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Alternative Export Strategies and U.S. Agricultural Policies for Grains and Oilseeds, 1950-83

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ABSTRACT

The United States has used several export promotion programs since the 1950's
to boost agricultural exports. These programs have been designed to increase
exports through export expansion activities such as sales credit and market
development assistance, or through initiatives that lower export prices, such
as export payments. The recent declines in U.S. agricultural exports have led
to greater emphasis on these programs. Their success will depend greatly on
the accompanying changes in domestic agricultural policies, changes in world
market conditions, and competing exporter responses to U.S. agricultural
policies.

Keywords: policy options, export market, market development, credit, export
           payments, loan rate, producer payments.

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SUMMARY

The recent declines in U.S. agricultural exports have reopened the discussion on ways to enhance exports so as to support and stabilize producer incomes. Two broad strategies could be used to augment foreign demand for U.S. agricultural products: increase U.S. export through demand expansion programs in importing countries or increase U.S. exports by increasing the quantity demanded by importing countries through lower export prices. Both of these options have been widely used in the last 30 years.

Government programs to expand export demand include sales credit programs which mitigate income and foreign exchange constraints faced by low- and middle-income countries, and market development programs which develop long-term trade relationships. Credit sales programs such as Export Credit (GSM-5), credit guarantee (GSM-101; GSM-102), and P.L. 480 Title I sales, attempt to boost demand in importing countries for U.S. grain and oilseed exports. Market development programs, such as the Cooperator Program, provide information and services to industries in importing countries that use U.S. exports.

Export price policies explicitly or implicitly lower the price at which importers can purchase internationally traded goods. Export payment programs, such as direct payments to exporters through the International Wheat Agreement, Commodity Credit Corporation directives, and P.L. 480 sales are examples of explicit export price policies. Domestic policies such as loan rates and target prices are examples of implicit export policies. Market conditions and the levels of support determine whether such domestic policies provide subsidies or taxes to importers.

U.S. export strategies have historically been a part of an overall farm policy rather than an explicit trade policy. As domestic market conditions changed, the Government has emphasized different domestic and export commodity programs. The price-support/loan rate programs offered incentives to use export payments, whereas the target price program offered initiatives to use demand expansion programs.

Specific impacts of export programs, including returns from exporting and costs of programs, depend upon a number of factors, especially the export supply and demand elasticities. Export payment measures that reduce export price would lead to increased export revenues if the elasticity of export demand is greater than one. But whether such measures lead to increased producer revenues depends largely on the direction of domestic price movements and domestic supply and demand elasticities. Successful demand expansion programs, on the other hand, result in increased price levels, increased producer incomes, and decreased Government expenditures for domestic policy. The magnitudes of these increases are influenced by the domestic demand and supply elasticities in the importing countries.

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INTRODUCTION

The export market has become an increasingly important source of revenue for the U.S. farm sector during the last 25 years. The contribution of agricultural exports to total revenues from agricultural marketings rose from 10 percent in 1960 to nearly 20 percent in 1984. Similarly, more than a third of every acre planted in the United States since the mid-1970's has been devoted to the export market. This growing dependence on the export market has been particularly apparent for wheat, coarse grains, and oilseeds. Exports accounted for 55, 26, and 36 percent of production of these three agricultural crops in 1984. Farm incomes for these three crops have been greatly affected by the conditions in the international market place.

The growth in agricultural exports was especially noticeable between 1960 and 1980. The increase in world population, the economic growth experienced by many developing countries, and the devaluation of the dollar were three principal contributors to expanded U.S. exports. In addition, a fourth factor--export-augmenting strategies pursued by the U.S. Government--was also instrumental in increasing U.S. export revenues. These export enhancement strategies were heavily used in the 1950's and 1960's when domestic policies led to support prices above market-clearing export prices, creating increased production capacity, stockpiles of surplus commodities, and a sluggish export market. Government-financed exports accounted for as much as 27 percent of total exports of coarse grains in 1960 and 1961 (table 1). For wheat, concessional exports as a proportion of total exports averaged over 60 percent between 1960 and 1970.

The early 1980's brought about a reversal in the agricultural export growth trend. The strong dollar, support prices above world prices, and an ongoing recession in less developed countries contributed to a decline in the value of U.S. agricultural exports from $43.8 billion in 1981 to $37.8 billion in 1984. U.S. export market share in the world market also fell during this same period (table 2). This was especially true in the wheat market where U.S. export share as a proportion of world trade fell from 48 percent in 1981 to 34 percent in 1984. Similar trend reversals also occurred in the corn and soybean markets. Farm income was adversely affected by the slow growth in exports and Government-owned stocks increased steadily.

The financial plight of U.S. farmers resulting from the sluggish export market caused policymakers to reassess the direction of agricultural policy and the

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role of export market programs. Many argued that the United States was losing its competitive edge in the world market (32). 1/ Policymakers in response called for more aggressive measures by the U.S. Government to expand exports and increase export market share. The administration responded to these calls by initiating various export promotion programs, including a $2 billion Export Enhancement Program—GSM 500—on May 15, 1985, under which commodities from Government-owned stocks held by the Commodity Credit Corporation (CCC) would be offered as bonuses for FY 1985 through FY 1988. This aggressive export market strategy was also apparent in the 1985 farm act. Numerous export promotion programs were introduced to help increase U.S. exports (35). Provisions for extensive export expansion including export payment-in-kind and targeted export subsidies were incorporated into the act.

Table 1—U.S. concessional and total exports of wheat and coarse grains

Year	Wheat			Coarse grains		
	Concessional exports	Total exports	Percent concessional to total	Concessional exports	Total exports	Percent concessional to total
	1,000 metric tons		Percent	1,000 metric tons		Percent
1960	8,888	11,386	78.1	3,047	11,233	27.1
1961	11,001	15,273	72.0	3,025	11,203	27.0
1962	11,447	16,549	69.2	3,339	14,355	23.3
1963	11,240	14,558	77.2	1,565	15,349	10.2
1964	11,227	20,539	54.7	1,206	15,849	7.6
1965	13,417	17,300	77.6	1,045	17,620	5.9
1966	12,784	21,379	59.8	2,017	25,534	7.9
1967	7,134	18,120	39.4	3,508	20,956	16.7
1968	9,390	17,193	54.6	1,707	20,320	8.4
1969	5,257	12,501	42.1	787	16,121	4.9
1970	5,776	15,668	36.9	1,197	19,205	6.2
1971	5,093	18,227	27.9	1,165	17,977	6.5
1972	5,198	17,070	30.5	1,386	24,619	5.6
1973	2,944	35,867	8.2	1,452	39,692	3.7
1974	1,161	26,756	4.3	960	38,346	2.5
1975	2,795	29,271	9.5	161	49,378	.3
1976	2,917	29,874	9.8	210	49,540	.4
1977	3,968	23,766	16.7	2,604	57,651	4.5
1978	3,343	31,813	10.5	2,050	60,671	3.4
1979	3,241	31,340	10.3	2,132	67,479	3.2
1980	2,830	36,066	7.8	1,134	69,483	1.6
1981	2,542	42,246	6.0	1,244	59,604	2.1
1982	2,978	44,607	6.7	733	55,906	1.3
1983	3,464	36,701	9.4	847	53,832	1.6
1984	2,868	41,699	6.9	1,437	55,373	2.6
1985	3,644	28,524	12.8	1,647	55,084	3.0

Source: USDA, Economic Research Service.

1/ Underscored numbers in parentheses cite sources listed in the Reference secton.

[This study provides information and analysis on export market programs undertaken by the U.S. Government between 1950 and 1983.]

EXPORT MARKET PROGRAMS

U.S. export market programs have been motivated by several factors. First, farm output has been greater than domestic demand during much of the period. Stockpiles of Government-owned commodities have resulted, leading to large storage costs. In 1984, for instance, the Commodity Credit Corporation incurred $398 million as storage and handling costs on $7.4 billion worth of Government-owned stocks. The Government, therefore, frequently undertook policies that facilitated the movement of these commodities into the export market. Second, foreign exchange and income constraints have historically limited the importing capabilities of many low- and middle-income countries. Export market programs have been designed to provide credit facilities to these countries. Third, measures by competing nations to expand market shares have adversely affected U.S. export demand. The U.S. Government pursued policies to counteract these measures as well as counteract import restricting

Table 2--U.S. export market share in world trade
for wheat, corn and soybeans, 1960-85

Year	Wheat	Corn	Soybeans
		Percent	
1960	43	51	NA
1965	39	60	89
1970	37	41	94
1971	33	57	88
1972	48	71	85
1973	53	58	81
1974	43	63	74
1975	48	72	79
1976	41	71	80
1977	42	75	85
1978	45	76	82
1979	44	79	82
1980	44	72	80
1981	48	70	86
1982	42	71	87
1983	35	72	77
1984	34	66	70
1985	31	62	NA

NA = Not available.

Source: Various issues of Agricultural Statistics,
U.S. Dept. Agr.

policies of importing countries. Finally, international marketing necessitates infrastructural investments in new markets. Private firms under such circumstances refrain from undertaking export promotion because the benefits are unlikely to completely accrue to the firm making the investments. The Government, therefore, stepped in to bear the costs of such investments in an attempt to expand U.S. exports.

Government programs designed to promote U.S. agricultural exports from the private sector have followed one of two broad strategies: those that aim to expand export demand through nonprice incentives and those that attempt to increase exports by reducing prices that importers pay for U.S. products (table 3). Programs designed to expand export demand are intended to either alleviate shortrun credit constraints faced by importing countries or create opportunities for greater longrun U.S. export demand through changes in consumer behavior in the importing countries. Credit facilities and market development assistance are examples of this. Programs designed to increase exports through price reductions are generally intended to make U.S. exports more competitive in the world market and counter trade practices of competing exporters. Export payments and targeted subsidies are illustrations of this.

The rest of this section describes in detail export market promotion programs undertaken since the 1950's. Although a dichotomy is made based on program features for purposes of discussion, it is possible that any one program can assume characteristics of both export expansion and price reduction. This is

Table 3—Types of export market programs

Export expansion:	: Price subsidies:
Export market developing programs	: Export payments program
Cooperator Program	: P.L. 320, Section 32
Export Incentive Program	: International Wheat Agreement
Regional-State Export Groups	: CCC Authorizations
Agricultural Information Marketing Service	: P.L. 480, Title I sales from CCC Inventories
Trade Opportunity Referral Service	:
Foreign Agricultural Service (FAS) Exhibits	: Producer payment programs
Product Testing Activities	:
Export Trading Company Legislation	: Support Price/Loan Rate Program
	: Target Price/Deficiency Payment Program
Export credit sales programs	:
GSM-5 Export Credit Programs	:
GSM-101, GSM-102 Credit Guarantee Program	:
Blended Credit Program	:
P.L. 480 Non-Convertible Currency Sales	:
P.L. 480 Dollar Credit Sales	:
Investment credit programs	:
P.L. 480 Nonconvertible Currency Loans	:
GSM-201 Intermediate Credit	:
GSM-301 Intermediate Credit	:

especially true of programs that involve a longer run framework. This concept is elaborated in further detail in the section where the impacts of the various programs are analyzed. Two export promotion instruments often pursued by the U.S. Government to increase market access, namely trade negotiations and barter agreements, are not covered in this report.

Export Expansion Programs

Export demand expansion programs undertaken by the U.S. Government in the last three decades can be categorized in three broad groups: (1) Export Market Development Programs, (2) Export Credit Sales Programs, and (3) Investment Credit Programs.

Export Market Development Programs

Export market development programs represent activities primarily undertaken in importing countries to expand their imports of U.S. agricultural products over a period of time. These programs are generally undertaken in cooperation with public or private agencies in the targeted country in an attempt to expand U.S. agricultural exports through changes in the underlying behavior of consumers and producers in the country. Three approaches have widely been used to alter consumer and producer demand for U.S. agricultural products: demand promotion, technical assistance, and trade servicing.

> Demand promotion aims to increase final product demand through brand and generic advertising, point-of-sale promotions, and public relations. These activities are directed at the final consumer in importing countries to promote product awareness and to influence consumer attitudes towards U.S. products. Direct demand promotion activities are used to increase exports of U.S. final products such as eggs, meat, dairy products, processed fruits, and peanuts. Indirect demand promotion activities are used to increase demand for U.S. intermediate products such as wheat, wheat flour, oilseeds, and feeds. Most product demand programs are undertaken for higher income markets where consumer spending is diversified; for example, in industrialized countries or at high income groups in developing countries.

