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**CREDIT GUARANTEE PROGRAMS
IN INTERNATIONAL GRAIN MARKETS:
BACKGROUND AND ISSUES**

**Bruce L. Dahl, D. Demcey Johnson,
William W. Wilson, and Cole R. Gustafson**

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HIGHLIGHTS

Export credit guarantees are an important component of the world wheat trade. All major exporting countries of agricultural commodities have some form of export credit insurance/guarantee program. The purpose of this report is to provide background on export credit programs for agricultural products. Previous research, historical usage, and export credit program provisions are summarized. Relevant issues confronting export credit programs will be identified and discussed.

During the 1980s and early 1990s, the United States was the largest provider of export credit guarantees for wheat and wheat flour, followed by Canada. The geographical focus of credit programs has changed over time. Egypt, Brazil, and China were the principal recipients of export credit guarantees for wheat during the early 1980s. Significant importers under credit during the late 1980s included Egypt, Iraq, Korea, Morocco, and Algeria. Large amounts of credit guarantees were extended by wheat exporting countries to the Former Soviet Union in the late 1980s and early 1990s. In fact, credit guarantees for wheat exports during the 1990-92 period were heavily concentrated in the Former Soviet Union (FSU). Subsequent defaults have revealed the risks of such program concentration.

There have been important changes in creditworthiness of wheat importing countries during the past two decades. Changes in financial indicators for wheat importers have been similar to those for developing countries. From the early 1970s through the early 1980s, wheat importers as a group experienced a dramatic rise in external indebtedness and fall in debt-servicing capacity. In the late 1980s ending in the early 1990s, the debt buildup of wheat importers (on average) slowed, some financial measures (e.g., debt-service ratios) improved, and impaired access to commercial credit continued. When the country risk ratings published by Euromoney are weighted by trade shares, they suggest little change in creditworthiness for wheat importing countries in the past decade.

For wheat importers using credit guarantees, a subset that has changed through time, selected financial indicators (weighted by share of export credit utilized) show more marked change during the past decade. Most striking are increases in external debt levels. Net debt (external debt minus international reserves) relative to exports increased more sharply for this group of countries between 1973 and 1982. However, net debt declined to levels comparable to those for average wheat importers in 1992. The average ratio of international reserves to imports, a standard measure of international liquidity, also showed deterioration for this group of countries from 1973 to 1982 and slight improvement in 1992. Although some indicators suggest an improvement in financial conditions for credit importers, debt levels are generally higher and Euromoney risk ratings indicate a larger decline in creditworthiness for credit importers in 1992 than for all wheat importers.

Other economic and demographic data can be used to categorize the importing countries that receive credit guarantees. Based on cluster analysis, the importers receiving guarantees appear to fall into four groups of countries, characterized by similar income levels and consumption patterns. Three of these groups appear to hold potential as markets for value-added wheat products, while the fourth, consisting of low income countries, is likely to remain a market for exports of wheat and intermediate processed goods.

Most of the credit programs offered by agricultural exporting countries provide more flexibility, both in credit terms and administration, than programs provided by the United States. Further, the U.S. program is operated as a highly visible public credit guarantee program, while programs by other countries are more comparable to insurance and are less transparent to other exporting countries.

Research in the area of export credit guarantees has focused on the justification of export subsidies, program costs, the subsidy value of credit guarantees, and the additionality (i.e., export creation) they may entail. Welfare effects of export subsidies have been addressed in numerous studies. Export credit programs have attracted less attention than direct price subsidies (such as provided under the U.S. Export Enhancement Program, EEP). However, many of the issues (and welfare implications) are the same. Strategic considerations, the use of export credit programs as a response or deterrent to competitors, are highlighted in several studies and have been cited as justification for these programs.

GSM programs provide an implicit subsidy to foreign importers in the form of lower interest. The methodology for valuing this subsidy and estimates for different recipients and time periods are reviewed. Reported subsidies for exports of wheat under credit from 1979 to 1992 indicate an average implicit subsidy of 4% of the value of GSM allocations. Estimates for interest subsidies for selected years and countries ranged from \$0.29 to \$18.89 per metric ton.

Many issues now confront credit guarantee programs for U.S. agricultural exports. Most of these relate to program justification, additionality, program costs, provisions, competition with EEP subsidies and other exporting country's programs, and allocation decisions. The future evolution of these programs will reflect new global disciplines for export subsidies and efforts of policymakers to contain program costs and improve effectiveness.

CREDIT GUARANTEE PROGRAMS IN INTERNATIONAL GRAIN MARKETS: BACKGROUND AND ISSUES¹

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William W. Wilson, and Cole R. Gustafson*

INTRODUCTION

Export credit and guarantee programs have become important tools for exporting agricultural products. Prior to the 1980s, agricultural exports under credit guarantee programs were limited. In 1990, 29 percent of U.S. wheat, 12 percent of U.S. corn, 30 percent of U.S. barley, and 7 percent of U.S. soybean exports were sold using the Commodity Credit Corporation's GSM-102 and GSM-103 export credit guarantee programs (Suarez). During the 1980s and early 1990s, Canada, Australia, France, and other competitor countries responded to market and competitive conditions with expanded use of existing credit programs. Throughout the 1980s, the five largest exporting countries (United States, Canada, European Union (EU), Australia, and Argentina) exported 10 to 20 million metric tons of wheat per year under credit guarantee programs. Exports of wheat under credit guarantees have increased from near 11 million metric tons in Fiscal Year 1988 to over 25 million metric tons in 1991 (approximately 27 percent of world trade) before declining to about 15 million metric tons in 1992.

Trends in world wheat trade suggest that credit guarantee programs will remain an important tool for exporting agricultural products in the future despite recent defaults by one of the principal users, Russia. Virtually all of the gains in world wheat trade over the next decade are expected to come from developing countries, of which many have credit problems (Schwartz and Surls). Further, exporting countries may be required to extend credit guarantees to maintain current market shares (Vanderbeek, 1994). Countries unwilling or unable to extend credit may have to offer proportionally lower prices to maintain export market shares.

This report provides an overview and selected analysis of export credit and credit guarantee programs in international grain markets. There are six sections. First, background information is presented on historical usage of credit programs with comparisons across exporting and importing countries. A review of the Russian credit situation is also presented. Second, export credit programs of the major grain exporting countries are described and compared. Third, the implicit subsidy value (to importers) of GSM credit guarantees is analyzed, and cross-country comparisons are made. Fourth, previous research

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on export subsidies, and on credit programs in particular are reviewed. Fifth, policy issues relating to the design and operation of U.S. programs are discussed. Sixth, the report ends with a summary.

GRAIN TRADE USING CREDIT GUARANTEES

Credit and credit guarantee programs are provided by most countries exporting agricultural products. These programs typically include export credit guarantees, export credit insurance, direct export credit, and credit sales under foreign aid programs. This section presents an overview of the historical use of export credit programs by exporting and importing countries. Credit use by the Former Soviet Union (FSU) is examined in detail. Dynamic changes in macro financial and social economic characteristics of importers are examined in the final subsection.

Data Sources

All major exporting countries of agricultural commodities have some form of export credit program. The following analysis compares the use of credit programs by 5 major exporting countries of wheat and wheat flour: the United States, Canada, EU, Australia, and Argentina.² Some countries offer export credit guarantees primarily for exports of wheat (Canada and Australia), and wheat exports represent a major portion of overall agricultural trade.

Data were obtained from several sources. U.S. export volumes by importing country were obtained from USDA-FAS. Canadian export volumes of wheat under credit programs by importing country were obtained from annual reports of the Canadian Wheat Board. EU, Australian, and Argentine export volumes for wheat by importing country up to 1987 were from the IWC (1988). Later year's data for the EU by importing country were derived from monthly data reported in the IWC Grain Market Report (Various issues). Data after 1987 for credit guarantees by importing country were not available for Australia or Argentina.³ Total Australian exports under credit programs after 1987 were gathered from the annual reports of the Export Finance and Insurance Corporation (EFIC), when available.

²Hereafter, sales of wheat and wheat flour are aggregated, with flour converted into its wheat equivalent.

³Information on exports and imports under credit programs is somewhat limited. Information on Australian and Argentine exports under credit programs was not available for certain years or was available only on a total export basis.

Exports Under Credit: Comparison Across Exporting Countries

Use of credit programs by the major exporting countries for wheat varied considerably for the crop years 1980-1991. The combined total exports of wheat and wheat flour under credit programs by the five major exporting countries (Argentina, Australia, Canada, EU, and the U.S.) varied from 10 million metric tons in 1981 (10.5 percent of total exports) to more than 25 million metric tons in 1991 (26.6 percent of total exports) (Figure 1.1). However, use of credit programs for exports of wheat within each of these five major exporting countries has varied widely.

The level of wheat exports under credit programs has been largest for the U.S. and Canada. From 1980 to 1991, the U.S. exported an average of 8.5 million metric tons of wheat per year under credit programs (Figure 1.2). Canada exported an average of 3.9 million metric tons per year over the same period (Figure 1.3), considerably less than the U.S. volume. However, Canadian exports under credit averaged 6.5 million metric tons per year during 1989-1991, largely due to increased exports to the Soviet Union. Meanwhile, the EU, Australia, and Argentina exported an average of 1.7, 2.4, and .1 million metric tons per year, respectively (Figures 1.4, 1.5, and 1.6). Australia experienced a steady increase in exports of wheat under credit from 1980-1989. However, in 1990 and 1992, exports under credit dropped significantly, likely due to defaults by the Soviet Union. EU exports under credit programs were more consistent throughout this period. Argentina has used export credits more sporadically.

