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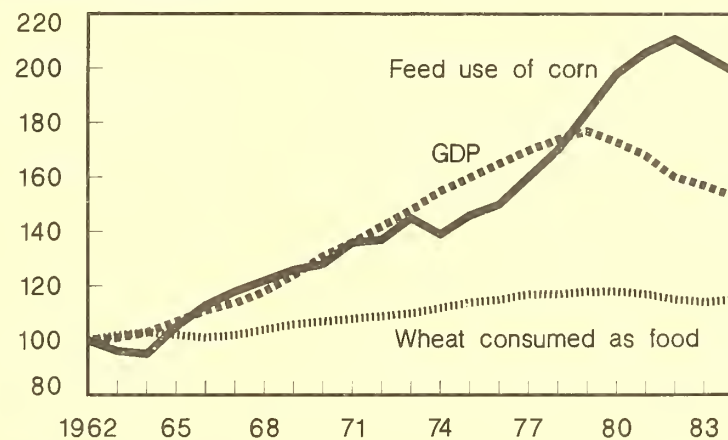
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December 1987

World Agriculture

Situation and Outlook Report

Feed Use of Corn and Income

Percent of 1961-63



Per capita, 3-year averages.
GDP is deflated.

Feeding of corn to livestock follows incomes in higher-income developing countries.

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SUMMARY

Recent stock market plunges in the United States, Japan, and West Germany underscore the interdependence that exists among major free market economies. These developments reinforce the need for policy coordination to sustain the balanced and noninflationary growth that has characterized these economies in recent years.

Globally, investors appear to be increasingly sensitive to a number of key economic indicators. Until recently, most analysts identified the budget and trade deficits in the United States, trade surpluses in Japan and West Germany, sluggish economic growth in Europe, and debt problems in developing countries as the principal concerns. Now, many analysts have added volatility in financial markets and potentially deflationary pressures.

Although it will take time for new economic patterns to be set, most forecasts of real growth in 1988 are being adjusted downwards. High growth rates are still projected for the Newly Industrialized Countries, particularly South Korea and Taiwan, whose currencies have appreciated less against the dollar than have the mark and the yen. But aside from this, growth rates in other country groupings will be modest at best. Japan among industrialized countries is likely to benefit from a package of stimulative measures whereas the European economies are expected to continue sluggish. Most of the Less Developed Countries are still struggling with problems of foreign debt and low export commodity prices. In view of recent developments, the U.S. economy is likely to grow at about the 1987 pace.

The dollar's decline in October stemmed from a shift in priorities in the United States and in other industrialized countries. The seven governments that had subscribed to the Louvre agreement in February watched the dollar sink below what was generally believed to be the band it had been assigned. But there was talk in some quarters of a new G-7 meeting, presumably to agree on a new band, once action had been taken in Washington to reduce the highly visible federal budget deficit.

One of most striking features of the October shakeout in financial markets was the

widespread reversal of interest rates, which had been edging up since summer. Interest rates in the United States, West Germany, Britain, the Netherlands, and Switzerland were all lowered within days of each other in early November.

The turnaround in volume and value of U.S. agricultural exports recorded in fiscal 1987 was among the factors inducing more observers than before to say that the decline in the dollar's exchange rate since September 1985 was having an effect on trade flows, finally. U.S. agricultural exports gained by \$1.3 billion in value and 20 million tons in volume during fiscal 1987, thanks in large part to more competitive prices. The nation's overall trade deficit, however, continued at historically high levels for a number of reasons unrelated to or in spite of the dollar's depreciation.

A notable feature of the agricultural trade picture was that "nontraditional" or high-value exports contributed to fiscal 1987's performance. Livestock products rose \$638 million, and horticultural exports rose \$466 million.

The European Community (EC) and the Cairns group of countries presented proposals at the fourth meeting of the GATT negotiating group on agriculture in October. Like the U.S. proposal made in July, the Cairns group's proposal would prohibit subsidies and government support measures that have a negative impact on trade. The EC proposal focuses heavily on short-term measures to relieve strains on several badly-affected markets rather than on a fundamental overhaul of the subsidy structure.

The United States and Canada in October signed a trade agreement designed to remove trade barriers, including agricultural trade barriers, between the two countries. The President must sign a final version of the agreement by Jan. 2, 1988, and Congress then will have 90 legislative days to consider it.

Failure of seasonal rains in India and Ethiopia has caused estimates of world food shortfalls to be raised substantially since those made last summer.

WORLD ECONOMIC CONDITIONS

Global Assessment

Recent stock market plunges in the United States, Japan, and West Germany underscore the interdependence that exists among major free market economies. These developments reinforce the need for policy coordination to sustain the balanced and noninflationary growth that has characterized these economies in recent years.

Globally, investors appear to be increasingly sensitive to a number of key economic indicators. Until recently, most analysts identified the budget and trade deficits in the United States, trade surpluses in Japan and West Germany, sluggish economic growth in Europe, and debt problems in developing countries as the principal concerns. Now, many analysts have added volatility in financial markets and potentially deflationary pressures.

At the time of writing there is only a vague outline of the effects of the stock-market troubles on the world's economies. As a result, the baseline outlook is only marginally different from last quarter's. A very preliminary judgment on the effects appears in a following section.

Economic Growth: Still Sluggish After All These Years

Without factoring in the fall in equity prices, the baseline outlook for real world growth shows a modest acceleration of growth for most regions in 1988 (see table). It is also more upbeat in that the figures are adjusted upwards by 0.1–0.2 percent over the last outlook. But world real growth is still on a sluggish track, with 1987 growth projected at 2.7 percent. In 1988 a modest upturn to 3.0 percent is expected. Additional positive news, largely concerning Japan, suggests that the figures for world growth excluding the United States are beginning to indicate a slightly more balanced pattern. These figures have been revised upward, albeit by a small amount, to show growth of 2.6 percent in 1987 and 2.9 percent in 1988.

Developed Country Growth. Developed country growth estimates have also moved upward slightly, with growth estimated to

reach 2.5 percent for 1987 and 2.8 percent for 1988. The projection for non-U.S. developed countries shows collective 1987 real growth of 2.3 percent, and 2.4 percent for 1988. The collective figures mask some larger upward revisions for some individual countries, and near-moribund expectations for others.

Both Japan and Canada are seen in much better light. While Japan experienced zero GDP growth in the second quarter of 1987, there were signs that the emergency spending measures were beginning to stimulate domestic demand (second-quarter growth of 3.8 percent annual rate). Making significant contributions in this movement away from export-led demand have been the sectors of housing, consumption of consumer durables and luxuries, and government consumption and investment. Japan is expected to grow by 2.7 percent in 1987, and 3.0 percent in 1988. Canada has exhibited much stronger first-half growth in 1987 than expected (6.0 percent annual rate). This strength came from every sector, with business investment particularly strong. Thus, Canadian real growth for 1987 should reach 2.6 percent. Prospects also are brighter for Canada in 1988, with growth projected at 2.9 percent.

European Growth. European growth, particularly Germany's, continues to be frustratingly slow. For the European Community as a whole, real growth is projected at only 2.2 percent in 1987 and 2.3 percent in 1988. To put this in perspective, the Bank for International Settlements has estimated that Europe requires a real growth rate of 3.5 percent to prevent unemployment from rising. Germany, with a first-half 1987 annual rate contraction of 0.2 percent, has been viewed by some as having dragged its feet on meeting its commitments under the Louvre accord. With a projected 1987 growth rate of 1.6 percent, it certainly will be hard pressed to prove otherwise. With the adoption of a tax cut the German economy is expected to perform a bit better in 1988, growing at around 2.3 percent.

Developing Country Growth. The baseline forecasts for developing countries have been adjusted upward a bit for 1987, but downward for 1988. Despite the adjustment, 1987 developing country (LDC) growth is seen as slowing 0.2 percent to 2.4 percent. Almost all of the slowdown comes from Latin America,

with Argentina and Brazil suffering the greatest decelerations. Both countries, suffering from accelerating inflation, will have dramatically lower private consumption. In addition, Argentina's trade surplus will have weakened substantially, and Brazilian investment slowed. The baseline forecast for LDC's shows a strong 1988 rebound, with growth in the 3.5-percent range. Oil-exporting countries, benefiting from higher oil prices, will go from no growth in 1987 to 2.3 percent in 1988. Latin America, with improved investment spending and a stronger trade performance, could go from 1.8-percent growth in 1987 to 3.0 percent in 1988.

As always, Asia, particularly the Newly Industrialized Countries, will experience the most robust real growth of all the developing economies. Fueled by an export boom, much of which comes at the expense of Japan, real economic growth in the region is expected to grow by around 5.5 percent in both 1987 and 1988. The leading stars, with growth near 10 percent in 1987, are Korea and Taiwan. Growth in these two countries is expected to slow in 1988, but will still remain at very robust levels. One surprise is the anticipated performance of the Philippines, which is seen as growing at 4.6 percent in 1987 and 4.3 percent in 1988. The Philippines looks to be generating a 5.1-percent annual rate of growth for the first half of 1987. All sectors of the domestic economy appear to be contributing, but investment is showing itself to be particularly strong. Barring worse political problems, these trends are seen as continuing into 1988.

The Stock Market Plunge

The unprecedented drop in the world's stock markets in mid-October resulted in an abrupt turnaround in economic expectations and policies. Previously, economic pundits had expected increasing inflationary expectations and tight money. Subsequent to the plunge, the prospect of recession and the need for more expansionary monetary policy arose (see following articles).

Financially, the stock market movements could possibly result in substantial capital movements and lower interest rates. Such movements can have an impact on both wealth

and the confidence of consumers and investors. If the impact on wealth is large enough and sustained, it could push down consumer and investment spending. It is too early to tell if lower interest rates will compensate for the expected deflationary effects of decreased wealth.

Most forecasts of 1988 world growth are being adjusted downwards from the estimates shown in the table. Very preliminary figures have U.S. growth lower by about 0.5 percent, European and LDC growth lower by around 1.0 percent, and Japanese growth down somewhere between 0.5 and 1.0 percent. For overall real world growth this translates into a rate that will be near 1.0 percent lower. Roughly, the adjustment in the United States comes predominantly from wealth/consumer effects, while the rest of the world's adjustment is seen as dominated by investment and secondary trade effects. What is clear is that the 1988 outlook has changed fundamentally, from one of better growth to one of a continued, and perhaps more severe, slowing.

Commodity Prices: Still Low

Low commodity prices have been particularly damaging to the economic performance of the developing economies. Measured by the IMF's Non-Fuel index, prices have declined some 30 percent since 1980, while the IMF's food index declined around 40 percent. However, since around the third quarter of 1986 there has been some small reason for optimism in that the rate of decline in the prices of many commodities (such as agricultural goods, where the IMF's food index showed a second-quarter 1986 to second-quarter 1987 fall of just 2.0 percent) has slowed or stopped, while for some commodities (particularly cotton, up around 65 percent, and metals, up approximately 11.0 percent) prices had been rising.

The fall in the world's stock markets has at least stalled what to date has been a modest upturn in commodity prices. In some instances, particularly aluminum and other metals, prices were down dramatically immediately after equities took their tumble. At this moment, commodity markets appear to be taking a wait and see attitude. It is likely that commodity prices will be discounted for

World and Regional Economic Growth 1/

| Calendar Year | 1984 | 1985 | 1986 | 1987 | 1988 |
|-----------------------------|----------------|------|------|------|------|
| | Percent change | | | | |
| World | 4.1 | 3.0 | 2.8 | 2.7 | 3.0 |
| United States | 6.6 | 3.0 | 2.9 | 2.9 | 3.4 |
| World less U.S. | 3.2 | 3.0 | 2.7 | 2.6 | 2.9 |
| Developed countries | 4.5 | 3.1 | 2.6 | 2.5 | 2.8 |
| Less United States | 3.4 | 3.3 | 2.4 | 2.3 | 2.4 |
| EC-12 | 2.3 | 2.4 | 2.4 | 2.2 | 2.3 |
| Japan | 5.1 | 4.7 | 2.5 | 2.7 | 3.0 |
| Developing countries | 3.1 | 2.5 | 2.6 | 2.4 | 3.5 |
| Oil exporters | 1.3 | -0.1 | -2.1 | 0.0 | 2.3 |
| Non-oil exporters | 4.4 | 4.2 | 5.8 | 4.0 | 4.3 |
| Latin America | 3.3 | 3.6 | 3.7 | 1.8 | 3.0 |
| Africa & Middle East | 1.1 | 0.1 | -1.2 | 0.3 | 2.5 |
| Asia | 5.4 | 4.0 | 5.8 | 5.5 | 5.4 |
| Centrally planned countries | 3.7 | 2.9 | 3.9 | 3.9 | 3.6 |

1/ Fall estimates prepared prior to the mid-October stock market drop.

Sources: IMF, The WEFA Group Inc., ERS.

any downward movement of world growth. The size of that movement should depend on the commodity's income elasticity, with metals having a larger response than agricultural goods.

Oil Prices. Oil prices are expected to remain around \$18/barrel for 1987 and 1988, and will be the chief contributor to the expected improvement in the 1988 economic performance of the oil-exporting countries. Barring further scares from the Persian Gulf, however, the risk to this forecast is on the downside. Demand is being met, at least to some extent, from inventories. OPEC, which wanted to produce 16.6 million barrels per day, is now estimated to be producing well beyond that. [Tim Baxter (202) 786-1689]

Dollar Exchange Rates

The spectacular mid-October plunge in the U.S. and world stock markets has had little direct effect on the dollar and foreign exchange markets. Market traders have been largely preoccupied with the calming effect on nervous financial markets of sharply lower U.S. interest rates, overlooking in large part their usual impact on the dollar. However, authorities involved in the G-7 Louvre accord

that has underpinned the dollar since February are nonetheless adjusting their support for the dollar downward.

Louvre Accord Terms Adjusted

The dollar's decline the week following the October plunge in U.S. and world stock markets resulted more from public disagreement among Louvre accord participants than from the fall in world stock values. The Feb. 22 Louvre accord between G-7 governments (the United States, United Kingdom, Germany, France, Japan, Canada, and Italy) agreed to a concerted effort to stabilize their currencies—that is, support the dollar against major declines—through monetary measures while their governments developed supporting fiscal policies. Money policies like currency intervention and changes in national interest rates, although less sustainable over time, take effect quickly. They can therefore be used temporarily while national budget programs—of more enduring economic impact but slower to develop—are devised to reduce the large trade imbalances between the United States and the major surplus countries.

However when, rather than declining, German short-term interest rates rose in October from below 4 to near 5 percent to dampen inflationary pressures, confidence in the Louvre accord was undermined. Public debate between the U.S. and German finance ministers the day of the 508-point plunge in U.S. stocks only increased market anxiety. The two ministers met on Oct. 28 and announced that the G-7 Louvre accord was still intact, although currency traders correctly surmised that its implicit support band for the dollar, particularly against the German mark, had been lowered. Currency market traders are in the process of finding the lower support level, with G-7 authorities hoping that this managed dollar decline will be less extreme than what markets nervous from steep stock market declines might otherwise impose.

Nonetheless, monetary policy support for their currencies is only for the short-term interim while G-7 governments adjust their fiscal policies to resolve the huge payments imbalances between the U.S. trade deficit and the Japanese and German surpluses. Among these adjustments, reduction in the U.S. fiscal

deficit has become a more salient concern for currency traders following the plunge in world stock markets, possibly more important than further Japanese and German fiscal stimulus. Attempts by G-7 authorities to smooth declines in the dollar could be made more difficult should market traders suddenly become disappointed with insufficient or postponed adjustment in these trade and fiscal imbalances. [Ted Wilson (202) 786-1688]

Interest Rates

Leading U.S. banks lowered their prime lending rate on Nov. 5 for the second time in 2 weeks, from 9 percent to 8-3/4 percent. There was substantial evidence of a generally lower level of other interest rates as well.

The lower interest rates stem from higher money supplies since the Federal Reserve Board reversed its tight money policy in mid-October. The Treasury view of the new priorities was enunciated by Secretary James A. Baker 3d, who said in an interview published in the *Wall Street Journal* on Nov. 5 that he wants to "make sure" the Fed keeps "sufficient liquidity in the system." The prospect of lower interest rates, with their ripple effects throughout the economy, boosts financial markets and helps ward off the threat of a recession raised by the reduction in equity values of stocks.

The cost of the new emphasis on interest rate management, Baker admitted, would be the risk of a further fall in the dollar on world foreign exchange markets, where \$180 billion is estimated to change hands daily. Previously, the administration had engaged in defense of the dollar through higher interest rates, which made foreign investment in the United States more attractive.

The prospect of seeing the dollar slide further in turn induced West Germany's Bundesbank to lower two key interest rates on Nov. 5 after resisting pressure from other countries, including the United States, for months. The Bundesbank lowered its repurchase agreement rate, which is similar to the rate the Fed charges on one kind of short-term loan, from 3.8 percent to 3.5 percent. It also reduced its Lombard rate, which is charged for bank borrowing beyond that permitted under the discount rate, from 5 percent to 4.5 percent. Such rates are lower than equivalent U.S. rates, reflecting West Germany's more sluggish economy and its lower inflation rate.

In apparently coordinated moves, the Bank of France raised two short-term interest rates and Switzerland lowered its discount rate by half a percentage point to 3 percent. France's Finance Minister Edouard Balladur said his country's move was to strengthen the

Rates on 3-month Eurodeposits and other key interest rates

| Country | 3-month Eurodeposits— Rate as of Nov. 12 | Change since Oct. 16 | 3-month deposits (home) | Discount rate | Prime rate | 10-year government bond |
|----------------|---------------------------------------------------|----------------------------|-------------------------------|------------------|---------------|-------------------------------|
| | Percent | | | | | |
| United States | 7.25 | -1.81 | 7.20 | 6.00 | 8.75 | 8.79 |
| Japan | 4.19 | -0.69 | 4.24 | 2.50 | 3.38 | 4.99 |
| West Germany | 3.88 | -1.06 | 3.90 | 3.00 | NA | 6.33 |
| France | 9.25 | 0.25 | 8.94 | 8.25 | 9.45 | 9.22 |
| Italy | 11.75 | -0.50 | 11.50 | 12.00 | 13.00 | 11.54 |
| United Kingdom | 8.94 | -1.31 | 8.81 | 8.38 | 9.00 | 9.23 |
| Canada | 8.63 | -1.25 | 8.75 | 8.55 | 9.75 | 9.89 |
| Netherlands | 4.94 | -1.13 | 4.94 | 4.25 | 7.00 | 6.93 |
| Switzerland | 3.88 | -0.50 | 3.62 | 3.00 | 5.75 | 4.30 |
| Belgium | 7.00 | 0.31 | 7.00 | 7.25 | 8.75 | 8.28 |
| ECU 1/ | 7.25 | -0.56 | NA | NA | NA | 8.73 |

NA = Not applicable. 1/ European Currency Unit (weighted average of 10 European currencies). Note: All rates annualized; government bonds on semiannual bond-equivalent basis.

Source: *Wall Street Journal*, Nov. 13, 1987.

franc against the mark, stabilize the European Monetary System, and avoid the need for a realignment. Earlier in the week, the Bank of England and Britain's largest banks lowered some key lending rates and the Dutch central bank cut its discount rate by one-quarter of a point to 4.25 percent. The trend to lower interest rates in industrialized countries generally is reflected by a comparison of money rates on Eurodeposits (bank deposits of a currency outside its domestic market).

The Administration hopes that its new priorities will lead to stronger growth in the U.S. economy and a stronger U.S. trade position. It wants the German economy, the Japanese economy, and others to grow faster so they will buy more U.S. exports in particular and world-wide exports in general, absorbing resources at home to support world growth instead of shipping them to the United States and worsening the U.S. balance of payments position.

Both an increase in the money supply and a further fall in the exchange rate of the dollar, if they are pursued too far, carry with them the danger of rekindling U.S. inflation. Abundant money supplies typically tend to drive prices up. And the falling dollar, which makes imports more expensive and exports cheaper, means that the costs of production of goods in which imports are a factor tend to rise, while exported goods mean less available for U.S. consumers. However, the prospects of renewed U.S. inflation are still only slim, reduced by the global downward pressure on commodity prices and large U.S. agricultural stocks.

But the problem for the Fed, in pursuing its new liberal money policy, will be to contend with market fears of inflation and recession-- possibly both at the same time. [Arthur J. Dommen (202) 786-1680]

WORLD TRADE AND FOOD POLICY

U.S. Agricultural Trade

U.S. agricultural exports gained by \$1.3 billion and 20 million metric tons during fiscal 1987, the first increase in several years. An increased share of growing world markets for grains, cotton, and soybean meal helped mark the end of a 6-year decline in export volume.

New U.S. farm programs and two years of the dollar's steady decline on foreign exchange markets get much of the credit for the turnaround. However, closer examination reveals that the recovery was only a small step toward regaining ground lost during the first half of the 1980's.

