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World Agriculture

Situation and Outlook Report

In This Issue:

- Value-Weighted Quantity Indices of Exports for High-Value Agricultural Products
- Adjustment in the Japanese Textile Industry

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Contents

Summary

The economic growth rate of developed economies, which account for two-thirds of world gross domestic production, continues to wind down from its relatively high 4.3 percent of 1988. The 1989 rate slipped to 3.4 percent due to a slowdown in North America and some European countries. The general decline in growth was the result of lower public and private consumption, including business investment. The tighter money supply in the United States and West Germany has raised interest rates. While U.S. domestic consumption and investment activities have been dampened, West Germany's vigorous 1989 economy has actually provided an extra boost to the countries adjacent to its western border.

The world's overall growth for 1990 will be slower than in 1989 due to the weaker U.S. economy and the crimping effects of higher interest rates in Europe and Japan. Nevertheless, West Germany and Japan should keep growth in the developed sector relatively healthy at 2.6 percent this year.

The developing countries (LDC's) are expected to continue their slow but steady improvement in real output growth, with the exception of Africa and the Middle East. Continued strong expansion in Asia and a partial recovery in Latin America will carry the developing sector to a 4.2-percent pace in 1990 from 3.9 percent in 1989.

U.S. agricultural exports in fiscal 1990 are forecast at $38.5 billion, $500 million higher than November's forecast. The upward revision largely reflects a 3-million-ton increase in expected U.S. coarse grain exports. Prospects for foreign coarse grain imports have recently improved and U.S. corn is expected to capture a larger share. Total fiscal 1990 export volume is forecast at 148.5 million tons, 3 million above November's forecast and nearly 2 million above fiscal 1989.

However, export value is still expected to decline more than $1 billion from fiscal 1989. Lower prices for grains and oilseeds will offset increased export volume, and export value is likely to drop for the first time since fiscal 1986.

The forecast for U.S. agricultural imports was also raised $500 million, and now matches fiscal 1989's record $21.5 billion. December's severe freeze in Florida and Texas has increased prospects for fruit, juice, and vegetable imports. The forecast for the U.S. agricultural trade surplus remains unchanged at $17 billion.

In December 1989, the European Community submitted its comprehensive agriculture plan for the Uruguay Round negotiations under the General Agreement on Tariffs and Trade, completing initial presentation of agriculture reform plans and their various elements tabled by the major traders and other participants since 1986. Negotiation of these reform proposals is anticipated throughout 1990, leading up to the concluding session of the Uruguay Round scheduled for December in Brussels, Belgium.

This issue also examines the impact of trade liberalization on LDC's, where potentially greater economic growth stems from export growth and from gains in efficiency that are generated through a more rational allocation of resources.

This issue contains two special articles. "Value-Weighted Quantity Indices of Exports for High-Value Agricultural Products" finds that trade of these products has become increasingly important to world agricultural trade in 1961-86, when the U.S. volume of these exports doubled. "Adjustment in the Japanese Textile Industry" looks at the rise and fall of the industry and its present strategies, implying lower demand for U.S. raw cotton.

The World Economy And Exchange Rates

The economic growth rate of developed economies, which account for two-thirds of world gross domestic production, continues to wind down from its relatively high 4.3 percent in 1988. The 1989 rate slipped to 3.4 percent due to a slow-down in North America and some European countries. The general decline in growth was the result of lower public and private consumption, including business investment. The tighter money supply in the United States and West Germany has raised interest rates. While U.S. domestic consumption and investment activities have been dampened, West Germany's vigorous 1989 economy has actually provided an extra boost to the countries adjacent to its western border.

The world's overall growth for 1990 will be slower than in 1989 due to the weaker U.S. economy and the crimping effects of higher interest rates in Europe and Japan. Nevertheless, West Germany and Japan should keep growth in the developed sector relatively healthy at 2.6 percent this year.

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Eastern Europe's urgent need for investment funds should keep international interest rate levels relatively high in the next few years. Long-term interest rates, as evidenced by the world's bond markets, are being raised by heightened demand for financing and expectations of inflation. However, interest rates are not expected to reach the levels of the early 1980's, due largely to more sustainable energy prices, an imminent decline in defense spending, and diminished private lending to debt-burdened LDC's.

World Economic Activity
Eastern Europe

No near-term improvement is expected in Eastern Europe's anemic growth rate, which was 1.3 percent last year. The transformation of a number of Eastern European nations is taking place in a risky environment of external debt burden, release of formerly controlled consumer prices, and looming huge trade deficits. Low terms of trade, combined with high debt-service obligations, will make it difficult to use export earnings to acquire imports of critical capital goods. Western banks are approaching general balance-of-payment loans to nations having high debt-export ratios with caution. The bulk of economic reconstruction funds likely will be provided in the form of equity investments or in guaranteed credits from governments or multilateral lending agencies.

The current funneling of funds to Poland, Hungary, and East Germany will open Eastern Europe as a potential export market. While West Germany stands to benefit the most from these opportunities, its leading role as a conduit for capital and consumer goods to Eastern Europe should also require it to import more from the West, thereby reducing its huge trade surplus.

Interest rates in Europe will likely increase, especially if the Bundesbank neutralizes the inflationary impact of the Östmark overhang, at a one-to-one conversion rate, by raising short-term interest rates. The European Monetary System consequently might be forced to realign its member currencies. The diversion of capital to these markets will add to higher interest rate pressures in the United States despite its soft economy because of the need to finance its current account deficit.

World Trade

The growth of world exports should slacken a bit this year as U.S. export growth slows along with that of the LDC's. The overall trade balance for developed countries will remain negative but should taper off in 1990, while LDC's show a diminishing trade surplus overall. World trade should increase at a faster clip next year as economic activity in North America picks up and Asia and Latin America improve on their respective growth rates of 5.4 and 3.4 percent projected for this year.

Some LDC's are attempting to finance large external debts through net export earnings. However, in Latin America, merchandise terms of trade (price of exports relative to imports) further deteriorated last year as commodity prices for food, metals, and other industrial materials fell sharply. (U.S. dollar prices for nonfuel commodities fell 13 percent.)

However, by maintaining trade surpluses, the LDC's have managed to improve, albeit marginally, their exports' purchasing power (export earnings deflated by import prices). The fuel exporters, mainly members of the Organization of Petroleum Exporting Countries (OPEC), have suffered with respect to terms of trade and purchasing power of exports, both of which have declined by about 50 percent since 1980. Unless real prices for fuel and nonfuel commodities rise significantly, the low real value of merchandise exports of many LDC's will continue to restrain economic growth, particularly in highly indebted nations.

Crude Oil Imports

World demand for OPEC oil has remained strong despite an expected seasonal lull. Since mid-December, world oil prices have stayed firmly over $18 per barrel, the highest since 1986, and more than $1.60 over last year's average price of $16.66. Booming economies in Japan and West Germany, coupled with decreased exports by the USSR and increased demand in the United States and many LDC's, have kept worldwide demand high. OPEC has projected demand for its oil to rise to 28 million barrels per day (mbd) in 5 years and to 32 mbd by the end of the decade. Current OPEC production is just over 23 mbd, with an estimated capacity of almost 31 mbd.

U.S. crude oil imports in January shot up to well over half of domestic consumption, much higher than during the oil crises of 1973 and 1980. Part of the surge is being used to rebuild stocks drawn down in an unusually cold December. But the other part is replacing steeply declining U.S. oil production, which has skidded to a 26-year low of 7.6 mbd. Last year, U.S. imports of crude oil exceeded domestic production for the first time since 1979. Meanwhile, world demand for oil is rising, especially in Asia, and perhaps in Eastern Europe as well.

Oil prices are likely to stay close to $18 per barrel in the next few months, then start rising gradually as driving increases during the warmer weather. The second half of 1990 should show further firming of prices. Demand should pick up as oil refiners stock up for the colder seasons. Additionally, an interruption of oil supply from the North Sea due to maintenance and safety work on drilling platforms starting in June may push crude prices up by as much $1 per barrel.

World Monetary Conditions

Although the U.S. economy has been sputtering of late, interest rates have not fallen. One reason for this apparent contradiction is a stubborn inflation rate of 4.7 percent and the refusal by the Federal Reserve to ease its grip on the money supply. The other reason is the impact of higher foreign interest rates on U.S. bond and money markets. West Germany's rates have been climbing sharply in response to its robust domestic economy and jitters brought on by the prospect of even higher rates as monetary union with East Germany looms even closer.

In Japan, rising interest rates have rocked the Japanese bond and stock markets—hence the reluctance by the Bank of Japan to raise rates further. The motive for further boosting short-term rates in Japan is to prevent its trade surplus with the United States from getting bigger, given the deteriorating value of the yen. Instead, the Bank of Japan has defended the yen through market intervention (selling dollars), not by raising interest rates.

The transmission of higher interest rates abroad to the United States has been facilitated by the latter's persistent need to finance its budget and trade deficits. Competition for funds is coming from West Germany's efforts to integrate with a less productive East Germany, and from Eastern Europe's infrastructural and development demands. The continuing need to lend to debt-ridden LDC's is also draining the world's finite money supply; these countries will again feel the pain of higher interest rates at a time when recovery looks more promising.

International Interest and Exchange Rates

The dollar is now at a 30-month high against the yen and has gained almost 2 percent against the D-mark since last month. This strength helps mask the huge U.S. trade deficit with Japan; it provides fuel for upping Japanese and European interest rates, given their vulnerability to oil-price-induced inflation. The yen has suffered from a sharp decline in Japan's trade and current account performance during the past year. Meanwhile, the D-mark is currently being discounted in the foreign exchange market as expectations of greater inflation resulting from monetary union with East Germany surface.

The robust economies of Japan and West Germany, plus creeping inflation there, have sent their Eurocurrency rates upwards. In Japan, inflation has crept up mainly due to the 35-percent rise in the price of crude oil imports and the 16-percent depreciation of the yen against the dollar since last year. With German industry operating at nearly full capacity, the resource transfer to East Germany means not only increased imports, but more tapping of international funds, which for 1989's fourth quarter amounted to an estimated $24 billion. The competition for foreign funds has put the United States in the precarious position of dealing simultaneously with a sluggish economy requiring lower interest rates and the need to attract capital to finance its current account deficit.

The Euro-D-mark rate now enjoys an advantage of almost 20 basis points over the Eurodollar rate for 3-month deposits, and 44 basis points for 6-month deposits. Since last December, the mark has appreciated by 3.3 percent against the dollar. In contrast, despite an 11-percent (75 basis points) jump in the Euro-yen rate since the end of last year, the yen has depreciated by about 4 percent against the dollar. This can be explained by the remaining difference of 1 percentage point between the higher Eurodollar rate and the Euro-yen rate, and by the continued purchase of U.S. assets by the Japanese. Since the Eurocurrency rate for 1-year D-mark deposits is higher than for 3-month deposits, the market will most likely require a heftier premium in exchanging dollars for marks, if it has not already done so. In Japan, expectations of higher interest rates have jarred both the stock and bond markets and cost the yen some exchange value. [Alberto Jerardo (202) 786-1705]

World real economic growth

Calendar year	1988	1989	1990	1991
	Percent change			
World	4.3	3.6	3.1	3.4
World less U.S.	4.3	3.7	3.4	3.6
Developed countries	4.3	3.4	2.6	2.9
DC's less U.S.	4.2	3.6	2.9	3.1
United States	4.4	3.1	2.0	2.5
Canada	5.0	2.1	1.4	3.4
Japan	5.9	5.0	4.3	4.7
EC-12	3.7	3.5	2.7	2.6
Developing countries	3.7	3.9	4.2	5.3
Latin America	1.0	0.5	3.4	5.7
Mexico	1.1	3.0	4.3	3.7
Asia	9.2	5.5	5.4	7.2
South Korea	11.3	6.3	6.7	7.6
Taiwan	6.8	7.0	6.7	7.4
China	11.2	4.0	4.0	9.6
Middle East	1.4	6.9	4.0	4.1
Africa	2.2	2.5	1.7	2.4
Eastern Europe	2.8	1.3	1.3	2.0
USSR	4.9	2.5	1.0	1.9

Source: The WEFA Group

World Trade and Agricultural Policy

U.S. Agricultural Trade

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However, export value is still expected to decline more than $1 billion from fiscal 1989. Lower prices for grains and oilseeds will offset increased export volume, and export value is likely to drop for the first time since fiscal 1986.