Reliance on credit guarantees by major wheat exporting countries has also varied. Canadian exports of wheat under credit programs declined from a high of 35.3 percent of all wheat exports in 1982 to 7.9 percent of all wheat exports in 1988. Canadian exports under credit then rose to a high of 48 percent of wheat exports in 1991 (Figure 1.7). Much of this variability in Canadian reliance on export credit guarantees can be attributed to the volume of exports to the USSR. Wheat exports from the EU under credit ranged from a low of 3.8 percent in 1988 to a high of 16.3 percent in 1982. U.S. exports of wheat under credit ranged from 7.8 percent of total wheat exports in 1981 to a high of 37.4 percent of exports in 1991.

Credit programs have targeted different importing countries over time. The United States exported more than 2 million metric tons (MMT) from 1980-1984 to Brazil, Egypt, Iraq, Korea, Morocco, and Portugal (Figure 2.1). Brazil received the largest amount of exports under credit from the U.S. during this time period, with almost 10 MMT of wheat exports under credit. From 1985-1989, Egypt was the importer receiving the most wheat exports under U.S. credit programs, with almost 10 MMT under credit. Algeria, Iraq, Korea, and Morocco received more than 2 MMT each during this same period. From 1990-1992, the Former Soviet Union received the largest volume of wheat exports under U.S. credit programs (9.5 MMT). Algeria, Korea, and Pakistan also received large amounts of wheat exports under credit programs. From 1982 to 1992, the U.S. has extended wheat exports under GSM credit guarantees to 15 - 25 countries per year.

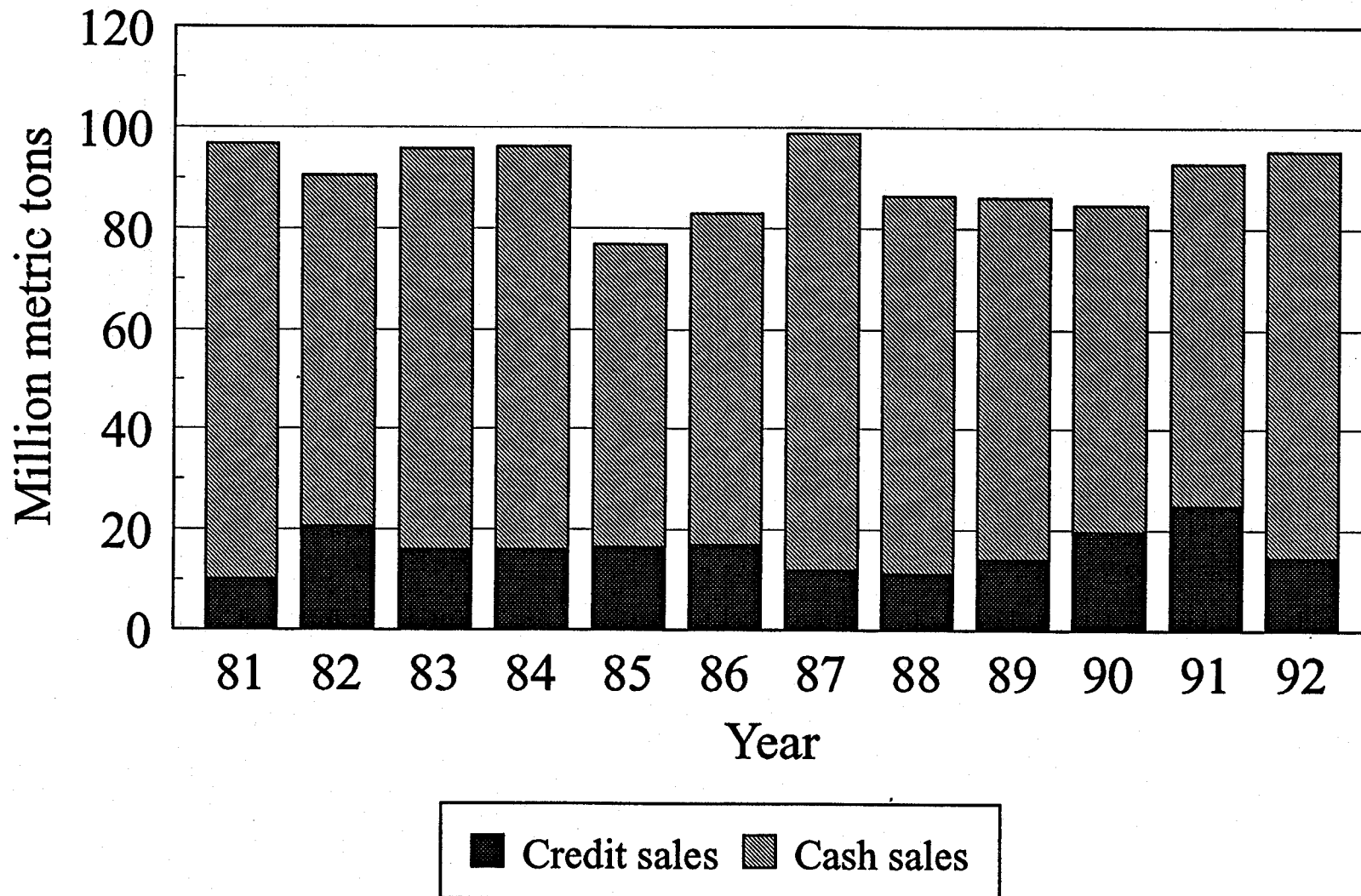


Figure 1.1 Wheat Exports by 5 Major Countries:
Cash and Credit, 1981-1992

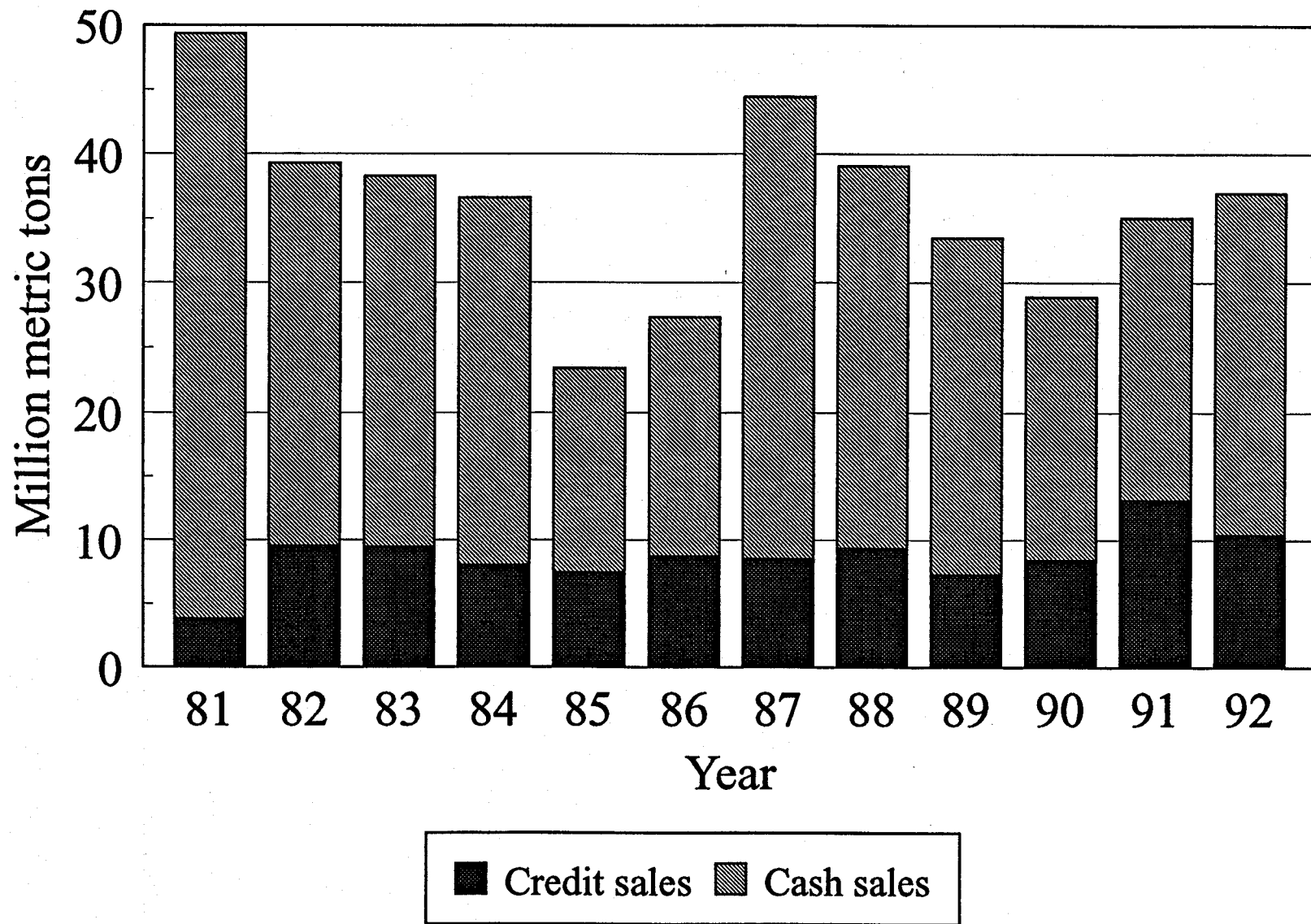


Figure 1.2 U.S. Cash and Credit Wheat Exports, 1981-1992.