> Technical assistance is aimed at increasing U.S. exports by improving productivity and lowering costs in intermediate sectors that use U.S. commodity exports as inputs. It includes activities such as technical and organizational training and the transfer of techniques used in U.S. livestock production. Consultants, seminars, and institutional support are used to assist producers and intermediate consumers. The objective is to improve production in industries using U.S. commodities as inputs.

> Trade servicing focuses on improving customer relations and maintaining current customers in importing countries. It is directed at the market rather than at an individual producer or consumer. These services are designed to provide market and technical information, demonstrate product quality and reliability of delivery, and create interactions between buyers and sellers through trade teams and exhibits.

A wide variety of export market development programs have been undertaken that are based on one of these three approaches (table 3). These include the Foreign Agricultural Service (FAS)/Industry Foreign Market Development (or Cooperator) Program, the Export Incentive Program, the Regional State Export

Groups Program, and FAS-operated projects such as the Agricultural Information Market Service (AIMS), the Trade Opportunity Referral Service (TORS), multicommodity efforts such as trade shows and exhibits, commodity identification studies, and product testing programs.

The Cooperator Program has been the principal FAS market development program. The objective of the program has been to develop, maintain, and expand long-term commercial markets for U.S. commodity exports. The program began in 1955 after the passage in 1954 of the P.L. 480 program and uses all three market development techniques explained above.

Through the Cooperator Program, FAS cooperates with U.S. nonprofit producer organizations and with governments, firms, or trade associations of other countries to expand U.S. commodity exports. The cooperators represent cotton, dairy, poultry, fruits and vegetables, livestock and livestock products, tobacco, grains, and oilseeds associations. Cooperator associations submit marketing plans that include criteria for the selection of a target market and for the type of marketing activity to be pursued. After the plan is approved, they submit claims for payments of FAS's share of expenditures.

The type of activities in the Cooperator Program varies among commodity groups. Most rice promotion activities are aimed at final consumers to increase product demand. Market development activities for wheat focuses on intermediate users, especially millers and bakers. Similarly, export promotion activities for coarse grains concentrate on the feed and livestock industries. Foreign market development activities for soybeans involve a combination of intermediate and final products, depending on whether the user is a crusher, a feeder, a household, or an industrial or institutional user.

The Export Incentive Program (EIP) is a second type of export market development program that has been used. It was initiated in 1971 to help firms promote branded, consumer-ready, U.S. agricultural products. EIP is a short-term program made available during periods in which the product is getting established in the market. Participants, mainly fruit and vegetable associations, are reimbursed on the basis of sales increases generated through promotional activities.

A third form of export market development program has been the establishment of regional-state export groups. FAS has cooperated with regional-state groups since the late 1960's to encourage suppliers with potential export capabilities to seek overseas markets. Support services have been provided through seminars, market surveys, and other educational efforts. The regional participants have been the Eastern U.S. Agricultural Food and Export Council (USAFEC), the Southern U.S. Trade Association (SUSTA), the Mid-America International Trade Association (MIATCA), and the Western U.S. Agricultural Trade Association (WUSTA).

FAS has also used trade exhibits, catalog exhibits, instore promotions, and various miscellaneous programs to expand exports. In 1973, FAS introduced a product testing system to determine the marketability of new products in foreign markets. Similarly, FAS provides information to traders through the Agricultural Information Marketing Service (AIMS). The service, provided for a fee, includes information on trade statistics, importer policies, and other miscellaneous information to assist U.S. exporters. The Trade Opportunity Referral Service (TORS), one of the services provided through AIMS, is a computer-based referral system that provides information on foreign markets to U.S. domestic suppliers.

Table 4 provides a summary of the market development strategies and programs undertaken by the United States in various importing countries for feed grains, rice, soybeans, and wheat. As can be seen, technical assistance and trade servicing have widely been used for the various commodities. Demand promotion has been confined largely to rice.

Export Credit Sales Programs

Credit sales is another means through which the U.S. Government has attempted to expand export demand. The U.S. Government has established several credit sales programs designed to accommodate the needs of different markets. These credit sales programs are used to mitigate foreign exchange problems and to provide purchasing power to importers to increase U.S. exports.

The direct export credit program (initiated as GSM-1 and phased into GSM-5) has been one means of financing commercial export sales of eligible U.S. agricultural commodities. Approved credit sales have been financed through the CCC for periods of 6 to a maximum of 36 months at commercial rates of interest. The credit program was initiated in 1956 but was phased out in 1980 following the initiation of a new Government credit guarantee scheme. South Korea and Poland have been the principal recipients of funds under the direct export credit program. The Soviet Union also used the program extensively prior to 1976, but has not done so since. Funds for the export credit programs have been provided through authority under the general charter of the CCC. The 1981 farm legislation authorized a revolving fund for short-term export credit programs such as the GSM-5 provision, but did not fund it. Legislation in 1983 provided USDA funding for direct sales or interest rate subsidies at the discretion of the Secretary of Agriculture. In FY 1984 and 1985, the GSM-5 program was used to fund agricultural exports to Bangladesh and Turkey.

Credit guarantee programs have provided another source of financing for importing countries. These programs were initiated in 1979 and were designed to encourage U.S. agricultural exports at levels above those which would exist without the guarantees by shifting some of the risks usually associated with export transactions from the U.S. exporter or financier to the CCC. The GSM-101 Noncommercial Risk Assurance Program was in operation between 1979 and 1981 and provided guarantees against noncommercial risks. In 1981, commercial risk was added to the guarantee through GSM-102. The CCC extended credit guarantees under the two programs to middle-income countries such as Brazil, Korea, Peru, and Mexico.

Under the credit guarantee programs, credit has been provided through commercial institutions on a short-term basis--6 to 36 months--at commercial interest rates. The CCC guarantees the loan extended by a commercial bank for a fee paid by the exporter. All-risk coverage of up to 96 percent of the principal and 6 percent of the interest are offered. Government outlays under the credit guarantee program occur only in cases of defaults. Should they occur, and if the CCC is required to purchase the account receivable, the default payments are financed by the CCC which funds all domestic commodity and export programs of the U.S. Department of Agriculture.

"Blended" credit packages were also offered from 1983 to 1985 to finance export sales. Guarantee loans (GSM-102), extended at the market interest rate, were blended with interest-free credit loans (GSM-5) for a credit package with below market interest rates. The loans were shortrun credit

Table 4--Market development strategies for grains and oilseeds

Commodity promoted	Recipient	Type of assistance	Description of assistance
Feed grains	Importer	Trade-servicing	Trade teams, fairs, and exhibits to maintain contacts, improve market access, provide market and technical information, and ensure quality.
	Market infrastructure	Technical assistance	Consultants for feasibility study on port storage and handling.
	Corn and feed milling industry	Trade-servicing	Seminars to improve feed formulation, improve quality control, improve material flow, and provide market information.
	Livestock and poultry industry	Technical assistance	Assistance which would provide demonstration units to modernize operations, information on herd improvement, and training though seminars in order to improve animal feeding practices, animal health, and housing design.
Rice	Importer	Trade-servicing	Trade teams, fairs, and exhibits to maintain contacts, provide market and technical information, and ensure quality deliveries.
	Consumer	Demand promotion	Promotion through advertising, publications, press releases, and films.
Soy complex	Crusher and refiners	Technical assistance	Training technical and financial managers to improve technical procedures, improve product quality, update technical expertise, and update design, use, and maintenance of equipment.
	Livestock and poultry	Technical assistance	Training to improve management techniques and animal feeding practices.
	Consumers and Institutional users	Demand promotion	Promotion through advertising and public relations.
Wheat	Importer	Trade-servicing	Fairs, exhibits, and trade teams to maintain contacts, improve market access through market and technical information, and ensure quality.
	Market infrastructure	Technical assistance	Consultants for feasibility study on port storage and handling.
	Millers	Trade-servicing	Fairs, exhibits, and trade teams to maintain contacts, improve market access through market and technical information, and ensure quality.
	Bakers and pasta makers	Technical assistance	Training through seminars, conferences, and baking schools to increase efficiency, introduce new techniques to meet increasing costs without decreasing quality, improve flour user production techniques, upgrade equipment, and improve product quality.

extended for 3 to 36 months. The program was generally offered in a ratio of approximately one part direct credit combined with four parts of credit guarantees. The direct credit of the blended credit program was financed through the Commodity Credit Corporation. For FY 1983, the direct portion of the blended credit program had a ceiling of $350 million. The GSM-102 portion of the blended credit program was drawn against a $4.8-billion ceiling for that program. Blended credits were offered to Morocco, Tunisia, Algeria, and Egypt. The program was suspended in February 1985 following a Federal court ruling that blended credit packages were subject to cargo preference requirements.

Export credit sales have also been provided through Title I of the Agricultural Trade Development and Assistance Act of 1954 (P.L. 480). Under this title, sales were made to importing countries at lower than commercial interest rates. Repayment was usually over a period of 20 to 40 years, with a grace period of 2 to 10 years. Prior to 1972, repayments could be made in either nonconvertible local currency or dollar credits. Local currency repayments were deposited in a U.S.-owned account and used for a variety of purposes including market development. The Food for Peace Act of 1966 altered sales requirements such that repayments after 1971 had to be made in either dollar credit or convertible local currency.

Investment Credit Programs

Credit for investment has been provided thorough P.L. 480 Title I nonconvertible currency loans, and through two intermediate term credit programs, GSM-201 and GSM-301. The objective of credit for investment programs has been to provide a source of funds for intermediate-term market development projects that would help enhance U.S. export demand over the long run.

Investment credit for export expansion activities has been funded with Title I nonconvertible currency loan repayments that are deposited in U.S. accounts in importing countries. The intermediate credit loans made from these repayments have been used for a variety of purposes, including market development, financing of educational exchanges, and promotion of multilateral trade. The terms of the loans have been from 3 to 10 years at market rates of interest. Loans were to be paid at a prespecified, rather than a market foreign exchange rate. When foreign currency depreciated vis-a-vis the U.S. dollar, this provision resulted in a foreign exchange subsidy to the borrower. If foreign currency appreciated relative to the U.S. dollar, the borrower (recipient country) paid an implicit tax.

Intermediate-term credit for market development was also authorized by the 1978 Agricultural Trade Act. The loans were extended for periods of 3 to 10 years at market rates of interest. GSM-201 was announced in 1979 to finance sales of breeding animals. The program was used in 1980 to finance the sale of beef and dairy breeding stock to Spain. GSM-301 was implemented in 1980 to finance projects for market infrastructure. The Commodity Credit Corporation was to finance 85 percent of the invoiced value of the exports up to a maximum of $17.5 million. The local currencies received from the domestic sale of the imported commodities were to be be used for market development projects much like the nonconvertible currency loan repayment provision in Title I. GSM-301 was used in fiscal years 1981 and 1982 for soybean and sorghum sales to Israel. The proceeds were used to construct grain handling and shipping facilities in Israel.

Table 5 provides a summary of the term structure of agricultural credit sales programs. Only the P.L. 480 and GSM-5 programs have been in existence for an extended period of time. Most other programs were short-lived, designed largely to address problems concerning the competitiveness of the United States in the world market during specific periods of time.

Export Price Policies

Export price policies refer to measures that implicitly or explicitly lower or raise the price at which importers can purchase internationally traded goods. The U.S. Government has pursued two broad groups of agricultural policies that

Table 5--Term structure for agricultural
sales credit programs

Program	Term structure			Period
	Lender	Maturity	Interest	
GSM-5 1/	U.S. Government	1-3 years	Market rate	1956-79; 1984
GSM-101	Commercial banks with U.S. Government guarantee	1-3 years	Market rate	1979-81
GSM-102	Commercial banks with U.S. Government guarantee	1-3 years	Market rate	1979-present
Blended credit package 2/	U.S. Government and commercial banks	1-3 years	Average below market rate	1983
GSM-201	U.S. Government	3-10 years	Market rate	1979-present
GSM-301	U.S. Government	3-10 years	Market rate	1978-present
P.L. 480 nonconvertible currency credit 3/	U.S. Government	3-10 years	Market interest rate (but fixed foreign exchange)	1954-71
P.L. 480 dollar credit	U.S. Government	20-30 years	Below market rate	1962-present

1/ The authorization for direct credit in 1984 included interest-free loans as a part of a "blended" credit package.
2/ Blend of GSM-5 with GSM-102.
3/ Investment loans from nonconvertible currency funds that were payments for U.S. exports.

could be construed as leading to export price subsidies/taxes. These are: (a) export payment programs, and (b) domestic policies that have supported world prices at U.S. levels.