Most of fiscal 1987's increase in value stemmed from "nontraditional" or high-value exports. Horticultural exports (fruits, nuts, and vegetables) rose \$466 million; livestock products rose \$638 million. High-value exports benefited from higher prices as well as growing volume in fiscal 1987, sustaining their relatively strong performance of recent years.

According to the Food and Agriculture Organization of the United Nations (FAO), the overall U.S. share of world agricultural exports was lower in 1986 than any time in the previous 25 years. The United States began the 1980's with an 18-percent share of world export value, but had only a 12-percent share in 1986. FAO data on world trade levels in 1987 will not be available for some time, but U.S. gains were small and the U.S. share was probably closer to 12 percent than to 18 percent. World macroeconomic and supply/demand balances in 1987 remained more similar to conditions during the recent contractionary period than to the earlier boom years.

During the 1970's, U.S. export gains were driven by bulk commodities. World demand for grains and oilseeds soared as the less developed and centrally planned economies increased their imports. With total demand growing, prices for these commodities rose in tandem with export volume. In contrast, fiscal 1987 saw prices fall, and in most cases offset increased volume. For example, U.S. grain exports climbed 20 million tons, but slipped \$500 million in value. Cotton was an exception, as a 167-percent increase in volume boosted cotton export value \$700 million, which still compares poorly with pre-1986 levels.

When world agricultural trade boomed, the United States raised its share of world trade by filling a gap between supply and demand overseas. In 1987, most U.S. market share gains came at the expense of other exporters. For example, world coarse grain trade inched 2 million tons

higher, but U.S. exports grew 11 million tons. Foreign exchange constraints and relatively high foreign production continued to limit U.S. bulk exports to many markets in 1987. However, the implementation of new U.S. commodity programs in the 1986/87 marketing years helped raise export volume, but had little net impact on value.

High-value products largely avoided massive surplus accumulations during the first half of 1980's, and are primarily exported to industrialized markets such as Japan and the European Community (EC). These countries are not currently facing foreign exchange shortages, and their currencies have been strong compared with the dollar since 1985. High-value exports to these markets initially fell and then rose during this period, mirroring the movement of the dollar on foreign exchange markets.

High-value products will be an important factor in the future of U.S. agricultural exports. However, for the present time, bulk exports still predominate. Grains, oilseeds, and cotton accounted for 60 percent of the value of U.S. farm product exports, and 93 percent of their volume in 1987. A strong foundation of bulk exports probably remains a prerequisite if the United States is going to regain the level of exports and world market share that marked the farm sector's prosperity in the 1970's and early 1980's. However, as in 1987, only gradual improvement is foreseeable for the future. [Stephen MacDonald (202) 786-1621]

GATT Meeting on Agriculture

The fourth meeting of the GATT negotiating group on agriculture took place Oct. 26-27 as part of the Uruguay Round of multilateral trade negotiations. Both the European Community (EC) and the Cairns group of non-subsidizing agricultural exporters presented proposals. The Cairns group comprises Argentina, Australia, Brazil, Canada, Chile, Colombia, Hungary, Indonesia, Malaysia, New Zealand, Philippines, Thailand, and Uruguay. Canada also presented a brief note on Canadian views on the negotiating approach for agriculture.

The two-stage EC plan proposes, first, short-term measures to relieve strains on

several badly-affected markets, and second, an attempt to stabilize markets in the longer term by reducing support, adjusting external protection, and lowering incentives to agricultural overproduction. The detailed EC emphasis on emergency measures would attempt to adapt current policies by agreement, renewable each marketing year, to ease strains on certain agricultural markets. This agreement would aim at (1) price discipline for cereals, developing corresponding agreements for cereal substitutes in the process; (2) maintaining present access for traditional sugar markets, avoiding further price-depressing export volume; and (3) price discipline for dairy products as embodied in the GATT dairy products arrangement, even for non-members.

In the longer term, the EC proposal envisions negotiations to reduce government support and external market protection by progressively decoupling production from income support to producers. However, little detail is provided on the transition, in particular from short-term measures increasing intervention to longer term negotiations to reduce it. For these negotiations, the EC has suggested that an overall measure of support—such as the producer subsidy equivalents (PSE's) used by the OECD—will be needed to compare various agricultural systems, although the present PSE measures will need adjustment to be limited to trade-affecting measures, production restraints, and accounting for world price and currency fluctuation.

The EC focus on short-term measures that restrict agricultural trade—such as developing arrangements for cereal substitutes—clearly will conflict with proposals from others for more open, market-oriented agricultural trade. Elsewhere, the EC call for dairy price discipline seemingly overlooks EC circumvention of the GATT dairy arrangement by the 1984 sale of cut price butter to the Soviet Union, which prompted United States withdrawal from the arrangement in protest.

The Cairns group proposal comprises a long-term framework, a reform program, and early relief measures. The long-term framework of the proposal addresses the subjects of the original Uruguay Round declaration—market access, agricultural

subsidies, and sanitary and phytosanitary measures- as well as consultation, surveillance, and dispute settlement mechanisms concerning them. The framework on market access would end all restrictions not explicitly sanctioned by the GATT and other exceptional treatment such as waivers or special accession protocols. Their proposal would also bind all agricultural tariffs at or near zero. Concerning agricultural subsidies, the Cairns proposal prohibits subsidies and government support measures that have a negative impact on trade, and outlines these ideas in greater detail than similar elements in the U.S. proposal.

The Cairns reform program would use a PSE-type measure to lower overall government support to agriculture. It goes further than other proposals, however, including measurement at both aggregate and individual commodity levels. Priorities would be to phase out export subsidies and import-restricting measures-- including tariffs, non-tariff measures, and other access barriers.

The Cairns proposal on early relief measures would freeze import access, subsidies, and health regulations, while taking steps to ensure that disposal of agricultural stocks is non-disruptive. Across-the-board cutbacks in all export and production subsidies by an agreed amount, plus a commitment to increase opportunity for import access, would then apply from the end of 1988.

The Canadian note stresses a comprehensive approach for negotiating agriculture by its focus on trade-distorting agricultural policies, rather than trade-neutral ones. Consequently, to promote their overall goal of (a) ending all trade-distorting subsidies and access barriers, and (b) providing equitable rights and obligations under an effective enforcement mechanism for all members, the Canadians offered a trade-distorting equivalent (TDE) measure as a further refinement of the OECD producer subsidy equivalent (PSE). A major reduction in trade-distorting policies over a period such as 5 years would encourage additional development of more market-oriented national agricultural policies, in the Canadian view. [*Ted Wilson (202) 786-1688*]

U.S. and Canada Sign Trade Accord

On Oct. 3, the United States and Canada signed a trade agreement designed to remove trade barriers and expand market access between the two countries. The agreement, following a walkout by the Canadian negotiators on Sept. 23, was signed only hours before a Congressionally-mandated deadline. Several provisions relate specifically to agricultural products, and other provisions deal with wine and forestry products.

The President must sign a final version of the agreement by Jan. 2, 1988. Congress then has 90 legislative days to consider the agreement, making a vote likely in April 1988. Under the fast-track negotiating authority extended to the Administration by the Congress, both the Senate and the House must vote yes or no to the agreement, with no amendments allowed. On the Canadian side, Parliament must approve the agreement; furthermore, Canada's ten provinces have to agree to change any legislation necessary to implement the agreement.

History and Major Issues

In September 1985, following the March 1985 "Shamrock Summit" between President Reagan and Prime Minister Mulroney in Quebec City, Mulroney formally requested that the United States enter into negotiations aimed at producing the "broadest possible package of mutually beneficial reductions in tariff and nontariff barriers between the two countries." President Reagan requested "fast-track" negotiating authority from Congress, which was approved in April 1986. Negotiations began in May 1986.

Both countries brought a number of issues to the negotiating table. Canada's overriding concern was to ensure access to the U.S. market without being subject to U.S. trade remedy laws. To this end, the Canadians wanted exemption from U.S. antidumping and countervailing duty laws and a binding dispute settlement mechanism for resolving trade issues. The Canadians also insisted on maintaining various domestic institutions, including social security systems, regional development and unemployment programs, and agricultural marketing boards.

U.S. concerns were more varied. The United States wanted to see Canada loosen investment restrictions, although Canada has moved considerably in this direction since Mulroney came into power in 1984. Other U.S. concerns were treatment of services, intellectual property rights (patent protection for U.S. firms), protection given to Canadian "cultural" industries (film, publishing, electronic media), and market access for wine and beer.

U.S.-Canadian Agricultural Trade

Total trade between the United States and Canada is already large, amounting to \$124 billion in 1986. Agricultural trade accounted for about \$4.5 billion, with the United States having a \$500-million surplus. 1/ Major U.S. agricultural exports are fruits, vegetables, cotton, rice, and nuts-- many products Canada cannot produce because of its cold climate. Principal U.S. imports from Canada are live animals, meats, and other animal products.

Canada is one of the top five customers for U.S. agricultural products, but during the 1980's the agricultural trade balance has been steadily shifting in Canada's favor. This shift largely reflects the depreciation in Canada's dollar against the U.S. dollar, making imports from Canada cheaper and U.S. exports more expensive. The changing trade balance has been accompanied by an increasing number of trade disputes affecting many agricultural products, including potatoes, hogs, and corn.

Provisions Relating to Agriculture

Most of the provisions of the agreement relating to agriculture deal with tariff reduction and quantitative restrictions. Several provisions deal with commodity-specific restrictions. Other language deals in a more general way with agricultural subsidies and technical barriers.

- o *Both countries have agreed to eliminate all agricultural tariffs within 10 years.*

Although nontariff trade restrictions are the

1/ Because of the underreporting of U.S. exports to Canada, Canadian import data are used to measure trade rather than U.S. export data.

principal barrier to trade in most agricultural products, tariffs are significant barriers for some products. U.S. exports of fruits and vegetables, vegetable oil, processed eggs, poultry, cigarettes, and beer are subject to high Canadian tariffs. U.S. tariffs are highest on Canada's exports of rapeseed oil and meal, selected vegetables, tobacco, and wine. Because tariffs are higher on processed products, trade in high-value agricultural products will especially benefit from tariff reductions.

- o *With respect to tariffs on fresh fruits and vegetables, a conditional snapback to the existing tariff rate will be allowed for 20 years.* Fresh fruits and vegetables are subject to the 10-year tariff reduction schedule, but under certain conditions tariffs will be allowed to revert to the existing rate.
- o *The United States has agreed to exempt from quantitative restrictions imports from Canada of sugar-containing products having 10 percent or less sugar by dry weight.* The United States has had quotas on Canadian exports of sugar-containing products since 1985. This provision, although not different from current laws, assures Canada continued market access for some sugar-containing products.
- o *Canada has agreed to eliminate import licenses for U.S. wheat, barley, oats, and products, as soon as support levels for these products in both countries are equivalent.* This provision would allow greater access for U.S. products. Removal of licenses on wheat could be especially significant because of Canada's two-price wheat system, which currently maintains domestic prices above world prices. In a related provision, both countries have agreed not to impose or reimpose quantitative restrictions on grain or grain products as long as there are no significant changes in grain support programs that would lead to a significant change in imports from the other country.
- o *Canada has agreed to remove transportation subsidies that are paid under the Western Grain Transportation Act (WGTA) for products moving through western ports to U.S. markets.* Western Canadian grains and oilseeds destined for export have been

eligible for subsidized rail rates for many years. In 1984, these rates were raised and other modifications made under the WGTA. The WGTA allowed eligible products destined for the United States through West Coast ports to move at subsidized rates, contributing to increased Canadian exports of certain products - millfeeds and rapeseed meal- to the Pacific Northwest.

Removal of subsidies would mean transportation rates on products destined for U.S. markets through western Canadian ports would increase from about Can\$6.00 per ton to about Can\$30.00 per ton, likely reducing Canadian exports of these products. Products exported to the United States through the port of Thunder Bay on Lake Superior, which were eligible for the subsidized rates prior to the implementation of the WGTA, would not be affected.

- o *Canada has agreed to increase global import quotas for poultry, poultry products, and eggs to the annual average of actual shipments during the past 5 years. Canada regulates its poultry sector by a supply management system that controls*

production and imports by quotas. U.S. poultry exports have exceeded the global quota in recent years. The United States has exported additional quantities under supplemental quotas because Canadian demand has exceeded domestic production. If Canada reduces supplemental quotas in the future, the changed global quota would ensure U.S. access to the Canadian market.

- o *The two countries will exempt each other from their respective meat import laws. Both countries have countercyclical red meat import laws that are designed to limit imports when production is large. The United States has not imposed quotas on Canada since the meat import law was revised in 1979, although Canada limited beef exports in 1982 and 1983 under voluntary restraints. Canada imposed its law in 1985 but applied quotas only to beef from the European Community. This provision should provide even greater certainty to exporters that shipments will not be interrupted by quotas.*
- o *Other agricultural provisions and issues. Other provisions in the agricultural section*

U.S.-Canada trade in selected agricultural products, 1986

| Commodity | U.S. exports to Canada 1/ | U.S. imports from Canada 2/ |
|----------------------------------|---------------------------|-----------------------------|
| <u>Million U.S. dollars</u> | | |
| Wheat | --- | 25.5 |
| Oats | -- | 7.5 |
| Barley | -- | 11.9 |
| Fruits (fresh/frozen) | 629.8 | 50.7 |
| Vegetables (fresh/frozen) | 466.6 | 75.4 |
| Vegetable oil | 49.7 | 22.6 |
| Rapeseed oil | --- | 14.7 |
| Rapeseed meal | --- | 14.0 |
| Eggs | 19.2 | 9.8 |
| Poultry meat | 39.4 | 25.1 |
| Tobacco | 4.2 | 33.9 |
| Wine | 7.6 | 1.0 |
| Beef | 76.8 | 131.1 |
| Sugar & related products | 39.9 | 125.0 |
| Total selected products | 1,333.0 | 533.4 |
| Total, all agricultural products | 2,619.5 | 2,009.7 |

--- = Negligible. 1/ Agriculture Canada, Canada's Trade in Agricultural Products, 1986. 2/ U.S.D.A., Foreign Agricultural Trade of the United States, 1986.

Note: U.S. exports to Canada are based on Canadian import data; U.S. Bureau of Census data underreport exports shipped to Canada by truck.

relate to export subsidies and technical barriers. Both countries have agreed not to use direct export subsidies on agricultural products shipped to each other. They have also agreed to minimize technical barriers that interfere with trade in food and beverages.

Both the United States and Canada make use of a wide range of programs to assist producers in agriculture as well as in other sectors. The negotiators decided to defer any reduction in agricultural subsidies to the multilateral trade talks under the auspices of the General Agreement on Tariffs and Trade which began in September 1986 in Uruguay.

Other Provisions Related to Agriculture

Access for U.S. wine and distilled spirits will be improved by according U.S. products "more equal" treatment relative to domestic Canadian products. Discriminatory pricing, distributing, and retailing practices have impeded U.S. penetration of the Canadian market. Many of these practices will be phased out. For forestry products, the agreement contains specific provisions relating to trade in logs and cedar shakes and shingles, as well as import standards affecting trade in plywood. It leaves intact the 1986 Softwood Lumber Agreement, whereby Canada agreed to impose an export tax on softwood lumber products in lieu of incurring a U.S. countervailing duty.

Other general provisions address trade in services, investment, government procurement, and cultural industries and energy; these may have indirect effects on the agricultural sectors of both countries. Both countries will retain their national laws regarding antidumping and countervailing duties. Judicial disputes over rulings regarding application of each country's trade remedy laws may be appealed to a bilateral dispute settlement panel. Duties currently in place as a result of application of national law will remain, but annual reviews of these duties can now be reviewed by the binational panel.

Implications for Agricultural Trade

An assessment of the impact on agricultural trade of these provisions must

await the signing of a final agreement. Because trade has been limited by existing restrictions, it is difficult to predict how trade might expand once these restrictions are eased. At present, about three-quarters of the value of U.S. exports and one-quarter of U.S. imports could be affected by specific provisions.

Much of the value of U.S. agricultural exports is accounted for by fruits and vegetables, which could benefit from tariff reduction. However, omitting these commodities, the value of potentially affected trade is small. In addition to fruits and vegetables, the agreement could benefit U.S. exports of wine, poultry and eggs, some grains, and high-value and processed products. Canadian exports of storage vegetables (potatoes, onions, and carrots) and beef could also benefit. Other provisions dealing with dispute settlement and technical standards--for example, trade in hogs and corn, currently limited by countervailing duties--could have a greater impact on trade than the specific agricultural provisions. [Carol A. Goodloe and Mary Anne Normile (202) 786-1663]

Drought Sharply Increases World Food Shortfalls

The message in the latest ERS assessment of world food needs^{1/} is that weather still drives world agriculture. And it matters greatly to food aid donors just where in the world the rains fail. For some nations, whether just trying to hold their own on the food front or attempting to meet their people's nutritional needs, 1987/88 is extremely costly.

^{1/} *World Food Needs and Availabilities* is published by the Agriculture and Trade Analysis Division of ERS for the Interagency Food Aid Analysis Working Group. These quarterly reports provide an objective analysis of food needs in 69 countries for reference by the governmental and private agencies implementing any of the various legislated programs to employ U.S. agricultural surpluses overseas. Ray W. Nightingale [(202) 786-1705] is Food Needs Analysis Coordinator. Maurice Landes and Margaret Missiackn contributed to this article.

Food shortfalls declined after 1984/85, but status quo needs ^{2/} remained at 6.6 million tons, mainly because of slow economic growth, continued heavy indebtedness and, in Africa, slow rates of growth in agricultural productivity. Now the weather factor has returned to drive food needs to 26 million tons. This time South Asia, principally India, is hardest hit by crop-devastating failure of rains. But inadequate rainfall in many countries and a major drought in Ethiopia have increased African food needs as well.

The Outlook for 1987/88

Estimated status quo cereal shortfalls for 1987/88 have nearly tripled since the July assessment as the worst Indian monsoon season in recent decades sharply reduced cereal production. Primarily because of the crop losses in India, by far the largest country covered in the analysis, the South Asian shortfalls account for 90 percent of an overall 17.4-million-ton rise since July. The 1987/88 shortfall is nearly 20 million tons above estimated needs in 1986/87 and more than double the record-large assessment for 1984/85. In South Asia, India and Bangladesh dominate with needs of 13.5 and 2.4 million tons, respectively.

In Sub-Saharan Africa, cereal shortfalls are placed at 5.3 million tons, up a million just since July and more than 3 million above 1986/87. Additional food needs in East Africa and Southern Africa are estimated at 2.5 and 1.5

^{2/} *Status quo* shortfalls are estimates of needs in excess of production and commercial import capacity to maintain consumption at average levels of recent years. The estimated food needs are those required to prevent any deterioration in food availability, whether that be plenty, sustained by food assistance, or scarcity from inadequate or failed national and/or international food security programs. *Nutrition-based* needs, on the other hand, are estimates of needs in excess of production and commercial capacity to achieve per capita consumption levels reported by FAO/WHO to meet national minimum caloric intake requirements. *Maximum absorbable* needs are estimates of those which could be met taking transportation and storage constraints into account.

million tons, respectively. In North Africa, status quo needs have climbed, as increased cereal production in Egypt has been outweighed by anticipated deterioration in commercial import capacity. Status quo needs in Egypt are up 750,000 tons to 2 million tons.

Compared with the levels that would be required to meet minimum nutrition standards, 69 developing countries are estimated to have a deficit of 42 million tons of cereals in 1987/88, up 25 million from assessed needs in 1986/87. Again, India accounts for around three-fourths of this increase. In Sub-Saharan Africa, nutrition-based needs are up 1.2 million tons from the July estimate. Stock adjustments reduce the overall need to 36 million. Maximum absorbable needs are assessed at 30 million tons.

The Outlook for 1988/89

Assuming normal weather, status quo cereal shortfalls for 1988/89 in 69 developing countries are estimated at 10 million tons, 16 million below the 1987/88 assessment. In Sub-Saharan Africa, needs are placed at 4.3 million tons, while North African needs may decline half a million tons from 1987/88 to 1.5 million. Status quo needs for South Asia are expected to decline by 15 million from the current assessment, and Latin American needs are unchanged.

Nutrition-based needs for 1988/89 are projected to decline 16 million tons from 1987/88 to 26 million tons, based on an assumed recovery of food grain production in South Asia.

The Food Security Choices for Countries Facing Shortages

Affected countries will respond in different ways to the 1987/88 production shortfalls. The response will vary according to such factors as the level of food stocks, food distribution capacity, ability to import, degree of political stability, and investment priorities. Most countries will have to dip heavily into food stocks, incur increased costs for public food distribution and drought relief, appeal for international assistance and probably endure some drop in food consumption.