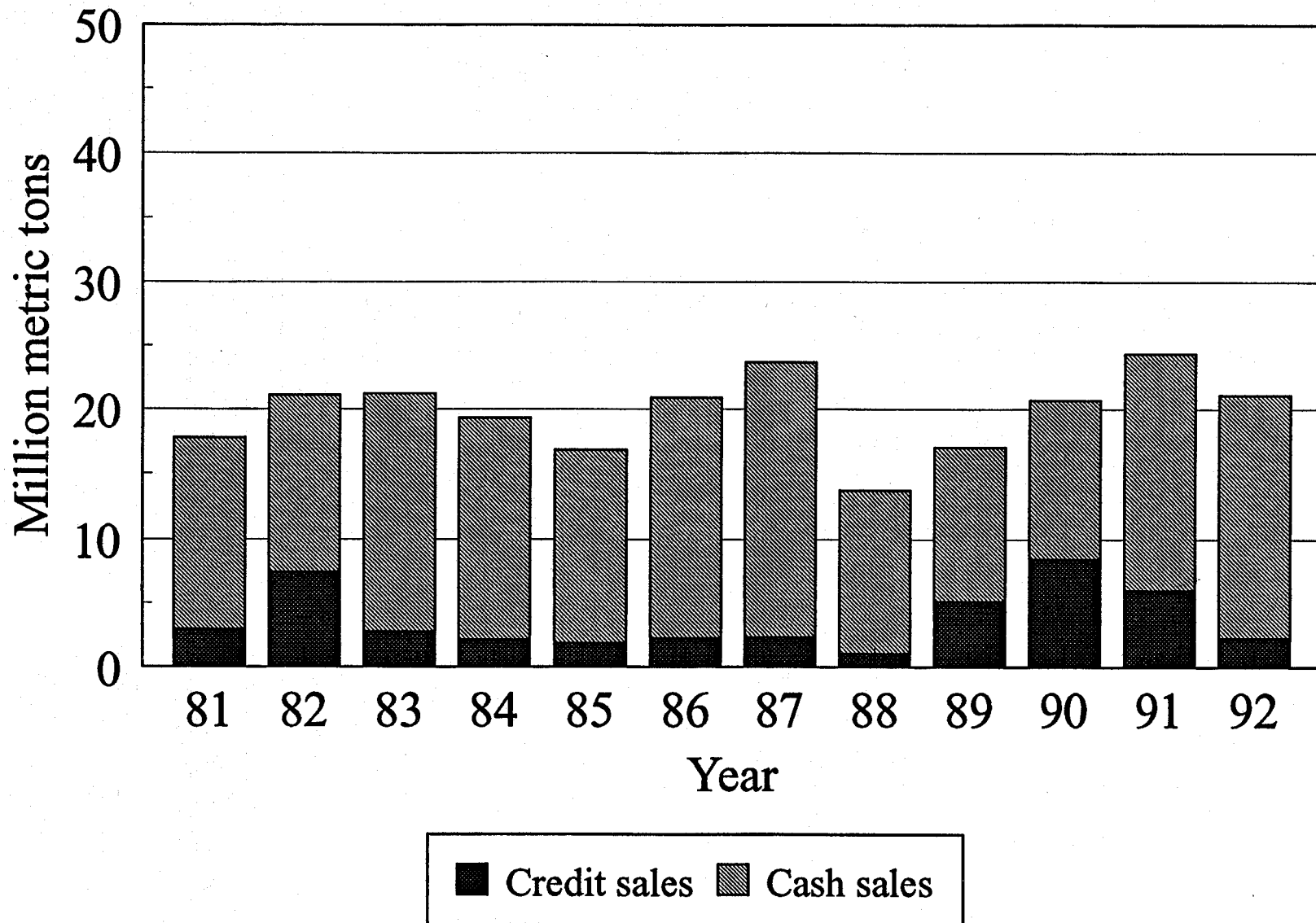


Figure 1.3 Canada Cash and Credit Wheat Exports, 1981-1992.

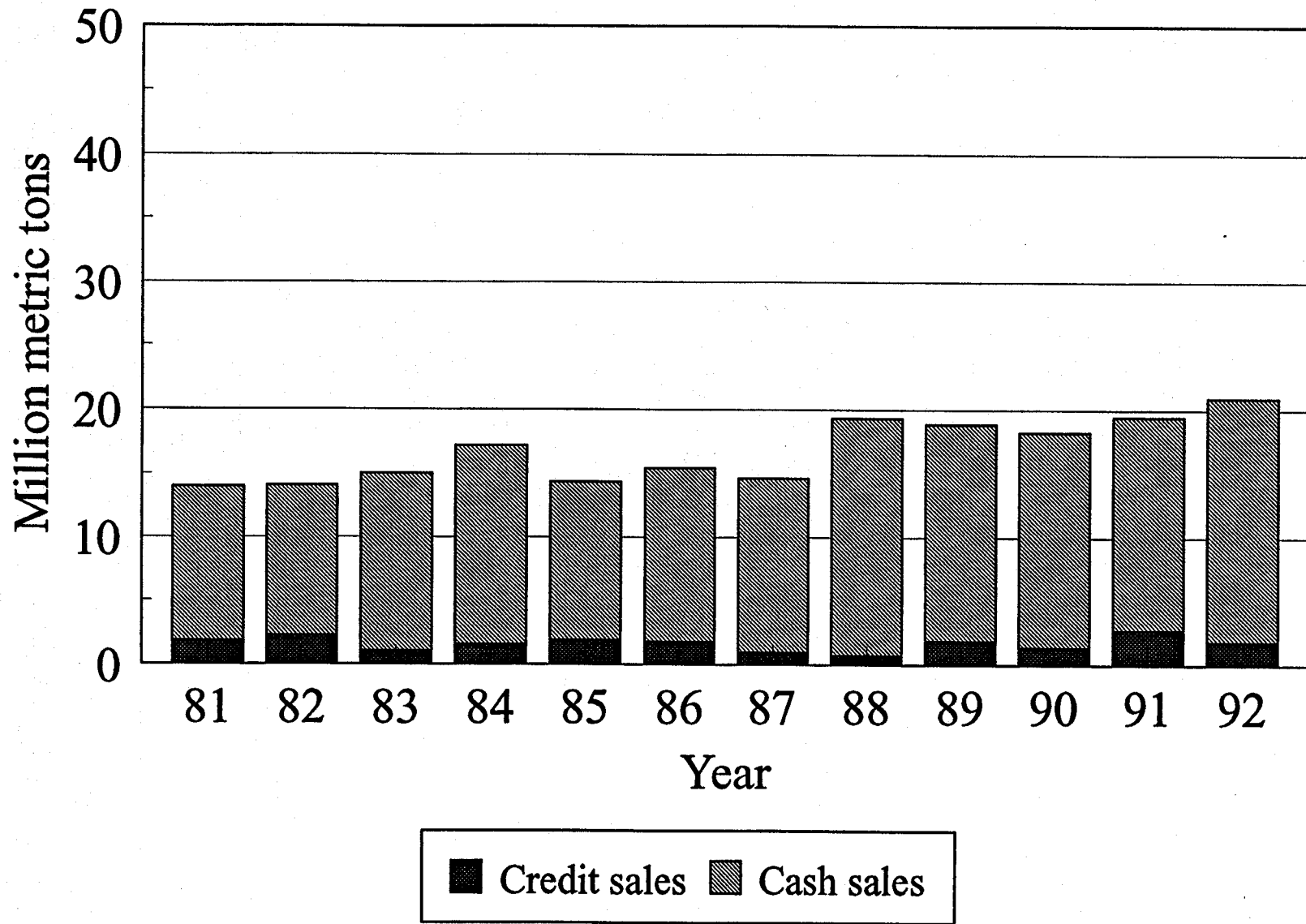


Figure 1.4 EU Cash and Credit Wheat Exports, 1981-1992.