Export Payment Programs

Export payment programs are intended to lower prices at which importers can purchase agricultural goods from the United States. The U.S. Congress has provided for export payments under several authorizations: (a) Section 32 of Public Law 320 passed in 1935, (b) the International Wheat Agreement (IWA) signed in 1949, (c) direct payments authorized by the Board of Directors of the Commodity Credit Corporation, and (d) subsidized sales under P.L. 480.

Section 32 of P.L. 320 provided the U.S. Department of Agriculture (USDA) with funds equal to 30 percent of the revenue duties collected on all imported commodities for use in programs to expand markets for surplus agricultural commodities. This authority facilitated sales of commodities such as cotton, tobacco, grains, fruits, chickens, and eggs among others. The authority permitted private exporters to buy at domestic prices, sell at world prices (which were often below U.S. price support levels), and receive the cash from Section 32 funds. The program was last used in 1974.

Export payments were also made under the International Wheat Agreement (IWA) which was in effect from 1949 to 1967. The agreement set a fixed price for hard red spring wheat, with adjustments for quality and grades. Under the IWA, U.S. exporting firms obtained wheat from the free market supply and received export payments from the CCC if the domestic price was higher than the world price. Export firms purchased marketing certificates if the domestic price was lower than the world price. Payments were made from 1950 to 1966. The International Grains Agreement (IGA) replaced the IWA in 1968. The IGA established similar minimum prices for wheat. The agreement was maintained for less than a year.

The CCC Board of Directors has implemented two types of export payment programs using its charter authority. Prior to 1956, the CCC sold the bulk of its commodities for export at competitive bid or announced export prices, which were often below domestic market prices. Sales were made from CCC stocks to private exporters for commercial exports or exports under Government-financed programs and included commodities such as grains, cotton, and dairy products. In September 1956, a payment-in-kind export program was initiated for wheat. The payment-in-kind came from CCC inventories. The exporter procured wheat in the free market and, on proof of export, was given a certificate having a dollar value equal to the difference between the domestic and world price times the quantity exported. Certificate wheat subsequently obtained from the CCC and exported earned a further certificate payment. The export subsidy for wheat flour was paid in cash.

Subsequently, PIK programs were developed for corn (May 1958); barley, oats, grain sorghum, and rye (July 1958); rice (December 1958); cotton (May 1959); and nonfat dry milk (March 1962). Wheat PIK certificates could be used interchangeably among the feed grains. Rice certificates could be redeemed in cash or cotton. Certificates for nonfat dry milk could be redeemed in nonfat dry milk, butter, cheese, and all of the grains.

Subsidy rates were announced daily for wheat and flour. All exporters receiving wheat subsidies were required to register their sales. Exporters of

feed grains submitted daily bids for export subsidies and were not required to register sales, but had to export within the 60-day period bid for. Rice subsidies were announced each week. The PIK export program was discontinued in 1966 when the exhaustion of CCC-held inventories reduced the supplies available for the program. Cash payments and CCC sales at reduced prices were continued for various commodities until 1974.

In 1983, an export payment was made to U.S. wheat millers under an agreement between the United States and the Egyptian Government that provided for the commercial sale and delivery of flour equal to 1 million metric tons of wheat to Egypt. The agreement stipulated that wheat flour would be purchased from U.S. millers on a tender basis at a suggested price of $155 per metric ton (compared with U.S. wheat flour prices of $250-$260 per ton), with 77.5 percent of the purchase price eligible for CCC financing under the GSM-102 credit guarantee program. Wheat was released to flour millers from CCC stocks to enable millers to contract for sale and delivery to the Egyptian market at or below the suggested price without financial losses. Actual export flour price averaged about $138 per ton of flour.

The P.L. 480 Title I program also provided a means of price reduction for U.S. exports. Government-financed grain exports were sold from CCC stocks below the domestic market price. The CCC charged the difference between the domestic support price and the export price to P.L. 480 funds. The per unit difference represented export subsidies.

Producer Payment Programs

U.S. farm policy has included a variety of domestic measures that aim to augment the incomes of agricultural producers. Although these measures are designed primarily for the domestic market, the large share of world trade accounted for by U.S. exports, especially for grains and oilseeds, suggests that the choice of domestic policies could have significant trade implications. Depending upon how these policies affect world prices, the policies themselves could be viewed as a subsidy or tax to foreign purchasers. Hence, if the world price is higher than it would have been without the U.S. policy, then the policy could be tantamount to an export tax. If the reverse is true, importers could be obtaining an implicit price subsidy.

U.S. domestic policies that could have significant international trade implications are: (a) loan rates, (b) target prices and the associated deficiency payments, and (c) land retirements. These three policies could be construed to provide a subsidy or tax depending on world market conditions and their effects on the world price. The conditions under which they provide a subsidy or a tax are described later in this report.

GOVERNMENT EXPENDITURES ON EXPORT PROGRAMS

Total Government outlays in nominal dollars on export market programs are presented in table 6. These outlays include actual incurred expenditures of programs such as market development activities, food aid donations and export payments, and authorized credit (value of exports assisted by the Government) under the various export sales and investment credit programs. The true costs to the Government of these expenditures depend upon a number of factors. First, since the Government is a low-cost borrower of funds, actual

Government costs depend upon the opportunity cost of money to the U.S. Treasury. Second, in the case of credit guarantees, Government expenditures occur only if the importer defaults on the loans. If loans are paid back as scheduled or rescheduled for later payments, the cost to the Government would be fairly low depending largely on the rates of interests charged on the loans. The outlays presented in table 6, therefore, overestimate the true costs to the Government since complete defaults on the loans have been minimal over the last three decades.

Total Government expenditures on export promotion activities gradually trended upward since the inception of the programs in the 1950's and peaked at $6.02 billion in 1983. Two distinct features are apparent about the expenditure trend (fig. 1). Between 1960 and 1972 when U.S. agricultural reliance on the export market was limited, annual nominal expenditures on export promotion activities were fairly constant, averaging $1.49 billion. After 1973, with increasing dependence on the export market, export promotion expenditures have fluctuated widely, ranging from $0.93 billion to $6.00 billion annually and averaging $2.37 billion. Similar trends are also apparent when comparing Government expenditures in real 1972 dollars. Real Government expenditures between 1972 and 1983 appear to be more volatile than in the 1960's. Moreover, unlike nominal expenditures, real expenditures were considerably higher in the 1960's than in the 1970's and 1980's.

A large proportion of Government outlays on export programs has been on activities that expand export demand (table 6 and fig. 2). Export expansion outlays averaged 70 percent of total export outlay in the 1950's when U.S. export market strategy was based largely on long-term concessional credit channeled through P.L. 480. In the early 1960's, U.S. policy emphasized

Table 6--Annual average Government expenditures and credit
authorizations on export promotion programs, 1955-1983

Years	:	Export expansion 1/	:	Export payments 2/	:	Total
	:		:	Million nominal dollars	:	
1955-59	:	572.70		238.86		811.56
1960-64	:	1,072.60		618.84		1,691.44
1965-69	:	1,215.06		216.44		1,431.50
1970-74	:	1,163.14		191.02		1,354.16
1975-79	:	1,984.19		0		1,984.19
1980	:	2,294.76		0		2,294.76
1981	:	2,653.37		0		2,653.37
1982	:	2,129.99		0		2,129.99
1983	:	5,982.19		20.50		6,002.69

1/ Includes Government expenditures and credit authorizations on export market development programs, export sales credit programs, and investment credit programs.
2/ CCC export payments, payments made under section 32, and CCC export differentials (differences between U.S. domestic market price and the CCC sales prices for commodities sold for export from CCC stocks).

Figure 1

Total Government expenditures and credit authorizations on export programs in nominal and real dollars
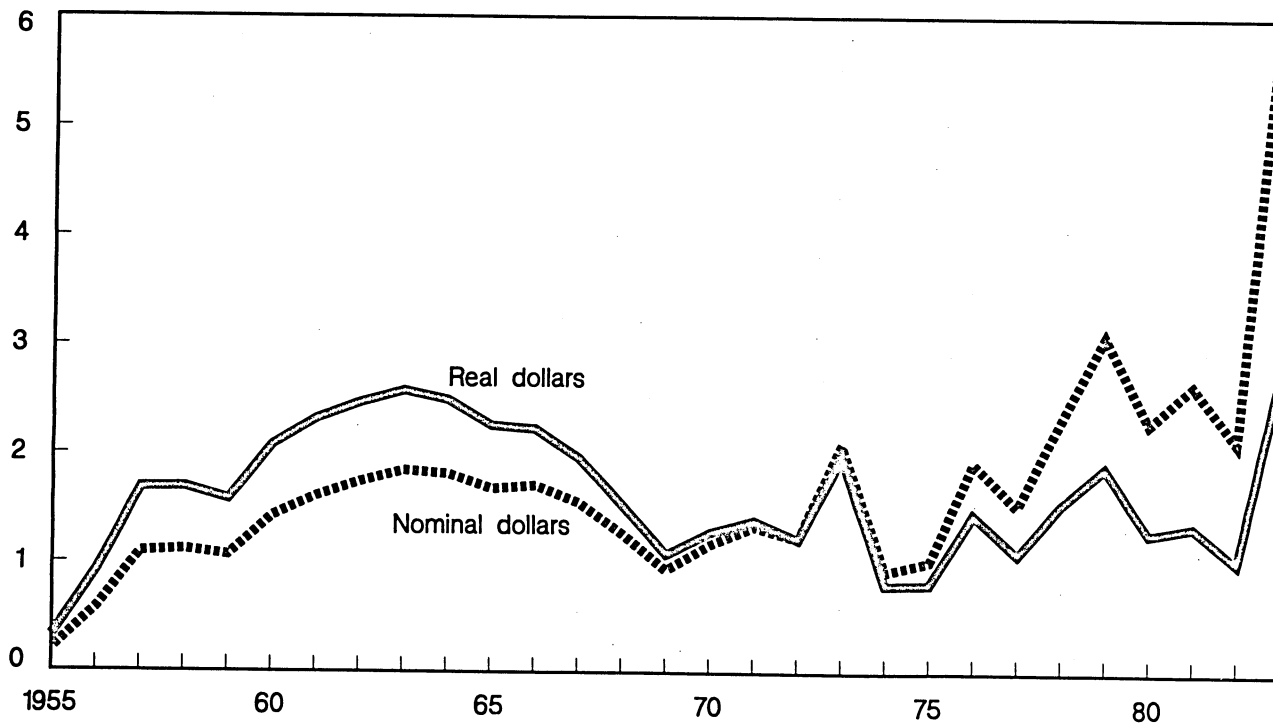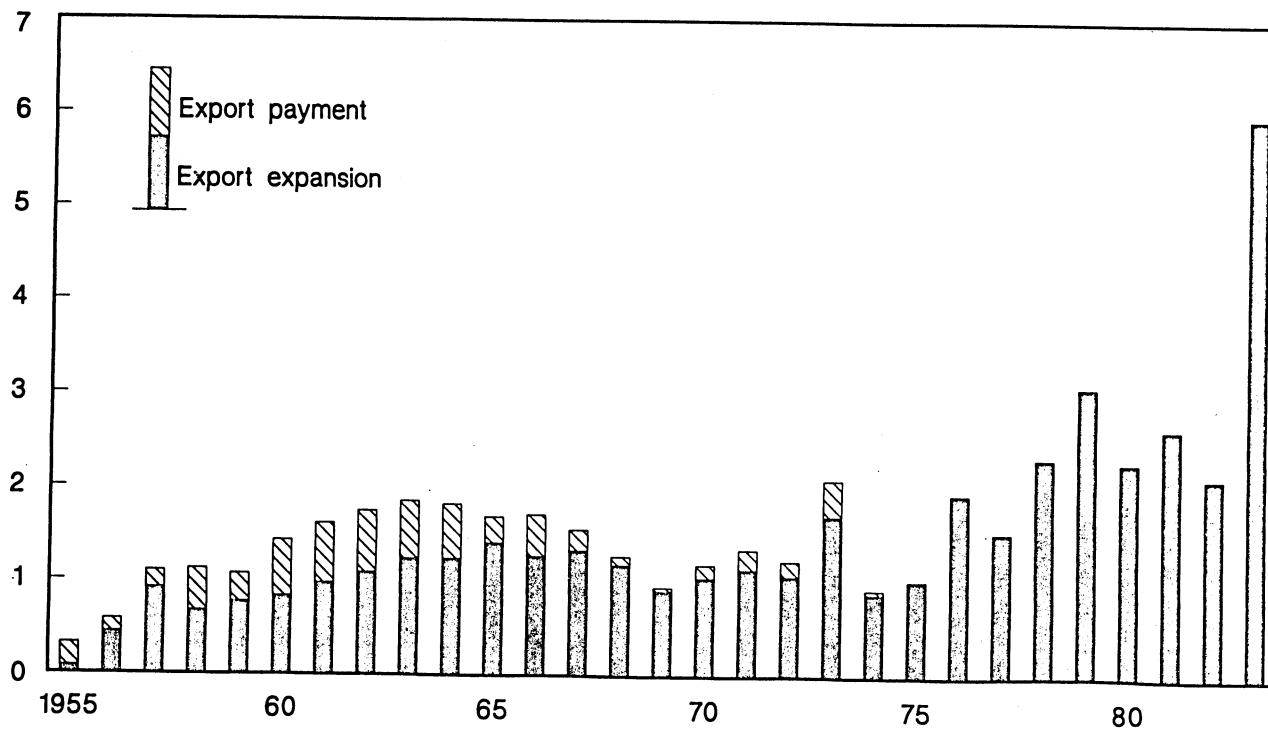
$ Billions

Figure 2

Government expenditures and credit authorizations on export expansion and export payment programs

$ Billion

competition with other grains exporters, and price reduction programs were more popular. Export payments peaked between 1960 and 1964 when the Government lowered loan rates to make U.S. products more competitive in the world market. In the early 1970's, the export market was strong, and real Government expenditures for both export expansion and price reduction activities were not very large. Beginning in 1975, the Government stopped making export payments and the entire outlay was on export expansion activities. The one exception to this was in 1983 when the U.S. Government made export payments for wheat flour sales to Egypt.

