence between export and import growth increased rapidly in 1983, and continued through 1987. During the period 1983 through 1989 the deficit averaged more than $120 billion annually.

Changes in trade flows of this magnitude over a period of two decades should reasonably be expected to include compositional changes—changes both in geographic patterns and commodity patterns of trade. To these we now turn.

Geographical changes in U.S. trade

Historically, the United States’ primary international trade relationships have been with other Western Hemisphere countries and Western Europe. As recently as 1970, two—
thirds of U.S. exports went to these regions and seven-tenths of imports came from these regions. (See Figures 2 and 3.)

Canada long held the position of primary trading partner, accepting 21 percent of U.S. exports in 1970 and sending 30 percent of U.S. imports. In terms of total trade, that is, exports plus imports, Canada remains the largest single trading partner for the United States. But, the dominant magnitude of the U.S./Canada trade relationship, as far as the overall U.S. trade picture is concerned, is not as secure as it once was. The U.S. actually exported a slightly larger proportion of its total to Canada in 1989, nearly 22 percent, than in 1970, when Canada received nearly 21 percent of U.S. exports (but the 1970 figure may be understated, see box). Canada’s contribution to U.S. imports, on the other hand, dropped sharply, from nearly 30 percent in 1970 to just under 19 percent in 1989.

The pattern of U.S. international trade in the late 1980s indicates that Western Europe has also become a less prominent trading partner. In 1970, one-third of U.S. merchandise exports went to Western Europe, but by 1989 the proportion had dropped to 27 percent. Likewise, with imports. In 1970, 28 percent of U.S. imports came from Western Europe but by 1989 the proportion had dropped by a quarter to 21 percent.

U.S./Latin American trade as a proportion of the U.S. total hovered in the low-to-mid teens throughout the two decades, diminishing only slightly in recent years.

If these traditional markets are accounting for a lesser share of the total than was formerly the case, it is clear that the excess has been picked up elsewhere. Imports from Japan increased sixteen-fold between 1970 and 1989. The import value of $94 billion in 1989 was the largest from any single country and was equal to 93 percent of the total from all of Western Europe. In 1970, imports from Japan were just shy of 15 percent of total U.S. imports and less than half the total from Canada. By 1989, imports from Japan had risen to 20 percent of the total and were slightly greater than imports from Canada.

U.S. exports to Japan did not fare as well as did imports, increasing less than ten-fold during the 1970–1989 period—therein lies the summary cause of the trade-related friction between the two countries. Nonetheless, U.S. exports to Japan did maintain a proportionate share of total U.S. exports—in fact, exports to Japan increased slightly, from less than 11 percent in 1970 to more than 12 percent of total U.S. exports in 1989. This was a relatively stronger performance than the deterioration in the share of U.S. exports going to Western Europe.
The growth area in trade

The dollar value of U.S. international trade increased ten-fold between 1970 and 1989—8.5 times for exports and 11.8 times for imports. But, the shares accounted for by traditional markets in Western Europe and the Western Hemisphere had a net downward shift. Some increase in trade share has taken place with Japan, but it was not sufficient to offset a decline in shares of the magnitude recorded in trade with Western Europe.

That leaves us with one of the more interesting trade developments of the past two decades, the emergence of the newly industrializing countries of Southeast Asia (NICs) as a major trading bloc. These four countries, Hong Kong, the Republic of Korea, Singapore, and Taiwan, have become a formidable trade bloc and are the focal point of the Southeast Asia (excluding Japan) market. In combination they exceed in importance the United Kingdom and West Germany, together, as a market for U.S. exports and as a source of U.S. imports.

In 1970, the NICs accounted for 4 percent of U.S. exports and 5 percent of imports. By 1989, the proportions had increased to 11 percent and 13 percent, respectively. By comparison, the rest of Southeast Asia (primarily Malaysia, Thailand, Indonesia, and the Philippines) has maintained a steady 2-to-4 percent share of U.S. exports and imports throughout the two decades.