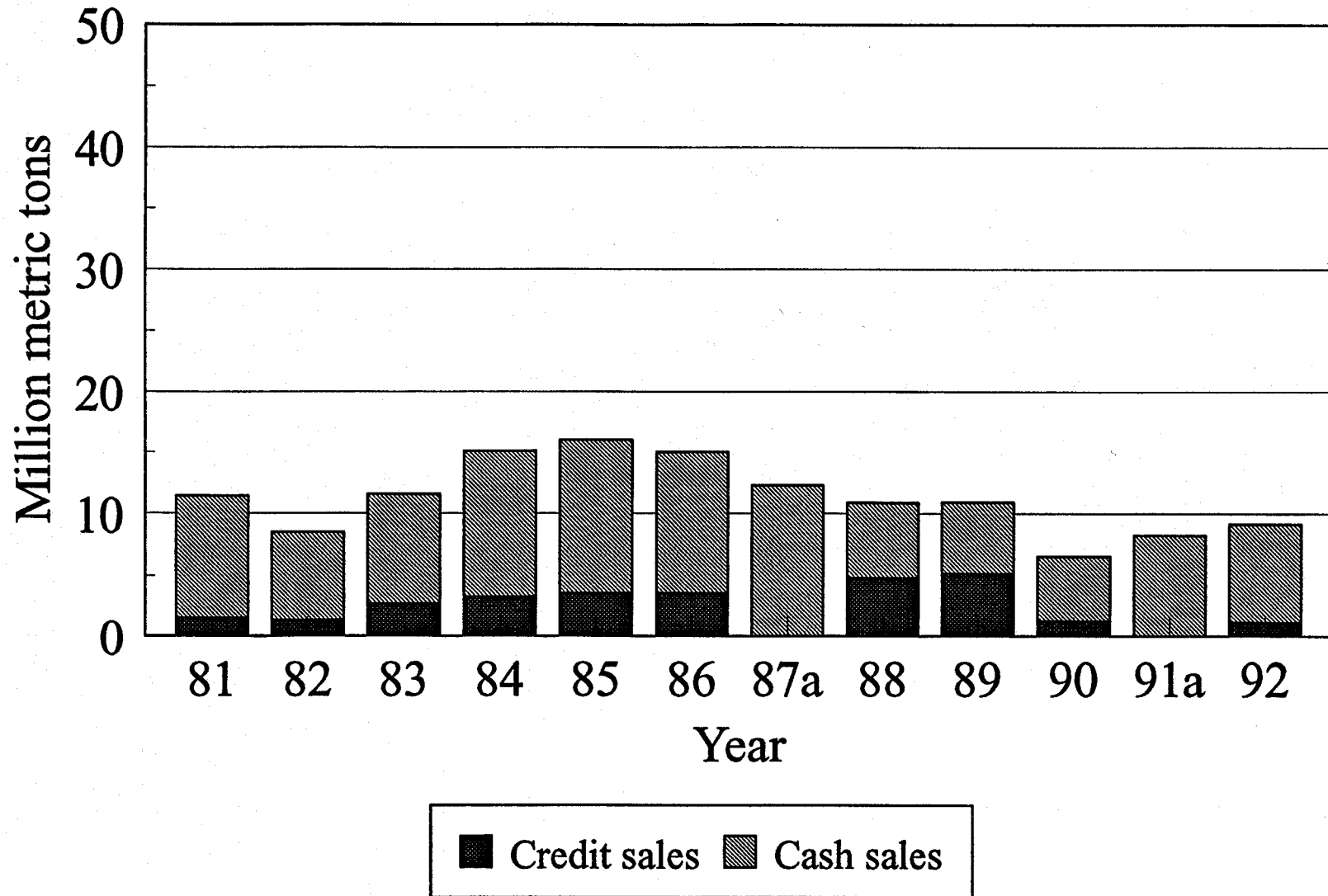


Figure 1.5 Australia Cash and Credit Wheat Exports, 1981-1992.

a) Missing data for credit sales.

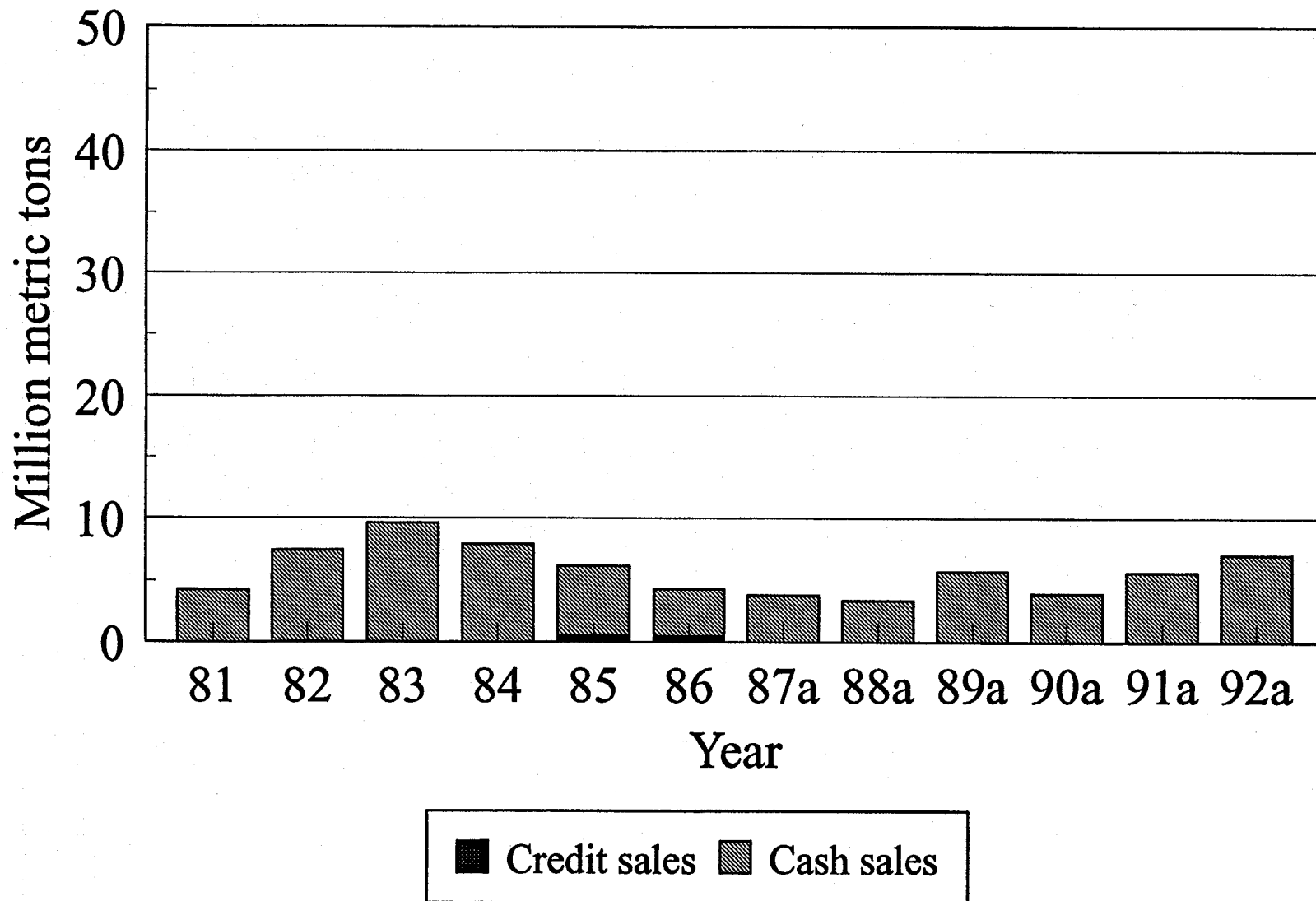


Figure 1.6 Argentina Cash and Credit Wheat Exports, 1981-1992.

a). Missing data for credit sales.