Additional cereal needs to support consumption, stocks adjustments,
and maximum absorbable cereal quantities

| Year and region | Status quo | | Nutrition-based | | Maximum 1/ |
|--------------------|---------------------------------|----------------------|-----------------|----------------------|------------|
| | Consumption | Consumption + stocks | Consumption | Consumption + stocks | |
| | 1,000 tons cereal equivalent 2/ | | | | |
| 1984/85 | 11,745 | 13,450 | 25,767 | 27,472 | 3/ |
| 1985/86 | 8,811 | 9,503 | 20,253 | 21,036 | 15,014 |
| 1986/87 4/ | 6,660 | 7,851 | 17,473 | 18,105 | 15,001 |
| 1987/88: | | | | | |
| Total | 26,238 | 20,910 | 41,987 | 35,704 | 30,332 |
| Africa-- | 7,240 | 7,478 | 12,412 | 11,919 | 11,204 |
| North Africa | 1,981 | 2,466 | 0 | 0 | 2,466 |
| Sub-Saharan Africa | 5,259 | 5,012 | 12,412 | 11,919 | 8,738 |
| West Africa | 860 | 831 | 2,311 | 2,250 | 1,757 |
| Central Africa | 370 | 382 | 502 | 514 | 514 |
| East Africa | 2,520 | 2,777 | 6,342 | 6,582 | 4,780 |
| Southern Africa | 1,509 | 1,022 | 3,257 | 2,573 | 1,687 |
| Middle East | 686 | 743 | 481 | 538 | 743 |
| Asia-- | 17,813 | 12,160 | 27,936 | 21,979 | 17,289 |
| South Asia | 16,845 | 11,190 | 27,115 | 21,157 | 16,319 |
| Southeast Asia | 968 | 970 | 821 | 822 | 970 |
| Latin America-- | 499 | 529 | 1,158 | 1,268 | 1,096 |
| Caribbean | 87 | 93 | 61 | 66 | 93 |
| Central America | 220 | 244 | 469 | 517 | 457 |
| South America | 192 | 192 | 628 | 685 | 546 |
| 1988/89: | | | | | |
| Total | 9,953 | 11,026 | 25,640 | 27,594 | 18,572 |
| Africa-- | 5,881 | 6,692 | 11,784 | 12,543 | 10,763 |
| North Africa | 1,534 | 1,603 | 0 | 0 | 1,603 |
| Sub-Saharan Africa | 4,347 | 5,089 | 11,784 | 12,543 | 9,160 |
| West Africa | 466 | 702 | 1,952 | 2,205 | 1,592 |
| Central Africa | 371 | 380 | 506 | 515 | 515 |
| East Africa | 2,539 | 2,615 | 6,453 | 6,529 | 4,697 |
| Southern Africa | 971 | 1,392 | 2,873 | 3,294 | 2,356 |
| Middle East | 623 | 637 | 415 | 429 | 637 |
| Asia-- | 2,786 | 2,958 | 11,979 | 13,078 | 5,813 |
| South Asia | 1,782 | 1,946 | 11,081 | 12,171 | 4,801 |
| Southeast Asia | 1,004 | 1,012 | 898 | 907 | 1,012 |
| Latin America-- | 663 | 739 | 1,462 | 1,545 | 1,359 |
| Caribbean | 87 | 87 | 64 | 64 | 87 |
| Central America | 220 | 225 | 461 | 473 | 411 |
| South America | 356 | 427 | 937 | 1,007 | 861 |

1/ Imports consistent with maximum recent levels of consumption and food stocks.

2/ Major cereals, and the cereal equivalent of shortfalls in roots and tubers.

3/ Maximum absorbable needs were not computed in 1984/85

4/ Final 1986/87 assessment, May 1987 World Food Needs and Availabilities report.

The scope of food assistance planning and programming is illustrated by the cases of Ethiopia and India-- both countries with have experienced famine.

Planting Difficult in Ethiopia

Rains for Ethiopia's Meher (main season) crop, which accounts for about 90 percent of

total food output, are essential in June through September for the November/December harvest. This year, the rains did not begin until August and even then were not plentiful. Early crops (corn and sorghum) were the hardest hit. Planting of late season crops (barley, teff, and wheat) was difficult because of hardened ground. However, unlike the 1984-85 drought which

was widespread, this drought is virtually contained in the northern and eastern provinces.

The adverse weather conditions necessitated a reduction in the 1987/88 cereal production estimate to 5.2 million tons, about a 9-percent drop from the 1986/87 level. It is estimated that wheat and sorghum stocks from 1986/87 were drawn down from 450,000 tons to 174,000 tons. These stocks are strictly government holdings. The amount of on-farm stocks is not known but may be significant because of the good 1986/87 harvest.

Status quo import requirements for 1987/88 now stand at 1.6 million tons. With an estimated 9 percent of available foreign exchange actually allocated to food imports, commercial import capacity is barely 155,000 tons. Allowing for an increase in stocks, additional food needs are 1.68 million tons. If the percentage of foreign exchange allocated to food imports were raised to 14 percent because of the crisis, commercial import capacity of 202,000 tons would lower additional food needs marginally to 1.63 million tons.

Each of these results appears unrealistically high, however, when it is recalled that deliveries for the 1984/85 drought totaled about one million tons. In 1984/85, consumption was in fact sharply curtailed, and stocks on farms most likely were meager. By running down current on-farm stocks and again curtailing consumption, but certainly not as in 1984/85, additional food needs most likely would be closer to 1 million tons.

Poor Monsoon in India

India's status quo needs for 1987/88, estimated to be negligible in July, are now placed at 13.5 million tons of cereals, and nutrition-based needs have increased to 20 million. The change results from a 14-percent drop in estimated cereal production for 1987/88 following one of the worst monsoons on record during July-September.

The rice crop is estimated at 47 million tons, the lowest since 1979/80, because of poor rainfall. Harvests of oilseeds and coarse grains have been affected by 3 years of dry

Per capita value of food needs, 1987/88, ranked

| Country | Per capita status quo base | | Per capita Nutrition-based | |
|-------------------|----------------------------|------|----------------------------|------|
| | Dollars | Rank | Dollars | Rank |
| Egypt | 15.74 | 7 | 0.00 | 49 |
| Morocco | 0.00 | 68 | 0.00 | 54 |
| Tunisia | 0.00 | 62 | 0.00 | 67 |
| Benin | 0.00 | 54 | 1.38 | 45 |
| Burkina | 0.00 | 48 | 0.00 | 53 |
| Cameroon | 0.87 | 44 | 0.65 | 47 |
| Cape Verde | 40.46 | 2 | 20.23 | 14 |
| Chad | 6.20 | 21 | 27.69 | 6 |
| Gambia | 0.00 | 53 | 0.00 | 62 |
| Ghana | 0.00 | 49 | 4.72 | 35 |
| Guinea | 4.10 | 29 | 16.01 | 20 |
| Guinea-Bissau | 0.00 | 59 | 0.00 | 65 |
| Liberia | 12.69 | 8 | 23.70 | 9 |
| Mali | 2.41 | 35 | 22.40 | 10 |
| Mauritania | 34.56 | 3 | 27.98 | 5 |
| Niger | 10.47 | 11 | 16.29 | 19 |
| Senegal | 3.02 | 33 | 3.32 | 41 |
| Sierra Leone | 6.14 | 22 | 7.98 | 29 |
| Togo | 2.29 | 36 | 5.73 | 32 |
| Angola | 5.56 | 25 | 6.12 | 31 |
| Central Afr. Rep. | 2.20 | 38 | 2.93 | 42 |
| Congo | 1.19 | 42 | 4.78 | 34 |
| Equatorial Guinea | 0.00 | 67 | 0.00 | 69 |
| Zaire | 1.81 | 39 | 2.66 | 43 |
| Burundi | 0.95 | 43 | 34.15 | 2 |
| Djibouti | 17.56 | 5 | 0.00 | 68 |
| Ethiopia | 10.79 | 10 | 23.91 | 8 |
| Kenya | 4.25 | 28 | 16.61 | 17 |
| Rwanda | 8.85 | 14 | 32.93 | 3 |
| Somalia | 7.71 | 17 | 21.81 | 11 |
| Sudan | 4.78 | 27 | 8.06 | 28 |
| Tanzania | 1.54 | 41 | 0.00 | 58 |
| Uganda | 0.00 | 58 | 3.83 | 38 |
| Botswana | 0.00 | 66 | 0.00 | 56 |
| Comoros | 4.07 | 30 | 20.33 | 13 |
| Lesotho | 9.06 | 13 | 15.85 | 21 |
| Madagascar | 1.73 | 40 | 0.86 | 46 |
| Malawi | 7.23 | 19 | 12.80 | 22 |
| Mauritius | 0.00 | 51 | 0.00 | 66 |
| Mozambique | 10.89 | 9 | 29.52 | 4 |
| Swaziland | 0.00 | 65 | 0.00 | 51 |
| Zambia | 7.58 | 18 | 17.68 | 16 |
| Zimbabwe | 0.00 | 47 | 0.00 | 48 |
| Lebanon | 56.71 | 1 | 47.68 | 1 |
| North Yemen | 20.10 | 4 | 12.00 | 24 |
| South Yemen | 3.00 | 34 | 4.00 | 37 |

Continued--

weather and are also estimated to be down sharply. While poor soil moisture will probably reduce 1988 pulse output, a major setback in the 1988 wheat crop, to be planted this November, is considered unlikely because the crop is heavily irrigated and has proven to be highly resilient to dry weather.

Government stocks of wheat and rice totaled 23.4 million tons in July 1987, above the target of 21 million but roughly 3 million below what was anticipated earlier, apparently because of spoilage of procured wheat due to heavy post-harvest rains. The Government is maintaining price stability through large allocations of stored wheat and rice through its distribution programs. India's extensive

public food distribution system and steadily improving capacity to target food to poor rural consumers indicates that widespread starvation is very unlikely. Despite large scale relief efforts, however, it is likely that consumption will fall below that of recent years. As has been the case in earlier droughts, increased distribution will probably not be able to fully compensate for a sharp drop in purchasing power.

Current USDA estimates indicate that no commercial or concessional wheat or rice trade is likely in 1987/88, because both status quo and nutrition-based consumption levels are higher than what is likely to occur, and because of large Indian Government stocks. The bulk of the actual trade and aid impacts are likely to be in other commodities badly affected by the drought, particularly edible oils, pulses, corn, and milk. Prospects for significant trade or aid in cereals hinge on the 1988 wheat crop.

India's tight, but well-managed, balance of payments and federal budget are probably capable of absorbing the costs of the drought without foreign assistance. However, the resulting increase in debt, and large diversion of domestic resources from investment to drought relief measures, will likely result in a measurable setback to future growth and trade. In particular, acute balance of payments and budgetary pressures could necessitate a retreat from industrial and import liberalization measures introduced in recent years. Assistance that reduces foreign exchange costs of either normal or drought-related imports, or helps maintain domestic development investment streams, could help minimize the future growth and trade impacts of the drought.

India can handle a 14-percent drop in cereal production itself, while Ethiopia cannot come close to handling a 9-percent drop because of differences in the economic status of the two countries. India is politically stable, has made a large investment in agricultural development, and has a strong food security system. Ethiopia has none of these. Were the Indian economy as weak as Ethiopia's, donor countries would be overwhelmed by the budget implications of current crop shortfalls. Even in a country with a food security system as strong as India's, droughts coming in close succession or

Per capita food aid needs, 1987/88, ranked (continued)

| Country | Per capita Status quo base | | Per capita Nutrition-based | |
|--------------------|----------------------------|------|----------------------------|------|
| | Dollars | Rank | Dollars | Rank |
| Afghanistan | 8.32 | 16 | 9.07 | 27 |
| Bangladesh | 5.92 | 24 | 12.64 | 23 |
| India | 3.23 | 31 | 5.56 | 33 |
| Nepal | 0.00 | 45 | 11.32 | 26 |
| Pakistan | 0.00 | 61 | 0.00 | 61 |
| Sri Lanka | 5.14 | 26 | 3.47 | 39 |
| Cambodia | 8.46 | 15 | 25.39 | 7 |
| Indonesia | 0.00 | 55 | 0.00 | 55 |
| Laos | 0.00 | 63 | 0.00 | 63 |
| Philippines | 0.00 | 57 | 0.00 | 57 |
| Vietnam | 3.21 | 32 | 1.74 | 44 |
| Dominican Republic | 0.00 | 46 | 0.00 | 59 |
| Haiti | 10.39 | 12 | 16.41 | 18 |
| Jamaica | 0.00 | 50 | 0.00 | 50 |
| Costa Rica | 0.00 | 52 | 0.00 | 52 |
| El Salvador | 16.01 | 6 | 21.64 | 12 |
| Guatemala | 0.00 | 56 | 3.38 | 40 |
| Honduras | 2.29 | 37 | 11.47 | 25 |
| Nicaragua | 0.00 | 60 | 0.00 | 60 |
| Bolivia | 6.45 | 20 | 20.20 | 15 |
| Colombia | 0.00 | 64 | 0.00 | 64 |
| Ecuador | 6.01 | 23 | 7.91 | 30 |
| Peru | 0.00 | 69 | 4.14 | 36 |

at a time when food stocks are low can still require a massive food aid effort. In actuality, Ethiopia last September requested 950,000 tons in food aid, while in November India had still to make any formal request for food assistance.

Appraising Food Needs

The status quo and nutrition-based needs discussed above are measures of aggregate food shortfalls. They do not address the issues of relative need - which countries should be given priority in the absence of resources to meet all needs.

Many factors could be considered in developing means to allocate concessional food supplies among countries. These range from quantitative factors such as measures of relative needs to more qualitative factors, such as recipient countries' efforts to maintain budgetary discipline and to implement self-help policies encouraging greater local production.

Per capita ranking of needs provides one measure of the relative severity of additional food needs across countries. Several countries with the same absolute level of additional food needs have quite different per capita needs. The wide margin between per capita measures reflects differences in the severity of the food

problems these countries face and, in very general terms, the manner in which the problem has been addressed. 3/

The pronounced disparity between some status quo and the nutrition-based results points up the differences inherent in the two procedures. Countries like Lebanon, Liberia, Mauritania, and Mozambique rank high in both status quo and nutrition-based per capita food needs. As a general rule this means that food availability has recently been sustained near the level needed to achieve the

3/ Adjustments were made in both status quo and nutrition-based indicators to compensate for the different proportion of the diet made up by the staples analyzed. The percentage of the diet covered - derived from the 1979-81 FAO Food Balance Sheets - must be factored into the estimates to prevent biasing per capita aid needs upward or downward for countries with a large or small proportion of the diets made up of the staples analyzed.

FAO-recommended minimum diet, either by domestic production, by commercial imports that are no longer affordable, or by food aid. Liberia, Mauritania, and Mozambique have long been recipients of food aid. Lebanon now lacks its earlier commercial import capacity.

Countries like Bolivia, Burundi, Cambodia, and Mali have per capita nutrition-based needs much higher than status quo needs. This wide margin indicates a serious gap between recent per capita food intake levels and the supplies needed to meet FAO-recommended minimum caloric levels. This gap has not been filled in the recent past by commercial imports, or by food aid. Egypt, on the other hand, has per capita status quo needs much higher than nutrition-based needs. Domestic production, commercial imports, and food aid donations have pushed per capita intake levels above the FAO minimum. Food assistance based on status quo estimates permits the maintenance of consumption above the FAO-recommended minimum.

CORN PRODUCTION LAGS BEHIND USE IN DEVELOPING COUNTRIES

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Abstract: Although corn production in developing countries is increasing with more widespread planting of higher-yielding varieties, output lags behind use and imports are rising. Generally, corn imports appear unlikely to be offset by increases in domestic production due to improved varieties as with the Green Revolution for wheat. Recently, however, demand for corn in some countries has been stymied because incomes are not growing as in the 1960's and 1970's, and because severe indebtedness is affecting ability to import.

Keywords: Corn, developing countries, production, consumption, trade, technology, hybrids.

Twenty percent of corn used in developing countries during 1983-85 was imported. The four largest importers were South Korea, Taiwan, Mexico, and Egypt, which accounted for almost one half of all developing country corn imports. Adding the purchases of the next four largest importers of corn (Brazil, Malaysia, Venezuela, and Iran) accounts for two-thirds of the corn imports of the

developing countries. Over 80 percent of corn imports by developing countries are estimated to be used for livestock, dairy, and poultry feed (1). 1/

The use of corn as feed in the higher-income developing countries has

1/ Numbers in parentheses refer to references at end of article.

increased much faster than production, and was the driving force in shifting the developing world from being net exporters to net importers of corn in the late 1970's and through the 1980's. 2/

Recently, however, use of corn in some countries of this high-income group has been stymied because incomes are not growing as rapidly as in the 1960's and 1970's, and because severe indebtedness is restricting their ability to import. Heavy debt burdens have led some countries to try to achieve self-sufficiency, even with the relatively low prices for corn in the international markets. Examples include Brazil and Venezuela.

Corn Yields Are Low In Developing Countries

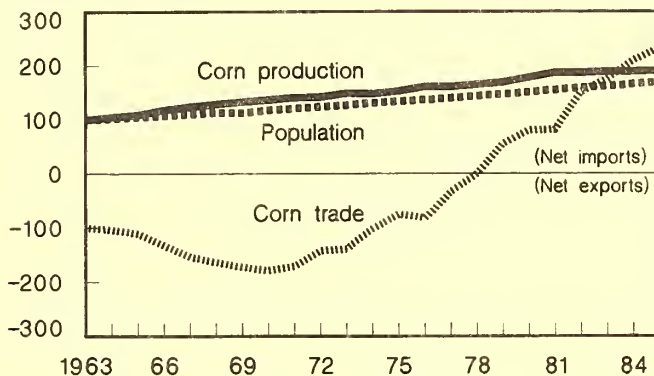
Corn yields are generally lower in developing countries than in developed countries because of the combination of severe disease and insect problems, little fertilizer, and use of unimproved varieties. Perhaps as much as 60 percent of the fertilizer used in developing countries is applied on irrigated areas, which are commonly planted to wheat and rice (6). Without assured moisture, typical subsistence farmers are reluctant to use higher levels of inputs, including fertilizer. Under favorable conditions and good management, however, yields can be quite high. For example, the large-scale commercial farmers in Zimbabwe have averaged as high as 6 tons per hectare in years of good weather. The national 1984-86 average for Zimbabwe was only 1.8 because more than 80 percent of the corn area is cropped by poorer, largely subsistence farmers using few inputs on marginal land. (The United States averaged 7.2 tons per hectare in 1984-86.)

There are also important physiological differences between tropical and temperate corn varieties, especially in the dry matter going to grain production after flowering (5).

2/ Higher-income developing countries as used here, based on World Bank classifications, comprise the following: Algeria, Argentina, Brazil, Chile, Hong Kong, Iran, Iraq, Israel, Jordan, Kuwait, Libya, Malaysia, Mexico, Panama, Saudi Arabia, Singapore, South Africa, South Korea, Syria, Taiwan, Trinidad, Uruguay, and Venezuela.

Higher Corn Imports Make Developing Countries Net Importers

Percent of 1962-64



3-year averages.
Index of corn production and population: 1962-64 average=100.
Index of corn trade: 1962-64 average=-100 (indicating net exports).

The temperate corn varieties have an almost constant stalk and leaf weight after flowering because all the dry matter accumulation is in grain production. By harvest, half of the weight of temperate corn will be in the grain. Tropical corn is not as efficient, about 80 percent of the dry matter goes to grain after flowering and only 30 to 40 percent of weight of the plant will be in the grain at maturity.

Because of low yields, developing countries account for only a quarter of world production, in spite of having half of the world's corn land. Not only are yields much lower in developing countries, they are not increasing as fast as elsewhere. Yield increases contributed less to the increased corn production in the developing countries than in the centrally planned or developed countries during the past decade.

Improved Varieties Can Increase Yields

The benefits of improved varieties are shown by the U.S. experience. Field trials using hybrid and nonhybrid varieties from the 1920's to the 1980's indicate that 60 to 80 percent of U.S. yield gains have been due to improved varieties (7).

About half of the corn area in developing countries is planted to improved varieties, and only one-third to hybrids (3). The improved varieties grown in the developing countries were developed through breeding programs specific to their agro-environment. Although corn can be grown under a wide range of

Corn yields and production

| Region | Average yield | | Average production | | Share of production |
|-----------------------|---------------|---------|--------------------|---------|-------------------------------------------|
| | 1973-75 | 1983-85 | 1973-75 | 1983-85 | increase due to increased yields 1/ |
| | Tons per ha. | | Million tons | | Percent |
| Developing countries: | 1.4 | 1.6 | 80 | 100 | 70 |
| Centrally planned 2/: | 2.6 | 3.9 | 70 | 116 | 75 |
| Developed countries: | 5.1 | 6.4 | 160 | 208 | 79 |
| United States | 5.2 | 6.4 | 137 | 175 | 81 |

1/ Change due to yield is change in yield multiplied by harvested area in 1973-75. 2/ Includes People's Republic of China.