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Commodity Highlights

Export volume for U.S. wheat and flour in fiscal 1990 is forecast at 34.3 million tons. If realized, this amount would constitute a 4.7-million-ton decline from 1989, due to smaller U.S. 1988/89 crop year supplies and increased competition. The export value forecast is $100 million below November, and $1 billion lower than in fiscal 1989. An unexpectedly large Southern Hemisphere crop and prospects of a large Northern Hemisphere crop have continued to press prices downward.

The forecast for U.S. coarse grain exports has been raised to 66.5 million tons, up 3.0 million from November's forecast. The revision reflects an increase in expected imports by Mexico, South Korea, Eastern Europe, and several other countries, and some decline in expected competitor exports. The revised forecast puts coarse grain exports up 5.5 million tons from fiscal 1989 to their highest level since fiscal 1981. A $700-million upward adjustment was made in the forecast export value because of the larger anticipated volume and higher prices than earlier forecast. At $7.3 billion, fiscal 1990's value of U.S. coarse grain exports is expected to decline only $100 million from 1989.

The volume forecast for rice was raised 100,000 tons to 2.6 million, but is still expected to fall 450,000 tons short of fiscal 1989 shipments due to lower import demand in major markets, notably Iraq. The export value of rice is expected to reach $900 million in fiscal 1990, compared with $956 million a year ago.

Major changes since November within the oilseed complex include a 500,000-ton upward revision in the forecast for U.S. soybean exports to 16.1 million tons, and a 400,000-ton reduction in the forecast for soybean meal, putting the new estimate at 4.2 million tons. The overall value for oilseed products was raised $100 million to account for these revisions. However, export value is still forecast $1 billion below 1989 levels due to lower prices brought on by abundant worldwide supplies.

The outlook for U.S. cotton remains unchanged from November's 1.7-million-ton forecast. The strong resurgence from last year can be attributed to competitive U.S. prices and strong foreign demand due to reduced export availability in two major competing nations—China and Pakistan. The increase in demand is expected to push export value to $2.6 billion in fiscal 1990 from 1989's $2.1 billion.

At $6.8 billion, the latest forecast for livestock, dairy, and poultry exports reflects a $200-million upward adjustment from November's estimate, mainly the result of improved prospects for poultry, pork, and hides and skins. While sales losses compared with fiscal 1989 are expected for some livestock items, such as variety meats, and live animals, they will be more than offset by the substantial increases expected in foreign demand for U.S. beef, poultry, and pork.

The forecast for horticultural products has been reduced $100 million from November's estimate to $4.3 billion, following a destructive freeze in Florida and Texas. But this figure represents an increase of about $140 million from 1989's record levels. The expected increase can be attributed to larger exports of fresh and processed fruits and vegetables, tree nuts, wines, and malt beverages. Continued strong demand from Pacific Rim countries is the major force driving this projected growth.

The forecast for U.S. agricultural imports has been raised $500 million since November, largely reflecting the impact of the December freeze in Florida and Texas. Import value is now expected to total $21.5 billion, unchanged from the fiscal 1989 record.

Imports of competitive products are expected to increase as fruit, fruit juice, and vegetable imports rise in response to reduced production in Florida and Texas. Record orange production in Brazil had been depressing orange juice prices before the freeze, but Brazil is now ideally positioned to respond to a smaller Florida harvest and reduced juice yields. Increased fruit imports are also expected from Mexico, in addition to larger shipments of winter vegetables. [Stephen A. MacDonald (202) 786-1822]

EC Proposal in GATT Negotiations

In December 1989, the European Community (EC) submitted its comprehensive agriculture plan for the Uruguay Round negotiations under the General Agreement on Tariffs and Trade (GATT), completing initial presentation of agriculture reform plans and their various elements tabled by the major traders and other participants since 1986.

The EC global proposal treats a number of elements familiar to participants, specifically addressing commitments pertaining to support and protection, tariffication and other means to adapt support and protection, and special and differential treatment for LDC's. Included in these elements are:

- Commitments to reduce support and protection within EC borders in terms of the EC Support Measurement Unit (SMU), an aggregate measure that would remove the effect of fluctuations in exchange rates and market prices by using fixed reference prices as a base, thereby limiting the SMU's responsiveness to world price signals;

- Very specific and limited product coverage to include cereals, rice, sugar, oilseeds, milk, beef and veal, plus new additions to cover pig and poultry meat and eggs, as well as processed agricultural products which the EC believes should be covered;

- Reductions in support over 5 years, with a review of the situation in farm products in the fourth year to establish what further reductions, if any according to the EC, should be made and at what rate;

- A 1986 reference year to credit measures adopted since the beginning of the Uruguay Round, with the 1984 EC dairy production quota program, now extended to 1992, an obvious candidate in the minds of EC negotiators;

- "Rebalancing" support and protection against directly competing products because of import arrangements that provide little or no protection, which would in effect increase protection by raising tariffs on products such as U.S. oilseeds and nongrain feeds during liberalization talks aimed at lowering protection, ostensibly in exchange for EC cuts in barriers on other products such as grains;

- Tariffication limited to the extent "rebalanced" protection is agreed, including the conversion of deficiency payments to tariff calculations as well as such important EC border protection measures as variable levies and import quotas;

- A fixed amount of assured border protection for products, derivatives, and substitutes included under the SMU, to be reduced only at a rate similar to the reduction in the SMU, and corrected for exchange rate and world market fluctuations that exceed agreed limits;

- Limiting export subsidies to the level of import protection, thus assuring continued export subsidies since the EC proposal ensures border protection;

- More flexibility for LDC's in their commitments to and implementation of support reduction, to vary according to their level of development and development needs;

- Additional food and financial aid for net food-importing LDC's during a transition period when food prices increase as a result of agricultural support reforms.

The EC included a submission concerning sanitary and phytosanitary measures which supports the long-term approach to harmonization of health-related standards elaborated in the Mid-Term Agreement. The broad categories of international standards, which the EC suggests should serve as the basis of the harmonization efforts, are the same as those included in the U.S. comprehensive proposal. The EC measures would aim to develop harmonization of standards, while still allowing use of national standards in particular cases. They would also seek agreement on a common interpretation of and set of procedures for GATT Article XX where it relates to protection of human, animal or plant life or health.

In a statement on the EC proposal released on December 20, U.S. Trade Representative Carla Hills and Secretary of Agriculture Clayton Yeutter said:

"While the proposal contains some positive indications, we are concerned with the continued reliance by the EC on managed agriculture and, in particular, the apparent intention to continue to rely upon large scale subsidies and especially export subsidies. Government programs that manage markets are one of the major causes of the current trade distortions in agriculture. The successful future of trade in agriculture depends on market liberalization and significant reduction of subsidies that distort trade.

"The United States cannot accept the EC's proposal to 'rebalance' import protection. Rebalancing would raise tariffs, reduce market access and increase the price of food to consumers. Rebalancing is simply protectionism by another name, and we believe that the other GATT countries will recognize it as such.

"The EC's version of tariffication—retaining a country's right to vary import charges with fluctuations in market prices and exchange rates—does little to liberalize market access. The EC's approach on export subsidies is unacceptably weak and totally out of step with the other Uruguay Round proposals."

Negotiation of the EC and other GATT contracting parties' reform proposals is anticipated throughout the remainder of 1990, leading up to the concluding session of the Uruguay Round scheduled for December 1990 in Brussels, Belgium. [Edward C. Wilson (202) 786-1693]

Implications of Trade Liberalization for LDC's

Although little empirical work exists on the effects of overall trade liberalization on LDC growth, it is clear that relatively small annual increases in economic activity could, over · longer periods, have significant impacts. Recent research indicates that trade liberalization that provides a 0.75-annual-percentage-point boost to gross national product (GNP) will increase LDC economic activity by over 8.0 percent at the end of this decade over what would otherwise have been expected. The potentially greater economic growth stems most obviously from trade effects (chiefly export growth) and from gains in efficiency that are generated domestically through a more economically rational allocation of resources.

Trade liberalization could generate increased export growth via three main avenues. Possibly the largest increase would come through a rise in income spawned by the domestic efficiency gains of resource allocation, though such gains may well occur only after a costly transition period. Also, additional exports would be generated through the removal of trade barriers, such as quotas and tariffs.

Finally, trade liberalization, because of more efficient resource use, implies an outward shift in aggregate supply and consequently lower aggregate prices. Assuming such a price decrease would also reduce aggregate export prices, exports would rise. It should be emphasized that this would be an aggregate price fall—some individual sectors, such as agriculture, could well experience rising prices.

Recent studies show that LDC's as a whole would only have to increase real exports by approximately 1.67 percent to boost their real growth by 0.5 percentage point. Given the response of world trade to liberalization under the Tokyo Round (1973-79), increases in exports of 1 or 2 percent arising from the current trade negotiations would not be at all unreasonable. Results of this magnitude have been generated by USDA researchers on the assumption that trade liberalization would expand the GNP of the main industrial countries by 0.25 percent annually. [1]

The increases in real GNP that can be expected from a more efficient allocation of resources are potentially more important to LDC economies than to those of industrial countries. For one thing, agriculture in LDC's accounts for a much higher proportion of GNP than it does in industrial countries. Also, many of the policies followed (for instance, taxes on production and overvalued currencies that make imports cheap) currently force resources out of agriculture; a reallocation would undoubtedly channel resources into that sector.

There are no studies that estimate the total efficiency effects of trade liberalization on LDC economies. Some work has been done on gains expected from the liberalization of LDC agriculture. ERS research involving a simulation with a static model shows agricultural trade liberalization increasing LDC economic activity by between 1.5 and 6.0 percent, depending on the assumed income multiplier. [2] Another study, using a 10-percent rise in agricultural prices to simulate trade liberalization, estimates that real LDC economic

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[1] Ralph Monaco and James Malley, "Macroeconomic Base Scenario and Increased Potential GNP Alternative," in USDA, Economic Research Service (ERS), *Agricultural Trade Liberalization: An Analysis of the U.S. Proposal*, unpublished briefing book, March 1990.