Export expansion activities include both export credit sales programs and export market development programs. Export credit sales programs have accounted for almost the entire expenditures on export expansion activities. Export market development programs constitute less than 1 percent of total export expansion expenditures.

Export Credit Sales Expenditures

Export credit sales programs can be classified as: long-term, intermediate-term, or short-term. Long-term credit is defined to include P.L. 480 Title I sales made under dollar and nonconvertible credit sales. Intermediate-term credit includes expenditures on GSM-201 and GSM-301 programs. These expenditures have been minimal and sporadic over the years. Short-term credit is defined to constitute both direct credit (GSM-5), and credit guarantee (GSM-101 and GSM-102) programs.

Table 7 and figure 3 illustrate the composition of credit sales programs. Long-term credit programs formed the bulk of all credit sales between 1955 and 1965. They peaked in nominal dollars in 1965 and gradually declined over the years. Short-term credit was minimal before 1970 but rose rapidly since. 2/ Between 1955 and 1970, short-term credit accounted for less than 10 percent of total credit sales. Since 1970, short-term credit averaged more than 50 percent of total credit sales. The push for short-term credit was even more apparent during the early 1980's when it accounted for over 70 percent of all credit sales. The changing emphasis on the composition of U.S. export credit sales indicates that U.S. export strategy in the 1980's has been geared toward assisting importing countries overcome their short-term financial constraints. Emphasis on improvements in long-term market prospects has been relatively little.

Export Market Development Expenditures

Export market development programs accounted for less than 1 percent of total Government outlays on export promotion programs. But unlike outlays on credit sales programs which were costs to the Government only if the borrowers defaulted, expenditures on export market development programs represented actual incurred costs to the Government. Table 8 illustrates Government expenditures on export market development programs. These expenditures rose from less than $5 billion in 1960 to over $25 billion in 1983. Cooperator programs accounted for the largest shares of these expenditures (fig. 4). This was especially so for the latter period beginning in 1971 when cooperator outlays accounted for 85 percent of Government export market development expenditures. Prior to 1970, cooperator programs averaged about 68 percent of total export market development expenditures.
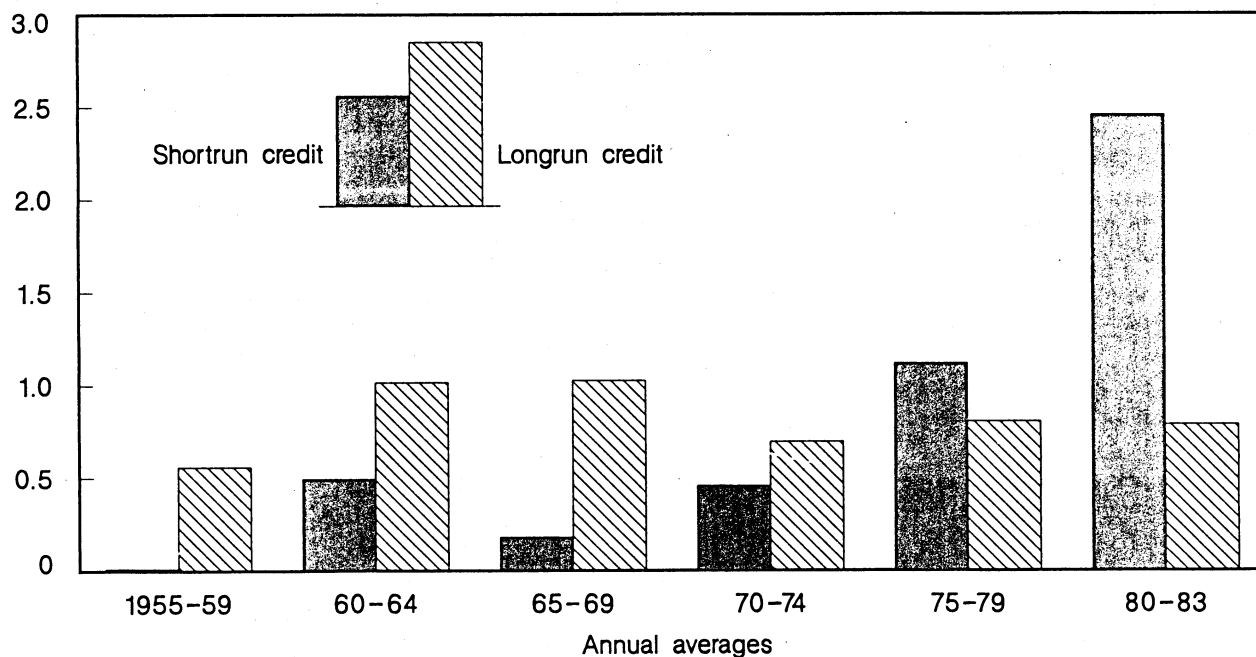

2/   Short-term credit, for the purposes of this discussion (table 7), includes intermediate-term GSM-201 and GSM-301 credit outlays.

The Export Incentive, the FAS-state group, and FAS promotion programs were the other three export market development programs. But these three combined accounted for less than 25 percent of total export market development expenditures. Among these three, FAS promotion activities accounted for the larger proportion of expenditures prior to 1973. Since then, FAS export incentive expenditures have been larger than expenses on promotion activities. FAS expenditures on state-group programs were very limited for the entire period.

A requirement of the export market development programs has been that private and state groups supplement FAS's contributions to these programs. Table 8 indicates that this has been the case, with non-FAS contributions rising over the period. Contributions of private and state groups to the cooperator program rose from 44 percent prior to 1970 to 79 percent since. In 1981 and 1982, private and state group contributions exceeded FAS's share of expenditures on the program.

ECONOMIC ANALYSIS OF EXPORT-ENHANCING PROGRAMS

A primary objective of export promotion programs has been to increase the total demand by importers of U.S. agricultural commodities. As discussed earlier, two basic approaches have been used: those intended to expand exports by either enhancing expenditures (income) or changing the underlying tastes or preferences of consumers, and those that aimed to increase exports by reducing the export price. In this section, a framework is developed to analyze the potential economic impacts on both exporters and importers of some of the measures adopted under both approaches. Specifically, export credit sales and export market development programs are analyzed to illustrate the

Table 7--Longrun and shortrun credit authorizations, 1955-83

Annual averages	Short run 1/	Long run 2/	Total
	Million dollars		
1955-59	11.3	559.8	571.1
1960-64	49.4	1014.6	1064.0
1965-69	180.1	1024.8	1204.9
1970-74	456.0	695.6	1151.6
1975-79	1166.4	804.0	1970.4
1980	1416.0	859.0	2275.0
1981	1862.2	770.0	2632.0
1982	1386.5	722.0	2108.5
1983	5160.4	796.0	5956.4

1/ Shortrun credit includes direct credit (GSM-5) and credit guarantees (GSM-101 and GSM-102) programs. In addition, intermediate credit authorizations in the form of GSM-201 and GSM-301 programs are also included for 1980, 1981, and 1982.

2/ Longrun credit includes P.L. 480 Title I sales made under dollar and nonconvertible dollar sales.

Figure 3
Government credit authorizations on export expansion programs--longrun vs shortrun credits[1]

$ Billion

Annual averages

1/ Longrun credit includes P.L. 480 Title I sales made under dollar and nonconvertible dollar sales; · shortrun credit constitutes direct credit, credit guarantees, and intermdiate credit programs.

Figure 4
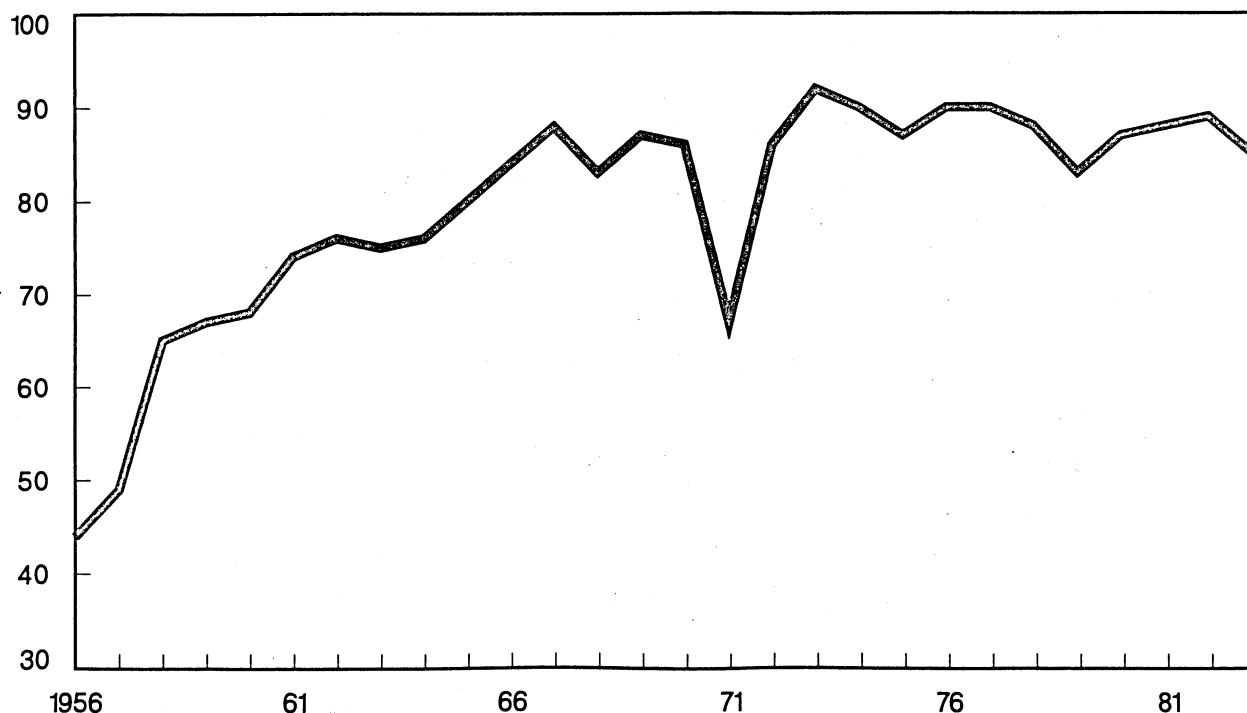# Government expenditures on cooperator programs as percentage of market development expenditures