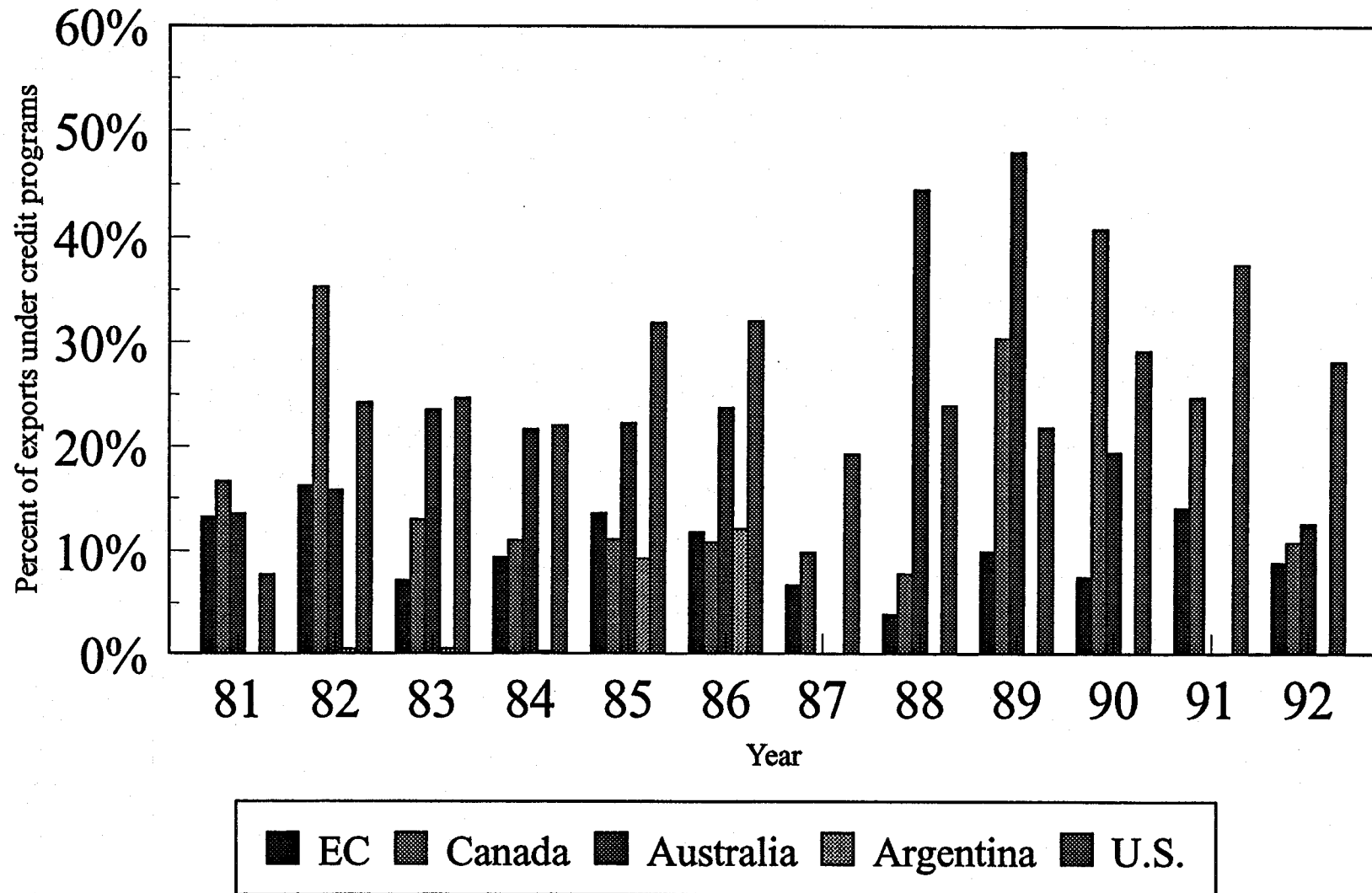
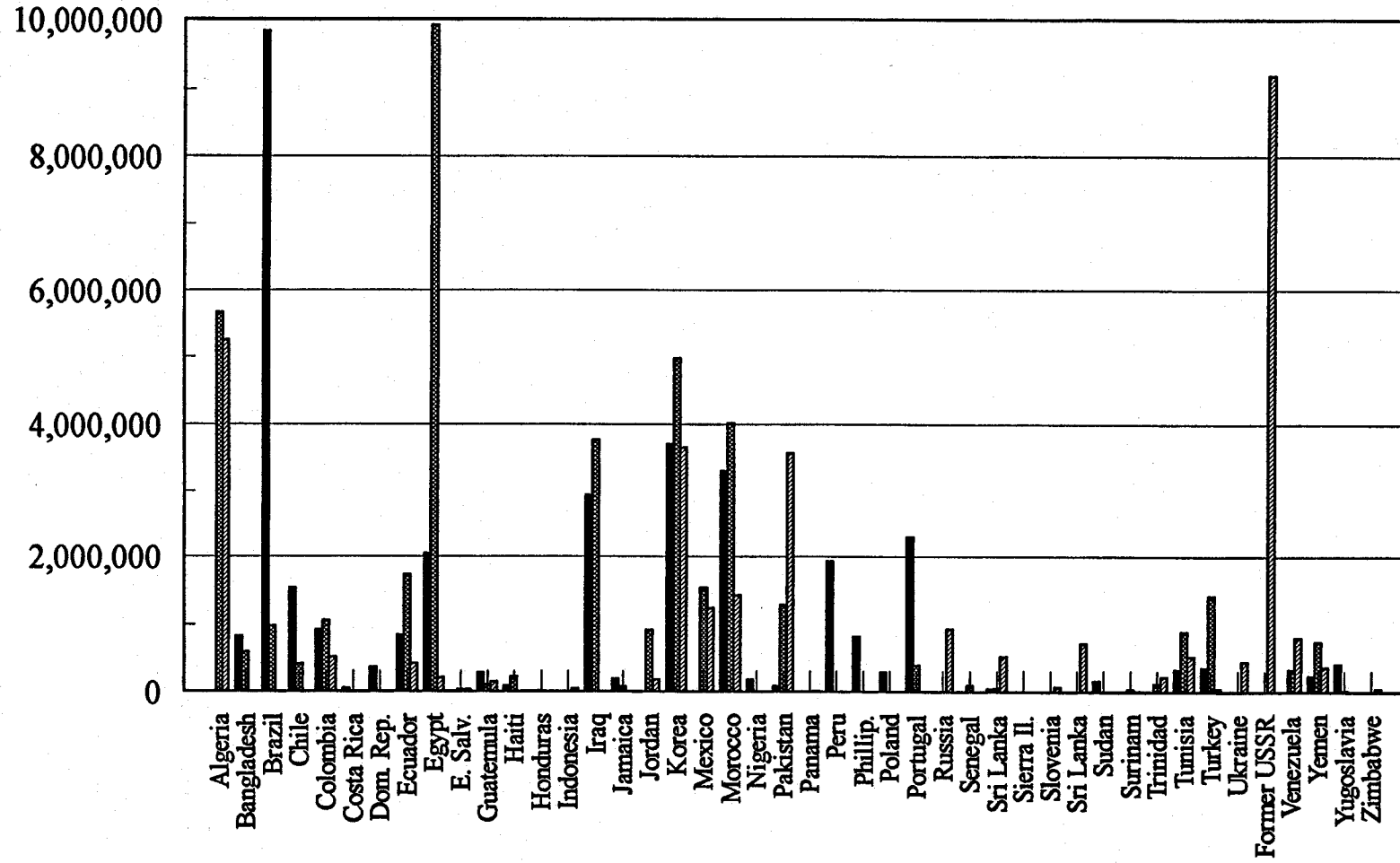


Figure 1.7 Percent of Wheat Exports Under Credit Programs, by Exporting Country, 1981-1992.

Metric Tons



■ 1980-1984 ▒ 1985-1989 ▨ 1990-1992

Figure 2.1 United States Wheat Exports Under Credit Guarantees, by Importing Country, 1980-1984, 1985-1989, and 1990-1992.

Canada exported wheat under credit programs during the early 1980s to Brazil, China, Egypt, Iraq, Poland, and the USSR (Figure 2.2). Each of these countries received in excess of 1 MMT of wheat under credit programs. Brazil, the USSR, and Poland were the three largest recipients of Canadian export credit with 6.4, 5.1, and 3.3 MMT of wheat, respectively. From 1985-1989, the USSR, Iraq, Brazil, and Algeria were the largest recipients of Canadian credit. Canadian wheat exports under credit to each of these countries ranged from 1.8 to 3.6 MMT. In 1990 and 1992, Canada exported 13.5 MMT of wheat to the FSU under credit programs. Other countries receiving more than 1 MMT of wheat under credit included Algeria and Brazil. Canada has consistently exported wheat under credit programs to 4 to 9 countries per year from 1973-1992.

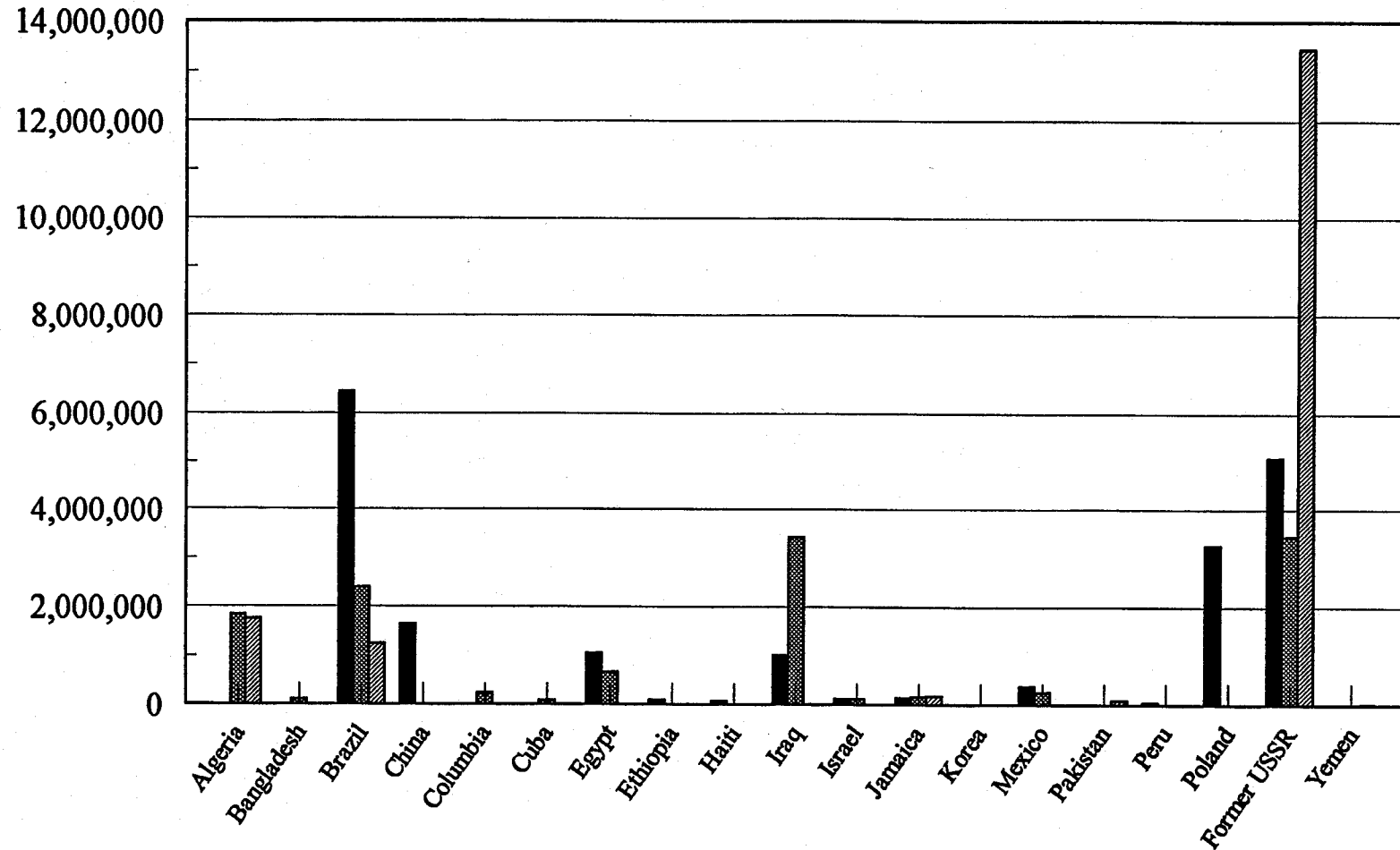
Throughout the 1980s and early 1990s, the EU exported wheat under credit guarantees to 3 to 7 countries per year. From 1980 to 1984, most of the EU's wheat exports under credit guarantees went to China, Egypt, and Morocco (Figure 2.3), each receiving in excess of 1.8 MMT under credit programs. Lesser amounts of credit were extended to Poland, Tunisia, Ethiopia, Cuba, Brazil, Angola, and Turkey. From 1985 to 1989, wheat exports under credit from the EU went largely to Egypt, Morocco, Syria, USSR, Tunisia, Algeria, and Turkey. In 1990-1992, exports under credit went primarily to the Former Soviet Union, Algeria, Morocco and Romania. Thus, during the 1980s and early 1990s, Africa and the Middle East accounted for a large share of EU wheat exports under credit programs, with large credit guarantees to China in the early 1980s and the USSR/Formal Soviet Union in the late 1980s and early 1990s.