[2] Barry Krissoff, John Sullivan, and John Wainio, "Developing Countries in an Open Economy: The Case of Agriculture," paper presented to the World Bank/OECD Symposium on Implications of Agricultural Trade Liberalization for Developing Economies, Paris, Oct. 5-6, 1989.

activity would be boosted just over 1 pecent.[3/] Neither study is dynamic, but assuming the changes occur over a 10-year period, agricultural trade liberalization would raise the GNP of LDC's between 0.1 and 0.6 percentage points per year. Given that the agricultural sector in LDC's is quite large, it seems safe to assume that liberalization in this sector would account for the lion's share of efficiency gains and enhanced GNP. When effects of liberalization in other sectors are added, one would expect the gains to GNP to be that much greater. But, as noted above, no such studies exist. Therefore, to be on the conservative side, it is safer to assume that the boost to LDC growth resulting from trade liberalization efficiency gains will at least match the 0.25-percent gain assumed for the main industrial countries by Monaco and Malley.

Under the scenario outlined above, fully successful trade liberalization would expand LDC economic growth by 0.75 percentage point per year, with a 0.25-percent gain coming from "efficiency" effects and a 0.5-percent gain fostered by "export" effects. Such a result would mean that by the year 2000, the real GNP for LDC's would be some 8.5 percent higher than it otherwise would have been. Accompanying this supplemented economic activity would be higher employment, investment, savings, and trade, all of which would greatly aid LDC prospects for the future. [Tim Baxter (202) 786-1705]

[3/] Thomas Loo and E. Tower, "Agricultural Protectionism and the Less Developed Countries: The Relationship Between Agricultural Prices, Debt Servicing Capacities and the Need for Development Aid," in Andrew B. Stoeckel, David Vincent, and Sandy Cuthbertson (eds.), *Macroeconomic Consequences of Farm Support Policies* (Durham, NC: Duke University press, 1989.).

International commodity prices

| Year | Wheat | | | | Corn | | Soybeans | Soyoil | Soymeal 44% | |
	U.S. 1/	Arg. 2/	Can. 3/	Aust. 4/	U.S. 5/	Arg. 2/	U.S. 5/	U.S. 6/	U.S. 6/	Ham. 7/
					\$/metric ton					
1980	176	203	192	175	129	159	272	522	217	271
1981	176	190	194	175	135	139	272	464	223	269
1982	161	166	165	160	110	109	233	404	197	233
1983	158	138	167	161	137	133	269	518	222	255
1984	153	135	166	153	138	132	271	678	184	210
1985	137	106	173	141	114	103	214	596	140	171
1986	117	88	161	120	89	83	200	361	174	197
1987	114	89	134	115	77	80	204	349	194	215
1988	146	125	178	150	107	105	287	519	259	285
1989	171	151	202	176	112	111	260	446	239	256
Jan.	175	NQ	213	179	119	119	297	463	274	301
Feb.	173	NQ	212	178	118	118	290	463	258	287
Mar.	179	NQ	210	183	119	122	296	485	260	291
Apr.	176	NQ	207	179	116	118	280	482	244	285
May	177	NQ	209	182	119	115	280	490	237	256
June	170	156	204	178	114	114	275	458	251	254
July	168	155	204	175	108	108	267	438	254	255
Aug.	165	155	196	170	102	106	231	394	237	225
Sept.	164	149	188	171	103	104	225	410	239	229
Oct.	165	149	190	172	107	103	219	413	212	232
Nov.	168	147	191	174	110	105	227	430	203	233
Dec.	170	149	194	176	110	105	229	421	198	229
1990										
Jan.	169	143	192p	175	106	105	223	431	189	221

NQ = No quote. p = Preliminary.
1/ No. 2 hard winter, ordinary protein, f.o.b. Gulf ports. 2/ F.o.b. Buenos Aires. 3/ No. 1 western red spring, 13.5% protein, in store Thunder Bay. 4/ July-June crop year, standard white, f.o.b. selling price. 5/ U.S. No. 3 yellow, f.o.b. Gulf ports. 6/ Decatur. 7/ Hamburg, f.o.b. ex-mill.

Value-Weighted Quantity Indices of Exports for High-Value Agricultural Products

by
Larry Traub*

Abstract: In studying the ever-changing dynamics of agricultural trade, policymakers have become more interested in changes in the quantity of exports of high-value products (HVP's), or value-added agricultural products. The Economic Research Service (ERS) addressed this concern by computing value-weighted quantity indices of exports for different degrees of processing, placing special emphasis on HVP's. Trade of higher-valued processed agricultural products became increasingly important to world agricultural trade in 1961-86, when the U.S. volume of these exports doubled.

Keywords: High-value agricultural products, exports, indices, degrees of processing.

With the ever-changing dynamics in agricultural trade, decisionmakers and public policymakers have become increasingly interested in changes in the quantity of exports of high-value agricultural products, sometimes called value-added agricultural products. The Economic Research Service (ERS) conducted a study that computed value-weighted quantity indices of exports for different degrees of processing, with special emphasis on high-value products (HVP's) *(1)*. This article discusses the setting of world and U.S. trading of HVP's, the major findings of the study, characteristics of the study's classification schemes, and, very briefly, the study's computational procedures.

Setting

As world trade in unprocessed commodities grew from $32 billion in 1961 to $93 billion in 1986, trade in HVP's increased in real terms from around $30 billion to $135 billion annually, according to country data on value and quantity of exports compiled by the Food and Agriculture Organization (FAO) of the United Nations *(2)* (fig. A-1). An expansion of this magnitude indicates a market with growth potential for U.S. agricultural exports.

With the exception of the early and mid-1970's, however, U.S. exports have not been able to keep pace with changes in the world HVP market (fig. A-2). Does this mean that U.S. exports of processed products have not grown over the past three decades? Not really. U.S. exports of HVP's, in real terms, reached their peak in the late 1970's, fell during the early 1980's, but turned up in the mid-1980's (fig. A-3).

Increased exports of processed products could lessen U.S. dependence on bulk agricultural commodities for export earnings and increase value added in the agricultural sector, thereby increasing economic activity and employment. Changes in such variables as relative export prices, exchange rates, income, and capital availability influence the expansion of HVP exports. Government policies on agriculture, trade, spending, and money also affect HVP trade.

Findings

World trade of higher-valued processed products has become progressively more important to the agricultural sector over the past three decades. The importance of semi-processed products to total food, feed, and tobacco trade increased almost fourfold from the early 1960's to the mid-1980's, while trade of low-value unprocessed commodities increased at only three-fifths that rate (fig. A-4).[1] A number of highly processed products enjoyed favorable export markets during the study period. They include products in the categories of tubers and roots, nonalcoholic beverages, chickens, and wheat (table A-1). The low-value unprocessed commodities that experienced the largest worldwide percentage increases are feedstuffs, mixed and other grains, nonalcoholic beverages, and cocoa and chocolate products.

How well has the United States done in the trading of highly processed agricultural products? The U.S. volume of these exports doubled from the early 1960's to the mid-1980's (fig. A-4). Nonalcoholic beverages, other food preparations, nuts, cocoa and chocolate products, and wheat showed the greatest percentage increases (table A-2); sugar, cattle, and other animals grew the most of all semiprocessed products.

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[1] For discussion of categories, see "Classification Schemes," below.

Both industrial market economies (excluding the United States) and upper middle-income economies have experienced continuous and substantial growth in exports of both highly processed and semiprocessed agricultural products from the early 1960's through the 1980's (table A-3), although upper middle-income economies saw little improvement in the growth of their semiprocessed markets in 1986. Lower middle-income economies substantially increased their exports of highly processed products during the period studied, while their exports of semiprocessed products rose at a lower rate.

High-income oil-exporting economies, countries noted for their food and feedstuff imports, started exporting live cattle in the late 1970's and low-value unprocessed commodities, principally wheat and low-value byproducts of fodders, hay, and other feedstuffs, in the early to mid-1980's. Countries classified as low-income experienced no growth in exports of either highly processed or semiprocessed agricultural products from the early 1960's to the mid-1980's. Their exports of low-value byproducts increased except from the late 1970's through the mid-1980's, when this expanding market may have been dampened by the worldwide recession. Centrally planned economies saw considerable growth in their highly processed export market from the 1960's to the present, but experienced an erratic trade pattern for semiprocessed products. Those economies not classified witnessed only small growth in their HVP exports over the past 10 years.

During the past two and half decades, North America (excluding the United States) and Western Europe exhibited continuous export growth for highly and semiprocessed products (table A-4). Eastern Europe saw its highly processed agricultural exports double during the study period, while its semiprocessed exports remained nearly constant. The USSR's export volume of highly processed products is stable, but its exports of semiprocessed products have declined since their peak of the late 1960's.

Caribbean countries substantially increased their exports of tubers and roots. This increase raised the percentage of low-value unprocessed commodities from 4 percent in 1961-64 to 212 percent in 1986. Even though Central America's exports of highly processed agricultural exports expanded almost fourfold from the early 1960's to the mid-1980's, its exports of low-value commodities dropped 97 percent from its peak of the late 1960's. Exports of the highly processed products of animals, wheat, vegetables and pulses, tubers and roots, cocoa and chocolate products, beverages, and other food preparations grew by the largest percentages.

Exports of oilseeds, principally soybeans, kept up South America's exports of high-value unprocessed agricultural commodities, despite an 80-percent drop since the early 1960's in exports of eggs, another high-value unprocessed agricultural commodity.

Africa's total food, feed, and tobacco exports held steady over the study period, but exports of low-value byproducts decreased by 65 percent and highly processed products by 26 percent. In contrast, exports of low-value byproducts from the Middle East have increased continuously from the mid-1960's. Exports of highly and semiprocessed products from the Middle East have risen more than three and two times, respectively, since the early 1960's. South Asia has expanded its agricultural exports of low-value byproducts from the early 1970's through the 1980's.

All forms of agricultural exports from Southeast Asia and the Pacific islands grew throughout the period. Exports of corn, sorghum, and wheat from East Asia caused the substantial percentage increase in the region's low-value commodity exports during the 1980's. East Asian oilseed exports climbed almost threefold from the early 1980's to 1986. Australia and New Zealand experienced only modest growth in exports of highly and semiprocessed products, but saw substantial growth in the remaining forms.

Classification Schemes

The value-weighted quantity indices for these exports were placed into 24 different product/commodity classes. Each class was subdivided into five different processing degrees: highly processed products; semiprocessed products; high-value unprocessed commodities; low-value unprocessed commodities; and low-value byproducts.

This classification scheme has evolved from one developed in the early 1980's by ERS for a study on HVP trade (3). The earlier study categorized its trade data into highly processed products, semiprocessed products, high-value unprocessed products, and low-value products. To make each category more distinct, the present study altered the earlier scheme by adding the category of low-value byproducts (all items in the commodity class of fodders, hay, and other feedstuffs) and by changing the last word in the last two categories from products to commodities.

A problem encountered in the current scheme, as in any other scheme, is to maintain consistency between and within category levels included in the classification. Here the consistency desired is between degrees of processing within and between commodity/product classes.