Percent

Table 8—Export market development program expenditures, 1956–1983

Years	Cooperator programs		Export incentive		State groups		FAS promotions	Total government market dev. expenditures	Total nongovernment market dev. expenditures
	FAS	Cooperators	FAS	Cooperators	FAS	State groups			
				Million dollars					
1955	0	0	0	0	0	0	0	0	0
1956	.18	.04	0	0	0	0	.23	.41	.04
1957	.68	.32	0	0	0	0	.70	1.38	.32
1958	1.89	.60	0	0	0	0	1.01	2.90	.60
1959	2.15	1.09	0	0	0	0	1.04	3.19	1.09
1960	3.22	1.58	0	0	0	0	1.54	4.76	1.58
1961	3.24	1.92	0	0	0	0	1.13	4.38	1.92
1962	4.90	2.58	0	0	0	0	1.54	6.44	2.58
1963	6.01	2.68	0	0	0	0	1.98	7.99	2.68
1964	7.22	3.22	0	0	0	0	2.23	9.45	3.22
1965	6.09	3.31	0	0	0	0	1.50	7.59	3.31
1966	7.11	4.52	0	0	0	0	1.35	8.46	4.52
1967	9.74	4.47	0	0	0	0	1.33	11.07	4.47
1968	10.00	5.15	0	0	0	0	2.05	12.05	5.15
1969	10.18	6.02	0	0	0	0	1.54	11.72	6.02
1970	9.23	6.86	0	0	0	0	1.52	10.75	6.86
1971	8.68	6.73	.17	.13	0	0	4.13	12.98	6.86
1972	9.74	6.66	.32	.34	0	0	1.23	11.28	7.00
1973	9.93	6.32	.12	1.22	0	0	.71	10.76	7.54
1974	9.74	7.06	.50	.56	0	0	.60	10.83	7.62
1975	10.95	8.35	.84	1.83	0	0	.73	12.52	10.18
1976	10.51	7.14	.42	2.66	0	0	.76	11.68	9.79
1977	11.20	8.86	.52	3.62	0	0	.77	12.49	12.48
1978	12.98	10.43	.81	4.55	.14	.12	.86	14.78	15.10
1979	14.58	11.85	1.83	4.23	.20	.86	.92	17.53	16.93
1980	17.24	15.69	1.31	3.47	.22	.55	.99	19.76	19.71
1981	18.53	18.34	1.29	1.91	.38	.83	.97	21.17	21.08
1982	19.12	22.36	1.14	3.90	.38	.69	.85	21.49	26.95
1983	21.98	25.77	1.80	4.58	.68	.71	1.33	25.79	31.05

effects of export-expanding programs, while export payment programs and U.S. farm policy instruments are examined to show the impacts of policies that lower/raise world prices.

Export Credit Sales Programs

Export credit sales programs can be targeted or global (uniform). Under the targeted program, credit sales are provided to a specific country or region to ease their financial constraints. Under the global program, credit facilities are available to all importers.

Figure 5 uses the framework developed by Abbott ($\underline{1}$) to illustrate, in a general equilibrium framework, importer response to a targeted export credit sales program. The model assumes that there are two goods that a country can produce: an agricultural good and an aggregate of all other goods (income). The production possibility frontier (PPF) represents the combination of output of the two goods that can be produced efficiently under conditions of full employment. The price line PP represents the ratio of prices for the two goods in the world market and also defines the gross domestic product (total expenditures) of the country. The framework explicitly assumes the absence of domestic Government programs that could affect demand and production decisions.

In the initial situation described in figure 5, the efficient production mix is assumed to occur at point a where the price line is tangent to the production possibility frontier. The country produces X_1 of the agricultural product and Y_1 of the aggregate good. Optimal consumption of each good is based on constrained utility maximization behavior and occurs at

Figure 5

Impact of a targeted export credit sales program in a general equilibrium framework

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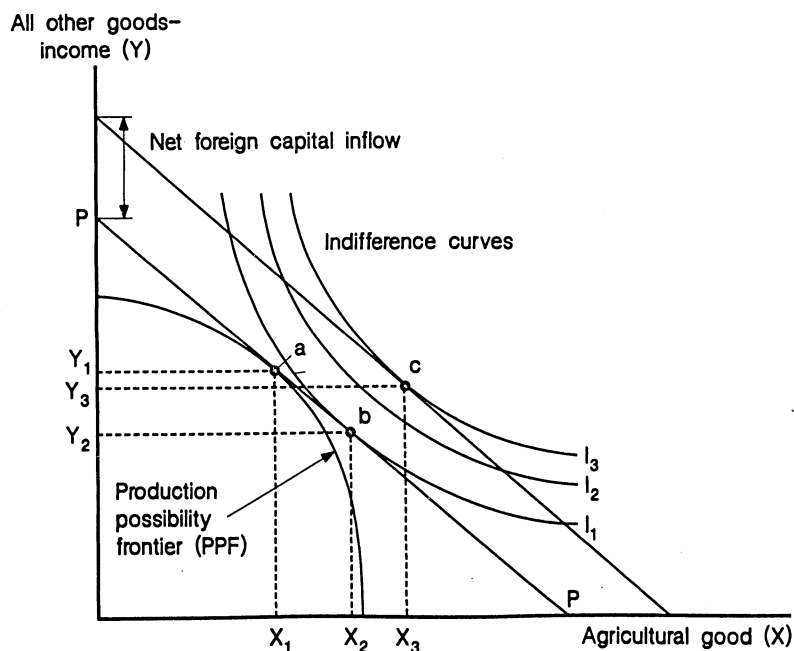
point b where the price line is tangent to an indifference curve. The country consumes X_2 and Y_2 of the agricultural and aggregate goods, respectively. The horizontal distance X_1X_2 represents the quantity of agricultural good imported by the country, while the vertical distance Y_1Y_2 represents the quantity of the aggregate goods exported by the country. Given that the importer must maintain trade balance, the value of exports of the aggregate goods establishes a foreign exchange constraint applicable to the total value of the agricultural goods that can be imported. Foreign exchange availability to the country is defined by the slope and position of the line PP and the volume of exports of the aggregate commodity.

Now consider a situation where the United States, which is assumed to be the only exporter of the agricultural good, provides credit to the country increasing the net inflow of foreign capital. With positive net capital inflow, the foreign exchange availability to the country increases, and this in turn implies two effects. First, the country is relieved of its foreign exchange constraint and is able to purchase more of the import commodity at the same world price without exporting any more of the aggregate commodity. The original balance of trade constraint is therefore not binding. Second, the capital inflow also generates an income effect which makes it possible to consume more of both the commodities at unchanged world prices. Both these effects imply a rightward shift in the budget constraint with unchanged prices PP.

Consumption expands to point c where X_3 and Y_3 of the two goods are consumed. If the foreign capital inflow is tied to additional U.S. imports and minimum purchase requirements of the agricultural import good, then the quantity X_2X_3 is additionally imported from the United States even though the relative world market price is the same. If the foreign capital inflow is not tied to the credit, an increase in agricultural imports equivalent in value to the sales credit may not occur. Purchasing power that would have been used to import the financed product may be used for domestic expenditures on the aggregate commodity Y_1 or in a more realistic multiple-commodity setting, may be used to import goods for which finance is not available. In general, the effect of credit on import demand depends upon the requirements established by the lender, as well as the consumer preferences and the underlying price and income elasticities of the imported good.

This same information on the impact of credit sales is mapped into a one-commodity, price-quantity partial equilibrium framework in figure 6. Panel A depicts trade for agricultural good X between the exporter and recipient country, while Panel B illustrates the domestic demand and supply situations for the agricultural good in the recipient (importing) country. ES in Panel A represents the excess supply schedule for the United States. It is assumed perfectly elastic because, from the small country perspective of the importing country, the United States would be willing to supply any quantity of its imported goods at the given world price, P_1.

Parallel to the situation in figure 5, tied credit along with minimum purchase requirements would shift the domestic curve in Panel B to the right from D* to D*'. At the same world price P_1, the importer is now able to consume greater quantities of the agricultural good because of an income effect and the availability of additional credit. The shift in the domestic demand is paralleled by a shift in the excess demand facing the United States from ED to ED'. At world price P_1, domestic consumption in the importing country would

Figure 6

Impact of a targeted export credit sales program in a partial equilibrium framework

Panel A

United States and recipient country trade

Panel B

Importing country
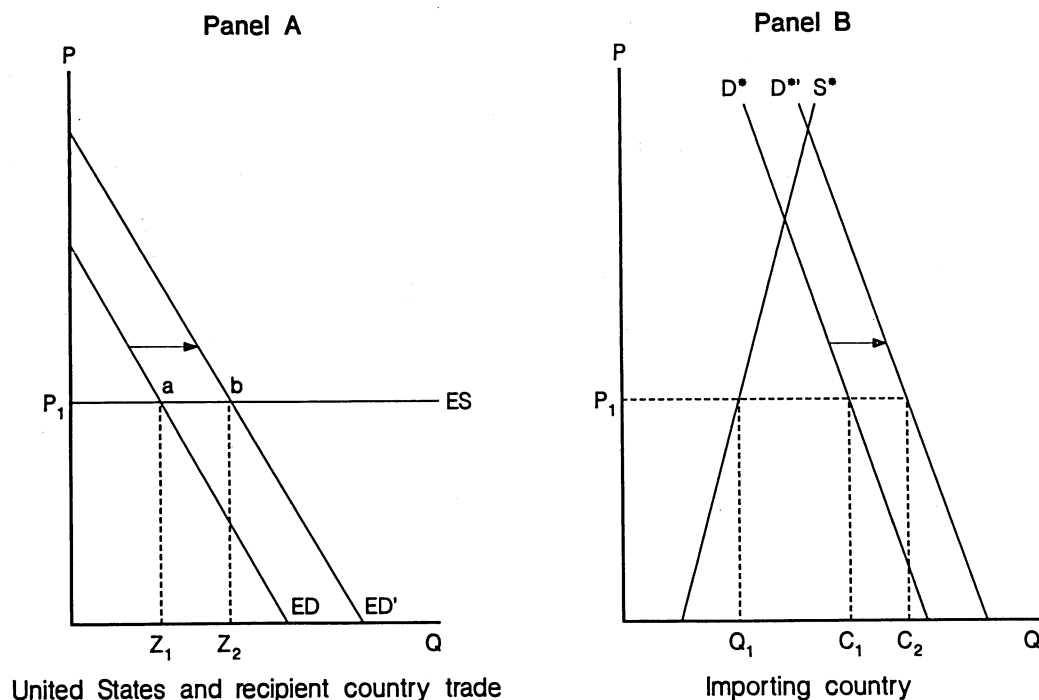
increase from C_1 to C_2 (Panel B) [3]. Imports would increase by C_1C_2 and is represented by the quantity Z_1Z_2 in Panel A. Z_1Z_2 is equivalent to the quantity X_2X_3 in figure 5. The gain to the United States is the revenue associated with expanded exports at the constant price (area abZ_2Z_1). The cost is the potential losses from default of the loans as well as the opportunity costs of investing the funds elsewhere.

In the example illustrated, the world price does not change with the credit because of the assumption of a targeted export credit sales to a small country. However, if the United States were to provide targeted credit facilities to a large number of importing countries (global credit sales), then expanded import demand could alter the world price. The importing countries as a whole no longer see the U.S. excess supply curve as perfectly elastic. The U.S. domestic demand and supply curves result in an upward sloping excess supply schedule (ES) for the United States (fig. 7). The expansion in domestic demand resulting from the increased credit shifts the excess demand curve facing the United States to ED'. U.S. export demand increases from Z_1 to Z_2. U.S. producers would export more goods at a higher world price (P_2), while U.S. domestic consumption would fall from D_1 to D_2.

Production in importing countries would increase from Q_1 to Q_2 in response to increased prices, implying that the import demand of any given targeted

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[3] It could be equivalently argued that if the demand and supply schedules in Panel B were constructed with respect to the domestic price (that is, in a domestic price-quantity space), then the X_1X_2 increase in imports is the result of an implicit decrease in domestic prices from P_1 to P_2 along the original demand curve, assuming no income effect.

country would be less than in a similar situation without any price response--the targeted-subsidy scenario. In general, the impact of a global credit program would be to increase U.S. export demand and raise world prices. U.S. production would expand from S_1 to S_2 and this would be expected to increase U.S. producer revenues by P_1P_2dc. Note however that exports would be expected to increase only if credit was tied so as to require additional imports from the United States. If this were not the case, credit-financed imports may simply displace regular commercial imports, or worse yet, importing countries may use the credit to finance imports from competing exporters.