Imports Under Credit: Comparison Across Importing Countries

Imports of wheat under credit programs have varied through time and across importing countries. In the early 1980s (1980-1984), the three largest recipients of export credits (in volume terms) were Brazil, China, and Egypt (Figure 3.1). Other countries making significant use of credit guarantees (percent of imports under credit programs greater than 50 percent) in the early 1980s were Brazil, Ecuador, Iraq, Morocco, and Portugal (Figure 3.2). Except for Ecuador, these countries were also large users in volume terms.

During 1985-1989, the composition of importing countries using export credit programs changed. Egypt remained a large user of export credits along with Iraq, Korea, Morocco, and Algeria (Figure 3.3). Brazil and China reduced wheat imports under credit dramatically. Brazil dropped from imports of over 16 MMT to just over 3 MMT. Brazil's imports under credit for wheat also dropped from near 77 percent of total wheat imports under credit to 28 percent. China stopped importing wheat under credit guarantees altogether in 1983. Reliance on credit programs by many of the other importing countries also changed, with Algeria, Ecuador, Iraq, Mexico, and Morocco now importing more than 50 percent of wheat and wheat flour imports under credit programs (Figure 3.4). Meanwhile, the USSR remained a limited user, with less than 10 percent of imports of wheat under credit programs.

Metric Tons



■ 1980-1984 ▨ 1985-1989 ▩ 1990-1992

Figure 2.2 Canada Wheat Exports Under Credit Guarantees, by Importing Country, 1980-1984, 1985-1989, and 1990-1992.

Metric Tons

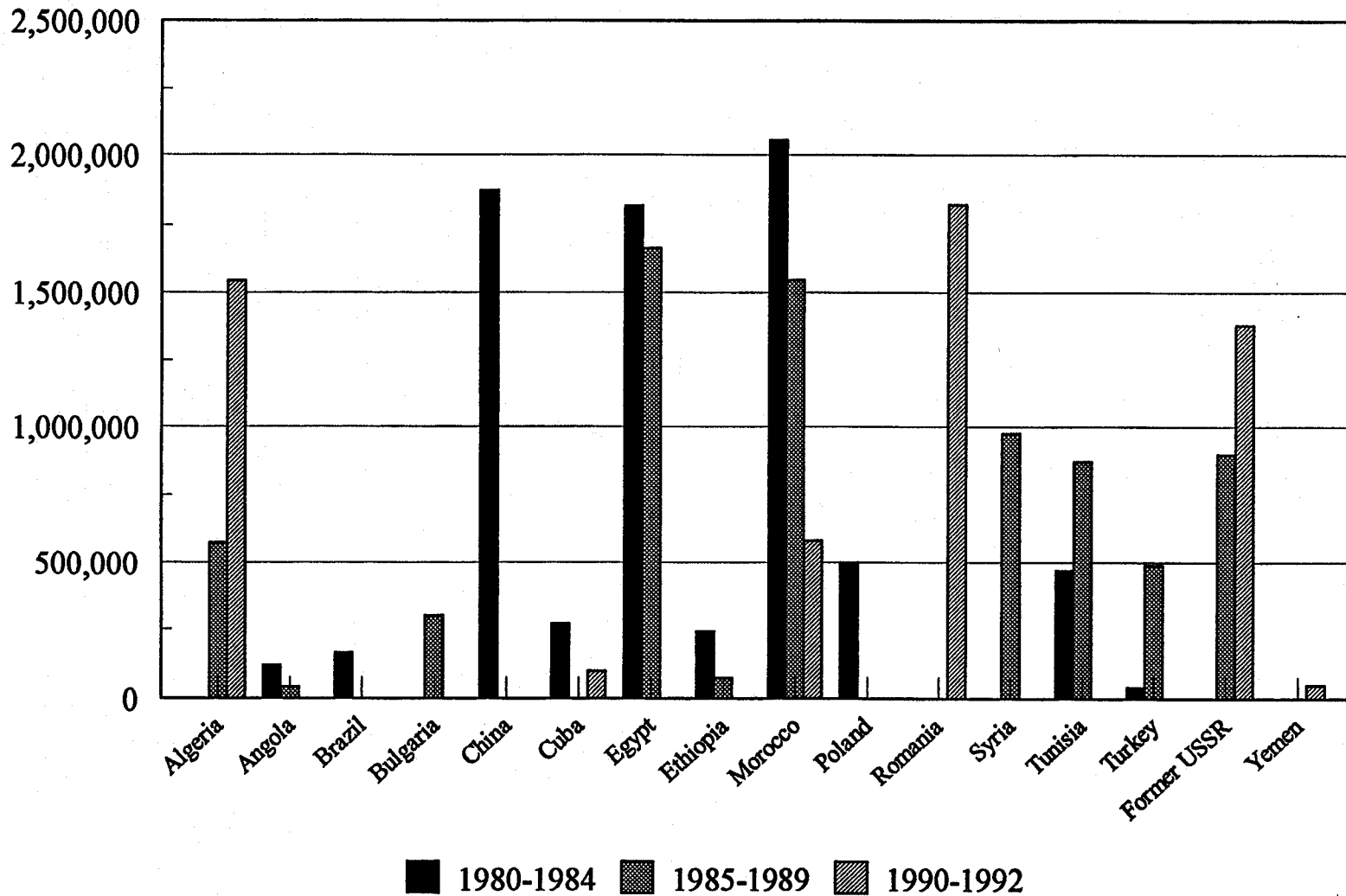
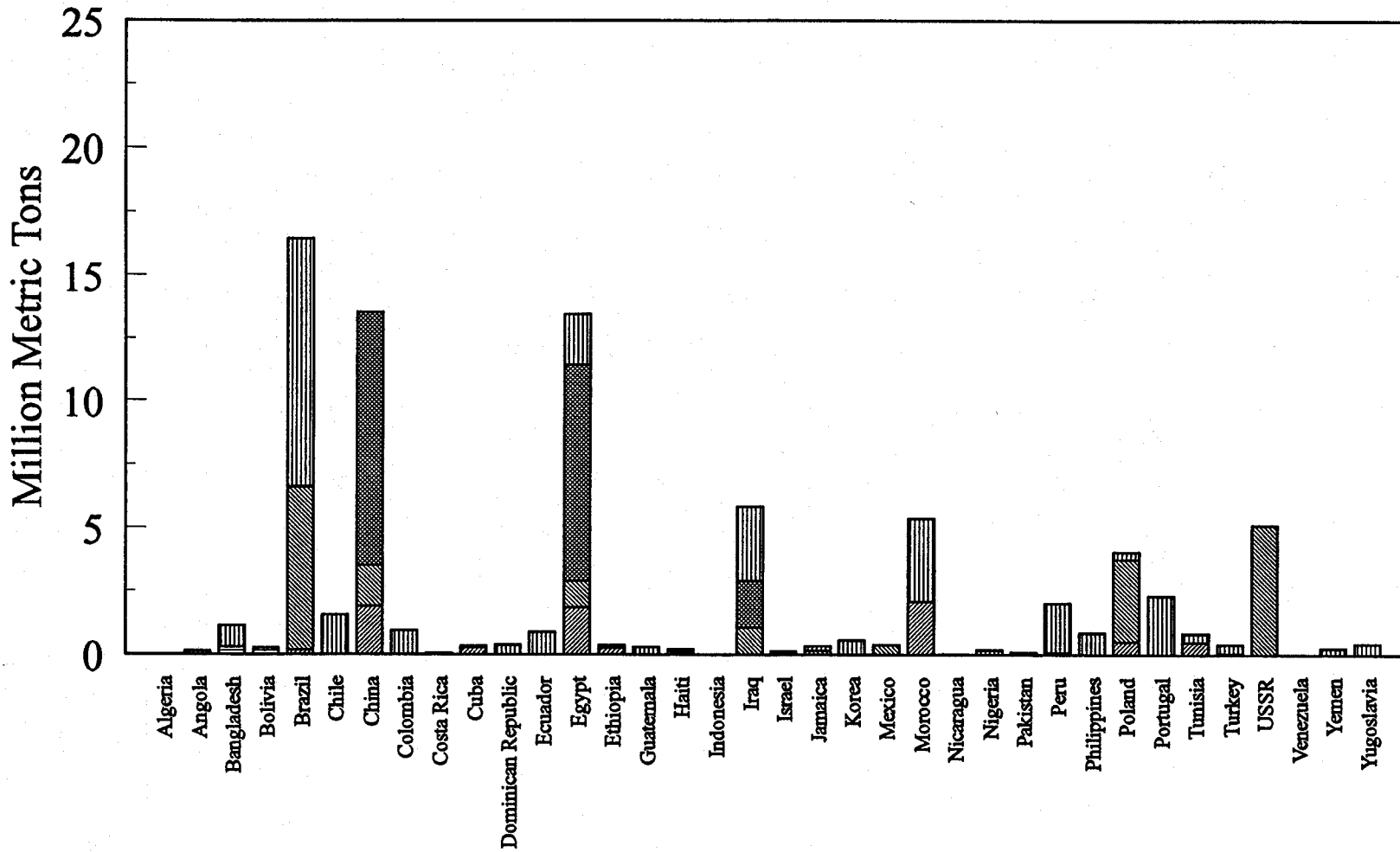


Figure 2.3 EU Wheat Exports Under Credit Guarantees, by Importing Country, by Importing Country, 1980-1984, 1985-1989, and 1990-1992.