Finally, one additional regional bloc requires mention. Eastern Europe and mainland China are not particularly significant in the overall U.S. trade picture currently (although with respect to U.S. exports of agricultural commodities and imports of clothing they are of some importance). As a market for U.S. goods these two areas have increased their aggregate share of the U.S. total from less than 1 percent in 1970 to 3 percent in 1989 with the current shares equally divided between Eastern Europe (including the Soviet Union) and China. However, imports from Eastern Europe have held at one-half percent of the total throughout the period. Imports from China, on the other hand, which were nil in 1970, increased to a 2.5 percent share of U.S. imports in 1989, most of that increase in share occurred after 1980.

In sum, there has been a substantial geographic redistribution in the pattern of U.S. merchandise trade during the past two decades. Three characteristics of this reshuffling of trade relationships stand out.

First, the traditional primary market sources for U.S. imports have experienced marked declines in import share, specifically, Canada and Western Europe. Still, these market areas remain at or near the top as sources of U.S. imports.

Second, the relative importance of Western Europe as a market for U.S. export goods has diminished. Nonetheless, Western Europe and Canada remain the dominant markets for U.S. exporters.

Third, Southeast Asia has increased dramatically as a market for exports and a source of imports. Importantly, the expansion in this potentially large market is a development not solely associated with the well-known surge in Japanese/U.S. trade but also with the less well-recognized but rapidly growing U.S. trade ties with the Asian NICs.

The composition of trade has also changed

The dynamic adjustment of U.S. trade away from some and toward other regions in a shifting world market is only half of the story. Interrelated with the geographical changes are the changes in the goods/commodity composition of trade—an issue to which we now turn.

Commodity exports

Even though the value of U.S. exports increased from nearly $43 billion in 1970 to more than $360 billion in 1989, the composition mix for major categories of exports appears to have changed surprisingly little (See Figure 4). The aggregate figure may be somewhat misleading because of possible undercounting in the early part of the period, however (see box).

Using an adjusted total as a base for calculating the export shares of various commodities indicates that the relative importance of agricultural exports has deteriorated, dropping from a 19 percent share in 1970 to 14 percent in 1988. Similar, but more modest, declines hold for exports of foods and live animals and intermediate manufactured materials, such as metals, building materials, and textile products.

Picking up the slack is the increased relative importance of chemicals, up from 10 percent to 12 percent of the export bundle, and
machinery, up from 29 percent to 33 percent. In the latter category, the export share for business machinery and data processing equipment more than doubled to nearly 9 percent between 1970 and 1988. Electrical machinery, power generating machinery, and telecommunications equipment all recorded increases in relative share.

**Commodities by countries**

Examination of trade by country-by-commodity provides a somewhat different picture of U.S. trade patterns than is gleaned from aggregate trade (see Figure 5). As noted in the box, for example, U.S. exports by country-by-commodity point out the distortion in trade patterns caused by the inadequate export documentation of overland shipments to Canada during the 1970s and early 1980s.

**Canada**

The most striking characteristic of the U.S. exports to Canada data is the "other" shipments category. This category share increased from 6 percent of the total in 1970 to 27 percent in 1988, a change that was more than adequate to wipe out meaningful trends during that period for the major goods.

Adjusting for the "other" shipments, however, indicates the following: Transportation equipment, automotive equipment in particular, is the one major category that recorded an appreciable increase in its share of the adjusted total, moving from 29 percent in 1970 to 36 percent in 1988. During the same period machinery exports maintained a 30 percent share. Agricultural commodities and intermediate manufactured goods currently account for a smaller share of U.S. exports to Canada than in 1970. Export share for the major manufactured-goods categories remained steady.

**Western Europe**

The pattern of U.S. exports to this region differ from those for Canada, not only in the direction of change for several of the categories, but also in the more substantial magnitude of the changes over time.

U.S. exports of machinery to Western Europe became substantially more important, increasing from 27 percent of the total in 1970 to 33 percent in 1988. Nearly all of that share increase was accounted for by the increase in business equipment and computers. Except for a slight increase in the share for power generating equipment, the share of other machinery categories remained stable across the nearly 20-year span.