Empirical studies on the impact of export credit sales programs are virtually nonexistent. This is especially true of targeted export credit programs. Grigsby (10) estimated the impact of trade credit to Colombia through P.L. 480, Title I provisions on wheat import demand. Her study indicates that Title I credit expanded demand for commercial imports as well as for Title I imports. U.S. revenues from increased exports of wheat were $2.00 per dollar of Title I credit. The credit subsidies were such that financed imports were available at cash (market) price. In general, effects of credit programs depend on the cost of credit programs and the term-structure of the loan. The magnitude of the impact also depends upon its impact on the balance of payments and the international terms of trade among countries.

Export Market Development Programs

The economic impacts of export credit programs were illustrated in figures 5 and 6 as an illustration of an export expansion program. A similar approach can also be used to study the economic impact of export market development programs. However, two crucial differences exist. First, export market development is a long-term program, the effects of which may not be apparent in the short run. Second, export market development programs have been undertaken using a variety of approaches, and the impact of each approach could be different.

Figure 7

Impact of a global export credit sales program in a partial equilibrium framework

Panel A — United States Panel B — World market Panel C — Rest-of-the-world

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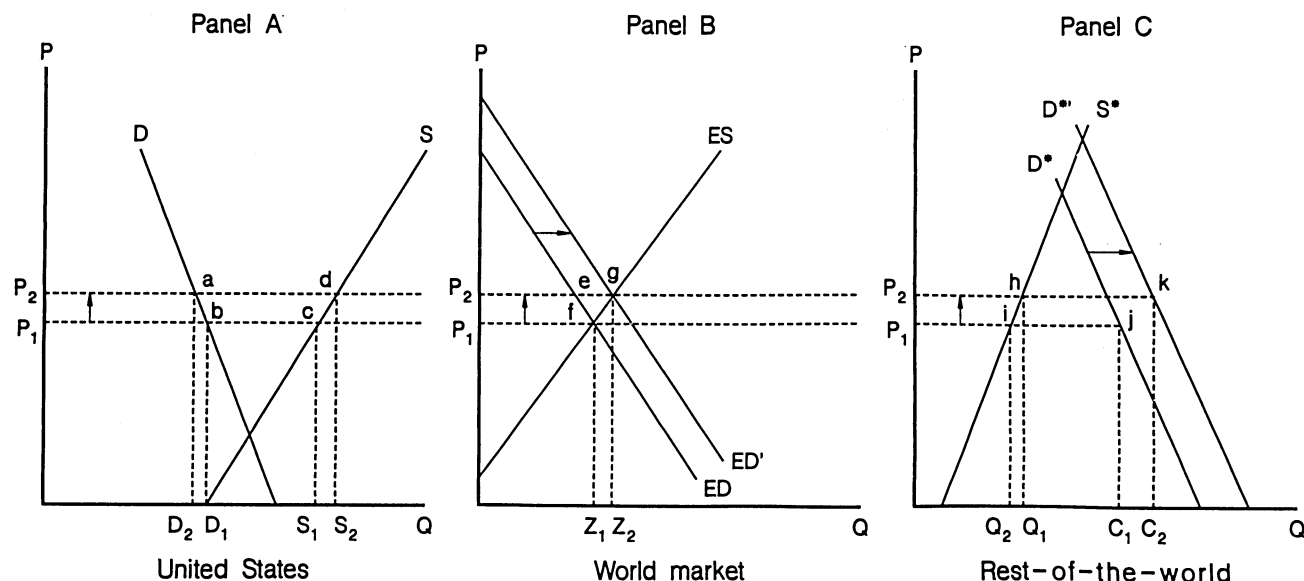
Direct demand promotion has been one approach used for export market development. It attempts to influence consumer preferences by either creating product awareness and goodwill or by establishing product differentiation. Wheat, for instance, has replaced sorghum as the staple diet in some developing countries because of such promotions. Indirect demand promotion, similarly, has been used to increase demand for U.S. exports that are intermediate products. Consumption of poultry may, for example, be promoted to increase feed consumption and grain exports. In terms of figure 5, such direct and indirect demand promotion activities change the shape of the indifference curves, increasing domestic demand for the promoted good, and thereby increasing imports of such goods.

Export market development activities have also included supply expansion techniques. Under direct supply expansion programs, technical assistance is provided to foreign intermediate users of U.S. inputs, such as millers, soybean crushers, or refiners. Similarly, under indirect supply expansion programs, technical assistance is made available to final product users, such as meatpacking industries. With respect to figure 5, these supply expansion techniques can be interpreted to mean an outward movement in the production possibility frontier in response to technical change. The new equilibrium defined by the price line, the production possibility frontier, and the indifference curves would likely result in greater imports.

Since the overall objective of export market development programs is to increase the demand for U.S. agricultural products in foreign nations, the impact of these programs is to shift the domestic and export demand curves. This is identical to the situation for global export credit illustrated in figure 7. In this situation, however, unlike with global credit, there is no guarantee that the increase in import demand resulting from the export market development program would accrue only to the United States. If the additional demand was obtained from the United States, then both U.S. exports and world price would rise. U.S. farm incomes would also rise, hence, fulfilling the primary objective of the export market development activities.

Empirical studies that examine the effects of export market development programs have been few. Williams (44) estimated the benefits of cooperative export market development programs for soybeans, soybean meal, and soybean oil. Total expenditures for the soybean cooperator program for 1970-80 were $59.2 million (nominal dollars). His estimates indicate that the average increase in U.S. exports of soybeans, soybean meal, and soybean oil due to these market development expenditures was 4.1, 11.6, and 11.7 percent, respectively. Export returns for these commodities increased about $62 for each dollar invested by participants in the cooperator program. The increase of gross returns to growers averaged $58 for each dollar invested.

Williams' study did not differentiate between technical assistance, demand promotion, or trade-servicing programs in estimating the total impact of market development expenditures. Grigsby (12), on the other hand, estimated separately the impact of technical assistance and trade-servicing for livestock production in Japan. Her results indicate that the marginal effect of technical assistance was to increase grain imports by 0.24 metric ton per dollar and to increase soybean exports by 0.05 metric ton per dollar. This, she points out, is comparable to an increase in revenues, at average market prices, of $24 and $10 for each dollar invested in technical assistance for grains and soybeans, respectively. Grigsby similarly reports that trade servicing for coarse grains imports in Japan was estimated to increase imports

by 0.12 metric ton per dollar, equivalent to revenue increases of $12 at an annual average price of $102 per metric ton. The impact of trade servicing on soybeans was estimated to increase imports by 0.3 metric ton per dollar, equivalent to revenue increases of $61 at an annual average price of $202 per metric ton.

Several other studies have also analyzed the impact of market development expenditures. The studies reveal that the impact varies with the commodity, the importing country market, and the market development techniques used. Results from Lee, Myers, and Forsee's (17) orange juice study in Europe indicated that the marginal returns from 1 dollar expended in Europe during the period 1972-77 varied from $16.60 in Sweden, Norway, or the Netherlands to $1.20 in Denmark, Belgium, and W. Germany. Williams and Meyers' (44) study on promotion of soybean exports worldwide concluded that soybean revenues were an average of $66.40 per dollar of market development expenditures. A summary of the impact of demand expansion activities for eggs, milk, oranges, orange juice, soybeans, and soybean products is presented in table 9.

Export Payment Programs

Price subsidies, as mentioned earlier, can be divided into two broad groups: explicit subsidies, such as export payments and P.L. 480 Title I sales from CCC inventories, or implicit subsidies generated through domestic farm programs. Export payments are used in this study to illustrate importer and exporter response to an explicit price subsidy scheme. A similar framework can be used to analyze the impact of other programs such as P.L. 480 sales from CCC inventories at below domestic prices or a transportation subsidy, such as would occur from the cargo preference legislation.

Export payments lower the border price faced by an importer. It allows the exporter to sell commodities in the world market below the domestic price. Figure 8 illustrates the general equilibrium impact of a targeted per-unit export payment by the exporters to the importing country in the short run when the importing country is assumed to have insufficient time for production response. The price reduction for the agricultural import commodity resulting from the export payment implies that the importing country faces a lower world price for the commodity imported from the United States and the price line rotates from P_1P_1 to P_2P_2 through the original efficient production locus a. The optimal consumption, as a result, moves to point c where the new price line P_2P_2 is tangent to a higher indifference curve. Total demand for the agricultural commodity increases from X_2 to X_3. Given fixed production, total domestic demand for the country increases by X_2X_3. If the export payment is tied such that it is available only if purchases are made from the United States, then U.S. export demand increases by the amount X_2X_3. This is illustrated in figure 9 in a partial equilibrium small-country framework. Suppose a targeted subsidy represented by the difference between P_1 and P_2 were applied to all U.S. exports of the agricultural commodity to the importing (recipient) country. The subsidy would be perceived by the importing country as shifting the U.S. excess supply curve to ES'. The price of the commodity to the importer would decline by the per unit value of the subsidy. Domestic consumption of the commodity at the lower price would increase in the importing country from C_1 to C_2. Given fixed production, the subsidy concurrently increases import demand of the recipient country and augments U.S. exports from Z_1 to Z_2. U.S. export revenues change from OP_1aZ_1 to OP_2cZ_2. If the elasticity of export demand facing the United States is greater than 1, then the export subsidy

Table 9—Studies on the impact of market development activities

Activity	Commodity	Period studied	Author	Results
Demand promotion	Eggs	U.S. market, 1973–80	Thompson (37)	$2.14 average return from 1.6–percent increase in sales
	Milk	3 New York State markets, 1975–77	Thompson (36)	Producers' net return: New York City: 14.4 cents per capita from 4.9–percent increase in sales Albany: 2.3 cents per capita from 1.3–percent increase in sales Syracuse: 6 cents per capita from 1.9–percen increase in sales
	Milk	10 U.S. markets, 1975–77	Thompson (38)	Producers' net returns: 12 cents per capita in 1979 equivalent to $2.20 average return
	Oranges	U.S. market, 1907–59	Nerlove and Waugh (20)	Gross return per dollar: $20 if supply constant
Demand promotion and trade-servicing	Orange juice	European markets, 1972–77	Lee, Myers, and Forsee (16)	Sales returns per dollar: Varies for 10 countries from $0.70 in Australia to $16 in Sweden
	Orange juice	Canadian market	Tilley and Lee (39)	Positive
Demand promotion, technical assistance and trade servicing	Soybeans	World market	Williams and Myers (43)	Returns per dollar were $66
Trade-servicing	Agricultural goods	British market	Pointon (25)	Returns per dollar were 20 to 1
Technical assistance and trade-servicing	Feed grains, soybeans	Japanese market, 1969–80	Grigsby (11)	Returns per dollar: 1/ TA feed grains, $24.3 TA soybeans, $10.5 TS feed grains, $12.4 TS soybeans, $63.9

TA = technical assistance.
TS = trade-servicing.

1/ Preliminary results.