Source: (12).

environments, it is generally not possible to transfer varieties from one agro-environment to another. Individual varieties have only narrow adaptability because of their sensitivity to temperature and day length, and their susceptibility to diseases and insects.

A key international corn breeding center for developing improved varieties for the developing countries is the International Maize and Wheat Improvement Center (CIMMYT) in Mexico. Much of the corn breeding at CIMMYT has focused on development of gene pools.

Gene pools are populations of much improved individuals. The plants in a given gene pool are similar for characteristics such as length of growing season and climatic adaptation, that is, tropical highlands, tropical lowlands, or subtropics. The plants in a particular gene pool are grown and cross-pollinated naturally for several generations, with only the seed of the best plants saved at each harvest. The frequency of desirable genes in the gene pool population gradually increases, although a given gene is not likely to be present in every plant. Gene pools can be used to develop open-pollinated varieties and inbred lines for hybrids.

Hybrid Varieties Difficult to Develop

Hybrids are much less common in developing countries because of a lack of organizations for developing hybrid varieties and producing and distributing seed. Open-pollinated varieties are easier and require less time to bring to the marketplace.

Also, the seed of open-pollinated corn can be saved by farmers from each season's crop for planting in the following season. Hybrid seed must be bought new each season.

Hybrid variety development begins with 3,000 to 5,000 viable crosses of inbred lines for each successful variety to be released to farmers (7). Selection, testing, and evaluation lasts for 8 to 10 years. The inbred lines are low-yielding and quite susceptible to adverse growing conditions. Single-cross hybrid varieties result from mating two inbred lines.

Double-cross varieties are developed from mating two single crosses. An advantage of double crosses is the greater yield of the mating because it is a single cross already, not an inbred. Thus, less land and labor are needed to grow double-cross hybrid seed.

The potential benefits of using hybrids is shown in the United States, where single-cross hybrids outyield other hybrids by 5 percent and open-pollinated varieties by 15 percent (7). About 90 percent of U.S. corn acreage is planted to single crosses.

Other Corn Breeding Goals

Efforts are being made to increase disease and insect resistance and to improve protein quality (12). Three corn diseases receiving particular attention are stunt in Latin America, streak virus in Africa, and downy mildew, mainly in Asia.

Corn breeders are also attempting to change protein quality. Because normal corn is low in two essential amino acids, lysine and

Nitrogen fertilizer use for corn production and corn yields in selected countries

| Country | Percent of area fertilized 1/ | Nitrogen application rates 1/ | Yield 2/ |
|--------------------|-------------------------------|-------------------------------|----------|
| | Percent | Kg/ha | Tons/ha |
| Morocco | 43 | 4 | 0.7 |
| Nigeria | 20 | 9 | 0.9 |
| Somalia | 20 | 2 | 1.1 |
| Paraguay | 2 | 1 | 1.1 |
| Tanzania | 12 | 4 | 1.2 |
| Pakistan | 73 | 49 | 1.3 |
| India | 50 | 10 | 1.3 |
| Colombia | 15 | 8 | 1.4 |
| Mexico | 41 | 43 | 1.6 |
| Dominican Republic | 15 | 7 | 1.7 |
| Turkey | 79 | 55 | 2.7 |
| Germany | 100 | 180 | 5.9 |
| France | 99 | 118 | 6.3 |
| United States | 100 | 140 | 6.4 3/ |

1/ Source: (6). 2/ Average 1983-85. Source: (12). 3/ 1983 was a drought year in the United States. The 1984-86 average yield was 7.2 tons per hectare.

tryptophan, a corn based diet lacking in protein foods (usually due to low incomes) can lead to protein deficiency disorders, including kwashiorkor. Kwashiorkor causes high infant mortality in many parts of the world. Lysine and tryptophan are two of the 10 amino acids called essential because humans (and non-ruminant livestock) cannot synthesize them. They must be obtained directly from food consumed. The protein in normal corn is only about 2 percent lysine and 0.5 percent tryptophan; for growth and maintenance of body tissue these proportions should be approximately doubled.

In the 1960's, researchers found mutants with protein that had a lysine content of about 3.4 percent and 1 percent tryptophan. Corn breeders are working to incorporate genes for increased lysine and tryptophan into new varieties.

Corn Used Directly as Food

Direct consumption of corn provides 8 percent of calories in the diet of developing countries, compared with 17 percent for wheat and 25 percent for rice (2). However, in many African and Latin American countries, corn is the major staple food. Corn furnishes about 40 percent of the total calories consumed in Africa, where about 95 percent of the crop is consumed directly. White flint corn is used

for gruel and a type of couscous. The soft, floury dents are primarily used for soups and porridges.

In Latin America the situation varies. In Venezuela, white flint corn is consumed as a muffin. Tortillas, the thin unleavened cakes which are a staple of Mexico and other Central American countries, can be made from both dent and flint corns. In Brazil, corn is an important foodstuff in subsistence farming areas. Corn is also an important feedgrain in Brazil and Argentina.

Corn is also widely grown in Asia and is important for some lower income people. Generally, however, little of the calories in the average Asian diet are supplied by corn.

Consumers have strong preferences about the color of corn used in their traditional corn food products. White and yellow corn are only partially substitutable even though the principal difference is the carotin oil in the yellow corn.

Roughly 90 percent of the world's white corn is grown in the developing countries, where it is almost one-third of their corn production (4). For the world as a whole, however, white corn is 7 percent of world production and less than 5 percent of trade.

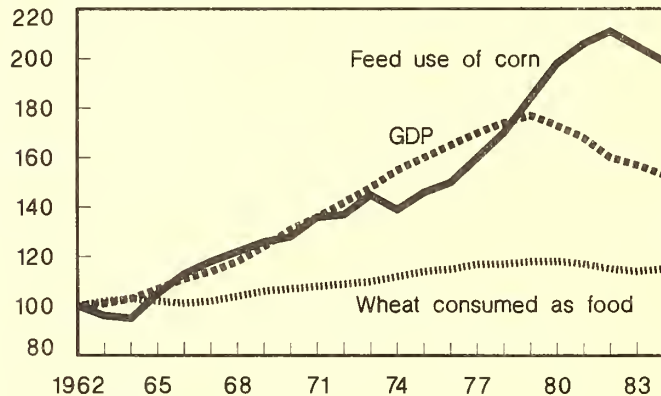
Use of improved varieties and hybrids
in selected developing countries, 1985-86

| Country | Area planted to improved corn as percent of total corn area | Area planted to hybrids as percent of total corn area |
|----------------------------|-------------------------------------------------------------|-------------------------------------------------------|
| | Percent | |
| Argentina | 100 | 100 |
| Syria | 100 | 88 |
| South Africa | 97 | 95 |
| Taiwan | 96 | 92 |
| Chile | 81 | 68 |
| Zimbabwe | 77 | 60 |
| Thailand | 70 | 8 |
| Brazil | 70 | 63 |
| Kenya | 66 | 61 |
| Zambia | 64 | 53 |
| Egypt | 64 | 10 |
| Peru | 50 | 43 |
| Turkey | 46 | 33 |
| Venezuela | 43 | 30 |
| Nigeria | 40 | 2 |
| India | 36 | 13 |
| Uganda | 36 | 1 |
| Burma | 34 | 0 |
| Togo | 33 | 3 |
| Ecuador | 32 | 3 |
| Cameroon | 30 | 0 |
| Ghana | 30 | 0 |
| Senegal | 30 | 0 |
| Pakistan | 28 | 2 |
| Malawi | 26 | 9 |
| Philippines | 26 | 1 |
| Indonesia | 25 | 1 |
| Colombia | 15 | 13 |
| Tanzania | 12 | 5 |
| Ivory Coast | 10 | 0 |
| Madagascar | 4 | 0 |
| Developed market economies | 99 | 99 |

Source: (3).

Feeding of Corn to Livestock Follows Incomes In Higher-Income Developing Countries

Percent of 1961-63



Per capita, 3-year averages.
GDP is deflated.

Technology Creating New Foods for Urban Consumers

Meal made from grinding corn in the traditional African way cannot be stored very long because its high oil content causes it to become rancid. With more modern processing practices the germ is removed before grinding. The oil content of the meal then falls from 4 percent to 1.5 percent, improving storage and consumer acceptability. However, this processed meal has a lower nutritional value than whole corn meal.

There is interest in some developing countries to make bread from milled, degermed corn flour. This interest is because

wheat products have been growing in popularity with higher incomes, even in countries where wheat is not a suitable crop to grow. The rising demand for wheat products then results in increasing wheat imports, a problem for countries facing a foreign exchange shortage. The Nigerian Government, for example, is attempting to require its millers to mix corn flour (up to 10 percent) with wheat flour for bread following a ban on wheat imports. However, because the gluten in corn does not have the elasticity of wheat gluten, bread made with corn flour crumbles easily. It also becomes stale quickly. Thus, this bread is not very acceptable to consumers.

Latin Americans, however, have long used masa corn flour to make tortillas. Masa flour is not just milled corn flour. First, the corn kernels are cooked in water and lime for about a half hour. After standing overnight, the water is thrown out and the corn washed to remove some of the lime. This cooked corn, called nixtamal, was traditionally ground by hand into masa flour to make tortillas. Today, machines are used in the villages and towns to grind the nixtamal.

In the large urban areas masa flour is now produced by large manufacturers using recently developed technology (10). Fresh

White corn production and use in selected countries

| Country | White corn's share of total corn production 1/ | Total calories in diet supplied by all types of corn 2/ |
|----------------|---------------------------------------------------|---------------------------------------------------------------|
| | Percent | |
| Africa: | | |
| Egypt | 100 | 19 |
| Benin | 90 | 24 |
| Ghana | 90 | 13 |
| Ivory Coast | 100 | 10 |
| Nigeria | 90 | 6 |
| Angola | 100 | 21 |
| Cameroon | 95 | 15 |
| Zaire | 100 | 9 |
| Ethiopia | 100 | 18 |
| Kenya | 100 | 44 |
| Somalia | 100 | 19 |
| Tanzania | 100 | 24 |
| Uganda | 100 | 14 |
| Malawi | 100 | 65 |
| Mozambique | 100 | 19 |
| Zambia | 100 | 53 |
| Zimbabwe | 100 | 55 |
| South Africa | 50 | 33 |
| Latin America: | | |
| El Salvador | 90 | 37 |
| Guatemala | 80 | 48 |
| Honduras | 95 | 45 |
| Mexico | 90 | 37 |
| Argentina | 5 | 1 |
| Bolivia | 35 | 14 |
| Brazil | 2 | 8 |
| Colombia | 50 | 12 |
| Paraguay | 50 | 20 |
| Peru | 35 | 10 |
| Venezuela | 80 | 15 |
| Asia: | | |
| India | 40 | 4 |
| Indonesia | 25 | 8 |
| Pakistan | 55 | 3 |
| Philippines | 90 | 17 |
| Thailand | 0 | 1 |
| United States | 2 | 2 |

1/ Source: (4), except for South Africa, which is (11).

2/ For 1975-77 (2).

Coarse grain imports of higher-income LDC's

| Country | Corn | Sorghum | Barley |
|----------------------------|------------|---------|--------|
| | Percent 1/ | | |
| Asia: | | | |
| South Korea | 15 | 6 | -- 2/ |
| Taiwan | 15 | 10 | 4 |
| Malaysia | 5 | -- | -- |
| Hong Kong | 2 | -- | -- |
| Singapore | 2 | -- | 1 |
| Latin America: 3/ | | | |
| Mexico | 11 | 43 | -- |
| Venezuela | 4 | 13 | -- |
| Brazil | 7 | -- | 2 |
| Africa and Middle East: 4/ | | | |
| Saudi Arabia | 3 | -- | 54 |
| Algeria | 2 | 5 | 4 |
| Iran | 3 | -- | 6 |
| Jordan | -- | -- | 2 |
| Syria | 1 | -- | 2 |
| Libya | 1 | -- | 3 |
| Kuwait | -- | -- | 2 |
| Israel | 1 | 10 | 3 |
| Iraq | 2 | -- | 4 |
| Total | 100 | 100 | 100 |

1/ Percent of developing countries' total imports of commodity in 1983-85. 2/ -- = Less than 1 percent. 3/ Argentina, Chile, Panama, Trinidad, and Uruguay, each accounts for less than 1 percent. 4/ Oman and South Africa each accounts for less than 1 percent. Egypt is not listed because it is not classified as a higher-income LDC.

tortillas can then be prepared within a few minutes in the home. Consumers can also buy fresh tortillas from local manufacturers. Urban consumers want foods that are quick and convenient to prepare.

Despite the availability of improved corn products, CIMMYT finds no significant statistical relationship, in aggregate, between the rise in per capita income in developing countries and use of corn directly as food (8). Per capita food use of corn has been relatively constant across developing countries the past two decades. With rising incomes and urbanization, people tend to increase their consumption of grains such as wheat and rice, and importantly, meat. Studies have shown a strong, positive relationship between per capita income and the use of corn as feed to raise the livestock and poultry needed to supply the demands of consumers with rising incomes (8, 9). Once incomes are high enough for consumers to have the disposable income to upgrade their diet with meat products, the demand for livestock products and feeds increases rapidly.

Feed Use of Corn

Over two-thirds of the grains used for feed in the developing countries are fed to poultry and swine (8). Growth of broiler production has been particularly strong, with more feed-efficient birds, intensive poultry production units and associated feed manufacturing. Egg production has also expanded rapidly in the developing world with the introduction of intensive production methods.

Yellow corn is often preferred to white corn, and sorghum as well, for poultry feed because of its carotene content. This carotene gives the egg yolk and the skin of the poultry meat the yellow color preferred by many consumers.

The growth in pork production in developing countries, although less rapid than poultry meat and egg production, has also boosted demand for grains. Swine use more grain per unit of output than poultry. Under good conditions 5 to 6 kilograms of feed are

required to produce 1 kilogram of pork, and only 2 to 3 kilograms to produce 1 kilogram of poultry meat.

Rising incomes in the higher-income countries quickly raised per capita use of corn for feed during the 1960's and 1970's. However, when incomes dropped off in the 1980's, use of corn for feed also fell. Feed use of corn in low-income countries has remained low and flat during the past 25 years (13). In comparison, wheat consumption also rose and fell with income in the higher-income countries, but not at the same pace.

Prospects For Continuation of Trends

Generally, corn imports by developing countries appear unlikely to be offset by widespread increases in domestic production due to improved varieties, as with the Green Revolution for wheat in the traditional spring-wheat-growing countries during the late 1960's and 1970's. However, the slower economic growth in those developing countries facing a debt crisis has jeopardized continuation of corn import trends.

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WORLD TRADE IN PULSES EXPANDING, PRICES RISING

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Abstract: The upward trend for world trade in pulses is expected to continue because of striking gains in intra European trade. Import demand continues to rise in South Asia, the Middle East, and Africa. Improvements in diets in developing countries and more widespread consumer acceptance of foods made from beans and peas are raising demand. The volume of pulses entering world trade in 1986 increased 5 percent to about 3.9 million tons for a value of \$1.6 billion, nearly double the 1979 level.

Keywords: Pulses, lentils, navy pea beans, dry peas, pinto beans, agricultural trade.

The upward trend for world trade in pulses is expected to continue because of striking gains in intra-European trade. Import demand continues to rise in South Asia, the Middle East, and Africa. Improvements in diets in developing countries and more widespread consumer acceptance of foods made from beans and peas are bolstering demand. About 70 percent of the 50 million tons of pulses produced in 1986 were consumed as food, and most of the remainder went into animal feed. In 1986, the volume of pulses entering world trade increased 5 percent to about 3.9 million tons, for a value of \$1.6 billion, nearly double the 1979 level. Rising import demand in India may cause 1987 world trade in pulses to reach 4 million tons.

The leading exporter in 1985 and 1986 was France, mainly because of large exports of dry peas to other European Community (EC) members. The largest importer, the Netherlands, with imports of over 500,000 tons annually, was also an EC member. Imports of pulses by Middle East and South Asian countries have shown a sharp upward trend, while exports of France, Denmark, China, and Australia have expanded. Exports by the United States and Thailand have fluctuated widely, depending upon world demand or weather-related changes in yields.

While the EC has had a boom in intra-EC trade for dry peas, it continues to import most of its lentils and dry beans. The United Kingdom (UK) usually accounts for over half

of U.S. exports of navy pea beans, but adverse weather in Michigan last year reduced the supply for export and prices increased. The UK is concerned about the stability of its supply of imported dry beans, and has probed prospects for increasing imports from other sources, including China and Latin America. The United States and Canada are expected to have a larger supply of navy pea beans for export in 1987/88.

France became the leading world exporter of pulses in 1985 when it shipped 665,277 tons, far exceeding the 446,069 tons shipped by the United States, the second major exporter. French pulse exports declined to 532,015 tons in 1986, but higher prices saw the value rise from \$177 million to \$191 million. Volume may rebound to about 700,000 tons in 1987. However, since dry peas account for most of France's pulse exports, this phenomenon has had little impact on world trade in either dry beans or lentils.

Turkey was the leading exporter of pulses in 1983 and 1984, and its curtailment of lentil exports in 1985 was felt the world over. Turkey reduced pulse exports by a third in 1985, and the decline for lentils from the 1983 peak was over 60 percent. This development contributed to gains in the last several years for exporters of dry beans and peas in other countries, especially China, Thailand, Argentina, Chile, and Poland. Turkey's pulse exports rebounded from 361,000 tons in 1985 to 512,000 tons in 1986, and advanced further

in 1987 when large sales of lentils and chickpeas to India and the Mideast caused stocks available for export to others to dwindle.

Thai pulse exports reached 282,970 tons in 1985, up from 221,833 tons in 1984, but a short crop of black mape beans caused a setback for 1986 exports. Argentine exports of pulses reached 230,000 tons in 1985, nearly 50 percent above 1983. China exported 238,000 tons of pulses in 1986. Chile's pulse exports reached 78,898 tons in 1985, triple the 1984 level as sales to Latin America and Europe rebounded strongly. Poland's pulse exports rose from only 165 tons in 1983 to 52,500 tons in 1985. Australia, Burma, New Zealand, and Hungary sold most of their exportable supplies of dry beans and peas to South Asia and the Middle East in 1985, as importers hard hit by the loss of Turkish supplies turned elsewhere.

Intra-EC Trade Important

In 1986, the 12 EC countries imported about 2 million tons of pulses, triple their 1979 imports. These countries' imports of pulses doubled between 1981 and 1985, rising from 783,000 tons to 1.76 million tons. However, lower prices for French dried peas prevented a similar hike in value, which advanced from \$426 million to \$623 million.

Most of the growth in EC exports of pulses from 412,609 tons in 1982 to 1.2 million tons in 1985 involved intra EC trade, with shipments to other EC members rising from 325,391 tons to 1.1 million tons. A large part of the dry peas traded are used for animal feed, while over 90 percent of imported dry beans and lentils are for food.

The leading supplier of EC country pulse imports during recent years was France, which supplied 605,834 tons in 1985, in contrast to only 134,335 tons in 1981. Another country which went into the dry pea business for export was Denmark, which sent 172,352 tons of pulses to the rest of the EC in 1985, up from only 2,208 tons in 1981. Denmark's exports, mostly dry peas, increased from only 13,000 tons in 1982 to a peak of 255,775 tons in 1985, and retreated to 180,771 tons in 1986. About two thirds of the dry peas went to West Germany, and much of the remainder went to the Netherlands.

EC pulse imports from the United States declined from the peak of 225,473 tons in 1982 to 154,748 tons in 1985, according to EC data. U.S. shipments of pulses to the EC were about a fifth higher in 1986, and the average price increased from \$445.57 to \$467.91 per ton. U.S. exports of dry beans to the EC increased from 107,436 tons in 1985 to 125,045 tons in 1986, as shipments to the UK rose 35 percent to 67,000 tons.

EC imports of pulses from some important external suppliers have been relatively steady because they provide pulses other than dry peas. Consumers depending upon distant suppliers for special types of dry beans and lentils have maintained traditional trade activities. Following France, Denmark, and the United States, the fourth major supplier of EC pulse imports in recent years has been Turkey. Turkish lentils are popular in the EC. Turkey and Canada each provided nearly a third of the 149,130 tons of lentils imported by the EC in 1986, and the United States provided 20,890 tons, followed by China, with 16,401 tons.

Imports of pulses from Argentina increased from 57,993 tons in 1984 to 68,512 tons in 1985, while imports from Canada rose from 50,517 tons to 68,013 tons. EC imports of pulses from China increased from only 3,971 tons in 1982 to 55,146 tons in 1986.

Wide fluctuations occur for EC imports of pulses from Mexico, Kenya, Ethiopia, Brazil, and East Germany. When these countries have bountiful harvests of pulses they apparently sell much more to the EC, and when yields are reduced and they need to import, shipments to the EC are sharply curtailed. Imports from these suppliers fell sharply in 1985 following their 1983 and 1984 peaks. Imports from Mexico fell from 71,125 tons in 1983 to only 2,649 tons in 1985, and from Kenya from 49,813 tons in 1983 to only 263 tons in 1985. Some smaller suppliers of pulses to the EC have reduced deliveries recently, as their own demand increased and competitors were more able to offer quality and service. Burma's pulse crop sells quickly to buyers from Thailand, Japan, and India, leaving nothing for shipment to the EC.