Figure A-1
World Exports of Processed Food, Feed, and Tobacco Products, Real Terms

$ billion
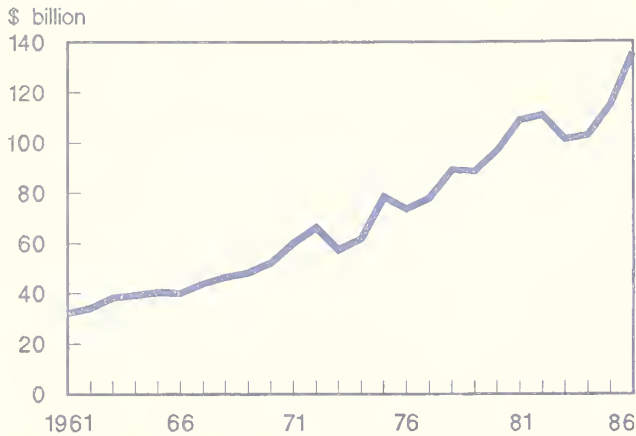
Deflator: IMF commodity price index, 1982 = 100.

Figure A-3
U.S. Exports of Processed Food, Feed, and Tobacco Products, Real Terms

$ billion

Deflator: GNP implicit price deflator, 1982 = 100.

Figure A-2
U.S. Share of World Market, Highly Processed Food, Feed, and Tobacco Products

Percent
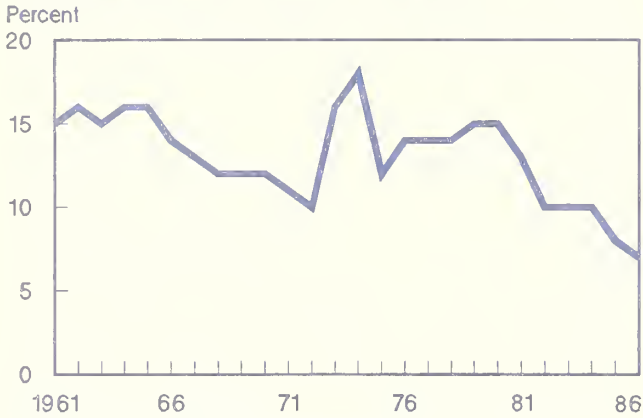
Deflators: For U.S. – GNP implicit price deflator, 1982 = 100; for world – IMF commodity price index, 1982 = 100.

For example, the product class of cattle has three levels of processing: highly processed products, semiprocessed products, and high-value unprocessed commodities. The highly processed product class includes the FAO items of dried, salted, and smoked beef, beef and veal sausages, beef preparations, canned beef, and dried beef not elsewhere classified. The semiprocessed products class includes the FAO items of beef and veal and boneless beef and veal, while the high-value unprocessed commodity class includes live cattle. For cattle, the intensity of processing seems to rise with each higher degree of processing.

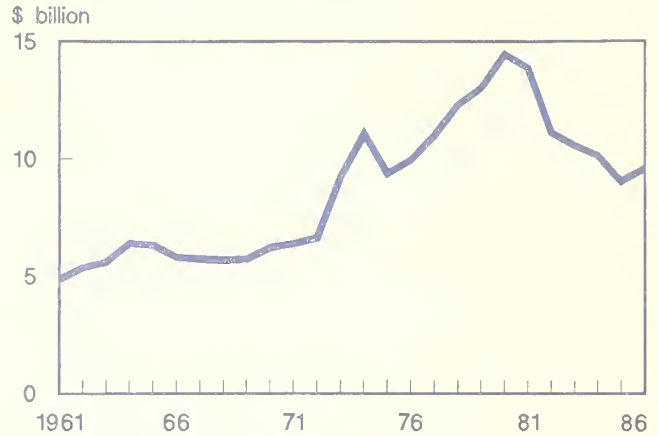The fruit class also has three levels of processing: highly processed products, and high- and low-value unprocessed commodities. The unprocessed commodities are the fresh form of sundry fruits. The highly processed category includes frozen, desiccated, concentrated, juiced, canned, or dried fruits.

The between-product class problem centers around the fact that the processed forms of one product class (such as beef) are ranked at the same processing level of another product class (such as fruit), even though one or more of the processing activities of one product class can be very elementary compared with the processing activities in another product class. For example, both diced canned pineapples and dried beef are classified as highly processed products. The beef product goes through a complex process, while the fruit product requires only limited processing.

The within-processing category problem is somewhat different. Let's examine the case of frozen concentrated orange juice (FCOJ), a product classified as highly processed because of its consumer appeal. At present, FCOJ is imported in either large containers or consumer/restaurant-sized packages. The product that enters in large containers is packaged into consumer/restaurant units or reconstituted into a full-strength product. Since FAO does not classify export data by container size, further subdividing FCOJ export data into groups based on container size is not feasible.

This analysis requires both a commodity classification scheme, as described above, and a country grouping scheme. Quantity indices of agricultural exports were computed for

World, % of 1980

United States, % of 1980
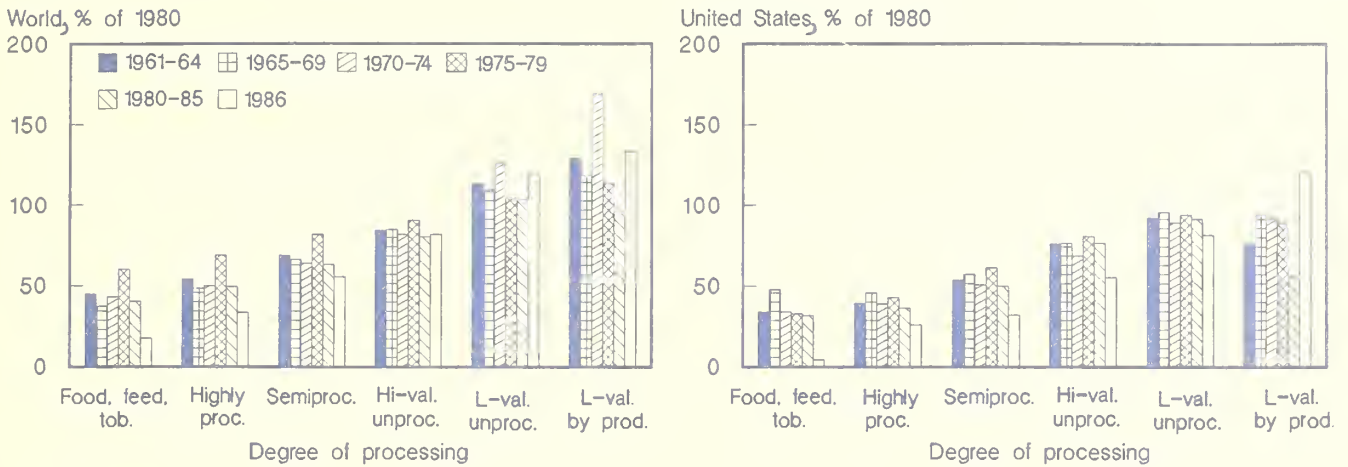
151 countries and aggregated into the world and (excluding the United States) also aggregated into 7 economic groups and 13 geographic regions. Except for changing the title of the nonmarket economies group to the centrally planned economies group, the World Bank's country classification scheme was the basis for economic groupings *(5)*. The regional arrangement proposed for the *World Agriculture Trends and Indicators* report was the basis for the geographic regions *(4)*.

Computational Procedures

Actual computation of the indices is a lengthy process, which can only be summarized here. The logical starting point for computing value-weighted quantity indices of exports for either HVP's or commodities would be to multiply each element's quantity in the base year by its corresponding observed export price. Because appropriate export prices were not available, unit values (UV's) were used in their place. A UV is the ratio of value exported to its corresponding quantity. For all countries, UV's were computed in 1980 for each of the 463 FAO categories.

Each UV was then multiplied by each product's corresponding quantity exported to compute an HVP/commodity export value in 1980 prices. Next, for all 463 categories, all 26 years, and all 151 countries included in the study, quantity export ratios were calculated—the quantity exported in each year divided by the quantity exported in 1980. Finally, these ratios were multiplied by 100 to compute the unweighted quantity export indices.

For these indices to have economic meaning, however, they must be aggregated into groups through a weighting process. Share weights form the basis for aggregating the unweighted quantity indices into the desired groups. These weights indicate the importance of an element in a group of elements, and constitute ratios of 1980 export values for a product to the sum of export values for all products in the group.

For each country the process aggregated the unweighted indices by degree of processing respective of each commodity

or product class and irrespective of each class and for all food, feed, and tobacco. The aggregation process then reweighted the unweighted export indices to calculate value-weighted quantity indices by the same categories specified above for 7 economic development groups, 13 geographic regions, and the world.

References

1. Traub, Larry. *Value-weighted Quantity Indices of Exports for High-Value Agricultural Products.* U.S. Department of Agriculture, Economic Research Service. Statistical Bulletin, forthcoming.

2. Food and Agriculture Organization of the United Nations (FAO). *FAO Trade Yearbook Tape.* Rome, various years.

3. U.S. Dept. of Agric., Econ. Res. Serv. *High-Value Agricultural Exports: U.S. Opportunities in the 1980's.* FAER-188. September 1983.

4. _____. *World Agriculture Trends and Indicators, 1970-89.* Statistical Bulletin, forthcoming.

5. World Bank. *World Development Report 1986.*

Table A-1--World: Value-weighted quantity export indices of food, feed, and tobacco commodities and products
by degree of processing and commodity and product grouping

Commodity/degree of processing	1961-64	1965-69	1970-74	1975-79	1980-85	1986	Average 1961-86
				1980 = 100			
Total, food, feed, and tobacco	45.04	54.05	68.81	84.66	113.03	129.20	77.89
Total, highly processed products	37.15	48.28	66.17	84.98	109.89	118.88	74.00
Total, semiprocessed products	43.14	49.94	63.88	81.95	126.83	170.00	80.09
Total, high-value unprocessed	60.03	69.08	81.72	90.58	105.50	113.92	84.38
Total, low-value unprocessed	40.45	49.52	63.41	80.40	104.51	96.35	71.23
Total, low-value byproducts	17.50	33.53	55.72	81.72	119.39	133.39	68.25
Cattle:							
Highly processed	59.66	70.62	76.85	106.09	103.11	93.17	85.32
Semiprocessed	42.01	50.68	66.29	87.48	102.11	122.49	74.06
High-value unprocessed	72.00	81.14	94.90	100.71	102.11	104.62	91.89
Hogs:							
Highly processed	73.38	91.40	98.38	92.75	106.69	112.40	94.57
Semiprocessed	23.42	39.62	61.57	79.26	118.66	147.47	71.36
High-value unprocessed	22.47	31.42	51.96	68.40	94.55	112.90	58.81
Chickens:							
Highly processed	14.83	22.72	27.52	52.21	118.05	131.81	54.30
Semiprocessed	22.02	28.76	44.55	66.87	113.91	116.52	61.11
High-value unprocessed	29.37	41.36	52.29	77.97	113.17	119.09	68.22
Turkeys:							
Semiprocessed	18.96	23.11	26.12	55.12	94.15	124.03	49.48
High-value unprocessed	0.31	16.07	37.75	61.58	108.50	146.11	55.00
Animals, other and mixed:							
Highly processed	121.99	108.75	125.04	104.69	137.03	140.65	120.89
Semiprocessed	40.88	55.61	67.79	87.83	89.26	73.28	70.33
High-value unprocessed	60.61	63.98	76.55	82.87	99.04	107.76	79.29
Animals, offals and fats:							
Highly processed	53.16	61.42	72.10	86.14	96.73	89.65	76.19
Semiprocessed	45.68	52.70	66.45	88.58	112.43	126.60	77.79
Eggs:							
Highly processed	42.42	81.20	70.71	81.99	105.42	119.56	80.43
High-value unprocessed	61.86	45.31	59.72	77.82	105.46	99.12	72.83
Dairy:							
Highly processed	36.88	46.18	60.39	78.08	103.38	104.95	69.08
Semiprocessed	16.62	24.31	53.50	86.82	138.61	177.79	73.04
Corn and sorghum:							
Semiprocessed	27.70	39.67	46.83	74.16	106.55	111.93	64.05
Low-value unprocessed	25.83	40.49	53.80	82.47	94.67	76.82	62.77
Wheat:							
Highly processed	24.24	35.24	56.02	78.30	122.25	152.29	70.41
Semiprocessed	69.07	60.97	65.74	84.30	98.73	89.13	77.42
Low-value unprocessed	47.89	54.51	66.36	76.78	109.21	97.88	74.35
Rice:							
Semiprocessed	52.52	57.68	63.74	75.12	94.14	91.93	71.14
Low-value unprocessed	295.72	298.48	209.21	172.54	176.89	359.75	230.96