The miscellaneous manufactured-goods category, which includes professional and scientific equipment, clothing, and printed matter, also increased, from 6 percent to 10 percent of the total. Exports of transportation equipment, primarily aircraft, also increased as a share of the total.
The "other" problem

In recent years merchandise trade data have included a sizable value of exports that did not neatly fall into the major commodity categories. These exports included such things as foreign goods reexported, shipments of military equipment, non-monetary gold, and undocumented exports to Canada. In the accompanying article these items are included in a residual category called "other." During the 1970s the recorded value of such exports was relatively small. But, during the 1980s the "other" category began to expand rapidly, raising questions whether there was something unusual going on with the data, and were these changes masking developments in other categories?

For example: Export shipments of machinery as a proportion of total U.S. exports changed only slightly during the 1970-1988 period, increasing less than 1 percentage point to nearly 28 percent of the total in 1988. This seems to defy the common perception that capital equipment, in particular, has become a substantially more important component of U.S. exports during recent years. Moreover, the share of intermediate manufactured goods actually declined by nearly 5 percentage points to 7 percent of the total between 1970 and 1988. Agricultural commodity exports recorded a decline in share from 17 percent of exports in 1970 to around 11 percent currently.

Most of the share declines noted in the agriculture and intermediate manufactured-goods categories were offset in the "other" category. And, it turns out that most of the rather substantial change in the "other" category can be identified as "undocumented shipments to Canada"—in large part overland shipments to Canada that are not covered by export documentation and that therefore are not counted in the regular export statistics. Only in recent years have these exports been picked up by U.S. trade authorities from Canadian import declarations.

Excluding the "other" category from total exports results in quite a different export pattern. Using this "adjusted total" as a base for calculating the export shares indicates that the relative importance of agricultural exports continues to deteriorate, dropping from a 19 percent share in 1970 to 14 percent in 1988. Similar, but more modest, declines hold for exports of intermediate manufactured materials, such as metals, building materials, textile products, and the like.

The adjusted total increases the relative importance of chemicals, up from 10 percent to 12 percent of the export bundle, and machinery, up from 29 percent to 33 percent. In the latter category, the export share for business machinery and data processing equipment more than doubled to nearly 9 percent between 1970 and 1988. Electrical machinery, power-generating machinery, and telecommunications equipment, all recorded increases in relative share.

On the down side, both the agricultural commodities and intermediate manufactured-goods categories became relatively less important components of the U.S. export bundle to the European market. In the aggregate they declined from a 31 percent share in 1970 to a 15 percent share in 1988. Chemical exports held a relatively stable share over the two decades—in the 10-to-12 percent range.

Japan

Share changes in exports to the Japanese market were rather modest. This is not surprising in light of the ongoing dispute between the U.S. and Japan over the alleged unwillingness of the Japanese to open their markets to new products—indeed, the stability of the market shares might be argued as a support for the U.S. contention.

The export share for machinery, which was nearly 19 percent in 1970, declined to 12 percent by 1980 before recovering to 18 percent in 1988, a net share loss. Within this category, business equipment, computers, and telecommunications equipment recorded modest share increases during the period, in the aggregate from 5 percent in 1970 to 8 percent in 1988. But these gains were offset by share reductions in the heavier equipment categories, such as power-generating and metalworking equipment.

Exports of chemicals and other intermediate manufactured goods increased their relative importance in the export bundle to Japan, moving up from 12 percent of the total in 1970 to 18 percent in 1988. The export share for the relatively minor category, professional and scientific equipment, doubled to more than 3
percent during the two decades.

Agricultural exports to Japan follow the nearly universal pattern, declining from 26 percent of U.S. exports to this market in 1970 to 20 percent in 1988. But the decline contains an interesting twist. The share of food and live animal exports increased from 14 percent to 18 percent.

A major difficulty for the U.S. in increasing more aggressively its exports to Japan is the fact that it has been unable to substantially increase machinery exports as a proportion of the total.

The NICs and Southeast Asia

This market is the most interesting of the major U.S. export markets. Not only is the rate of increase in U.S. exports to this area the most rapid of any major market area but the shift in commodity shares is a telling characteristic of the rapid economic development within this area. (The major countries in this grouping are the NICs—Hong Kong, the Republic of Korea, Singapore, and Taiwan—plus Malaysia, Thailand, Indonesia, and the Philippines.)