U.S. Pulse Exports Rebounding

U.S. pulse exports in 1987 will not match the peak of 1981, but will record the best year since then, already reflected in gains during the first half of 1987. The traditional markets in Europe are buying more, Mexico's purchases are up, and new markets in the Middle East and Africa are opening.

U.S. exports of navy pea beans increased 21.6 percent in the first half of 1987 to 44,984 tons, as the value rose 60 percent to \$27.6 million, reflecting a rise in the average price from \$463 to \$612 per ton. Exports to the UK doubled, reaching 39,684 tons for \$24 million, and caused the UK share of total U.S. exports of navy pea beans to rise. France was the other growth market, buying 1,151 tons, triple the 1986 pace. On the other hand, Angola made no purchases, compared with 6,272 tons in January-June 1986, and exports to Belgium dived from 1,927 tons to only 181 tons. Exports to Italy and the Netherlands were also down sharply.

Exports of Great Northern beans increased 39 percent in the first half of 1987 to 34,959 tons, but lower prices left the value gain to only 29 percent. The top market was Iraq, with shipments up 52 percent to 9,712 tons for \$6 million, because of GSM 102 credit. Exports to Algeria declined 39 percent to 5,209 tons, for \$2.6 million, as imports at lower prices from competitors increased. Exports to the EC rose 64 percent to 7,233 tons, including the 54-percent rise to France, buying 3,971 tons. Shipments to Belgium and West Germany more than tripled.

Exports of U.S. pinto beans tripled in the first half of 1987, to 47,578 tons for \$22.6 million. The average export price remained steady in early 1987 at \$475 per ton. The top market was Mexico, where shipments rose from 8,074 to 23,314 tons and the value nearly tripled, rising from \$4.2 million to \$11.8 million. Notable gains were made in some other markets, including a jump in exports to Haiti from 240 to 5,111 tons, new business for 4,963 tons to Algeria, 3,988 tons to Mozambique, and 1,000 tons to South Africa. Exports to Angola rose 73 percent to 6,525 tons. Shipments to Yugoslavia doubled.

U.S. exports of red kidney beans increased 32 percent in the first half of 1987, to 10,770

tons for \$7.6 million. The top market was the UK, with an 82-percent increase in purchases. Exports to Australia quadrupled to 419 tons. Exports to Panama, however, were down sharply.

U.S. exports of lima beans increased slightly in the first half of 1987 with larger deliveries to the UK, France, Jamaica and Greece. Export gains were hampered by a relatively short 1986 crop which limited suppliers available for export. Exports of blackeye peas also declined because of a shortage of exportable supply, falling from 9,042 to 3,326 tons. Algeria was a market for 2,651 tons in the first half of 1986, but none in January-June 1987. Portugal was the top market, with purchases nearly tripling to 1,061 tons. Shipments to the UK fell 71 percent to 390 tons, but a new market for 181 tons opened in Iraq.

Import Demand Remains Strong In Middle East and North Africa

Middle East and North African imports of pulses increased sharply in the early 1980's, as inexpensive lentils from Turkey were plentiful. During 1986, the region's purchases from the United States increased nearly 80 percent to 54,251 tons valued at \$33 million. Regional import demand for dry beans and lentils is expected to continue growing, with consumer subsidies and countertrade with Turkey and Thailand and Latin American suppliers facilitating expansion.

Turkey's pulse exports peaked at 607,294 tons in 1983, and dropped to 360,122 tons in 1985. Its shipments to the European market declined drastically between 1980 and 1984, as import demand skyrocketed in the Middle East, North Africa, and South Asia. Turkey provided half the total pulse imports of the Middle East and North Africa during 1982-84, but only a third in 1985, when imports from the United States began rising.

Drought lowered Turkey's 1985 lentil output and domestic prices rose, causing the temporary ban on exports in July. As a result, exports declined to 115,000 tons from the 1983 peak of 371,000 tons. Turkey's chickpea exports remained steady in recent years at 200,000 tons annually, following good gains in the early 1980's.

Turkey's lentil and chickpea production has a great influence on world trade and prices. The average wholesale price for Turkish green lentils rose from \$230 per ton following the bumper 1983 harvest of 650,000 tons, to \$705 per ton in 1985, when drought caused production to fall to 450,000 tons. The average U.S. export price for lentils declined from \$714 per ton in 1980 to \$423 per ton in 1983, because of Turkish competition, and rebounded to \$620 in 1985 because of Turkey's shortage.

Turkish pulse deliveries to Iraq peaked at 64,000 tons in 1984, but declined in 1985 and remained below expectations in 1986. Iraq therefore sought U.S. pulses, especially Great Northern and yellow peas. Turkey's shipments to Iran nearly tripled to 28,608 tons in 1983, but declined in 1986. Argentina, Vietnam, and Singapore are significant suppliers of Iran's imports of dry beans. Turkey's exports to Egypt peaked at 79,180 tons in 1982 and dropped to 37,000 in 1986.

Drought Spurs India's Import Needs

Lack of traditional monsoon rainfall in some of India's leading pulse-producing regions caused production to decline by 2 million tons to an estimated 10.8 million tons in 1987/88. To compensate partially for the loss in production, imports in 1987/88 could be nearly double the 1986/87 imports estimated at 309,000 tons. A severe worldwide shortage of mung beans is likely because of smaller production in India and also in Thailand, a major supplier of India's imports. Indian consumers use various pulses to prepare traditional foods, including dal and bakery products. They have been more willing to switch from traditional pulses to alternatives available at attractive prices in recent years, because urban consumers see only the end product, rather than the pulses before they are ground up and used as ingredients in processed foods. Red lentils from Turkey have been a favorite, but when they are not available, dry beans and peas from the United States, Europe and Australia have been welcome substitutes.

Private pulse traders in India are given freer access to foreign exchange and favorable treatment for letters of credit than importers of most other items. NAFED (The National Federation of Agricultural Cooperatives)

monitors imports of pulses concerning prices and quality, and in times of shortage also makes import contracts. In February 1986 an import duty of 25 percent ad valorem was placed on imports of pulses because of concern that inexpensive imports would be a disincentive for Indian producers. But as the world price rose, partly because of India's demand, the duty was reduced to 10 percent on September 30, 1987.

World Production Growing More Slowly Than Trade

The dynamic growth of intra EC trade in pulses tends to guarantee a faster pace of growth for world pulse trade than for production. World imports of pulses increased about a fourth between 1983 and 1985, but global production increased only 6 percent, or 2 percent annually. India accounted for 12 million of the 49 million tons of pulses produced worldwide in 1985. The second major producer is China, with about 7 million tons annually, followed by the Soviet Union. Brazil is fourth with harvests of about 3 million tons annually. Turkey was ahead of the United States with production of about 1.4 million tons in 1986, but U.S. output rebounded to 1.6 million tons in 1987. Mexico's output fell from 1.5 million tons in 1984 to 1.3 million tons in 1985.

World production of dry beans (excluding broad beans) rose from 14 million tons in 1983 to 15 million tons in 1985. It retreated to 14.6 million tons in 1986, when yields in Brazil, China and India were down. India is the leading producer of dry beans, with over 2.9 million tons annually. China, the second major bean producer, has recently increased exports to Japan and Europe. The United States is the world's third largest dry bean producer, with harvests of over 1 million tons in the last two years. Europe's dry bean production was stable in recent years, remaining slightly below 800,000 tons annually, including about 220,000 tons in Romania. In 1987, world production of dry beans may decline to about 14 million tons because of India's drought, 1 million tons below 1985.

World output of dry broad beans, including limas, increased 8 percent to 4.3 million tons in 1984, but fell 3 percent to 4.2 million tons in 1985. China is the major producer, where output fell

5 percent to 2.3 million tons in 1985. Ethiopia, Egypt, Italy, and France are other major producers.

The Soviet Union accounts for over half of world output of dry peas, which increased 8 percent to 11.6 million tons in 1985, according to the Food and Agriculture Organization of the United Nations (FAO). China is the second largest producer at about 2 million tons annually, according to the FAO. French output reached 873,000 tons in 1985, compared with only 224,000 tons annually during 1979-81. Denmark's output zoomed to 487,000 tons in 1985, up from only 10,000 tons in 1979-81. And U.S. output declined slightly to 155,000 tons.

Outlook for 1988

World trade in pulses is likely to advance further in 1988 because of rising imports by

India, the Middle East, the EC, Brazil, and some other countries in Latin America. Exports by Turkey will be hampered by lack of adequate supplies, although its volume may approach 600,000 tons. Australia will continue to grow more dry beans and lupins for export. The outlook for U.S. exports of dry beans is more favorable than for dry peas, which are abundant in Europe. The situation for lentils will be influenced by large purchases in Turkey and budget decisions by Algeria and some other developing countries. Some temperate zone countries are greatly increasing output of dry peas, while world production of dry beans grows slowly, and lentil yields fluctuate considerably. In coming months the buying activities of Mexico, Algeria, Angola, Egypt, Iraq, and some other importers bear watching because they are noted for wide fluctuations in purchases.

Major world pulse exporters and importers by quantity and value, annual, 1984-86

| Country | 1984 | 1985 | 1986 | 1984 | 1985 | 1986 |
|-------------------|------------|-------|-------|-----------------|-------|-------|
| | 1,000 tons | | | Million dollars | | |
| Exporters: | | | | | | |
| France | 428 | 665 | 532 | 121 | 177 | 191 |
| United States | 445 | 446 | 520 | 211 | 218 | 250 |
| Turkey | 514 | 361 | 512 | 175 | 171 | 182 |
| Canada | 190 | 200 | 265 | 64 | 73 | 94 |
| China | 151 | 201 | 238 | 83 | 100 | 140 |
| Argentina | 195 | 230 | 228 | 71 | 96 | 93 |
| Australia | 33 | 73 | 201 | 10 | 21 | 43 |
| Denmark | 123 | 256 | 181 | 32 | 63 | 61 |
| Thailand | 222 | 283 | 161 | 91 | 100 | 80 |
| United Kingdom | 66 | 144 | 139 | 23 | 42 | 43 |
| Netherlands | 93 | 82 | 110 | 47 | 50 | 73 |
| Chile | 25 | 80 | 77 | 13 | 37 | 38 |
| Burma | 52 | 70 | 68 | 21 | 25 | 28 |
| Belgium | 35 | 45 | 41 | 14 | 19 | 21 |
| Mexico | 176 | 44 | 6 | 57 | 29 | 4 |
| Importers: | | | | | | |
| Netherlands | 525 | 574 | 625 | 135 | 151 | 198 |
| West Germany | 229 | 444 | 509 | 69 | 123 | 184 |
| India | 185 | 339 | 309 | 55 | 156 | 133 |
| Italy | 144 | 223 | 209 | 60 | 97 | 99 |
| Belgium | 139 | 209 | 208 | 43 | 62 | 75 |
| Mexico | 122 | 145 | 205 | 35 | 58 | 74 |
| Japan | 176 | 155 | 193 | 92 | 64 | 83 |
| United Kingdom | 175 | 176 | 183 | 99 | 104 | 106 |
| France | 103 | 108 | 125 | 58 | 65 | 87 |
| Cuba | 125 | 124 | 125 | 48 | 56 | 57 |
| Algeria | 88 | 83 | 107 | 50 | 45 | 66 |
| China | 91 | 83 | 90 | 34 | 31 | 35 |
| Iraq | 72 | 70 | 84 | 40 | 34 | 46 |
| Venezuela | 71 | 81 | 83 | 31 | 45 | 46 |
| Malaysia | 73 | 78 | 77 | 15 | 15 | 18 |
| Hong Kong | 28 | 63 | 65 | 11 | 16 | 18 |
| Iran | 36 | 41 | 46 | 20 | 21 | 23 |
| Saudi Arabia | 39 | 38 | 46 | 18 | 21 | 23 |
| Singapore | 39 | 46 | 45 | 17 | 17 | 20 |
| Total 1/ | 3,434 | 3,754 | 3,948 | 1,449 | 1,573 | 1,631 |

1/ Includes other countries not shown.

Source: FAO trade tapes for 1986 and ERS matrix tables.

EC IS BIGGEST U.S. AGRICULTURAL EXPORT MARKET, RIVAL

Abstract: The United States and the European Community (EC) are major competitors in international agricultural markets and major trading partners. Agriculture accounts for a larger share of employment and national income in the EC than in the United States. U.S. farms are larger and fewer than EC farms. The EC is also the most important market for U.S. agricultural exports. In both the United States and the EC, costs of supporting agricultural prices and agricultural stocks have grown rapidly, leading to a re-examination of such programs.

Keywords: European Community (EC), farm size, farm income, balance of trade, imports, exports, Common Agricultural Policy (CAP), subsidies, PSE's, CSE's.

Agriculture in the European Community (EC) involves more people than U.S. agriculture and a larger share of total civilian employment. Of the 320 million people in the current EC-12, 11 million were employed in agriculture in 1984, representing 8.9 percent of civilian employment. 2/

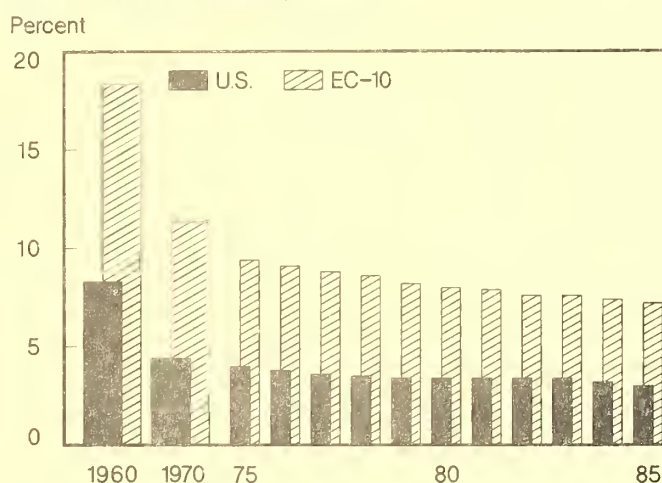
Population in the 10 member countries of the EC prior to 1986 is also larger, 273 million compared with 235 million in the United States. 3/ Within the EC-10, agriculture fell from 18.4 percent of employment in 1960 to 7.2 percent in 1985. The percentage of the population employed in EC agriculture ranges from 2.7 percent in the United Kingdom (UK) to 28.5 percent in Greece. The share of U.S. agricultural employment has also fallen sharply, to only 3 percent of civilian employment in 1985, down from 8.3 percent in 1960.

1/ Extracted, with minor revisions, from Mark Newman, Tom Fulton, and Lewrene Glaser, *A Comparison of Agriculture in the United States and the European Community*, USDA, ERS, FAER 233, October 1987. Copies may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

2/ The EC-10 comprises Belgium, Denmark, the Federal Republic of Germany, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, and the United Kingdom. The EC-12 comprises these countries plus Spain and Portugal.

3/ Choices of years for comparison are based on data availability, with maximum effort to avoid bias as a result of base year selection. Unless otherwise specified, years are calendar years.

Figure 1
Agricultural Employment as a Percentage of Total Civilian Employment



Among EC crops, highest net cash incomes per farm have been going to specialized grain producers, whose incomes were as much as 65 percent above the average for all commercial farms in 1984/85. Incomes were also high among specialized horticultural producers. Among specialized EC livestock producers, poultry and pork producers have seen the highest incomes. Specialized EC dairy producers, accounting for 19 percent of total commercial holdings, have seen incomes fall in the last several years, but remain almost 20 percent above the average for all commercial farms in the EC 10.

Part-time farming is on the rise in both the United States and the EC. Off-farm income made up 57 percent of total income of U.S. farmers in 1985. A recent EC study indicates that West Germany has the largest percentage of part-time farmers, with 43

percent. France and Belgium follow with 38 and 32.6 percent.

Basic Resources

The United States covers five times the physical area of the EC-10 and has four times the arable land. U.S. farms are larger and fewer than EC farms. Enlargement of the EC to 12 countries raised the number of farms to 9.8 million, compared with 6.8 million in the EC-10. There were about 2.3 million U.S. farms in 1984.

Although enlargement to include Spain and Portugal reduced the average arable land per EC farm, average farm size among the EC-10 grew from 37.8 acres in 1974 to 42.3 acres in 1984. Average U.S. farm size was 438 acres in 1984, up from 429 acres in 1978.

Farm size varies considerably across regions in both the United States and the EC. In the South and Middle Atlantic States, average farm size is under 175 acres, compared with a 2,067-acre average in the Mountain States. Farm size in the EC varies from an average of 13 acres in Greece to 173 acres in the UK.

While agriculture is generally more intensive in the EC, the United States leads in average dairy yields, while EC average wheat yields are more than double those of the United States.

Livestock, grains, and oilseeds remain the foundation of U.S. agriculture. Fruits, vegetables, and nuts have become increasingly important in recent years. Dairy products have also been increasing their share of total U.S. agricultural production.

Dairy, livestock products, and grains account for the bulk of EC agricultural production. Enlargement to include more Mediterranean countries has increased the importance of fruits and vegetables in the production mix. While oilseed production remains small relative to use, high internal support prices have led to major production increases. Beef and veal production are most important among U.S. livestock producers, while dairy is most important in the EC. Dual purpose dairy/beef animals are more common in the EC.

Value composition of agricultural production, U.S. and EC

| Commodity | United States | | EC | |
|----------------------------|---------------|-------|----------------|-----------------|
| | 1974 | 1985 | 1974 (EC-9) | 1985 (EC-10) |
| | Percent | | | |
| Cattle and calves | 19.3 | 20.2 | 14.4 | 14.1 |
| Feed grains | 13.6 | 13.5 | 5.4 | 5.2 |
| Dairy products | 10.3 | 12.7 | 18.5 | 19.2 |
| Fruit, vegetables and nuts | 9.5 | 10.8 | 14.1 | 15.2 |
| Oilseeds | 11.5 | 8.8 | .5 | 1.6 |
| Other | 5.1 | 8.0 | 11.3 | 8.6 |
| Poultry and eggs | 6.7 | 7.7 | 8.9 | 7.4 |
| Hogs and sheep | 7.9 | 6.6 | 13.5 | 13.1 |
| Wheat | 7.9 | 5.6 | 6.7 | 7.0 |
| Sugar and tobacco | 4.4 | 3.0 | 2.6 | 3.2 |
| Cotton | 2.5 | 2.5 | — | .4 |
| Rice | 1.3 | 0.6 | .3 | .3 |
| Wine | — | — | 3.8 | 4.7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

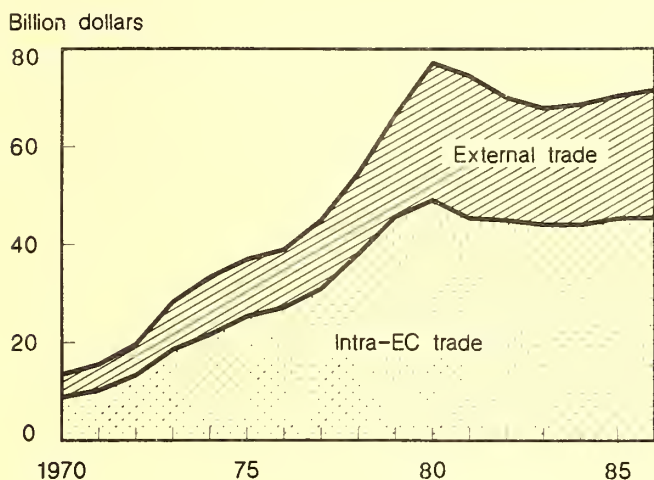
Sources: USDA and EC.

U.S. consumers spend about 15 percent of total household expenditures on food, beverages, and tobacco, while EC consumers spend about 25 percent on these items. Since food costs have been falling in the EC, there has been less consumer pressure to reduce farm support prices than might otherwise be expected. It is often argued that EC consumers are willing to pay the cost of agricultural support because the experience of food shortages in World War II leads many to place a high priority on an assured internal food supply.

The EC is a common market, formed in part to facilitate trade among its member nations. Trade among the 10 members of the EC remained stable in the annual \$45-46 billion range since 1981. Intra-EC trade represents almost two-thirds of total agricultural trade by EC member countries.