Continued--

15

Table A-1--World: Value-weighted quantity export indices of food, feed, and tobacco commodities and products by degree of processing and commodity and product grouping--Continued

Commodity/degree of processing	1961-64	1965-69	1970-74	1975-79	1980-85	1986	Average 1961-86
				1980 = 100			
Other and mixed grains:							
Highly processed	27.01	36.60	60.90	85.14	109.36	112.96	68.86
Semiprocessed	12.43	19.16	37.72	63.47	104.70	139.07	54.57
Low-value unprocessed	47.98	48.49	78.25	84.46	118.09	152.89	81.13
Oilseeds:							
Semiprocessed	31.23	38.77	55.72	76.91	111.52	132.53	68.60
High-value unprocessed	25.71	36.70	58.23	77.93	102.86	114.31	65.33
Vegetables and pulses:							
Highly processed	25.96	39.03	62.85	85.09	133.65	161.74	77.01
Semiprocessed	64.55	46.82	195.07	162.43	168.96	250.49	136.31
High-value unprocessed	50.55	64.41	72.98	84.91	109.92	131.28	80.94
Low-value unprocessed	40.69	50.83	65.27	81.06	105.51	110.19	72.76
Tubers and roots:							
Highly processed	2.80	9.62	25.18	68.29	143.15	196.86	60.86
Semiprocessed	71.71	82.53	76.71	86.96	116.59	104.73	89.31
Low-value unprocessed	64.49	70.92	80.60	89.79	105.84	115.30	85.19
Fruits:							
Highly processed	48.77	59.42	74.32	87.89	111.59	121.97	80.57
High-value unprocessed	55.93	69.76	84.69	95.31	104.47	119.28	85.33
Low-value unprocessed	43.59	46.39	65.36	88.85	133.19	176.32	82.80
Sugar:							
Highly processed	46.07	63.98	84.40	100.82	108.92	126.06	85.00
Semiprocessed	65.71	69.42	79.80	90.84	104.16	100.77	84.19
Low-value unprocessed	195.16	93.50	95.92	137.49	142.66	156.12	131.82
Nuts:							
Highly processed	77.96	89.84	87.51	97.94	114.59	149.10	97.11
High-value unprocessed	73.72	85.23	103.48	119.61	101.99	74.10	97.02
Low-value unprocessed	69.63	70.95	68.14	80.63	123.88	193.50	88.99
Cocoa and chocolate products:							
Highly processed	25.16	41.78	63.18	82.58	116.79	141.69	72.34
Semiprocessed	21.31	31.70	43.31	75.88	104.57	116.88	60.92
High-value unprocessed	98.82	105.13	110.31	99.21	118.52	134.80	108.25
Nonalcoholic beverages:							
Highly processed	16.57	14.02	26.29	58.52	119.66	168.93	55.67
Semiprocessed	16.78	26.59	59.86	85.37	116.45	135.53	67.71
High-value unprocessed	77.55	84.46	92.09	93.33	106.39	111.44	92.67
Alcoholic beverages:							
Highly processed	34.84	44.84	70.27	91.70	102.13	97.01	72.43
Other food preparations:							
Highly processed	21.72	35.03	56.73	77.03	116.16	130.66	67.63
High-value unprocessed	54.14	63.03	70.88	93.64	111.36	118.94	82.36
Tobacco:							
Highly processed	22.72	33.69	56.90	84.07	105.57	111.51	65.74
High-value unprocessed	70.07	76.18	88.60	98.68	102.57	95.67	88.80
Fodders, hay and other feedstuffs:							
Semiprocessed	35.19	43.84	57.84	76.72	350.29	751.19	149.45
Low-value byproducts	17.50	33.53	55.72	81.72	119.39	133.39	68.25

Table A-2--United States: Value-weighted quantity export indices of food, feed, and tobacco commodities and products by degree of processing and commodity and product grouping

Commodity/degree of processing	1961-64	1965-69	1970-74	1975-79	1980-85	1986	Average 1961-86
				1980 = 100			
Total, food, feed, and tobacco	34.05	39.41	53.83	76.06	92.08	75.73	61.96
Total, highly processed products	47.73	45.90	57.30	76.44	95.49	94.70	67.57
Total, semiprocessed products	33.90	38.92	50.54	68.51	89.26	91.80	59.72
Total, high-value unprocessed	32.87	42.85	61.50	80.72	94.24	88.92	65.81
Total, low-value unprocessed	31.78	36.06	50.03	76.75	91.29	55.17	59.39
Total, low-value byproducts	4.11	25.90	32.09	55.08	81.68	120.28	45.85
Cattle:							
Highly processed	148.81	144.23	155.03	79.57	116.43	112.81	126.95
Semiprocessed	9.03	11.65	23.03	66.11	140.83	276.43	63.90
High-value unprocessed	48.28	69.73	229.81	243.19	116.82	161.55	144.97
Hogs:							
Highly processed 1/	81.32	65.91	60.41	97.49	78.92	58.53	76.01
Semiprocessed	44.56	35.13	51.87	174.51	85.27	29.92	77.97
High-value unprocessed	49.12	82.37	108.10	90.37	137.70	81.05	96.46
Chickens:							
Highly processed	68.67	74.26	43.56	40.36	113.67	77.94	70.21
Semiprocessed	29.72	15.22	16.40	61.98	86.62	91.65	46.09
High-value unprocessed	67.62	86.32	80.22	100.67	93.08	63.02	85.69
Turkeys:							
Semiprocessed	46.22	58.57	48.20	85.57	64.42	33.99	60.27
High-value unprocessed	0	86.21	130.35	182.47	195.00	244.65	154.99
Animals, other and mixed:							
Highly processed	165.84	227.25	289.75	319.81	173.12	124.61	231.18
Semiprocessed	2.98	3.75	20.15	99.85	58.82	52.37	39.84
High-value unprocessed	4.72	28.01	70.29	100.57	55.44	33.87	53.07
Animals, offals and fats:							
Highly processed	69.96	70.10	78.43	99.60	93.60	81.36	83.21
Semiprocessed	56.62	47.16	59.92	97.33	112.88	132.73	79.18
Eggs:							
Highly processed	25.56	6.35	13.09	55.12	104.43	138.79	47.71
High-value unprocessed	15.65	22.80	19.33	60.06	76.73	32.98	41.04
Dairy:							
Highly processed	250.73	130.33	92.00	68.51	218.61	222.16	153.50
Semiprocessed	30.47	40.97	53.22	87.21	134.42	159.22	76.72
Corn and sorghum:							
Semiprocessed	56.59	85.86	68.89	83.07	132.46	184.09	92.09
Low-value unprocessed	18.32	27.17	37.78	85.18	81.75	43.88	52.24
Wheat:							
Highly processed	15.26	18.58	28.96	84.39	121.78	112.67	60.15
Semiprocessed	234.98	149.16	106.36	132.09	125.16	160.17	145.73
Low-value unprocessed	48.49	48.04	65.72	96.56	105.22	68.67	74.83
Rice:							
Semiprocessed	37.08	55.71	55.82	84.68	80.66	69.92	64.74
Low-value unprocessed	18.23	25.39	11.50	371.25	339.16	1328.33	210.65

See footnotes at end of table.

Continued--

Table A-2--United States: Value-weighted quantity export indices of food, feed, and tobacco commodities and products by degree of processing and commodity and product grouping--Continued

Commodity/degree of processing	1961-64	1965-69	1970-74	1975-79	1980-85	1986	Average 1961-86
				1980 = 100			
Other and mixed grains:							
Highly processed	122.04	149.02	80.45	83.72	127.32	117.26	112.90
Semiprocessed	6.15	9.93	24.31	60.76	96.78	117.84	46.08
Low-value unprocessed 2/	111.88	58.36	104.77	80.26	93.35	98.82	89.36
Oilseeds:							
Semiprocessed	26.46	36.53	61.26	84.58	82.50	73.70	61.01
High-value unprocessed	20.85	32.26	54.56	91.02	96.80	93.13	63.33
Vegetables and pulses:							
Highly processed	54.66	43.09	52.73	119.45	100.57	108.86	77.20
High-value unprocessed	39.24	42.64	47.69	67.12	85.22	74.48	58.85
Low-value unprocessed	72.92	88.55	92.22	112.52	119.87	78.39	98.30
Tubers and roots:							
Semiprocessed	7.90	8.62	9.53	93.96	66.63	36.19	39.54
Low-value unprocessed	68.91	81.86	109.20	205.90	93.31	56.87	110.66
Fruits:							
Highly processed	73.85	73.48	70.69	95.28	93.84	83.09	82.26
High-value unprocessed	39.18	48.58	63.39	103.86	92.00	86.18	72.08
Low-value unprocessed 3/	127.43	164.63	173.96	186.07	115.05	116.49	151.53
Sugar:							
Highly processed	40.30	48.10	43.59	85.71	91.10	85.30	64.62
Semiprocessed	0.67	0.28	2.14	10.72	69.44	70.05	21.35
Low-value unprocessed	0	0	0	54.43	94.16	112.69	87.39
Nuts:							
Highly processed	5.69	13.80	38.54	86.10	92.56	111.91	53.16
High-value unprocessed	10.48	12.77	33.10	80.88	87.97	88.41	49.69
Cocoa and chocolate products:							
Highly processed	14.56	35.21	62.01	123.66	131.85	144.13	80.69
Semiprocessed	58.54	34.26	38.08	91.95	96.35	63.05	65.26
High-value unprocessed	104.49	112.75	144.69	195.55	188.70	213.31	156.63
Nonalcoholic beverages:							
Highly processed	1.47	3.96	7.41	29.78	52.30	14.13	20.75
Semiprocessed	57.62	46.83	51.04	95.80	83.28	63.40	67.77
High-value unprocessed	48.70	39.00	62.52	121.33	76.50	101.50	71.91
Alcoholic beverages:							
Highly processed	11.99	17.38	38.90	75.50	87.26	91.65	50.85
Other food preparations:							
Highly processed	5.28	9.45	90.44	99.30	94.60	82.10	64.11
High-value unprocessed	5.30	29.79	51.28	91.25	93.44	89.19	58.95
Tobacco:							
Highly processed	29.38	31.05	47.24	96.60	85.10	87.36	61.15
High-value unprocessed	82.18	92.23	96.03	124.36	93.85	79.45	97.48
Fodders, hay and other feedstuffs:							
Semiprocessed	32.95	59.28	77.02	105.27	104.10	91.14	79.05
Low-value byproducts	4.11	25.90	32.09	62.22	81.68	120.28	47.23

1/ The export unit value in 1980 for live pigs was 4 times its world unit value. 2/ The export unit value in 1980 for cereals not elsewhere specified was 7 times its world unit value. 3/ The export unit value in 1980 for dates was 4 times its world unit value.