25

Figure 8

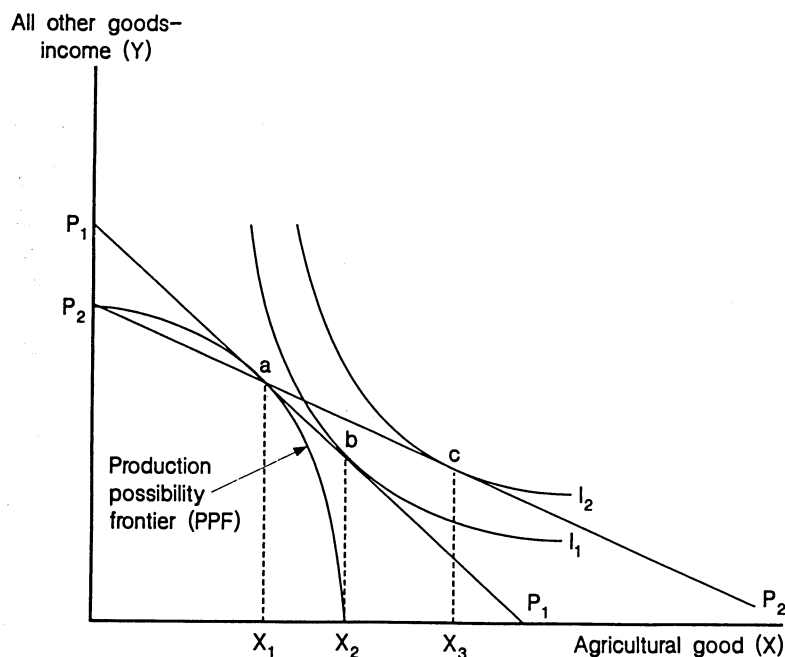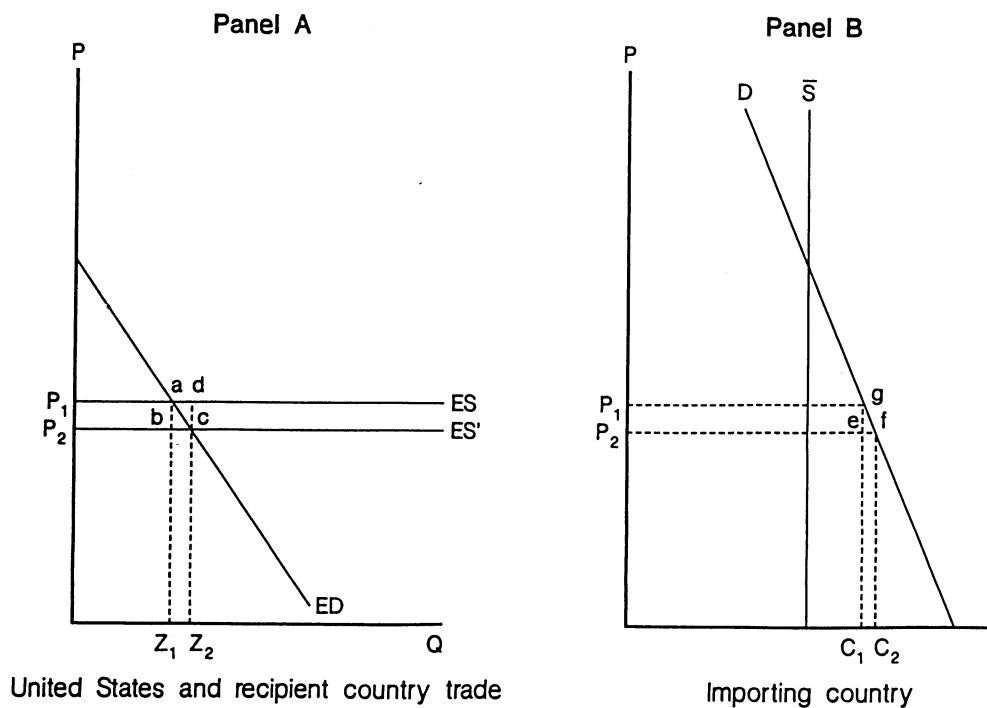# Impact of an export payment program in a general equilibrium framework in the short run

All other goods–
income (Y)

P_1

P_2

a

Production
possibility
frontier (PPF)

b

c

I_2

I_1

P_1

P_2

X_1 X_2 X_3 Agricultural good (X)

Figure 9

Impact of a targeted export payment program in a partial equilibrium framework in the short run

Panel A

P

P_1
P_2

a d

b c

ES

ES'

ED

Z_1 Z_2 Q

United States and recipient country trade

Panel B

P

D $\bar{S}$

P_1
P_2

g

e f

C_1 C_2

Importing country

would lead to a net increase in U.S. export revenues: area Z_1bcZ_2 would be greater than area P_1abP_2. If the elasticity of export demand is less than 1, then the export subsidy would result in lower U.S. export revenues. The cost to the United States of the subsidy is represented by the area P_1dcP_2. Of this area, P_1acP_2 is the transfer from U.S. taxpayers to foreign producers and consumers, while adc is the deadweight loss from inefficient use of resources.

If the U.S. export subsidy were global and applicable to all importers, then, the excess supply curve faced by importing countries is no longer perfectly elastic (fig. 10). In this case, a shift in the excess supply curve from ES to ES' results in the world price falling by an equivalent per unit subsidy from P_1 to P_2. Total domestic demand in importing countries increases from C_1 to C_2 and U.S. exports increase by Z_1Z_2. U.S. domestic consumption falls from D_1 to D_2 because of the increase in domestic price from P_1 to P_3. The impact of a global subsidy is to lower world price, increase U.S. export demand, and reduce U.S. domestic demand. The cost to the United States depends on the per unit subsidy costs and the quantity exported. In figure 10, the cost to the United States is represented by the area P_3abP_2. Of this area, P_3acP_1 is the transfer to U.S. producers, P_1cbP_2 the transfer to foreign buyers, and abc the deadweight loss.

The longrun impact of the export subsidy in an importing country is illustrated in figure 11. An export subsidy results in the price line P_1P_1 rotating to a new position P_2P_2. In this situation, unlike in the short run, production response is forthcoming. With the lower price, and given perfect price transmission between domestic and world prices, output of the agricultural commodity falls from X_1 to X_2 while total consumption increases from X_3 to X_4. Hence, import demand is even larger than would be under a similar scenario in the short run when production does not respond. U.S. export demand would be expected to be larger in the long run. This is illustrated in figure 12 where the excess demand curve ED' is more elastic in the long run. In this situation, export demand increases to Z_3 as compared to only Z_2 in the short run. U.S. price is also higher, and this implies that the total cost to the United States of the price subsidy program is considerably higher in the long run than in the short run.

A number of studies have analyzed the impact of global and targeted export subsidies on U.S. export demand (1, 2, 22, 33, 34). Sharples (34), Paarlberg and Sharples (22), and Abbott (1) all assume hypothetical export payment rates to estimate the impact of a global subsidy on U.S. export demand. All these studies indicate that global subsidies lower world price and increase U.S. domestic price. However, as shown by Sharples (33) and Abbott, Paarlberg, and Sharples (2), a subsidy targeted to some large importing countries may raise the world price, benefiting other exporters while hurting unsubsidized importers. The studies indicate that U.S. export demand increases in response to both global and targeted subsidies in the short and the long run. But the cost of these subsidies to the U.S. taxpayers is extremely high, especially when comparing the price with the marginal cost of additional exports. All the studies examine a hypothetical export subsidy under current market conditions as opposed to the impact of such programs as they actually existed.

Domestic Programs

The loan rate and the target price/deficiency payments programs are discussed here to illustrate the implicit export subsidy/tax effects on importers. The

Figure 10

Impact of a global export payment program in a partial equilibrium framework in the short run

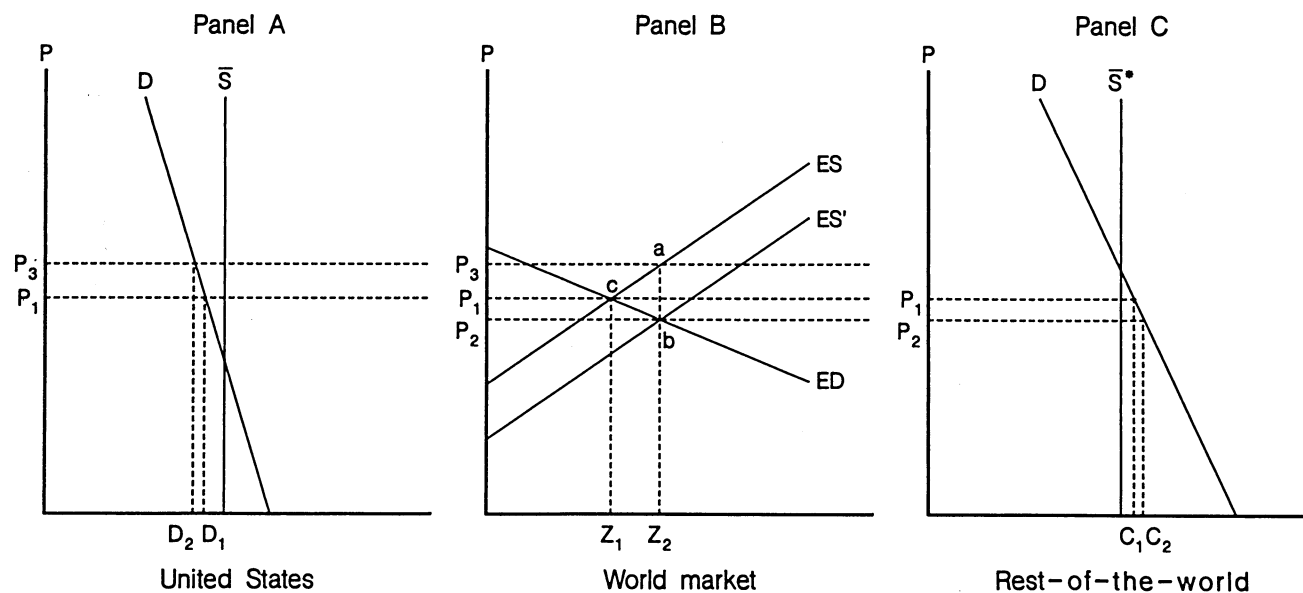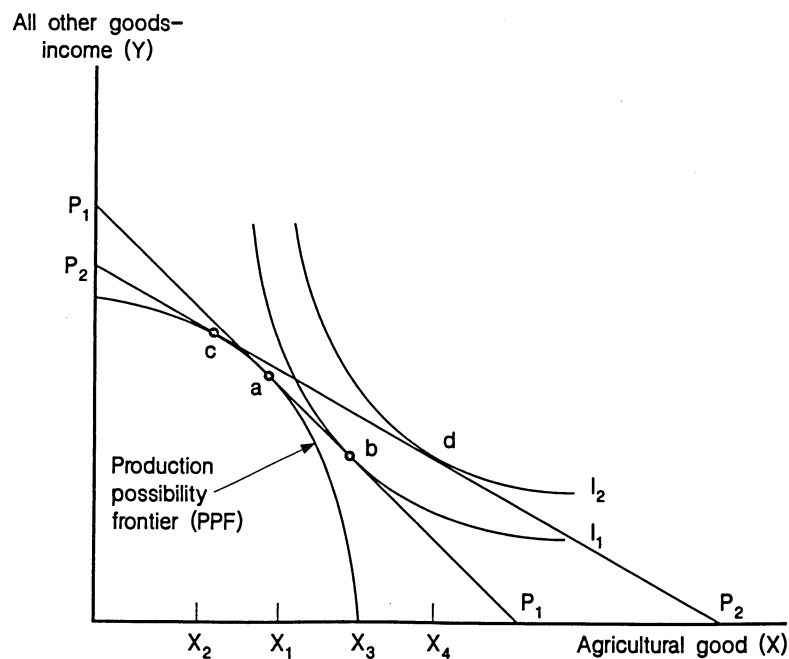| Panel A	Panel B	Panel C
United States	World market	Rest-of-the-world

Figure 11

Impact of an export payment program in a general equilibrium framework in the long run

discussion follows closely the framework established by Jones and Thompson (13) and elaborated further by Paarlberg, Webb, Morey, and Sharples (23).

Figure 13 illustrates a two-country, U.S. (exporter) and the Rest of the World (ROW, importers), world market for the agricultural commodity. If a U.S. loan rate policy did not exist, then the equilibrium world price and U.S. export quantity would be determined by the intersection of the excess supply schedule ES with excess demand curve ED. The resulting equilibrium world price is given by P_1 and the quantity of U.S. exports by Z_1. Consider the case where the United States adopts a loan rate policy. If the world price is not supported by the loan rate (LR), then the loan rate policy has no effective impact on the export market. When the world price is supported by the loan rate, the new U.S. excess supply curve is LRiES which has a perfectly elastic segment at the loan rate. U.S. export quantity is determined by the intersection of LRiES with ED. The resulting equilibrium price would be the loan rate, and the quantity of U.S. exports Z_2. The world price is higher and U.S. export demand lower than would be the case without a loan rate policy. The difference between the loan rate and the world price (P_1LR) without the loan rate policy is an implicit tax from the perspective of foreign buyers. The implicit tax (income transfer) from foreign consumers to U.S. producers is represented by the area jkmn. U.S. taxpayers pay an implicit subsidy to U.S. producers (area=adeh) as the Government purchases stocks to support the price at the loan rate. Producers in both countries gain at the expense of U.S. consumers and taxpayers.