The EC share of farm production exported to non-EC countries edged past the U.S. share for the first time in 1985. While the U.S. share of production exported fell from almost one-third in 1981 to one-fifth in 1985, EC exports rebounded to about one-fifth of production, by value. In 1986, the U.S. share of production fell to 15 percent, the lowest level in 14 years. In 1985, internal EC trade represented 38 percent of agricultural production. Almost 59 percent of the

Figure 2
EC Agricultural Trade



Share of farm production exported

| Year | United States | | EC-10 | |
|------|---------------|--|---------|--|
| | Percent | | | |
| 1970 | 14.5 | | 1/ 10.0 | |
| 1971 | 14.6 | | 10.2 | |
| 1972 | 15.4 | | 10.0 | |
| 1973 | 20.4 | | 12.0 | |
| 1974 | 23.7 | | 14.1 | |
| 1975 | 24.6 | | 12.2 | |
| 1976 | 24.1 | | 12.2 | |
| 1977 | 24.5 | | 13.1 | |
| 1978 | 26.2 | | 13.2 | |
| 1979 | 26.4 | | 14.0 | |
| 1980 | 29.5 | | 17.2 | |
| 1981 | 30.6 | | 20.2 | |
| 1982 | 25.7 | | 17.6 | |
| 1983 | 26.4 | | 17.8 | |
| 1984 | 26.5 | | 19.6 | |
| 1985 | 20.4 | | 20.8 | |

1/ EC-9.

Source: USDA and EC.

agricultural production of the EC-10 was sold outside its country of origin in 1985.

Balance of Trade

Agriculture has been a net contributor to the U.S. balance of payments since 1970. However, the size of that contribution has recently fallen substantially. Although the United States posted some monthly agricultural trade deficits in the summer of

1986, the net contribution of U.S. agriculture to the balance of payments was \$5 billion for 1986, down from almost \$27 billion in 1981. The overall U.S. trade balance has ranged from a \$3-billion deficit in 1975 to a \$162-billion deficit in 1986.

Despite growing agricultural exports, the EC remains a net importer of agricultural products, with an almost \$20-billion deficit in 1985. From 1970 to 1985, EC agricultural trade deficits have ranged from \$13 billion to \$35 billion. During the same period, the overall EC balance of payments has ranged from a \$200-million surplus in 1972 to a \$72-billion deficit in 1980.

U.S. and EC trade balances

| Year | United States | | EC 1/ | |
|-----------------|---------------|-------------|-------|-------------|
| | Total | Agriculture | Total | Agriculture |
| Billion dollars | | | | |
| 1970 | 2.8 | 1.5 | -3.6 | -12.7 |
| 1971 | -2.0 | 1.9 | -.5 | -13.0 |
| 1972 | -6.3 | 2.9 | .2 | -14.8 |
| 1973 | 1.2 | 9.3 | -5.4 | -20.8 |
| 1974 | -3.0 | 11.7 | -24.0 | -21.6 |
| 1975 | 9.6 | 12.6 | -12.0 | -20.7 |
| 1976 | -7.8 | 12.0 | -18.2 | -25.1 |
| 1977 | -29.0 | 10.2 | -7.8 | -28.7 |
| 1978 | -31.8 | 14.6 | -8.6 | -30.0 |
| 1979 | -27.3 | 18.0 | -35.7 | -35.0 |
| 1980 | -27.4 | 23.9 | -71.6 | -31.7 |
| 1981 | -30.0 | 26.6 | -41.5 | -20.8 |
| 1982 | -35.2 | 21.3 | -34.2 | -21.5 |
| 1983 | -60.7 | 19.5 | -23.5 | -21.0 |
| 1984 | -110.9 | 18.5 | -24.4 | -21.4 |
| 1985 | -136.7 | 9.1 | -11.5 | -19.2 |
| 1986 | -162.4 | 5.0 | na | na |

na = Not available.

1/ excluding intra-EC trade

Source: USDA and EC.

The EC remains the largest market for U.S. agricultural exports, even as it has become the United States' most important competitor. The EC 12 purchased more than one-fourth of all U.S. agricultural exports in 1986. It also provided almost one-fifth of all U.S. agricultural imports. Nine of the 12 EC members were among the top 20 national markets for U.S. agricultural exports in 1986.

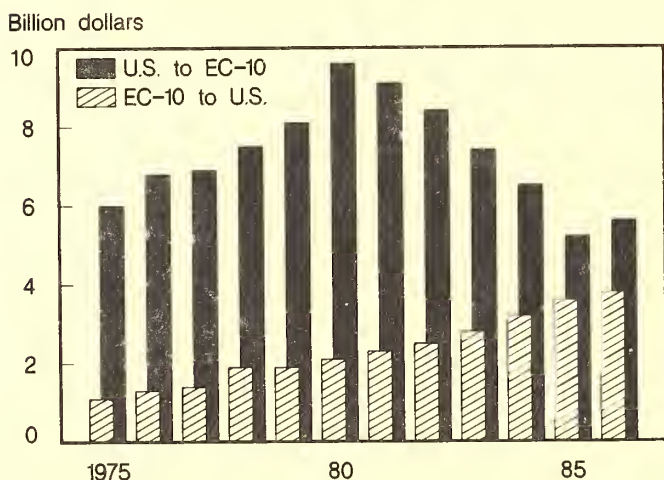
Although the United States continues to export more agricultural products to the EC than it imports, the balance has fallen substantially since 1980. By 1985, U.S. exports had fallen by almost one-half, while U.S. imports from the EC had increased by three-fourths. In 1986, the U.S. agricultural trade surplus with the EC-10 grew slightly, but the surplus with the EC-12 declined.

U.S. agricultural exports to the EC-10 recovered to \$5.6 billion in 1986, while U.S. agricultural imports from the EC-10 rose to \$3.8 billion. Addition of Spain and Portugal raised total U.S. agricultural exports to the EC-12 to \$6.8 billion for FY1987. The United States imported \$4.2 billion in agricultural products from the 12 EC countries in fiscal 1987.

Oilseeds and products made up 39 percent of U.S. agricultural exports to the EC-12 during fiscal 1986. These were followed by grains and feeds (23 percent), animals and products (12 percent), fruits, nuts, vegetables and products (10 percent), and tobacco (8.5 percent). Cotton and other products made up the balance.

In nonagricultural trade, the EC-12 was a \$44-billion market for the United States in 1986, an increase over 1985. However, U.S. nonagricultural imports from the EC-12 rose sharply, to \$71 billion in 1986, leaving an almost \$27-billion U.S. trade deficit with the community in the nonagricultural sector. The U.S. agricultural trade surplus with the EC offset less than 10 percent of the nonagricultural deficit.

Figure 3
Bilateral Agricultural Trade



Since the Common Agricultural Policy (CAP) was established in the early 1960's, the EC has shifted from a net importer of most agricultural commodities to a net exporter of grains, dairy products, sugar, and beef. The United States has faced especially strong EC competition in grain markets, where U.S. shares have fallen as those of the EC have increased.

Agricultural policies in both the United States and the EC have adjusted only marginally to the major changes in world agricultural markets, contributing to the periodic conflicts arising over trade implications of domestic agricultural policies. These policies have also contributed to the explosive growth in program costs in recent years.

U.S. farm policies provide price and income support to grain, cotton, and, to a limited extent, soybean producers. The primary mechanisms used are price support measures, such as nonrecourse loans; income support through deficiency payments; and production input control measures, such as acreage set-asides and paid land diversions. Direct government purchases support dairy prices. U.S. prices for sugar and dairy products are partly protected through border measures such as import quotas.

The CAP is based on three central principles: creation of a single community market, an internal preference for community products, and common financing of program costs.

The basic mechanism used in EC commodity regimes involves high internal prices maintained through variable levies that increase as world prices fall relative to internal EC prices, and export refunds that compensate exporters for the difference between internal market prices and world prices. This permits disposal of surpluses at world prices while EC producer prices remain high. The CAP was set up for a community that sought to increase food production and decrease dependence on imports. Under the protection of high internal prices, the EC has become much more than self-sufficient in grains, dairy products, beef, and sugar.

In the EC, grain producers and/or first handlers of grain (elevator operators) may deliver grain to a national intervention agency and receive the intervention price. Thus, the intervention price is similar to the U.S. loan rate in operating as a price floor. However, unlike U.S. target prices and loan rates, EC variable levies on imports and refunds (subsidies) on exports operate at the border between the nations of the EC and the rest of the world. Thus, prices are supported by raising the price of imported products and by reducing the price of products for export, rather than by directly paying producers the difference between internal prices and the price level desired by EC policymakers.

On the importing side, the EC sets a "target price" for grains relative to the part of the Community with the largest grain deficit, the Duisburg region of Germany. The threshold price is derived by subtracting transport costs from the port at Rotterdam to Duisburg and associated trading margins and marketing costs from the target price. The amount of variable levy, or import tax, is then set with reference to the difference between the threshold price and the lowest import price on a delivered (c.i.f.) basis in Rotterdam.

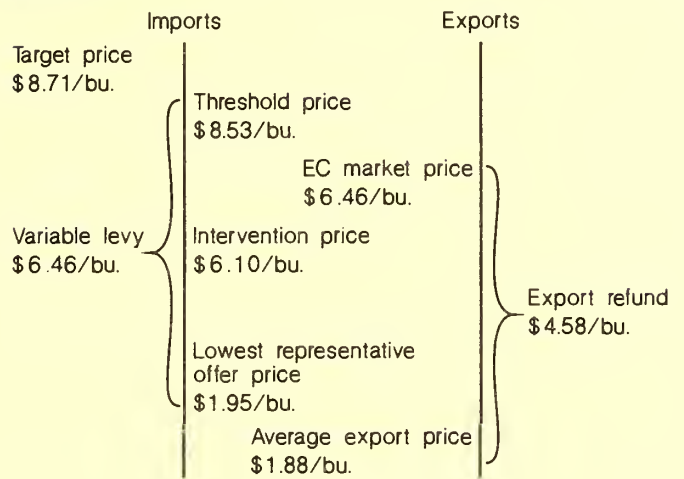
Export refunds are set on the basis of weekly tenders to the EC Commission's Cereals Management Committee. Refunds are paid to traders whose bids are accepted based on the difference between internal EC prices, offer prices in importing countries, and transport and marketing costs. As illustrated in Figure 4, EC export refunds on wheat in March 1987 were almost \$4.60 per bushel (\$168 per metric ton). This permitted f.o.b. export sales at about \$1.88 per bushel (\$70 per ton).

In contrast, U.S. Government outlays were about \$2.75-\$3 per bushel (\$100-\$110 per ton) on a fourth of U.S. wheat exports in 1986/87 covered by the EEP. This includes \$1-\$1.25 per bushel (\$35-\$45 per ton) in EEP subsidies and about \$1.75 per bushel (\$65 per ton) that producers realized in deficiency payments after allowing for acreage reductions.

Faced with large surpluses and growing price support costs, the EC has begun to lower support prices, at least in ECU terms. Price decisions for 1986/87 represented a

Figure 4

EC wheat program support mechanism, March 1987



0.3 percent weighted average price reduction in the EC-10 in ECU terms. Support prices for 1987/88 have been further reduced 0.2 percent.

Because of the nature of the European Monetary System, the 1986/87 support price reduction translated into a 2.2 percent average price increase in national currencies. Prices in Greek currency rose the most, 13.5 percent, while West German prices fell 0.2 percent. Price changes in other countries averaged 0-4.2 percent. Price changes for 1987/88 increase prices in national currencies by 3.4 percent in the EC-10 as a result of realignment of "green" (agricultural) exchange rates. These increases will be largely offset by changes in implementation procedures for price supports.

Comparisons of market prices for specific commodities are complicated by variability of prices within the EC as well as exchange rate changes. For example, at current exchange rates, the wholesale market price for common wheat in France was about \$5.60 per bushel in early 1987, while in the most wheat-deficit country, Germany, the price was about \$7.50 per bushel. In dollars, the French price increased 59 percent from an average of \$3.55 per bushel in early 1985. Most of the difference is due to exchange rates, as the price in French francs increased by only 9.5 percent during the same period.

Despite recent reductions, support programs have led to huge U.S. and EC stocks of grains and dairy products. Stock

accumulation and maintenance costs contribute to rapidly climbing farm program costs. Surplus stocks also overhang world markets, depressing prices.

At the end of 1985, combined U.S. and EC government-held grain stocks stood at 48 million metric tons, about 60 percent of the two regions' net exports for the year. The United States held about two-thirds of the total stocks. In 1986/87, world stocks reached record levels. EC stocks of butter and nonfat dry milk rose, while common and Durum wheat stocks were down slightly. The EC had corn in government stocks for the first time in 1986.

While overall stock volumes are larger in the United States, the value of EC agricultural stocks is higher when computed at acquisition costs. Comparison of the value of commodities in storage is complicated by differences in prices at which the commodities were acquired in the United States and EC, as well as sharp decreases in the value of commodities in storage as a result of declining world prices. While EC stocks on hand at the end of 1986 were acquired at a cost of 11.2 billion ECU's, 4/ their value at market prices is estimated at only one-third of that amount.

The United States led the EC in expenditures on agricultural price and income supports in 1986. The EC is likely to regain the lead in 1987.

U.S. outlays for price and income support reached a record \$25.8 billion in 1986, up from \$4 billion in 1981 and under \$12 billion in 1982. Total EC price support expenditures were about \$22 billion in 1986, up from almost \$13 billion in 1981 and 1982. 5/ National governments of EC members also provide some income supports for small farmers and producers in disadvantaged areas.

4/ EC estimate.

5/ Includes storage costs but not depreciation on stored commodities. Faced with budgetary pressures, the EC has agreed that Germany and the Netherlands may supplement farm incomes through national programs during 1987/88. This may indicate a shift toward renationalization of agricultural support programs in the EC.

U.S. and EC outlays for price and income supports

| Year | United States | EC 10 |
|-----------------|---------------|------------|
| Billion dollars | | |
| 1977 | 3.8 | 8.0 |
| 1978 | 5.6 | 11.5 |
| 1979 | 3.6 | 14.9 |
| 1980 | 2.7 | 16.6 |
| 1981 | 4.0 | 12.9 |
| 1982 | 11.6 | 12.8 |
| 1983 | 18.8 | 14.7 |
| 1984 | 7.2 | 15.0 |
| 1985 | 17.6 | 15.8 |
| 1986 1/ | 25.8 | 2/ 22.6 |
| 1987 1/ | 23.1 | 2/ 3/ 26.2 |

1/ Estimate. 2/ EC-12. 3/ 1987 budget. Agra Europe and other European sources have reported that this amount may be exceeded by as much as \$8 billion.

Source: USDA and EC.

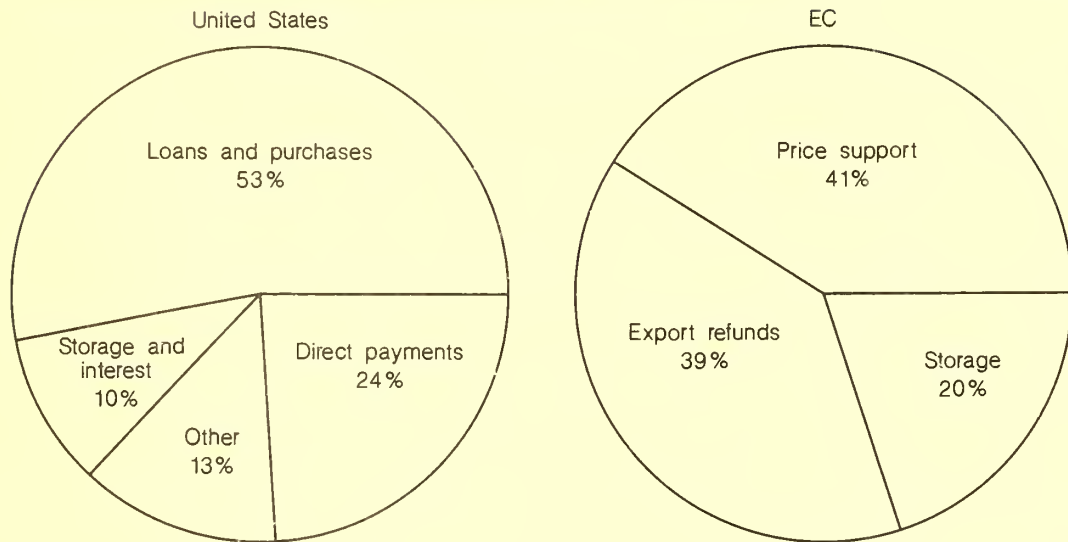
U.S. outlays are forecast to fall to \$23.1 billion in 1987. The EC budget for 1987 calls for expenditures of about \$26 billion, although Agra Europe and other European sources estimate that actual costs are currently projected to exceed that amount by between \$4 and \$8 billion.

About two thirds of U.S. expenditures are on grains, with an additional 9 percent on dairy. In contrast, expenditures on grains were originally budgeted to account for about 16 percent of CAP expenditures in 1986, with two thirds of the cost going to export refunds. The cost of export refunds on grain more than doubled between 1985 and 1986, and has further increased in 1987. The cost of oilseed support, including olive oil, now makes up 12 percent of costs. Beef and dairy received almost 40 percent of 1986 CAP expenditures.

Export refunds cost the EC \$5.1 billion in 1985 and rose to \$8.5 billion in 1986. A 30-percent fall in the value of the dollar and lower world prices resulting from implementation of lower loan rates and the U.S. export enhancement program contributed substantially to these costs.

Analysis of protection of U.S. and EC agricultural producers during 1979-84 shows

Figure 5

Composition of Outlays, By Support Mechanism, 1986

that overall protection of producers was higher in the EC, but that protection was also important in the United States.

Producer subsidy equivalents (PSE's) are measures indicating the level of subsidy that would be necessary in order to compensate producers (in terms of percentage of income) for loss of government programs affecting a given commodity. Estimates of PSE's for individual commodities are affected by annual changes in government programs, changes in world prices, and shifts in exchange rates. During the early eighties, for example, the strong dollar's influence on world prices helped the EC to limit its outlays on export refunds and related costs.

ERS research shows that during 1982-84 average protection of sugar, wheat, corn, and dairy producers was higher in the United States, while protection of beef and soybean producers was stronger in the EC. Despite individual commodity averages, the average overall level of protection was higher in the EC when weighted by the value of production.

Producer support is paid for by a combination of consumers, through higher prices, and taxpayers, through budget outlays. During 1982-84, U.S. consumers bore most of the costs of milk price support, and a smaller share of support for beef. Government alone supported grain prices. In the EC, consumers bore about two thirds of producer support costs for wheat, beef and milk.

Consumer subsidy equivalents (CSE's) indicate the level of economic tax that consumers bear. CSE's, calculated in percentage terms, result from government policies, such as tariffs and/or quotas, that separate world and domestic prices of the commodity concerned. A recently published ERS study indicates that U.S. consumers paid world prices for grains and oilseeds, hence their CSE's are zero during 1982-84. On the other hand, consumers of U.S. sugar and dairy products bore a significant tax due to government programs. ERS estimates that during 1982-84 consumers in the EC paid the equivalent of 14.7 percent more for grain, dairy and meat products as a result of government programs.

Producer subsidy equivalents, 1979-81 and 1982-84 averages

| Commodity | United States | | EC | |
|---------------------|---------------|---------|---------|---------|
| | 1979-81 | 1982-84 | 1979-81 | 1982-84 |
| | Percent | | | |
| Beef | 1/ 5 | 6 | 38 | 43 |
| Corn | 10 | 25 | 17 | 8 |
| Dairy | 45 | 44 | 54 | 36 |
| Soybeans 2/ | 4 | 6 | 45 | 32 |
| Sugar | 20 | 74 | 3/ -11 | 41 |
| Wheat 4/ | 16 | 35 | 21 | 15 |
| Weighted average 5/ | 13 | 22 | 33 | 31 |

1/ Ratio of policy transfers to gross domestic value of production including direct payments. 2/ Soybeans and rapeseed in the EC. 3/ A negative value indicates an effective tax on production. 4/ Includes all wheat. 5/ PSE's for all commodities weighted by their value of production.

Source: USDA. ERS. Government Intervention in Agriculture: Measurement, Evaluation, and Implications for Trade Negotiations, FAER-229.

Consumer subsidy equivalents, 1979-81 and 1982-84 averages

| Commodity | United States | | EC | |
|---------------------|---------------|---------|---------|---------|
| | 1979-81 | 1982-84 | 1979-81 | 1982-84 |
| | Percent 1/ | | | |
| Beef | -1 | -1 | -12 | -15 |
| Corn | 0 | 0 | -15 | -7 |
| Fluid milk | -26 | -25 | -21 | -14 |
| Nonfat dry milk | -51 | -47 | -39 | -27 |
| Sugar | -15 | -57 | 0 | -28 |
| Wheat 2/ | 0 | 0 | -18 | -12 |
| Weighted average 3/ | -10 | -12 | -14 | -15 |

1/ Negative numbers indicate a tax on consumers. 2/ Common wheat for EC. 3/ Based on all grain, oilseed, dairy, and livestock products.

Source: Dale J. Leuck, Gene Hasha, Mark Newman, Ruth Elleson, and Peter Liapis, "Policies Affecting Agricultural Trade in the European Community," in process. Econ. Res. Serv., U.S. Dept. of Agr.