Table A-3--Value-weighted quantity export indices of food, feed, and tobacco commodities and products
    by degree of processing for 7 economic groups

Group/commodity/degree of processing	1961-64	1965-69	1970-74	1975-79	1980-85	1986	Average 1961-86
	1980 = 100						
Industrial market economies:							
Total, food, feed, and tobacco	34.06	43.37	63.52	82.04	113.09	128.93	72.63
Total, highly processed products	31.28	42.83	63.14	83.97	115.12	124.78	72.71
Total, semiprocessed products	28.50	35.48	57.14	78.71	110.14	125.02	67.56
Total, high-value unprocessed	53.05	58.87	75.78	89.18	113.11	142.22	82.78
Total, low-value unprocessed	35.83	45.65	65.39	75.77	111.32	133.48	72.26
Total, low-value byproducts	19.11	34.00	56.61	85.63	124.59	139.06	70.93
Upper middle-income economies:							
Total, food, feed, and tobacco	54.29	65.55	72.22	86.97	117.87	120.84	83.42
Total, highly processed products	54.64	63.91	76.95	92.00	117.37	134.35	85.44
Total, semiprocessed products	32.65	38.82	53.06	74.72	115.50	120.65	68.36
Total, high-value unprocessed	81.34	85.62	90.23	93.71	111.96	109.57	94.40
Total, low-value unprocessed	61.61	120.93	89.26	109.48	148.41	129.86	110.20
Total, low-value byproducts	13.19	31.25	34.40	61.54	116.24	143.21	58.82
Lower middle-income economies:							
Total, food, feed, and tobacco	56.34	64.80	77.16	90.62	103.14	113.76	81.57
Total, highly processed products	29.11	40.78	60.95	85.92	108.02	136.48	70.74
Total, semiprocessed products	63.55	68.70	79.85	93.20	97.44	109.14	82.95
Total, high-value unprocessed	59.51	68.81	79.76	89.45	103.29	108.08	82.92
Total, low-value unprocessed	63.27	72.52	83.09	107.65	123.37	141.92	94.29
Total, low-value byproducts	45.16	28.74	65.67	73.12	161.79	143.93	82.04
High-income oil exporting economies:							
Total, food, feed, and tobacco	1.05	2.35	8.98	38.08	76.38	60.06	29.60
Total, highly processed products	0.51	0.26	5.49	37.98	72.05	55.54	33.41
Total, semiprocessed products	0.17	1.00	10.13	26.67	56.38	27.43	30.55
Total, high-value unprocessed	4.11	7.61	9.62	59.19	96.46	82.62	40.77
Total, low-value unprocessed	0	32.61	59.12	20.68	287.46	491.69	130.76
Total, low-value byproducts	0	8.50	54.22	279.16	3176.22	100.00	1222.26
Low-income economies:							
Total, food, feed, and tobacco	98.12	100.16	105.17	104.71	102.19	104.27	102.31
Total, highly processed products	114.41	134.78	133.58	137.23	112.50	114.42	125.96
Total, semiprocessed products	94.14	73.92	78.35	104.15	99.72	89.67	90.26
Total, high-value unprocessed	95.75	101.11	108.71	99.99	101.38	106.53	101.80
Total, low-value unprocessed	128.35	159.52	122.53	105.93	103.11	123.24	122.89
Total, low-value byproducts	190.24	298.74	561.94	337.74	225.64	388.26	326.74
Centrally planned economies:							
Total, food, feed, and tobacco	64.47	91.65	98.20	94.98	105.42	130.19	94.03
Total, highly processed products	36.73	58.07	72.25	84.37	103.10	112.20	75.05
Total, semiprocessed products	79.72	116.25	105.49	98.00	101.62	131.10	102.24
Total, high-value unprocessed	54.01	86.49	92.12	95.80	104.28	132.25	90.23
Total, low-value unprocessed	138.44	148.76	176.69	119.65	125.28	181.98	142.80
Total, low-value byproducts	12.72	22.43	86.05	90.33	102.27	77.27	66.76
Not classified:							
Total, food, feed, and tobacco	73.10	80.62	90.73	101.56	110.80	116.11	93.76
Total, highly processed products	41.24	56.75	76.39	95.27	101.92	108.60	77.97
Total, semiprocessed products	73.78	77.66	84.63	100.17	108.11	108.31	90.94
Total, high-value unprocessed	80.96	95.74	111.99	107.65	120.83	139.66	106.36
Total, low-value unprocessed	60.28	80.54	75.64	87.42	111.22	117.43	86.30
Total, low-value byproducts	14.37	21.92	40.94	59.89	51.85	43.37	39.45

1/ Zero means no trade or trade was less than half a metric ton.

Table A-4--Value-weighted quantity export indices of food, feed, and tobacco commodities and products
by degree of processing for 13 geographic regions

Region/commodity/degree of processing	1961-64	1965-69	1970-74	1975-79	1980-85	1986	Average 1961-86
				1980 = 100			
North America: 1/							
Total, food, feed, and tobacco	52.10	55.76	72.61	79.35	113.75	116.52	78.69
Total, highly processed products	39.22	52.98	71.36	79.65	115.81	136.99	77.26
Total, semiprocessed products	49.45	53.28	64.47	76.94	120.24	147.77	78.48
Total, high-value unprocessed	49.29	60.84	80.47	88.69	113.36	126.38	82.83
Total, low-value unprocessed	56.80	56.08	72.80	77.35	112.05	102.91	78.21
Total, low-value byproducts	37.31	38.71	66.27	83.44	111.68	105.23	71.80
Western Europe:							
Total, food, feed, and tobacco	31.14	41.51	62.17	82.71	115.48	133.22	72.41
Total, highly processed products	30.11	41.99	62.71	84.74	116.02	126.41	72.70
Total, semiprocessed products	24.00	30.58	52.28	75.26	112.79	131.28	65.18
Total, high-value unprocessed	52.35	58.44	75.05	89.59	112.62	140.77	82.36
Total, low-value unprocessed	25.73	44.62	68.40	82.20	123.01	157.59	75.95
Total, low-value byproducts	18.24	34.00	55.23	84.94	123.07	141.06	70.13
Eastern Europe:							
Total, food, feed, and tobacco	57.54	76.26	82.86	92.70	102.54	110.44	85.19
Total, highly processed products	40.49	59.36	74.87	87.21	104.12	102.39	76.78
Total, semiprocessed products	77.84	85.87	75.24	89.89	96.45	110.42	86.75
Total, high-value unprocessed	65.16	89.82	99.73	101.41	99.08	101.23	92.74
Total, low-value unprocessed	58.52	87.52	94.33	100.97	116.82	155.98	96.35
Total, low-value byproducts	17.77	78.15	86.30	92.17	127.74	164.52	87.89
USSR:							
Total, food, feed, and tobacco	190.26	247.13	228.60	130.75	103.79	118.25	174.40
Total, highly processed products	67.34	87.41	96.73	96.19	104.83	158.69	94.56
Total, semiprocessed products	166.91	293.70	200.72	126.30	91.50	122.12	170.86
Total, high-value unprocessed	56.00	221.10	130.86	124.01	97.63	80.81	125.79
Total, low-value unprocessed	368.47	342.65	411.87	170.40	120.20	84.86	265.56
The Caribbean:							
Total, food, feed, and tobacco	85.48	86.14	95.21	108.17	110.15	108.95	98.44
Total, highly processed products	84.99	88.37	107.74	108.21	97.23	96.90	97.76
Total, semiprocessed products	83.00	83.42	91.90	105.75	108.53	105.37	95.92
Total, high-value unprocessed	117.90	119.33	126.43	137.81	138.06	156.93	129.80
Total, low-value unprocessed	14.90	17.99	56.35	77.23	132.21	181.52	68.93
Total, low-value byproducts	18.09	5.50	14.90	48.70	59.57	36.23	31.21
Central America:							
Total, food, feed, and tobacco	54.66	88.42	86.69	100.85	102.45	106.88	89.23
Total, highly processed products	26.80	47.76	65.59	96.23	98.16	126.81	71.96
Total, semiprocessed products	34.17	54.74	87.42	110.09	88.26	79.26	77.18
Total, high-value unprocessed	57.55	69.42	85.06	99.76	105.69	109.79	86.36
Total, low-value unprocessed	480.65	2970.83	477.91	108.28	101.58	63.81	783.88
Total, low-value byproducts	97.97	91.25	224.25	77.63	47.59	16.22	102.28
South America:							
Total, food, feed, and tobacco	53.28	60.39	70.41	86.41	115.58	110.29	80.88
Total, highly processed products	30.68	40.97	57.49	90.95	114.42	122.08	72.25
Total, semiprocessed products	32.68	40.56	56.72	77.73	115.31	109.54	69.51
Total, high-value unprocessed	76.01	76.90	81.34	85.50	105.05	103.31	86.78
Total, low-value unprocessed	63.94	95.15	97.13	127.46	171.76	132.83	116.07
Total, low-value byproducts	2.55	10.57	22.16	59.61	111.39	139.51	49.22

See footnote at end of table.

Continued--

Table A-4--Value-weighted quantity export indices of food, feed, and tobacco commodities and products
        by degree of processing for 13 geographic regions--Continued