Food-related products accounted for a major proportion of U.S. exports to this area in 1970—28 percent of the total. By 1988 the share was down to 13 percent.
The share of intermediate manufactured products has also declined by nearly half to 6 percent. These shares declines, however, have been offset by increased export shares from capital intensive industries—chemicals up from 8 percent to 12 percent, aircraft from 1 percent to 4 percent, professional and scientific equipment from 1 percent to 2 percent, and machinery up from 25 percent to 33 percent. Within the latter category the largest share increases occurred in business equipment and computers, up from 2 percent to 7 percent, and electrical machinery and equipment up from 7 percent to 15 percent.

The four major market areas discussed above accounted for 72 percent of U.S. exports worldwide in 1970 and 74 percent in 1988. What of the remaining quarter of U.S. exports? In general, a larger share of U.S. exports to these “other” areas (Latin America, non-market socialist areas in Europe and Asia, Africa, South Asia, and Australia and Oceania) in 1988 was accounted for by agricultural products than was the case in 1970. Export shares for machinery, and transportation equipment if anything slipped a little from 1970 to 1988 and the export share of intermediate manufactured products dropped several percentage points. These characteristics reflect the economic difficulties that many of these regions have been experiencing, specifically, the inability to provide adequate food supplies to feed the population, a weak industrial base that can not support imports of capital goods or intermediate goods, and a heavy international debt burden.

**Commodity imports**

A twelve-fold increase in the value of U.S. imports between 1970 and 1989 (from $40 billion to more than $470 billion) contained within it a substantial change in composition mix, in the aggregate as well as from the individual source countries of those imports (see Figure 6).

The most dramatic compositional shift was that imposed by the oil price shocks in 1973–1974 and again in 1979–1980. These shocks greatly disrupted and distorted trade patterns during the period. While petroleum imports accounted for only 7 percent of imports in 1970 and a 10 percent share in 1989, they accounted for a 26 percent share in 1975, a 31 percent share in 1980, and a 14 percent share as recently as 1985 (see Figure 7).

Apart from these distortions, there were also trend changes occurring in the relative import composition of other major commodity groups. Not unlike the patterns noted above in U.S. exports to other industrial countries, the relative importance of U.S. imports of foods and agricultural products dropped substantially during the period—from 14 percent of total imports in 1970 to 5 percent in 1988. Crude materials’ share also declined as did the share for intermediate manufactured goods (basi-
Commodities by countries
The shift in import patterns was much greater than the shift in export patterns over the last twenty years (see Figure 8).

Canada
Traditionally Canada has been an important supplier of crude materials to the United States. In 1970, 26 percent of U.S. imports from Canada were foods, crude materials and minerals, and petroleum. While such materials remain an important component of U.S. imports the relative proportion has shifted substantially toward goods with a higher level of value added—in 1988 these higher value goods accounted for 18 percent of imports from Canada.

Crude materials, primarily minerals, lost share rather sharply, falling from 15 percent to 9 percent over the period. Offsetting most of that share decline was the relative increase in transportation equipment, mostly autos and parts, that in 1988 made up 33 percent of U.S. imports from Canada—compared with their 26 percent share of imports in 1970. The two other major import categories, intermediate manufactured products and machinery, which accounted for 19 percent and 12 percent, respectively, in 1988, showed only marginal changes in trade shares over the period.

Western Europe
Historically, Western Europe has primarily been a supplier of manufactured goods to the United States. In 1970, foods, crude materials, and petroleum made up less than 10 percent of imports from this area. The oil price shock pushed that proportion of this broad category of materials to nearly 15 percent in 1980. By 1988, however, such materials accounted for just over 8 percent of the total, less than in 1970. Imports of intermediate manufactured goods have also declined as a proportion of the total, from nearly 24 percent in 1970 to 17 percent in 1988. Most of that decline was associated with a contraction in the relative importance of iron and steel mill products and textiles in the overall U.S. import bundle.

The import share for chemicals nearly doubled to more than 10 percent. Machinery imports increased from 19 percent to 26 percent. Transportation equipment maintained a relatively stable share with 17 percent of U.S. imports from Europe in this category. Aircraft imports picked up share lost by automotive equipment.