■ EC ■ Canada ■ Australia ■ Argentina ■ U.S.
 Figure 3.1 Wheat Imports Under Credit Programs,
 by Importing Country and Export Credit Program, 1980-1984.

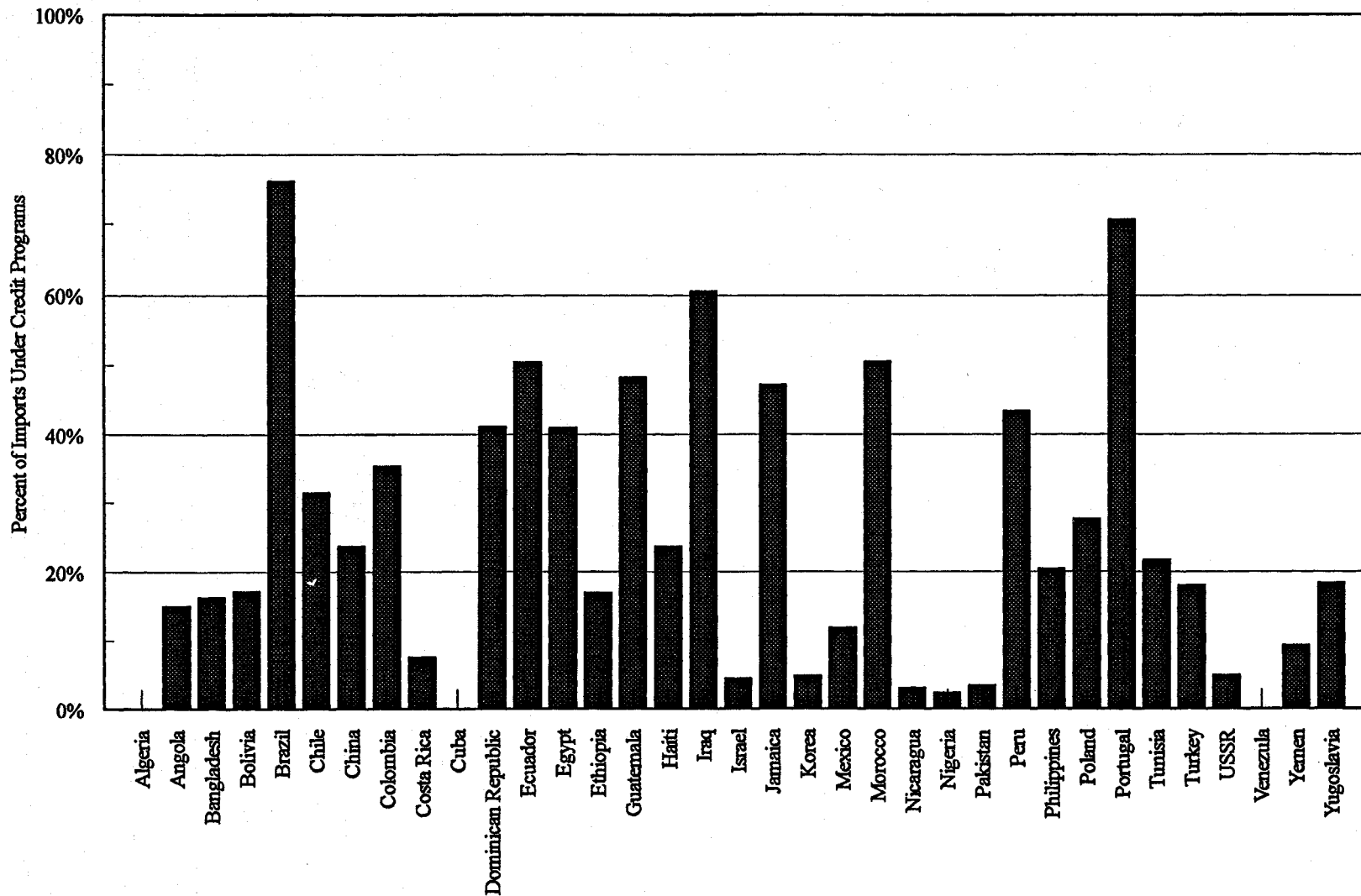
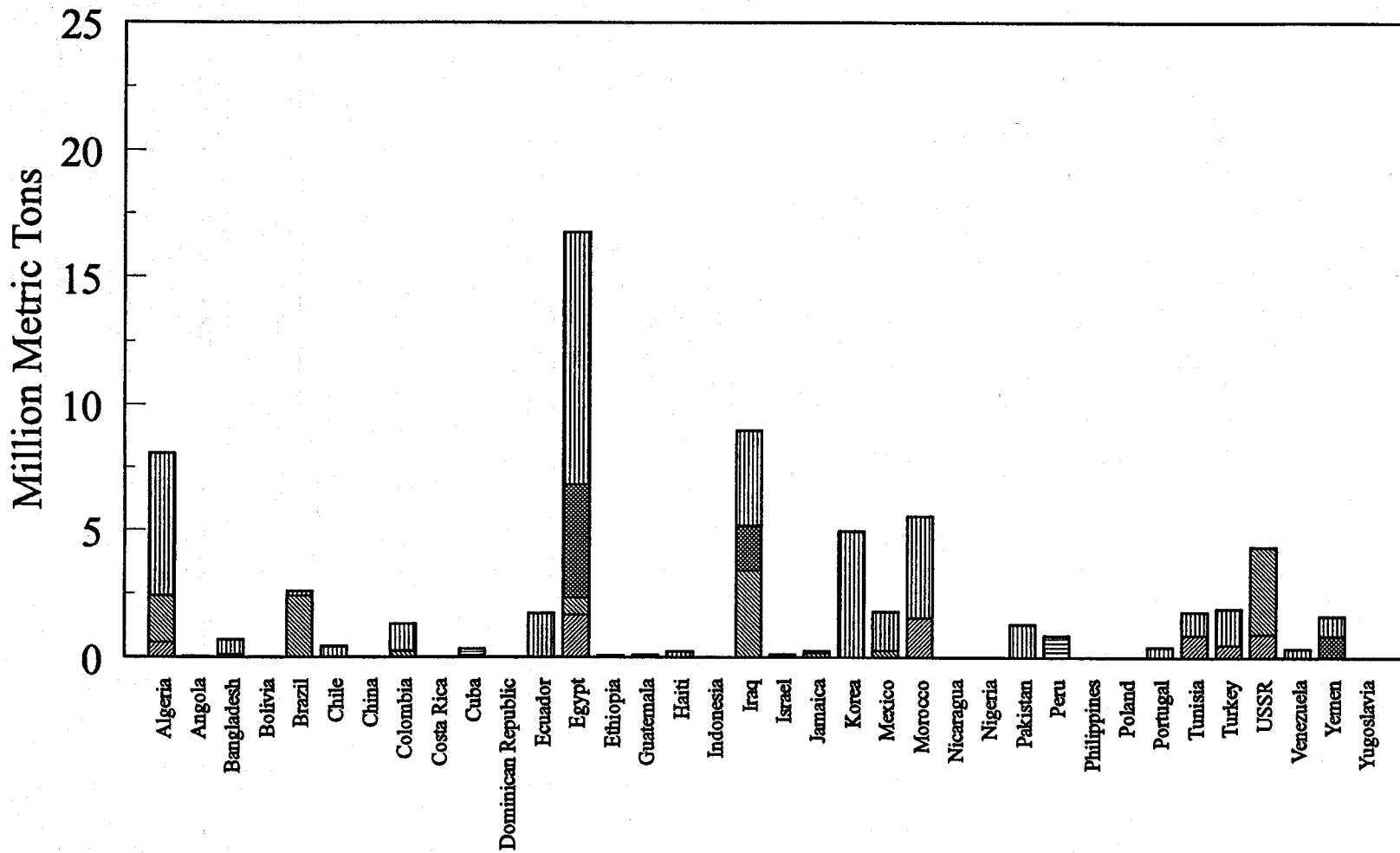


Figure 3.2 Percent of Wheat Imports Under Credit Programs, by Importing Country, 1980-1984.



EC
 Canada
 Australia
 Argentina
 U.S.

Figure 3.3 Wheat Imports Under Credit Programs, by Importing Country and Export Credit Program, 1985-1989.