Region/commodity/degree of processing	1961-64	1965-69	1970-74	1975-79	1980-85	1986	Average 1961-86
	1980 = 100						
Africa:							
Total, food, feed, and tobacco	90.14	100.64	112.76	105.20	99.21	104.54	102.05
Total, highly processed products	118.50	126.06	131.23	116.45	92.57	91.19	114.97
Total, semiprocessed products	70.22	88.81	106.77	106.99	94.30	95.22	94.41
Total, high-value unprocessed	93.97	103.81	115.01	104.02	104.54	112.45	104.99
Total, low-value unprocessed	68.00	65.39	78.41	92.39	75.33	80.39	76.36
Total, low-value byproducts	85.79	134.78	241.38	157.44	82.18	78.33	137.79
Middle East:							
Total, food, feed, and tobacco	50.40	60.39	75.39	88.06	116.12	106.85	81.71
Total, highly processed products	31.29	40.58	57.07	79.32	111.29	133.79	69.67
Total, semiprocessed products	48.42	35.65	39.61	52.00	115.02	108.17	62.63
Total, high-value unprocessed	58.94	75.22	92.59	96.32	116.24	95.35	90.35
Total, low-value unprocessed	61.86	49.28	49.26	98.97	132.71	78.28	81.13
Total, low-value byproducts	123.95	84.05	123.26	114.95	279.96	274.18	156.20
South Asia:							
Total, food, feed, and tobacco	80.24	77.49	83.79	99.51	105.22	108.40	90.95
Total, highly processed products	112.99	126.81	143.74	140.83	130.72	153.75	132.58
Total, semiprocessed products	63.09	53.53	62.61	101.33	107.69	112.26	80.70
Total, high-value unprocessed	77.37	75.86	80.14	89.30	97.80	96.94	85.37
Total, low-value unprocessed	177.33	163.64	142.72	114.55	118.35	105.57	139.60
Total, low-value byproducts	13.31	10.60	136.48	360.70	389.52	779.28	219.56
Southeast Asia & Pacific islands:							
Total, food, feed, and tobacco	40.91	42.55	51.96	75.72	111.38	141.67	70.18
Total, highly processed products	23.91	31.37	46.80	78.81	116.71	158.62	66.90
Total, semiprocessed products	46.81	41.94	49.65	72.38	106.81	135.22	68.58
Total, high-value unprocessed	41.46	50.95	56.89	79.91	114.18	143.58	74.36
Total, low-value unprocessed	27.57	51.15	75.17	86.38	134.87	152.66	82.14
Total, low-value byproducts	2.52	10.09	13.77	46.96	75.83	57.62	33.72
East Asia:							
Total, food, feed, and tobacco	48.39	71.02	78.67	78.69	115.62	156.84	84.08
Total, highly processed products	24.19	36.35	50.58	68.03	118.89	137.73	66.25
Total, semiprocessed products	59.79	88.36	96.58	81.61	96.91	111.75	87.12
Total, high-value unprocessed	66.39	95.29	94.30	90.79	120.96	181.28	99.02
Total, low-value unprocessed	60.90	90.25	68.41	77.81	404.54	1516.05	206.51
Total, low-value byproducts	4.12	3.78	4.69	12.51	286.95	97.08	74.62
Australia & New Zealand:							
Total, food, feed, and tobacco	45.24	53.34	69.39	82.88	93.71	109.22	72.33
Total, highly processed products	66.12	81.90	91.65	88.74	97.62	101.51	87.05
Total, semiprocessed products	48.61	58.16	80.94	106.71	99.51	94.86	81.36
Total, high-value unprocessed	26.80	33.00	47.70	59.59	110.77	192.30	64.06
Total, low-value unprocessed	32.34	34.60	47.23	57.76	82.01	114.80	55.16
Total, low-value byproducts	23.51	37.24	110.27	143.71	164.53	162.83	103.85

1/ Excluding the United States.

Adjustment in the Japanese Textile Industry

by

Fawzi A. Taha*

Abstract: The Japanese textile industry grew rapidly until the early 1970's, but currently suffers from high production costs, a strong currency, and keen competition. The appreciation of the yen after 1985, in particular, resulted in decline of the industry and sharp deterioration of its balance of trade. The industry's present strategies are mainly contractionary, implying lower Japanese demand for U.S. exports of raw cotton.

The development of the modern Japanese textile industry can be divided into three main episodes: the first started after World War II and ended in the late 1960's; the second extended over most of the 1970's; and the third covers 1979 to the present. An understanding of the present situation of the Japanese textile trade requires a brief description of the major events that influenced the textile industry during the first two periods.

The Japanese Textile Industry Before the 1970's

The rise of the Japanese textile industry after World War II was important to the nation's overall industrial growth. Postwar rehabilitation plans emphasized the labor-intensive textile sector, considered a suitable production activity to cut the unemployment that prevailed at that time.

By 1950, Japan was free to control its textile industry, after having been restricted under the Occupation to a maximum of 4 million looms. This decision contributed greatly to a rapid growth and expansion of the textile and apparel sector. Japanese mills tended to use the most advanced methods of production at every stage in the textile process. This enabled the industry to compete with the leading textile powers, including the United States and England.

Japan's growth of trade with the United States was particularly significant in the 1950's. For example, U.S. imports of cotton manufactures from Japan climbed so rapidly from 1951 to 1956 that Japan's share of U.S. imports of cotton textiles grew from 17.4 to 54.5 percent. This rapid increase caused deep concern in the U.S. domestic cotton textile industry. Accordingly, in 1956 Japan took its first voluntary restrictive action limiting exports of cotton textile products to the United States, initially for 1 year and later for 5 years. As a result, Japan's market share of U.S. cotton textile imports declined to 29 percent in 1960. Because Japan imported most of its raw cotton from the United States for textile manufacturing, U.S. raw cotton exports to Japan dropped from $1.1 billion in 1951 to about $537 million in 1962 *(2)*.

In October 1961, before the expiration of the voluntary agreement, the General Agreement on Tariffs and Trade (GATT) arranged a long-term multilateral arrangement to restrict Japan's and developing countries' exports of manufactured goods, including textiles. Under the "market disruption" principle, the GATT permits limits on exports of products in quantities and at prices considered to be damaging to the importing countries. This agreement was extended several times and is the basis of the current Multi-Fibre Arrangement (MFA).

The Japanese firms were determined to overcome the MFA restrictions on their domestic textile production and exports by improving their competitive position with foreign suppliers worldwide. Their strategy was twofold: a rapid modernization in production and marketing methods, and a rapid expansion in manmade textiles.

Japanese firms pursued capital intensification to improve the vitality of the textile industry and to keep production costs under control. The industry encouraged a shift from labor- to capital-intensive production methods by developing new technologies. Spinning is the most expensive single process in converting fiber into fabric. Because of the high cost of yarn production, considerable research was directed toward increasing the economic efficiency of this operation. In the late 1960's, the Japanese introduced the "jet spinning" method that significantly reduced labor requirements and greatly increased processing speeds, yarn quality, and end-product performance.

The new "knitting process" was an important innovation that challenged the traditionally low-cost, mass-production weaving process. This knitting process significantly improved the fabric industry's adaptability to fashion whims.
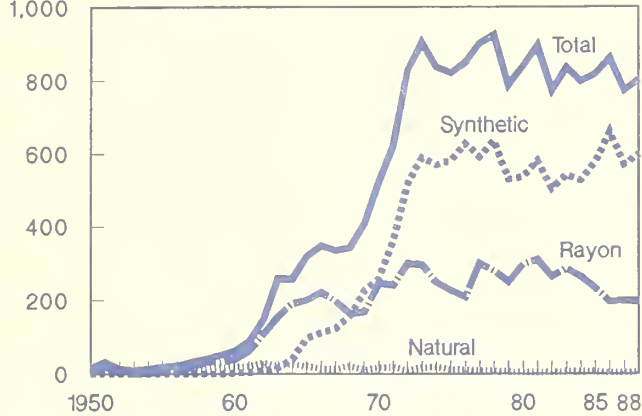

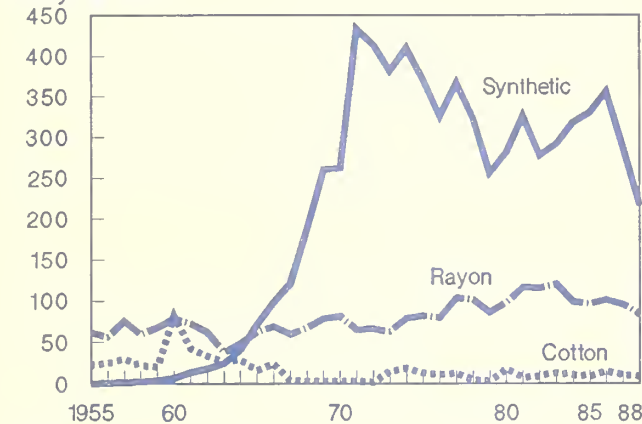
*Agricultural economist, Economic Research Service, USDA.
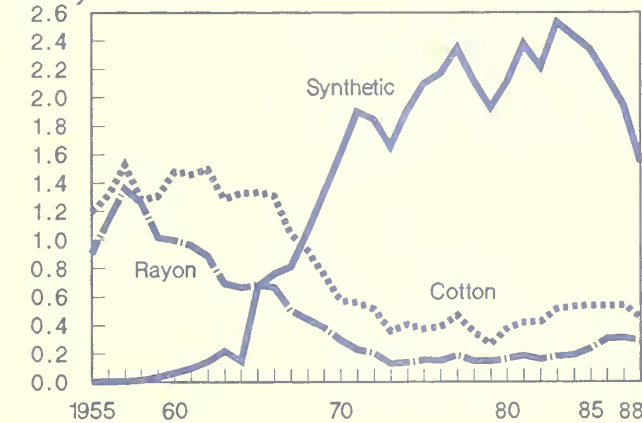
Figure B-1
Japan's Textile Exports

Raw fibers, million lbs.

Yarns, million lbs.

Fabrics, billion sq. yds.

In addition, the textile industry improved its marketing processes when firms were integrated horizontally and vertically. Horizontal integration gave companies advantages in promotion, diversification, and finance which allowed them to become more flexible in meeting market demand for final products. Vertical integration of textile production and marketing functions through merger and acquisition has led to some increase in the concentration of the textile industry.

The second goal of the textile industry was to expand manmade textile production to compensate for the falling cotton textile exports in the wake of the MFA restrictions. Japan made important discoveries in the synthetic fiber industry before the war, but did not begin producing these fibers commercially until 1950. Growth of Japan's synthetic fiber industry was so rapid that it surpassed West Germany and Great Britain to rank second only to the United States. Japan's exports of synthetic fibers, yarn, and fabrics accelerated much more rapidly than rayon or cotton (fig. B-1).

In the mid-1960's, U.S. import demand for manmade items such as polyester, rayon, and blended worsted suitings was strong. U.S. textile firms were unable to adapt to rapidly changing markets, and were pushed to comparative disadvantage with Japan (3). Imports of noncotton textiles from Japan increased rapidly, causing the U.S. Government to propose import restrictions. In 1971, Japan imposed another voluntary export restriction, this time on its manmade fiber textiles.

The Japanese Textile Industry in the 1970's

In the 1970's, the Japanese textile mill industry, facing strong competition from other countries, suffered a setback in the global market. The disruption was due mainly to a cost-push inflationary movement in wages, raw materials, and energy precipitated by the first oil crisis of 1973. The appreciation of the yen from 360 yen to the U.S. dollar in 1970 to 272 yen in 1973 made Japanese textile products more expensive in the world market (fig. B-2). Japan's voluntary restriction of manmade exports to the United States and import restrictions imposed by some European countries further dampened the already depressed export market.

These obstacles were partially offset by increased productivity. Government assistance programs encouraged the industry to invest heavily in technological advances to automate production, and emphasized research and development of the production and promotion of high-value

Japan's Exchange Rate

Number of yen equaling U.S. $1.00.
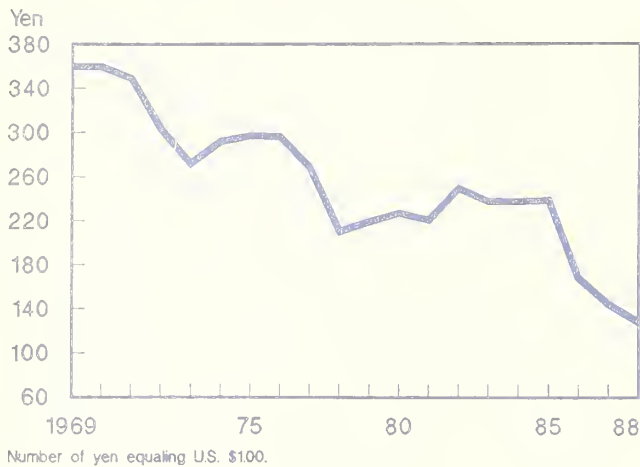
products. In June 1974, the Government initiated the Textile Industry Restructural Act to strengthen the sector's competitiveness in the world market by helping it depreciate obsolete machinery and replace it with new, up-to-date equipment. This program raised the industry's machine productivity by 20 percent, and labor productivity by 67 percent, from 1975 to 1980 (*4*, No. 17, pp. 6-7).