THIRD WORLD DEBT AND U.S. AGRICULTURAL TRADE

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Abstract: World debt has become an increasingly serious constraint to growth in world trade. The rate of gross domestic capital formation has declined, threatening many developing countries with economic stagnation. Prospects for significant renewed trade with debt impacted countries are likely to remain bleak for the rest of the 1980's.

Keywords: International debt, trade, agricultural trade, monetary policy, financial constraints, monetary transmission, interest rates, exchange rates.

World debt is the most serious constraint to world trade and development in the 1980's. It is a highly intractable problem which could plague the world economy for years to come. The resolution of this problem is one major precondition for the return of a normal world trading environment. Although current strategies under discussion and implementation are likely to begin reducing this constraint, we are still a long way from a solution.

Third World countries are increasing their production of food, but with rising populations and growing per capita consumption, food use is climbing faster than production. This would brighten prospects for U.S. agricultural exports if sustainable economic growth generated the revenues to pay for increased food imports and to meet debt payments at the same time. However, in spite of the recovery from the world recession of 1981-82, the debt repayment problem is constraining these countries' agricultural imports. Export promotion and credit policies are, however, helping the United States recapture part of the market lost since the early 1980's. The policy of responding to a financial crisis with financial solutions appears, therefore, to be one way for the United States to maintain its market share of key export commodities.

Oil Shocks, Easy Money Set Stage For Debt Repayment Problems

The oil shock of 1973-74, combined with the development of well integrated international capital markets, began the process by which debt was accumulated. The fourfold increase in petroleum prices initiated

by the Organization of Petroleum Exporting Countries (OPEC) threw many developing countries into substantial trade deficits. The response of the developed countries was to accommodate the oil increases by adopting easy monetary policies. Against this, the huge profits generated by the upper income oil exporters led to enormous dollar deposits in international banks. International bankers began a massive lending program to the developing countries to recycle the "petrodollars." The longer term effect of the oil price increase was significant debt accumulation by developing countries, setting the stage for the current world debt problem.

The world economy weathered the first oil crisis without much difficulty. Initial debt levels were low enough that accumulation did not overly burden the world payments system. Furthermore, the infusion of large amounts of international capital into the world economy generated an international expansion led by export growth. For all non-OPEC developing countries, the total dollar value of exports was 2.5 times greater in 1980 than in 1975. Furthermore, annual real growth in gross domestic product (GDP) for all developing countries averaged 5 percent during this period.

The second oil shock of 1979-80 set the stage for the world recession of 1980-83. The second petroleum price increase was more significant than the first because of the large debt that had accumulated and the far different policy response of the industrial nations. In 1979-80, the major industrial countries immediately restricted available credit. This lowering of monetary growth

sharply slowed the world economy, raised real interest rates, and made the debt burdensome. The developed countries' response to the second oil shock triggered the current repayment problems.

Role of International Capital Markets

If the oil price shocks of the 1970's led to changes in the monetary policies of the industrial countries, the growing world integration of capital markets transmitted the changes from lenders to borrowers, and magnified the growth of international credit availability.

Market interest rates have grown in importance in loan repayments, particularly since 1978-79. Loans extended at variable interest rates, with premiums at fixed points above the U.S. prime rate or the London Interbank Offered Rate (LIBOR), became popular during the late 1970's.

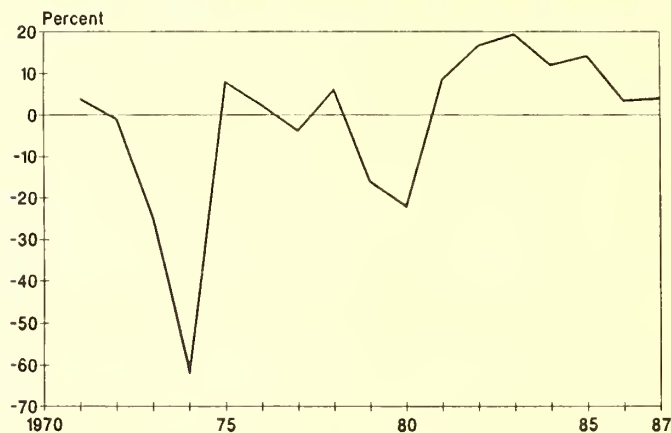
Changes in Interest Rates

Real interest rates, incorporating price changes, provide a measure of the current opportunity cost of debt repayment. The appropriate measure for debtor countries is the interest rate adjusted for changes in export prices. The effect of the rapid increase in world liquidity is very evident when considering the real interest rates faced by the developing countries. The decade of the 1970's was dominated by price increases far in excess of the nominal interest rate.

That situation quickly reversed itself in the 1980's. Nominal long- and short-term interest rates on dollar loans rose sharply beginning in 1978, as rising inflation began to add premiums to the cost of borrowing. Not until 1981, however, did price increases fall below interest rates, and the real rate then increased sharply. Despite the decline in short-term rates in 1983-85, real interest rates facing all developing countries remained above 10 percent, and were higher in 1985 than in 1984. Only in 1986 and 1987 did real interest rates fall to below 4 percent.

The debtor nations were therefore caught in a difficult situation. The principal on loans that had been falling in real value began to rise at an accelerating rate. The declining

Figure 1
**Real interest rate, Developing countries:
6-month LIBOR less change in export unit values 1/**



1/LIBOR = London Interbank Offer Rate.
1987 is an estimated value.

real repayments so evident and welcome during the 1970's also began, in 1981/82, to rise in real value.

Commodity Prices Fall

The trend of export prices received by developing countries also changed substantially between the 1970's and 1980's. The real appreciation of the developing countries' currencies during the 1970's, and general raw material shortages, contributed to price increases. Those factors were reversed in the 1980's as export promotion (real devaluation) policies accompanied excess stocks of primary, raw commodities important to lower- and middle-income countries. Price changes directly reflect the sharply different exchange rate, interest rate, and monetary environment of the 1980's compared with the 1970's. Between 1973 and 1980, non-oil commodity export prices more than doubled. Since 1981, however, these prices have declined approximately 25 percent. Only in 1987 is there any indication of renewed increases in some commodity prices.

Rescheduling Indicates Debt Problem

Before the 1980's, debt repayment problems did not pose a serious threat to the world economy. From 1956 to 1980, only 22 countries rescheduled about \$21 billion. The pattern of international debt reschedulings since then indicates a serious misalignment between payment commitments and the ability of countries to service their debts.

Reschedulings have been escalating continuously, from \$55 billion in 1981-83 to \$93 billion in 1985 and \$122 billion in 1986. The magnitude of the reschedulings is a clear indication that the problem is getting worse.

At the same time that the problem for the developing countries seems to be getting worse, the risk to commercial banks appears to be abating. At the peak of the crisis in 1982, loans to developing countries by major U.S. banks amounted to more than twice bank capital. However, by March 1987 this ratio had declined to almost 1 to 1.

Credit Withdrawal Begins in 1983

Although total debt continued to increase into 1987, there has been a pronounced withdrawal of credit since 1983 because the growth of debt has been less than interest payments. The annual growth rate of debt exceeded 20 percent during 1973-81 for all developing countries, but there has been a clear secular decline since 1978. The Northeast and Southeast Asian countries had among the highest growth rates of debt over the 1973-83 period, but of the East Asian groups only the Philippines has experienced debt payment difficulties. 1/

This situation strongly suggests that rapid accumulation of debt does not have to lead, in itself, to subsequent debt servicing problems. If credit is used to make investments which generate foreign earnings in excess of payment requirements, then even large debts can be serviced. But if the credit is used to expand consumption, payment difficulties will arise. Difficulties will also occur for investments with either lower rates of return in foreign earnings than restitution due or a pattern of returns which does not match repayments.

The withdrawal of credit to developing countries, indicated by the declines in the growth of debt, is magnified when one considers the net flow of credits to developing countries during 1973-86. Between 1974 and

1982 the cumulative net inflow of credit to developing countries equaled about \$200 billion. In 1978, net inflows peaked at \$57 billion. Starting in 1983 and continuing through 1986, there was an outflow of credit of about \$100 billion. This change in credit availability is mirrored in international trade patterns. Imports of developing countries declined by almost \$100 billion a year from the peak.

The Consequences

The process of adjusting to the overaccumulation of debt in the 1970's has had several major consequences. For the developing countries, there has been, first and foremost, a decline in per capita income growth. This has been the direct result of policies to constrain imports, at least partially by inhibiting aggregate demand. Imports have also declined, a consequence of trying to control balance-of-trade deficits. This reduction was a major feature of the adjustment observed since 1982. However, exports have not grown as expected, partly because of reduced income growth in the developed countries.

Renewed growth in the developing countries implies investment in new industries, or in existing export industries to sustain export growth. The withdrawal of credit has been accompanied, and paid for, by reducing gross domestic capital. The ability to generate renewed growth in developing countries is predicated on their capacity to increase exports. Therefore, if substantial numbers of countries are simultaneously reducing their capital formation as well as their imports, increased export sales become extremely difficult, as has been the case since 1982.

Although many countries have been adjusting their current account balances, no evidence of renewed growth appears to be following. The adjustments to the debt crisis may well have forced developing countries (and, possibly, the world economy) into a low-level growth equilibrium. This situation will prevent the rapid reduction in the debt ratios which would lead to new credit availability and growth in the developing countries. Because these countries have been growth markets for U.S. agricultural exports, the main effects of the debt crisis have been

1/ Northeast Asia comprises Hong Kong, South Korea, and Taiwan. Southeast Asia comprises Indonesia, Papua New Guinea, Malaysia, Philippines, Singapore, and Thailand.

to constrain world trade in general, U.S. agricultural exports in particular, and the agricultural portion of total trade.

One of the most pronounced features of 1970-85 was the increase and subsequent decrease in the rate of gross domestic capital formation. For all developing countries, the rate averaged just over 23 percent during 1970-74, 27 percent during 1975-78, 26 percent during 1979-82, and 24 percent in 1984-85. The decline is most pronounced in the Latin American region and among the debt-affected major borrowers. The fall in gross domestic capital formation is evident in all of the groupings except Asia, where the very high rates achieved in the middle of the period were exceeded by the end of the period. This decline is one of the more pessimistic outcomes of the debt adjustment process.

Agricultural Trade

Agricultural trade patterns generally follow trends similar to those of merchandise trade. Historically, agricultural trade is becoming less important in total trade. In times of stress, however, agricultural imports get preference over other imports.

Agricultural imports increased after 1982 compared to all imports by developing countries, rising to 15 percent of the total in 1984 from 13 percent in 1982. The most substantial increase was in Sub-Saharan Africa, where agricultural goods increased as a proportion of all imports since 1976. The most dramatic case of agricultural imports substituting for other imports was in Latin America. Agricultural products rose to 15.5 percent of all imports in 1984, up from 11.5 percent in 1982, higher than at any time during the 1970's. Only Northeast Asia sustained the trend of agricultural imports falling as a proportion of all imports. Major U.S. markets showed an upward trend in purchases of farm products in relation to all goods in 1982-84, up from 13 percent to 15 percent.

U.S. Agricultural Exports

The value of U.S. agricultural exports to developing countries fell sharply in 1982, recovered in 1983 and 1984, and plummeted again in 1985 and 1986. The total dollar amount in 1986 was only slightly above that of

1979. No grouping of countries imported a higher dollar value of agricultural products from the United States in 1986 than in 1984.

The U.S. market share through 1984 remained above the levels of the late 1970's, except in 1982. Market share gains were confined to declining markets, however. U.S. farm products accounted for 50 percent of those in Latin America, up from 35-45 percent in the late 1970's. The United States maintained a larger proportion of total agricultural product sales in major agricultural markets, but has not been very successful at competing in the potentially expanding Asian markets. Factors other than the debt problem probably are more important in explaining this.

Measures to Resolve the Debt Problem

The preferred world scenario for resolving the debt crisis would include a period in which debt-affected countries would undertake policy changes to realign their export-import balance, followed by a period of renewed world growth led by expansion of trade. However, there is no evidence of this actually occurring.

Except for North Africa and the Middle East and South Asia, the needed adjustment to the change in finance availability has taken place, but there is scant evidence that this adjustment will be followed by renewed income and trade growth. Commodity prices have fallen and, partly due to the need of debt-impacted developing countries to generate increased export earnings, may stay down for the foreseeable future. Additionally, the global effect of contracted imports and export promotion in such a large part of the world has led to a situation in which the export markets have become more competitive and more constrained.

Solutions to the debt crisis to date have served to maintain the present value of developing country debt. Rescheduling debt has become commonplace, with the effect of superficially improving the term structure of the debt but not of reducing its burden. Many of the debtor countries find themselves in a situation where the debt load is equal to or greater than it was at the start of the debt crisis in 1982. For all of the adjustments and renegotiations, the constraint which debt has

imposed on world trade and development has not been noticeably reduced.

Recently, measures aimed at reducing the burden of debt have been suggested and, in fact, been implemented in some countries. Debt-for-equity swaps and secondary markets for developing country debt are part of the newly suggested measures. Other proposals call for loan writedowns and/or writcoffs. The reduced exposure of commercial banks to developing country loans and the increases in loan loss funds by commercial banks also imply that financial institutions are now better prepared to consider this option than in recent years.

While these suggested measures hold the promise for significant reductions in the debt burden and the financial constraint on trade, potentially serious questions arise with respect to the costs of writedowns and how these writedowns will be shared between developing countries, financial institutions, and developed countries.

Of course, the long term success of any efforts to reduce the debt burden of developing countries will critically depend on whether these countries are prepared to undertake serious economic adjustments and to reduce direct government interventions in their economies so that future resources will be invested in areas which have the highest potential for returns in an open world economy.

Figure 2
Debt reschedulings, number of countries rescheduling, and type of debt

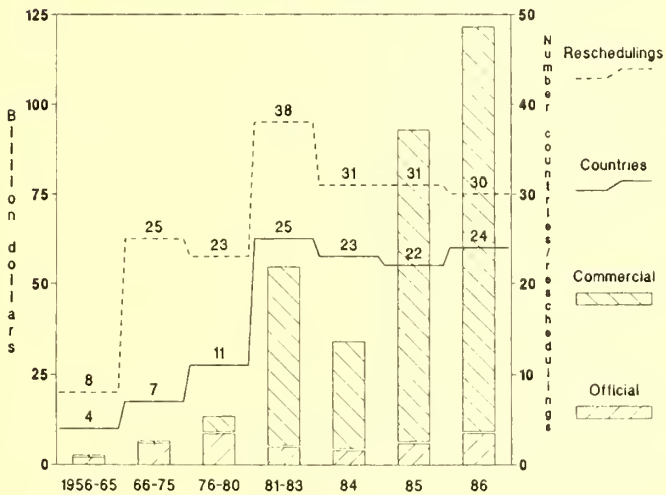


Figure 4
Gross domestic capital formation as a share of gross domestic product

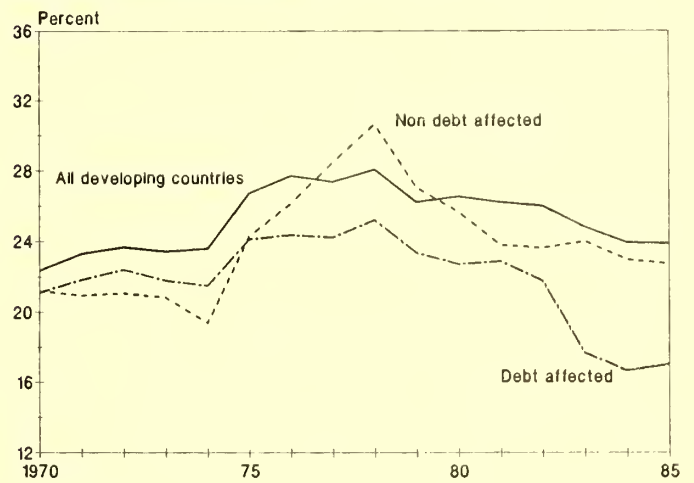
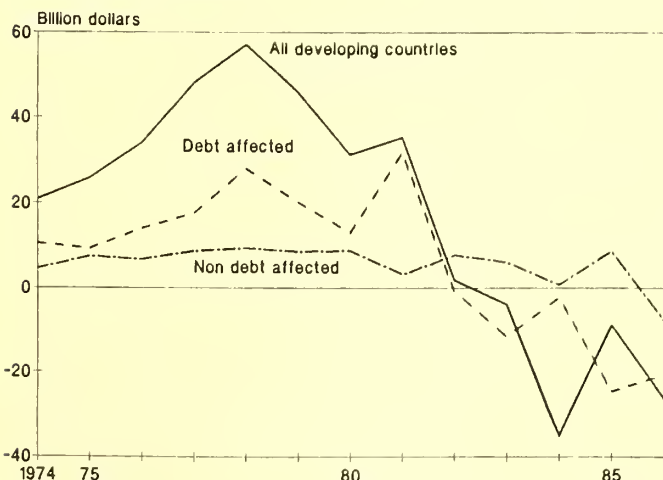
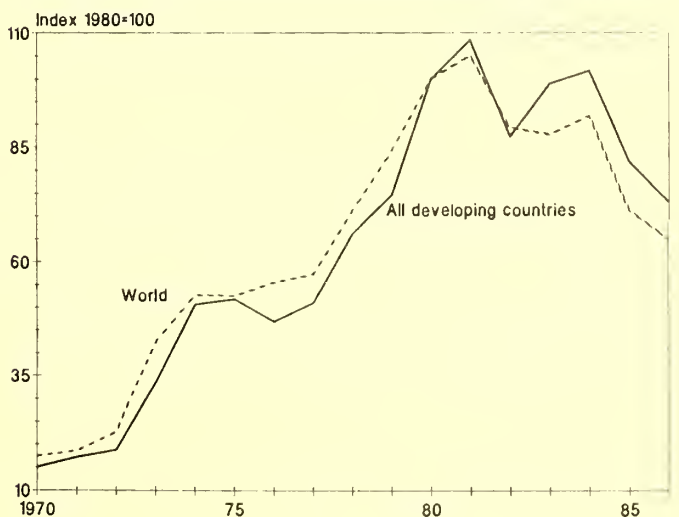


Figure 3
Net flow of credit 1/



1/ New borrowing less debt service payments.

Figure 5
U.S. exports to the world and developing countries



CHINA'S URBAN AND RURAL CONSUMERS

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Abstract: Consumption expenditures for all consumers rose slowly from 1952 to 1978, but increased sharply from 1978 through 1985 during the period of economic reforms. As incomes have risen, both urban and rural consumers have spent a decreasing portion of their budgets on food, and increased the portion spent on clothes, rent, cultural and educational goods, and services. Urban living standards are more than 100 percent higher than rural. The gap between the two narrowed during the reforms, but in 1985 urban per capita consumption far outstripped that in rural areas. While rural consumers have purchased an increasing amount of goods in markets, 40 percent of all rural goods consumed in 1985 were provided by the farmers themselves.

Keywords: Consumption expenditures, income, per capita consumption, living standards.

Per capita consumption expenditures for all consumers rose from 76 yuan in 1952 to 407 yuan in 1985. ^{1/} Expenditures rose at an annual rate of 3.25 percent from 1952 to 1978. The annual rate of increase jumped to 12.81 percent from 1978 to 1985, when economic reforms resulted in rapidly rising incomes. Consumption expenditure data used in this article should be adjusted for price changes through time to reflect real changes in consumption patterns, but economists and statisticians in China have not published sufficient price data for us to make the proper revisions. A retail price index was published, however, which indicates that prices rose 74 percent from 1950 to 1985. The index suggests that 38 percent of this increase occurred from 1978 to 1985, and also that prices have risen much faster in urban than in rural areas.

Nonagricultural consumers (primarily the urban population) generally have been from 2 to 3 times better off than the agricultural population. The ratio of consumption expenditures by the nonagricultural population to expenditures by the agricultural population rose from 2.4 in 1952 to over 3.0 in 1959, when the rural population was struck particularly

hard by famine during the Great Leap Forward (1958-61). From 1962 to 1985 the ratio was reduced gradually, especially after 1978 when reforms boosted rural incomes and raised living standards.

Per Capita Consumption Expenditures Rose

Nonagricultural per capita consumption expenditures rose from 148 yuan in 1952 to 383 yuan in 1978, an annual rate of 3.72 percent. During the reform period, expenditures rose at an annual average rate of 10.16 percent, from 383 yuan in 1978 to 754 in 1985, well below the increase for the agricultural population.

Consumption expenditures of the agricultural population rose very slowly, from 62 yuan in 1952 to 324 in 1985. These expenditures decreased during the Great Leap Forward, indicating an absolute decline in living standards. By comparison, living standards in cities rose at this time. From 1952 to 1978, expenditures rose from 62 yuan to 132 yuan, at an annual average rate of 2.94 percent. Economic reforms initiated in 1978 greatly boosted income of the agricultural population, and consumption expenditures rose from 132 yuan in 1978 to 324 yuan in 1985, an annual rate of increase of 13.69 percent, well above that of the nonagricultural population.