A second scenario of domestic policy providing an export tax or subsidy can occur with a target price/deficiency payment program. In figure 14, if

Figure 12
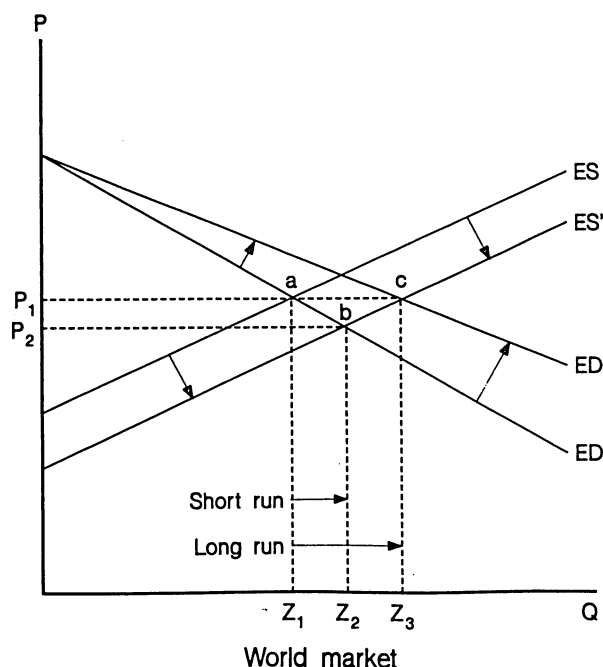# Impact of a global export payment program in a partial equilibrium framework: long run vs short run

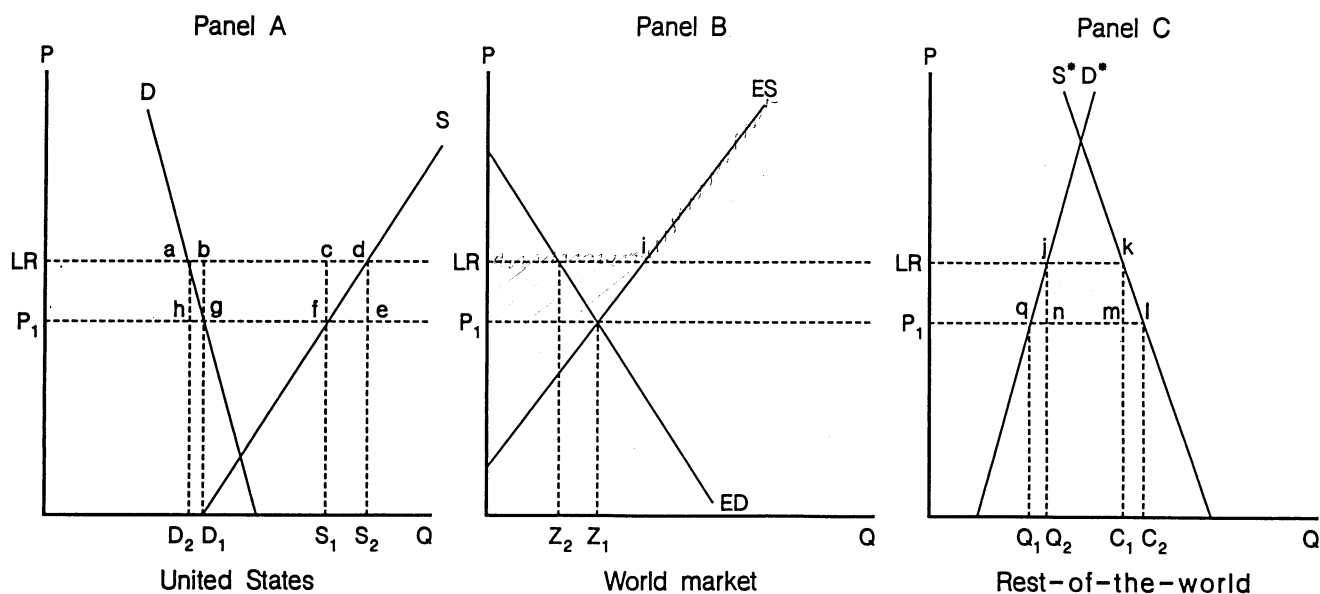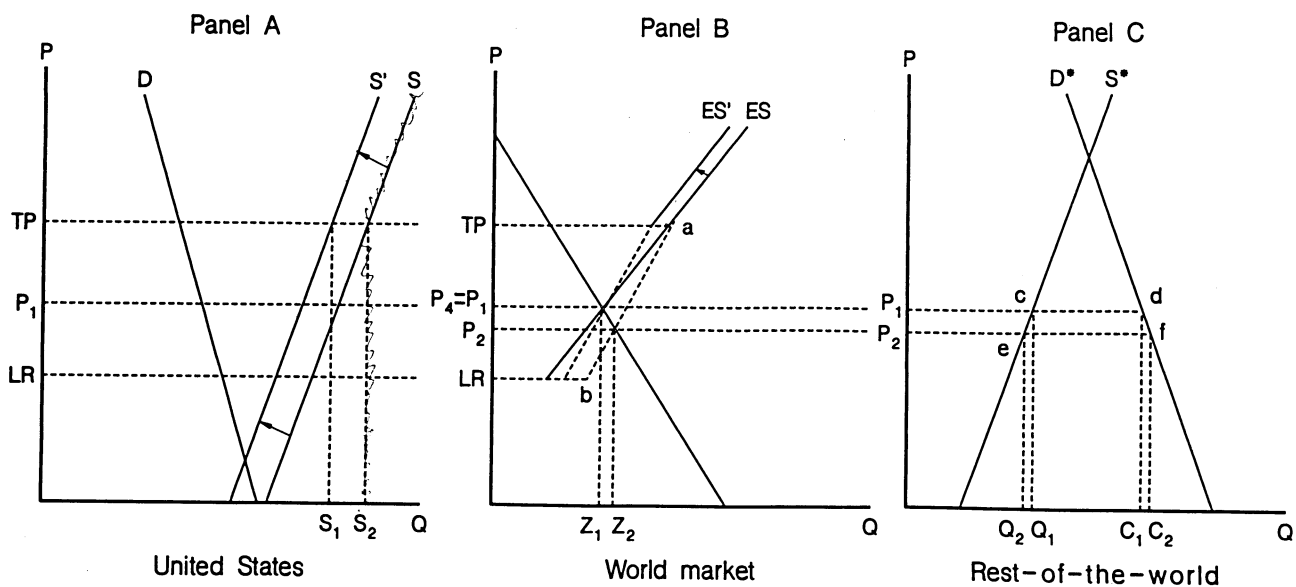World market

Figure 13
The export tax element of the U.S. loan rate

Panel A

P

D

S

LR ---- a b ---- c d ----

P$_1$ ---- h g ---- f e ----

D$_2$ D$_1$ S$_1$ S$_2$ Q

United States

Panel B

P

ES

LR ---- i ----

P$_1$ ----

Z$_2$ Z$_1$ Q

ED

World market

Panel C

P

S* D*

LR ---- j k ----

P$_1$ ---- q n m l ----

Q$_1$ Q$_2$ C$_1$ C$_2$ Q

Rest-of-the-world

Figure 14
The export subsidy element of the target price policy

Panel A

P

D

S' S

TP ----

P$_1$ ----

LR ----

S$_1$ S$_2$ Q

United States

Panel B

P

ES' ES

TP ---- a

P$_4$=P$_1$ ----

P$_2$ ----

LR ---- b

Z$_1$ Z$_2$ Q

World market

Panel C

P

D* S*

P$_1$ ---- c d ----

P$_2$ ---- e f ----

Q$_2$ Q$_1$ C$_1$ C$_2$ Q

Rest-of-the-world

30

the target price in the United States is set at TP, which is above the equilibrium price P_1, production would increase from S_1 to S_2. Even though the market price in the United States might fall below the target price, the quantity produced would be maintained at quantity S_2 since producers are assured of the target price as a minimum price. In effect, the U.S. supply relation is vertical from quantity S_2 up to the point where it joins the S relation at target price TP. As a result, the segment ab now replaces part of the export supply curve in the world market. The new export supply curve is the line LRbaES. When the U.S. target price policy is operational, the U.S. excess supply curve is distorted such that equality with the excess demand curve leads to a world price of P_2. Because world price P_2 when target price policy is operational is lower than free trade prices P_1, U.S. export expands by Z_1Z_2. The target price and the accompanying deficiency payments appear to the ROW as an export subsidy that lowers the world price and promotes U.S. exports. U.S. taxpayers and foreign producers subsidize U.S. producers, U.S. consumers, and foreign consumers. The subsidy received by foreign consumers from U.S. taxpayers is represented by the area cdef.

This element of subsidy to importers is not entirely consistent with the target price/deficiency payment schemes as they have existed historically. This is because in most instances a land retirement requirement has accompanied a target price/deficiency payment program. Hence, in figure 14, a target price/deficiency payment program with set-aside requirements would mean that the supply relation would shift leftwards from S to S'. This shift in the U.S. domestic supply schedule changes the U.S. excess supply schedule. The portion above the target price shifts left, but remains parallel to the original excess supply schedule. Similarly, the portion of the excess supply schedule between the target price and the loan rate also shifts inwards.

As a result of the land retirement program, the new world market equilibrium price, P_4, exceeds the old price P_2, and is assumed to be the same as the free trade price P_1. The land retirement program raises the world price and reduces U.S. exports from Z_2 to Z_1, where Z_1 is assumed to be the free trade level. From the perspective of the ROW, the imposition of the U.S. land retirement program offsets the export subsidy resulting from the target price. If the actual supply shift is greater than that shown, the implicit export subsidy would become an implicit export tax.

Empirical studies of the export tax/subsidy nature of U.S. domestic policies are virtually nonexistent. Paarlberg, Webb, Morey, and Sharples (23) estimated that during the 1977 and 1978 crop years, the target price of wheat provided a subsidy in the world price of $5 per ton and boosted U.S. exports of wheat by about 3 million tons. The same study also suggests that if there had been no loan rates in 1982/83, the world market price would have been about $6.50 per ton lower, and U.S. exports of wheat nearly 3 million tons higher. In both instances the magnitude of the tax/subsidy is about 5 percent of the world price.

Policy Combinations

This section has illustrated the economic impacts of individual policies that affect the export market. In reality, however, each policy is seldom used in isolation. A combination of policies is more generally the rule. As a result, the Government may be pursuing policies at any one time that may both help and hurt export enhancement efforts. More often than not, such an

approach is pursued to balance the interests of various groups. Hence, high loan rates may be accompanied by export payments. As a result, the export tax element of the loan rate is offset by export payments. Similarly, an area set-aside program may be instituted with the target price provision to eliminate subsidies to foreign buyers. Numerous other such combinations of domestic and trade policies can be visualized that are aimed at achieving a multitude of objectives. While policy combinations provide a more realistic representation of the real world, consideration of such options in our simple framework makes the analysis much more complicated. Under such circumstances, detailed commodity models would be required to study the policy options. This is beyond the intent of this report.

CONCLUSIONS

The export market is now an important source of revenue to U.S. producers. U.S. policies that affect the export market, therefore, have lately been receiving greater attention. The recent declines in U.S. exports have reopened the discussion on ways to enhance exports so as to support and stabilize producer incomes. One approach to increasing export demand is through export expansion activities such as credit sales programs and market development programs. Such credit facilities provide purchasing power in the current period, and enable the importer to pay the world price for commodities. The finance subsidies of these programs reduce finance costs to importers. This proposal is especially attractive to the United States because U.S. Treasury costs are not very large if the loans are not defaulted. Market development programs, on the other hand, increase import demand (U.S. export demand) by increasing domestic demand in importing countries. The degree of the impact of the particular market development instrument in the importing countries varies immensely. Market development activities are oriented toward the longer run, and the effects may not be apparent quickly. Moreover, once a market is "developed," there is no guarantee that the importing country will purchase additional agricultural goods only from the United States. These features of the export market development program may lessen its attractiveness as a policy instrument.

A second alternative to increasing export demand is through export payments. Export payments increase quantity demanded at reduced world market prices. The extent of the increase in import quantity demanded depends on the price elasticity of export demand. Foreign consumers and domestic producers benefit at the expense of domestic consumers and taxpayers. Government costs depend on the size of the export payment and on the quantity exported. As exports increase, Government costs increase, unless the export payment is less than the costs of storing the commodities. Government costs could further escalate if competing exporters retaliate in response to U.S. export payments, resulting in lower world prices and higher export payments for the United States.

A third alternative to increase U.S. export demand is to modify domestic policies. In particular, the export market is likely to be affected substantially if loan rates are lowered. A fall in the loan rate would lead to a world price decline. Producers benefit by maintaining or increasing export volumes. The costs to the Government in terms of deficiency payments may be high if target prices and supply controls are not lowered commensurately.

Each of the policy options involves trade-offs, and no one program can accomplish all policy objectives. A combination of strategies will likely be used depending on domestic agricultural policy objectives, changes in world markets, and competitors' export policies. Agricultural policy can move toward more reliance on commodity management programs similar to those in the 1960's, or it can move toward more reliance on market forces. If the emphasis is to be on commodity management programs, then export price policies will likely gain emphasis. If, on the other hand, the move is toward a market-oriented strategy, then export expansion programs may be more important.

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