Japan
More than any other trading area Japan is a supplier of manufactured goods to the United States. Furthermore, the composition of those manufactured goods has changed toward a greater degree of high-value-added products. The shift has been dramatic. Imports of intermediate manufactured goods stood at 32 percent of the total in 1970. In 1988, they accounted for only 8 percent of total imports from Japan. Transportation equipment, pri-
The NICs and Southeast Asia

This grouping of countries includes a conglomeration of diverse economically developing economies. The developing nature of these economies is reflected in the major compositional changes in U.S. imports from this region that have occurred during the past two decades.

Foods, crude materials, and petroleum imports made up 24 percent of U.S. imports from this area in 1970. With the high oil prices of the mid-1970s (Indonesia is the oil exporter in this group), the proportion rose to nearly 34 percent. By 1988, however, only 6 percent of U.S. imports from this region fell into these three raw materials categories.

The other major goods category to lose share was intermediate manufactured goods, which slipped 6 percentage points during the two decades to an 11 percent share in 1988.

The offset to these share declines in raw materials and intermediate manufactured goods came in the higher-value-
added machinery category. That share rose dramatically, from 12 percent of total imports from this region in 1970 to nearly 37 percent in 1988. Business and computer equipment, telecommunications equipment, and electrical machinery accounted for most of the gain in share—not a surprising development. But interestingly, nearly 4 percentage points of the gain was accounted for by an increase in the share of the “heavier” capital equipment, such as industrial machinery and power-generating equipment. A like gain was recorded in imports of transportation equipment, automotive in particular.

**Pulling it together**

U.S. international trade has changed dramatically during the past 20 years. Large increases in exports and imports, in value adjusted for price increases, have taken place during that period. Along with increased trade there have been substantial changes in the patterns of U.S. trade. These changes are manifest in differences in 1) the composition of trade with regard to the type of goods; 2) the regions with which trade is conducted; and 3) the type of goods traded by specific region.

**U.S. exports:** First and second place Western Europe and Canada, respectively, maintained their relative positions from 1970 to 1988. But examination of their rankings in various commodities indicates some slippage occurred. Latin America remained the fourth largest market for U.S. exports ahead of fifth place Japan. The pattern changes were dominated by the Asian NICs and Southeast Asia which have become a major market for U.S. manufactured goods. These countries, in the aggregate, ranked as the third largest market for U.S. exports in 1988, up from sixth place in 1970.

**U.S. imports:** The patterns of change have been more volatile for imports than for exports. Canada and Western Europe, which ranked first and second, respectively, in 1970, ranked third and first, respectively, in 1988. Japan, which became the dominant source of final product manufactured goods, supplanted Canada as the second largest source overall for U.S. imports in 1988. Southeast Asian countries again are impressive as they move from sixth place to fourth place as a source for U.S. imports. These gains primarily came as this region became the second largest source of machinery imports—following Japan—and the largest source for miscellaneous manufactured products (dominated by clothing, footwear, toys, games, and sporting goods).

The primary conclusion to be drawn from this discussion is derived from the increasing importance to the United States of Southeast Asia as an economic entity. It has become clear that Japan is not the only trade power in Asia. Economically, this is an area with which the U.S. has a vital interest.

Southeast Asia is an economic bloc that is not only a major expanding source of imports but also an expanding market for exports. These are not unrelated developments. It is true that Southeast Asia constitutes a low-wage area where U.S. firms have transferred certain high-cost production stages. But this process has brought with it increased U.S. exports that 1) support the transferred production and 2) result from the increased income generated by the export-oriented industrialization of these economies.

Finally, the geographical groupings identified in this article were drawn for more than reasons of expository simplicity. These regions are identifiable as relatively homogeneous economic markets and they are becoming more so. Southeast Asia is a clear example. The same is true for Western Europe.

Western Europe as a market holds the potential for considerable change in coming years—internally as the conditions of 1992 and beyond become a reality, and externally as the Eastern European economy increasingly blends with that of the West to become a single European market. Such change, should it occur, will result in considerable further trade pattern changes for the United States during the coming decade.