^{1/} 1 yuan = \$0.2896 in 1986.

While the increases in consumption expenditures for the agricultural population narrowed the gap between urban and rural areas, in 1985 the nonagricultural population was still 2.3 times better off than the agricultural population.

How Consumers Spent Their Budgets

Detailed expenditure data are available only through 1984, and outlays on consumer goods fell from 85.5 percent in 1978 to 76.7 percent in 1984. In 1984, households spent nearly 13 percent of their budgets on taxes and production costs for sideline output. In 1978 households were forbidden to invest in fixed assets over which they had sole ownership. But after the commune system was demobilized and the contract system established, investments in fixed assets rose to about 5 percent of total expenditures. Money sent by households to family members living away from home fell from 0.4 percent in 1978 to 0.2 percent. Money given to relatives and friends increased from 0.9 percent in 1978 to 3.4 percent. Other miscellaneous expenditures rose from zero in 1978 to 1.5 percent in 1984.

A more detailed examination of personal consumption patterns in the period since reforms began reveals that expenditures for food as a percentage of personal consumption dropped nearly 10 percent. These consumers appear to be following the path well recognized in many countries where consumers spend a decreasing share of their budgets on food as per capita incomes rise. It is interesting to note that the percent of budget that rural consumers allocated to food purchases did not fall below the 1957 rate until after the reforms were instituted in 1979. The reforms boosted rural incomes, and consumers allocated a decreasing portion of their budgets to purchase food.

Rural consumers also allocated a declining share of their budgets for clothes and fuel. An increasing share of personal expenditures was spent on housing, which rose from a low of 2.1 percent in 1957 to 12.4 percent in 1985. Before 1979, government financial policies restricted rural consumers from investing in housing, but reform policies relaxed these constraints and rural families accelerated housing expenditures. Expenditures on daily use items rose from 6.9

percent in 1957 to 11.4 percent in 1985. According to the sample survey data, expenditures on services and cultural activities have not changed greatly through the years.

Urban consumers allocated about 92 percent of their budgets to purchase commodities, and the remaining 8 percent was spent on services. The portion spent on commodity goods increased from around 85 percent in the 1950's and 1960's to 92 percent in the mid-1980's. Expenditures on food declined from a high of 67 percent of total expenditures in 1957 to 58 percent in 1985. From 1957 to 1985 expenditures on tobacco, alcoholic beverages, non-staple foods, and other food products rose, but expenditures on grains declined from 23 percent in 1957 to 9 percent in 1985. Urban consumers allocated 14 percent of their budgets to purchase clothes in 1957, but this rose to over 16.7 percent in 1985. The percentage of the budget spent on daily-use goods rose from 11 percent in 1957 to 13 percent in 1985. The share of budget spent on education and recreation goods increased rapidly, from 2 percent in 1964 to over 9 percent in 1985. Families allocated a declining share of their budgets for drugs, medical care, and fuel.

Urban consumers allocated a decreasing portion of their budgets for a variety of services. Budget allocations for rent decreased from 2.7 percent in 1957 to 1.1 percent in 1985. Government subsidized housing enabled urban consumers to spend a decreasing amount of their budgets on rent. Expenditures for water, electricity, health care, school tuition, and transportation as a percent of total expenditures decreased from 1957 to 1985. Budget allocations for postage, telecommunications, and cultural and recreational fees remained fairly constant.

A comparison of urban and rural consumption in 1985 reveals that consumers in both areas spent about 58 percent of their budgets on food, and expenditures on daily-use items constituted about 12 percent of their budgets. Rural consumers allocated more than 12 percent of their budgets to housing, compared with a little over 1 percent for urban consumers. This large difference results partially from rural household investment in new building construction being treated as a

current expenditure, rather than as a long-term investment. Rural consumers also allocate more of their budget for fuel than urbanites, 5.7 percent to 1.5 percent. Urban consumers spend greater parts of their budgets for clothes and cultural activities.

Changes in Per Capita Consumption Patterns

In the post-Mao period dramatic shifts occurred in rural and urban consumption patterns. Rising per capita incomes, greater specialization, improved marketing systems, and expanded freedom for enterprises to produce for markets all contributed to shifts in consumption patterns. Consumption data for rural areas covers 1978-85, but for urban areas we could only find data for 1981-85.

Per capita grain use in rural areas rose over 3 percent, from 248 kg in 1978 to 257 in 1985. These changes tell only part of the story, however. Rural consumers increased consumption of fine grains (wheat and rice) from 123 kg in 1978 to 201 kg in 1985, a 70 percent increase in 7 years. This indicates a strong consumer preference for these higher quality grains, and a shift away from coarse grains (corn, sorghum, millet, barley, and oats) and potatoes.

Urban grain consumption fell 10 percent, from 145 kg in 1981 to 131 kg in 1985. Presumably some of the reduction was coarse grains and potatoes, so that urban consumers ate mostly wheat and rice. The rise in urban per capita meat consumption signifies a preference for coarse grains, which have been diverted into meat and away from direct consumption. Consumption of another grain-related product, alcoholic beverages, also increased dramatically. Rural per capita consumption rose from 1.2 kg in 1978 to 4.4 kg in 1985, a 266-percent increase. Alcoholic-beverage consumption in urban areas also increased substantially, rising from 4.4 kg in 1981 to 8.0 kg in 1985.

China's rural and urban consumers have one of the lowest rates of per capita vegetable oil consumption in the world. Consumption levels, however, rose 90 percent, from 1.3 kg per capita for rural areas in 1978 to 2.47 kg in 1984. Urban consumption levels rose 33 percent in 5 years to 6.9 kg in 1985, still a very low level by world standards.

Rising incomes allowed rural consumers to spend some of their budgets for beef, mutton, and pork, and large increases in livestock output were supported by substantial increases in grain output since 1978. Per capita red meat consumption increased 90 percent from 1978 to 1985. Urban consumption increased only 8 percent from 1981 to 1985. Poultry meat consumption in rural areas tripled from 0.3 kg in 1978 to 1.0 in 1985, while consumption in urban areas doubled from 1.9 in 1981 to 3.8 in 1985. Fresh egg consumption rose rapidly in rural areas from 0.8 kg in 1978 to 2.1 kg in 1985, an increase of 163 percent. Urban egg consumption rose from 5.2 kg in 1981 to 8.8 in 1983, a rise of 69 percent.

Dramatic changes have taken place in cloth consumption. Rural per capita cotton cloth consumption fell substantially, from 5.6 meters in 1978 to 2.5 meters in 1985, a decrease of 55 percent. Consumption of chemical fiber cloth increased sixfold, from 0.4 meters in 1978 to 2.4 meters in 1985. Consumption of woolen fabrics, silk and satin, and knitted goods experienced similar growth patterns. Urban consumers, on the other hand, increased cotton cloth consumption. Per capita consumption of woolens, silk and satin, and knitted goods increased from 1981 to 1985 by well over 50 percent. Urban dwellers also began to purchase an increasing share of their clothes ready made, rather than buying cloth and sewing clothes. For example, ready-made chemical fiber clothes and silk and satin clothes doubled in the 5-year period.

Sugar consumption in rural areas rose from 0.73 kg per capita in 1978 to 1.46 kg in 1985, an increase of 100 percent. While consumption in rural areas increased, consumption in urban areas remained steady during the period at about 2.80 kg per person. These levels are very low in comparison with consumption standards of other countries. Cigarettes can also be considered a luxury good. Rural per capita consumption rose from 15.34 packs (1 pack has 20 cigarettes) in 1981 to 21.70 packs in 1984, an increase of 41 percent. Urban consumers in 1984 consumed 38 packs, a 6-percent increase from 1981.

Urban consumers have much higher living standards than those in rural areas. The data suggest that since rural reforms were instituted in 1978, the gap in living standards

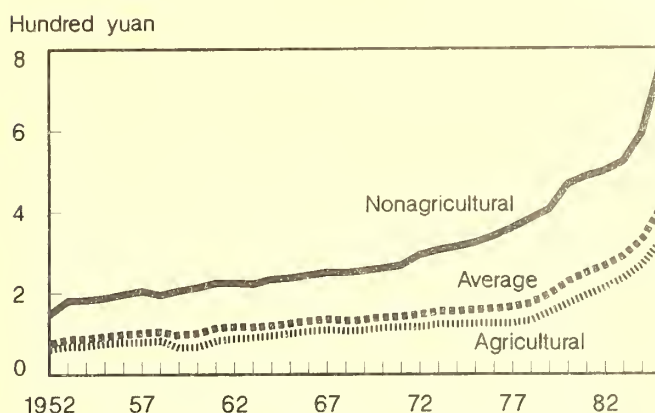
has been closed somewhat. Nonetheless, in 1985 urban dwellers had 133 percent more money to spend on consumption than their rural cousins. Except for grain and synthetic cloth, consumption of all items is higher in urban than in rural areas.

Rural Consumers Increase Their Use of Markets

In the reform period from 1978 through 1985 rural consumers purchased an increasing amount of goods in markets. Of total goods consumed by the agricultural population, the portion purchased in markets rose from 50 percent in 1978 to 60 percent in 1985. While this increase is significant, it is well to remember that some 40 percent of the goods consumed in 1985 still were being provided by the agricultural households themselves.

In the 1978-85 period the agricultural population bought more food from markets.

Figure 1
Per Capita Consumption Expenditures, 1952-85



Source: China Stat Yearbook, 1986 p. 646. The SSB has not discussed the data or estimates in the graph. The SSB was not functioning for many years in which data appears. The source of those data is not known.

Consumers shifted their source of supply, from a 31-percent reliance in 1978 to 41 percent in 1985. By 1985, however, a large share of food

China's consumers in 1985: What they consume 1/

| Item and unit | Rural | Urban | Urban/rural ratio |
|---------------------------|--------|--------|-------------------|
| Grain | | | |
| Rough weight (kg) | 257.00 | NA | NA |
| Fine grain (kg) | 209.00 | 131.16 | 0.63 |
| Vegetable (kg) | 131.00 | 147.72 | 1.13 |
| Edible oil (kg) | 4.04 | NA | NA |
| Vegetable oil (kg) | 2.6 | 6.36 | 2.45 |
| Meat, red (kg) | 10.97 | 20.16 | 1.84 |
| Pork (kg) | 10.32 | 17.16 | 1.66 |
| Beef and mutton (kg) | .65 | 3.00 | 4.62 |
| Meat, poultry (kg) | 1.03 | 3.84 | 3.73 |
| Eggs (kg) | 2.95 | 8.76 | 2.97 |
| Seafood (kg) | 1.64 | 2.64 | 1.61 |
| Sugar (kg) | 1.46 | 2.64 | 1.81 |
| Alcoholic beverage (kg) | 4.37 | 8.04 | 1.84 |
| Cigarettes (boxes) | 23.72 | 38.16 | 1.61 |
| Cotton cloth (meters) | 2.54 | 2.71 | 1.07 |
| Synthetic cloth (meters) | 2.50 | 2.10 | 0.84 |
| Woolen fabric (meters) | 0.14 | 0.44 | 3.14 |
| Silk and satin (meters) | 0.07 | 0.65 | 9.29 |
| Shoes (pairs) | 0.55 | 0.65 | 1.18 |
| Consumer durables: | | | |
| Bicycles | 80.64 | 163.72 | 2.03 |
| Sewing machines | 43.21 | 73.19 | 1.69 |
| Radios | 54.19 | 80.80 | 1.49 |
| Clocks: | 163.64 | NA | NA |
| Wrist watches | 126.32 | 286.68 | 2.27 |
| Television sets | 11.74 | 93.33 | 7.95 |
| Electric fans | 9.66 | 79.17 | 8.20 |
| Washing machines | 1.90 | 52.83 | 27.81 |

NA = not available

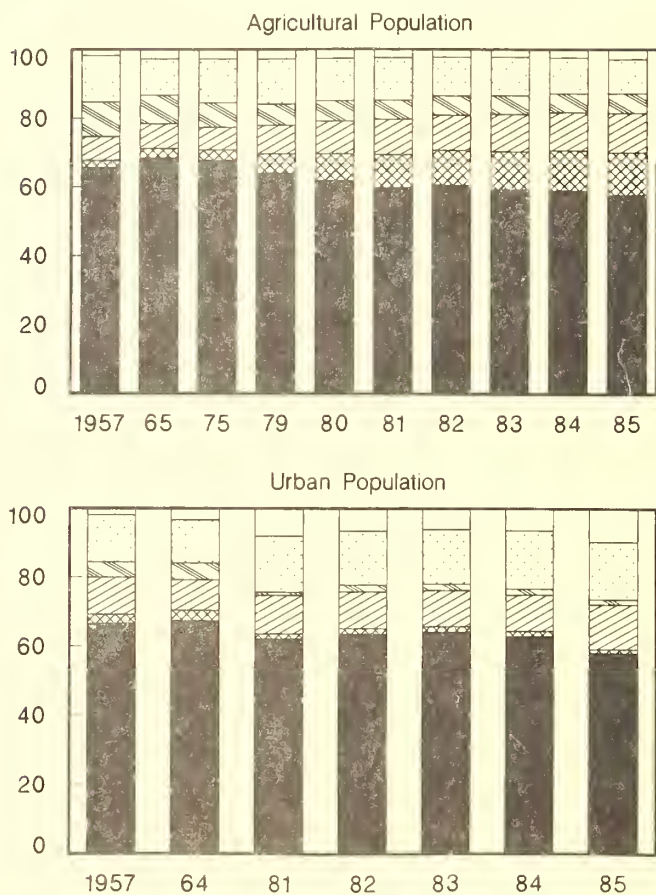
1/ Average per capita consumption. Yearend stock per 100 households for consumer durables.

Source: China Statistical Yearbook, 1986, pp. 669 and 676; and China Rural Statistical Yearbook, 1986, pp. 201-203.

Figure 2

Percent of Living Expenditures

Food
 Rent
 Daily use articles
 Fuel
 Clothes
 Cultural expenses



in rural areas was being raised by farmers themselves. A majority of farm households, regardless of specialization, often prefer to reserve a plot of land to raise their own grain ration, even though they could maximize income by raising other crops. Traditional autarky continues to manifest itself in rural China, because rural families still doubt the ability of socialist institutions and markets to provide dependable supplies of food grains.

In 1985 the agricultural population purchased less fuel in markets than in 1978. In 1978 markets supplied 40 percent of the fuel. By 1985 this dropped to 22 percent, as agricultural households relied more on their own resources.

The agricultural population in 1985 relied heavily on markets to supply clothes and other goods. Consumers from 1978 to 1985 purchased even more clothes in markets, so

that the share of clothes purchased in markets as a proportion of total clothes consumed rose from 89 percent in 1978 to 98 percent in 1985.

COUNTRY BRIEFS

Japan Cuts Consumer Rice Price

Japan's Government plans to cut the price of rice to consumers for the first time since 1942 in an effort to boost consumption and reduce a growing surplus. Japan will lower the grocery-store price of harvested 1987-crop rice by 2.5 percent, and of the remaining rice from last year's crop by 5.5 percent. The Government Food Agency controls Japan's rice market through procurement, distribution, and a near-total ban on imports.

Experts say an average family will save about \$1.10 a month. After the cut takes effect in December, Japanese will still pay more than \$1 a pound for rice.

Because of bumper harvests for the past 3 years and another good harvest this year (the 1987 crop is estimated at 10.65 million tons, brown basis), and a steady decline in per capita consumption, rice stockpiles could reach 2 million tons or more by the end of the 1987 marketing year (October 1988). This would be well above the Government's desired level of 1.5 million tons.

To redress the problem, the Government has implemented several riceland diversion programs, targeting 770,000 hectares of paddyland to be diverted to alternative crops each year during 1987-92. The Government also put a cap of 1.5 million tons on the amount of rice it will store. Cooperative organizations agreed to hold up to 400,000 tons of last year's crop and a similar amount this year.

In July 1987, the Government lowered the producer rice price by an average 5.95 percent, the first reduction in 31 years. This move was seen as an important step in reforming Japan's highly protected agriculture. Under pressure at home and abroad, Japan has begun to modify its high support price policies. This has been especially difficult in the case of rice because the grain is a staple of the Japanese diet and

Figure 3
Per Capita Consumption of Food and Cloth, 1985

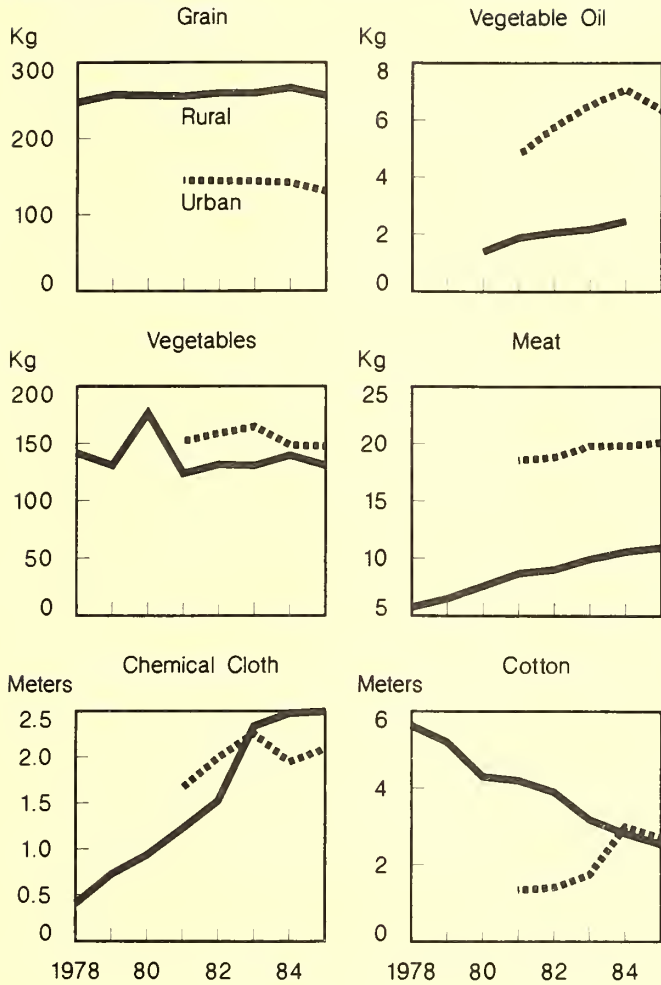
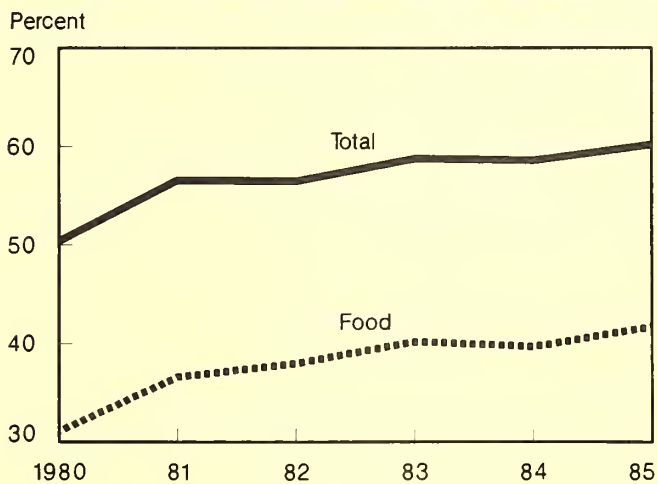


Figure 4
Percent of Goods Purchased in Markets



rice growers wield a disproportionately strong political influence. [Lois Caplan (202) 786-1611]

Africa's Economic Crisis Highlighted

According to a report by United Nations Secretary-General Javier Pérez de Cuéllar made public on Oct. 15, the overall economic performance of African countries faltered badly in 1986 in spite of some bright spots in agricultural production.

The report, marking the first year of a 5-year (1986-90) economic recovery program, cited Economic Commission for Africa (ECA) estimates that Africa's total debt may have reached \$200 billion, amounting to 54 percent of gross domestic product (GDP) and almost 440 percent of export earnings. It also cited World Bank data showing that 17 low-income heavily indebted countries face scheduled debt-service payments in 1988-90 three times higher than they were able to pay in 1985 (\$6.9 billion compared with \$2.3 billion).

The combined effects of declining export earnings, inadequate resource inflows, and increasing debt service obligations were such that many African countries had to cut investment and import levels, with detrimental consequences for their growth and development, the report said.

According to ECA data cited in the report, Africa's export earnings declined by 29 percent from \$64 billion in 1985 to \$45.6 billion in 1986, the sharpest fall since 1950.

While the GDP of African oil-exporting countries fell by 1.7 percent in 1986, that of non-oil-exporting countries grew by 2.7 percent. The GDP of low-income African countries grew by only 2.2 percent, far less than population. Africa's performance was significantly lower than that of all developing countries combined. [Arthur J. Dommen (202) 786-1680]



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