In addition, the industry started to invest heavily overseas to enlarge profits at home. Investment was especially active in synthetic fiber production in neighboring Hong Kong, Taiwan, and South Korea. However, these producers' cheap labor and low production costs meant keen competition for Japan. Later on, these producers were able to compete with Japan for the lucrative U.S. and European markets, and later for the home market as well.

The Industry in the 1980's

The 1980's have been very critical for the Japanese textile industry, and have seen major changes in its viability and competitiveness in the world. The second oil crisis of 1979, combined with wide fluctuations in the value of the yen versus the U.S. dollar in 1978 and 1979, exerted severe cost-push pressure on many components of the Japanese textile industry, and adversely affected its competitiveness.

After the second oil crisis, the industry faced a series of price hikes in many production components. The wholesale price index for December 1979 was 17 percent above the same month of 1978. Labor costs increased by 7.2 percent during 1979, and the interest rate was raised progressively from 3.5 percent in March 1978 to 9.0 percent in March 1980. The sharp increase in the petroleum price raised the cost of electric power for the spinners by 54.3 percent by April 1980 and pushed up the production cost of petroleum-based synthetics (*4*, No. 16, p. 4). In addition, cotton prices in 1980 rose 15-20 cents per pound from a year earlier due to tight supplies and worldwide inflation (*4*, No. 17, pp. 6-7).

Textile mills offset the higher cost of production by conserving energy, adopting labor-saving methods, improving and modernizing equipment, and vertical consolidation. To help restore the depressed industry, the Government also initiated the Basic Program of Stabilization in April 1979, recommending the scrapping of excess spinning equipment to decrease existing capacity. In addition, in June 1979 the Government modified and extended the 1974 Textile Industry Restructural Act for another 5 years to allow the industry to become more market-oriented. This act enabled the industry to strengthen its international competitive position by promoting the production of higher-quality textiles and intensifying the apparel industry.

These strategies resemble those used to adjust the industry after the first oil shock. However, world economic conditions after the second oil crisis were different. Japan and many industrial countries were plagued by world recession. The economic recovery was slow, so domestic and world demand for textiles was slack. Competition from emerging low-cost Asian textile-producing countries eager to acquire the strong yen was also fierce, cutting into the smaller market. Japan's measures could best be described as contractionary because they basically targeted three major objectives: adjusting the demand/supply imbalance in the domestic market, diversifying into nontextile businesses, and limiting production to higher-value products (*8*).

By 1982, adjustments were evident as Japan's textile exports declined and imports increased in value terms from the previous year. Another landmark year was 1984, when the

Japanese textile industry failed to meet expanding domestic demand initiated by strong economic recovery and consumer preference for natural fiber clothing. Domestic demand for fashionable items increased, but production was almost unchanged from the previous year. As a result, total textile imports soared by 25 percent, cotton yarn and cotton fabrics by 73 percent, and madeup goods by 25 percent in value. In 1984, Japan's domestic textile industry was no longer competitive with such low-cost exporters as South Korea, China, Taiwan, Hong Kong, and Pakistan. By then, 92 percent of cotton yarn imports were being supplied by Pakistan, South Korea, and China; 83 percent of cotton fabric was being supplied by China; and 73.5 percent of madeup goods were coming from China, South Korea, Taiwan, and Hong Kong.

Faced with climbing low-cost imports in 1984, the industry called on the Government to exercise import restrictions based on the "market disruption" principle of the MFA. Actually, Japan's average textile tariff is much lower than U.S. or European Community (EC) tariffs. Low tariffs and market proximity made it advantageous for many countries to export textiles to Japan. To avoid eventual restriction by Japan, the South Korean and Pakistani Governments agreed to limit the annual growth rate in exporting cotton textiles to Japan in 1985. The Chinese Government decided on other minor restraints (4, No. 22, p. 6).

Effectively, competitiveness of Japanese textile mills has been deteriorating in the global market since the import surges of 1984. Profit margins have been declining since the end of 1985 (5). For example, sales and net income of the eight largest producers of cotton yarn dropped 9 percent in FY 1985 and about 25 percent in FY 1986 (9). Finally, the strong appreciation of the yen against the U.S. dollar since September 1985 further damaged Japan's textile industry and made it attractive for many Asian producing countries to increase textile shipments to Japan.

Exports of Japanese textile products also became expensive, except for high-quality and specialized items. Increasing imports and decreasing exports cut the Japanese textile trade surplus from $285 million in 1985 to $198 million in 1986. As the textile import surge continued, the surplus turned to a deficit of $2,938 million in 1987, which then more than doubled to $6,380 million in 1988 (fig. B-3). Both increasing textile import penetration and the textile trade deficit are clear evidence of the Japanese textile industry's weakened position, and probably caused an irreversible decline of the industry.

Figure B-3
Japan's Textile Trade Balance
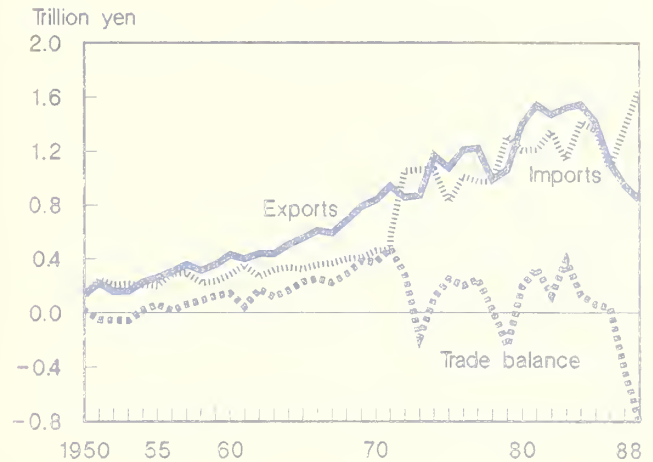
Present and Future Strategies
Of Japan's Textile Industry

By 1988, the Japanese textile industry could be characterized by its high productivity and specialization in top-quality cotton and manmade products. Many firms are completing radical rationalization and diversification programs to cut jobs. Since Japanese firms must provide lifetime employment to their employees, they reduced the number of jobs by transferring employees to nontextile divisions of the same company or relocating them to affiliates overseas. Also, plans for diversification to nontextile products continue. The technology acquired in textiles has been applied to plastics, functional polymers, chemicals, and pharmaceuticals, and new products such as magnetic tapes and floppy discs (6, 9).

The present policy strategies of the Japanese textile and fiber firms have two main goals: to improve conditions in the domestic market so they can accommodate changing consumer preferences, and/or to relocate a part of the production processes overseas to reduce costs. After the sharp surges in imports of madeup goods and clothing in 1987-88, Japanese producers foresee the expansion of import-substitution to meet domestic demand, and may try to concentrate on clothing production.

Clothing manufacture, however, is the most labor-intensive of all texile enterprises, and it seems difficult to make this transformation in Japan due to the shortage of labor and increasing wages. In the spring of 1988, labor costs in the

Japanese spinning and weaving industry had increased by 243 percent from their 1980 level, the highest rise in the world. By comparison, labor costs rose 194 percent in South Korea, 133 percent in Taiwan, 78 percent in Switzerland, 48 percent in the United States, and 15 percent in Hong Kong over the same period (7, p. 36, table 8).

Improving productivity at home depends on Japan's support for research and development to spur technological innovations. The relationship among fiber properties, yarn quality, and end-product performance is crucial. Fashion and new material designs have a great impact on the marketability of textile products. Due to the dynamic nature of the textile industry, any technological improvement in one of these processes would considerably increase the economic efficiency of the entire industry. Therefore, research efforts have been intensified after the sharp rise in the yen's value.

Recent observations indicate that Japanese spinning and weaving plants are highly automated, and personnel are conspicuous by their absence. Japanese engineers see the development of totally automated manufacturing processes as their ultimate goal. In a joint venture with the Government, the textile industry has begun to develop the "automated sewing system." If successfully completed, the system will constitute the first full automation of the clothing sector, but no breakthroughs are expected before the turn of the century (1). The industry recently computerized the grading of patterns as a link in the chain of modernized garment manufacturing. Computer grading was relatively successful in speeding up grading of ready-to-wear goods, with a precision higher than that of skilled technicians.

Until the industry solves the problem of high domestic labor costs, it must continue importing cotton fabric and yarn. Imports of clothing will also increase because its manufacture usually requires intensive labor, which is very costly in Japan. Meanwhile, the Japanese Government seeks close association with many Asian countries, especially South Korea, Taiwan, Hong Kong, and Singapore, by granting them access to the Japanese market. This concession indicates Japan's willingness to keep importing from these producers because of its comparative disadvantage. Rising imports and falling exports of textiles imply that Japan's raw cotton imports will decline.

The second current strategy of the Japanese textile industry involves the "emigration" of part of the textile sector to other parts of the world with lower production costs. The industry's immediate objective is to dismantle the production of certain textile products and relocate machinery and expertise in other countries. Japan will concentrate on the production of high-value-added speciality products such as composite polyester filament materials and other fabrics made of linen/cotton and polyester/rayon blends, which command high prices in the world market. This trend has already begun. Japanese investments have risen in textile and clothing manufacturing in Thailand, Indonesia, Singapore, Sri Lanka, Brazil, the United States, the EC, and Canada. In 1986, for example, textiles held an 8.5-percent share of Japan's total investment in overseas manufacturing (1).

Japanese textile companies are investing heavily in the United States, using the latest technology to supply the lucrative U.S. market from a cost-competitive location. The strong yen has attracted investment to the United States to purchase assets at cheaper prices, process locally grown cotton, and gain from the relatively lower labor cost. Japanese labor costs in the spinning and weaving industry overtook U.S. costs sometime between the spring of 1984 and the spring of 1988 (7, p. 36, table 8). Another big advantage for Japan of investing in the United States is the ability to export unfinished textiles across the border to Mexico and Puerto Rico, manufacture them into garments at lower labor cost, and then ship them back to the United States without any quota or import duties.

The emigration of some types of cotton textile production to other lower-cost regions of the world will result, as in the first policy strategy, in a declining Japanese import demand for raw cotton. To cope with rising production costs at home, the industry will likely increase imports of intermediate products (yarn and fabric) after manufacturing them overseas according to specifications and designs to suit the Japanese apparel industry.

Conclusions

Faced with the strong value of its currency and high labor cost, Japan's textile industry has been battling increased textile imports since 1984. The competitiveness of the domestic textile sector is in decline. It was forced to resort to radical rationalization and diversification at home, and started an "emigration" policy of increasing investment in countries with lower production costs. The present trend of rising imports of cotton yarn and fabric will continue to substitute for imports of raw cotton. This trend will reduce Japanese demand for U.S. cotton exports.

The industry's future competitiveness will depend on its ability to develop advances in specialized production areas, which would greatly increase the efficiency and the quality of products and significantly reduce labor requirements. Japan will likely specialize in high-quality fabrics, manufacture them locally or overseas at reduced cost, and convert them to expensive garments and finished goods. However, since clothing manufacturing is very labor-intensive, the industry's competitiveness is unlikely to improve until it makes a significant breakthrough in the "automated sewing system" or another production method.

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