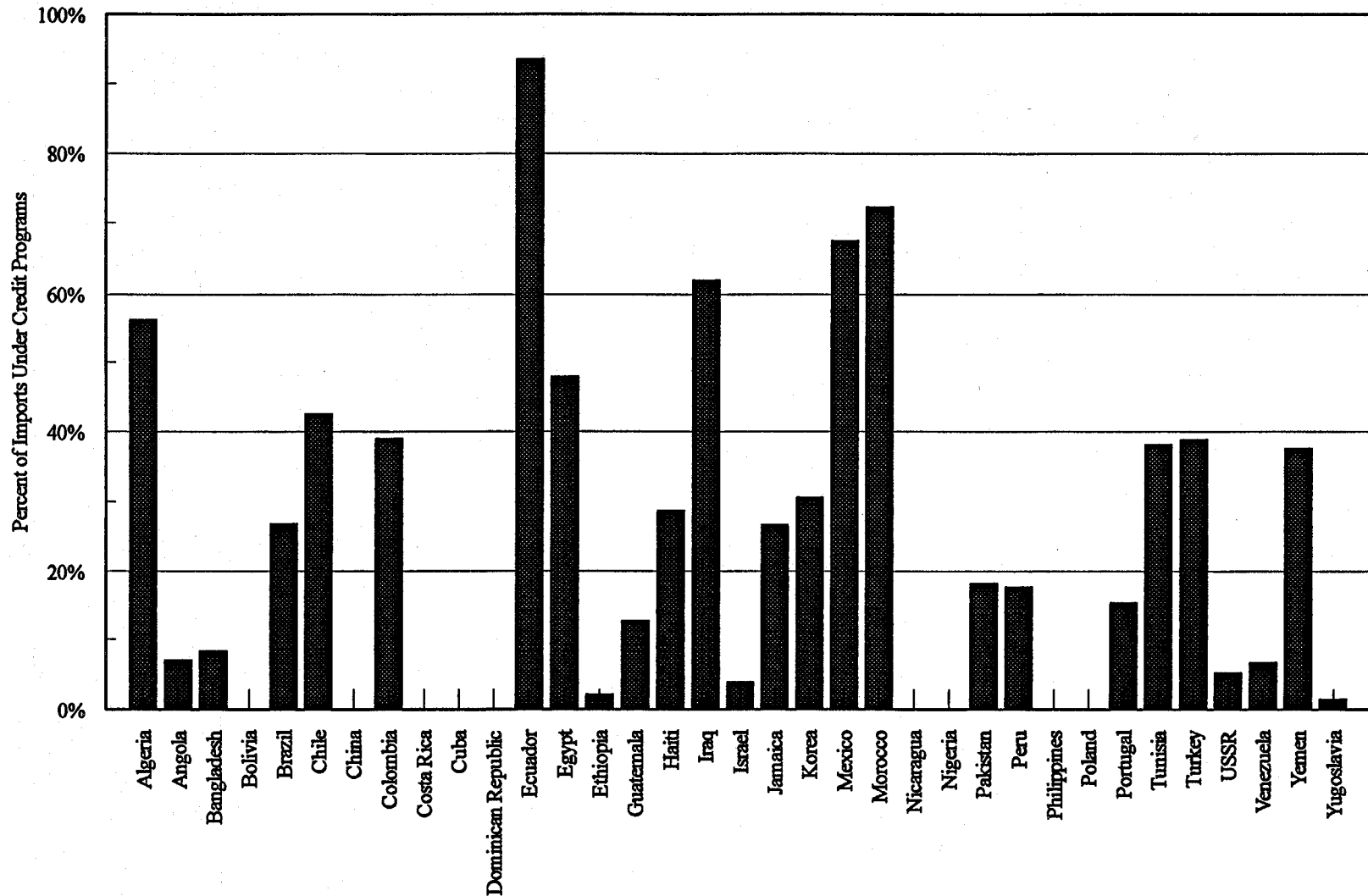


Figure 3.4 Percent of Wheat Imports Under Credit Programs, by Importing Country, 1985-1989.

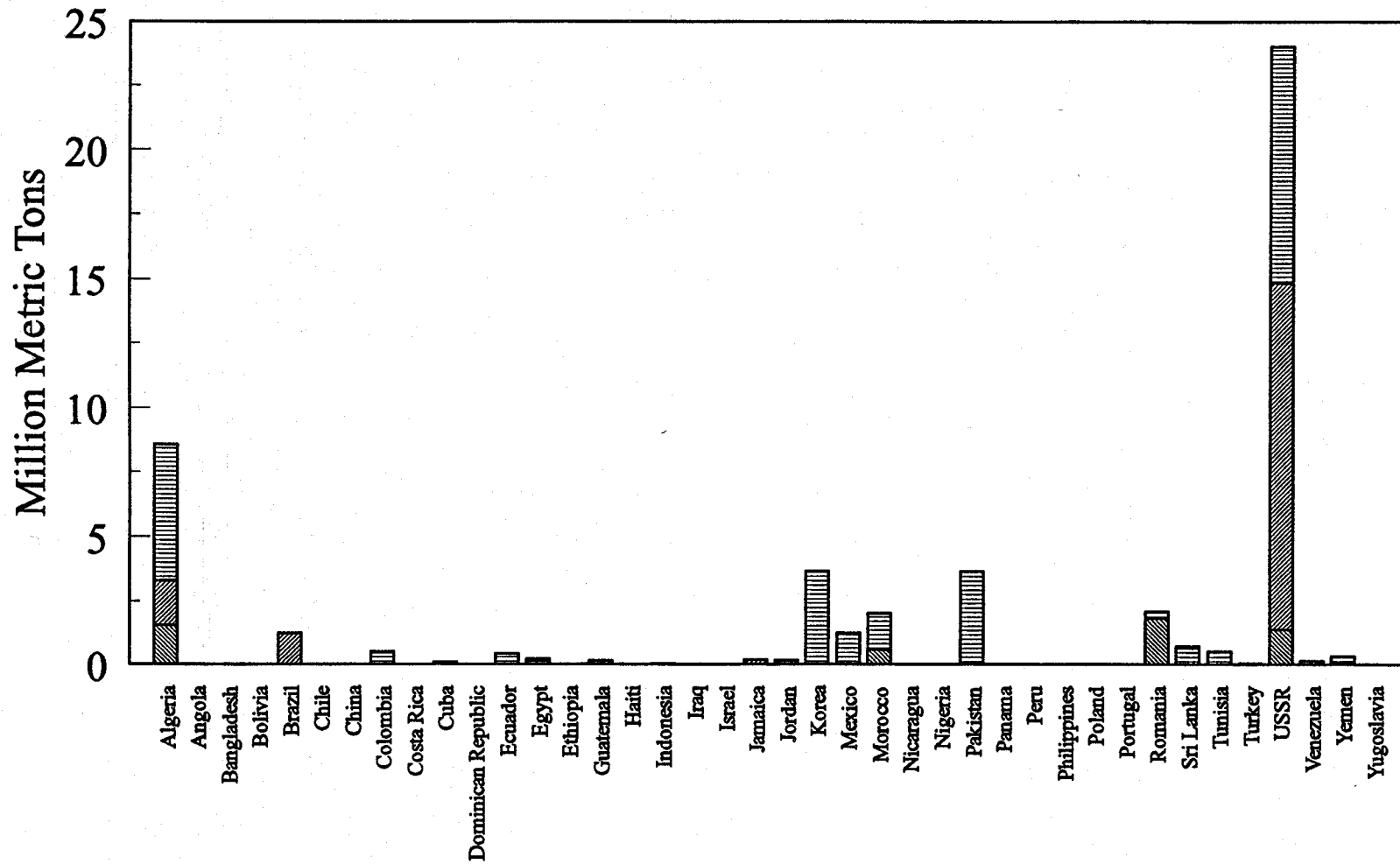
In 1990-1992, changes in the political and economic situation of the Former Soviet Union (FSU) had major implications for credit programs. The FSU became a huge user of export credit programs, with imports under credit (dollar value) more than three times as high as that for any other importer (Figure 3.5). The percent of FSU wheat imports under credit programs amounted to more than 45 percent. Also during 1990-1992, Algeria, Romania, and Pakistan relied heavily on credit programs, importing more than 95, 80, and 55 percent of wheat imports under credit programs, respectively (Figure 3.6).

Evolution of Russian Credit and Reactions of Exporting Countries

The USSR was a limited user of export credit programs in the 1980s. Prior to 1988, most sales of grains to the Soviet Union were made strictly on a cash basis, except for periodic (though large) credit sales by Canada. Major purchases under credit programs during this time included 5.0 MMT of wheat and 1.4 MMT of barley purchased from Canada in 1982. No other purchases were made under credit programs until 1989. At that time, exports under credit programs were extended by the EU and Canada. Credit guarantees were later extended by the United States in 1990 (FY 1991). Continuing levels of credit guarantees were extended by all three exporting countries in 1990 and 1991. This included Ecu 1.5 billion (US\$ 1.65 billion) in credit extended by the EU in December 1991. In 1992, exports from Canada and the U.S. under guarantees dropped significantly, while exports from the EU continued to rise (Figure 4).

In September 1991, FSU defaults on Canadian credit guarantees prompted Canada to suspend shipments. Canada's total credit line to the FSU at that time was C\$1.5 bn. The United States also changed provisions at this time for new GSM-102 credit guarantees to the FSU, Russia, and Ukraine. Coverage was increased from 98 to 100 percent of the principal. The interest coverage was also extended, guaranteeing interest at the prevailing rate for 52-week Treasury bills. However, since the breakup of the Soviet Union, only Russia has received the 100 percent guarantee for principal. The other republics have received the standard 98 percent guarantee (Sheffield).

In September 1992, the U.S. announced \$1.15 bn in assistance to the FSU, including \$900 million in GSM-102 credits and \$250 million for PL-480. Of the \$900 million allocated to GSM-102 credit guarantees, \$100 million was made available in FY 1992, \$500 million was available from October to December 1992, and \$300 million in 1993. However, in November 1992, GSM-102 credit guarantees to the FSU were stopped. Accumulated arrears by the FSU under the GSM-102 program at that time exceeded \$225 million. By February 1993, arrears by the FSU under GSM-102 exceeded \$354 million, and the U.S. government had reimbursed commercial banks \$125 million. By March 22, 1993, defaults exceeded \$564 million, and commercial banks had filed requests for repayment of \$249.5 million (IWC).



■ EC ■ Canada ■ Australia ■ Argentina ■ U.S.

Figure 3.5 Wheat Imports Under Credit Programs,
by Importing Country and Export Credit Program, 1990-1992.

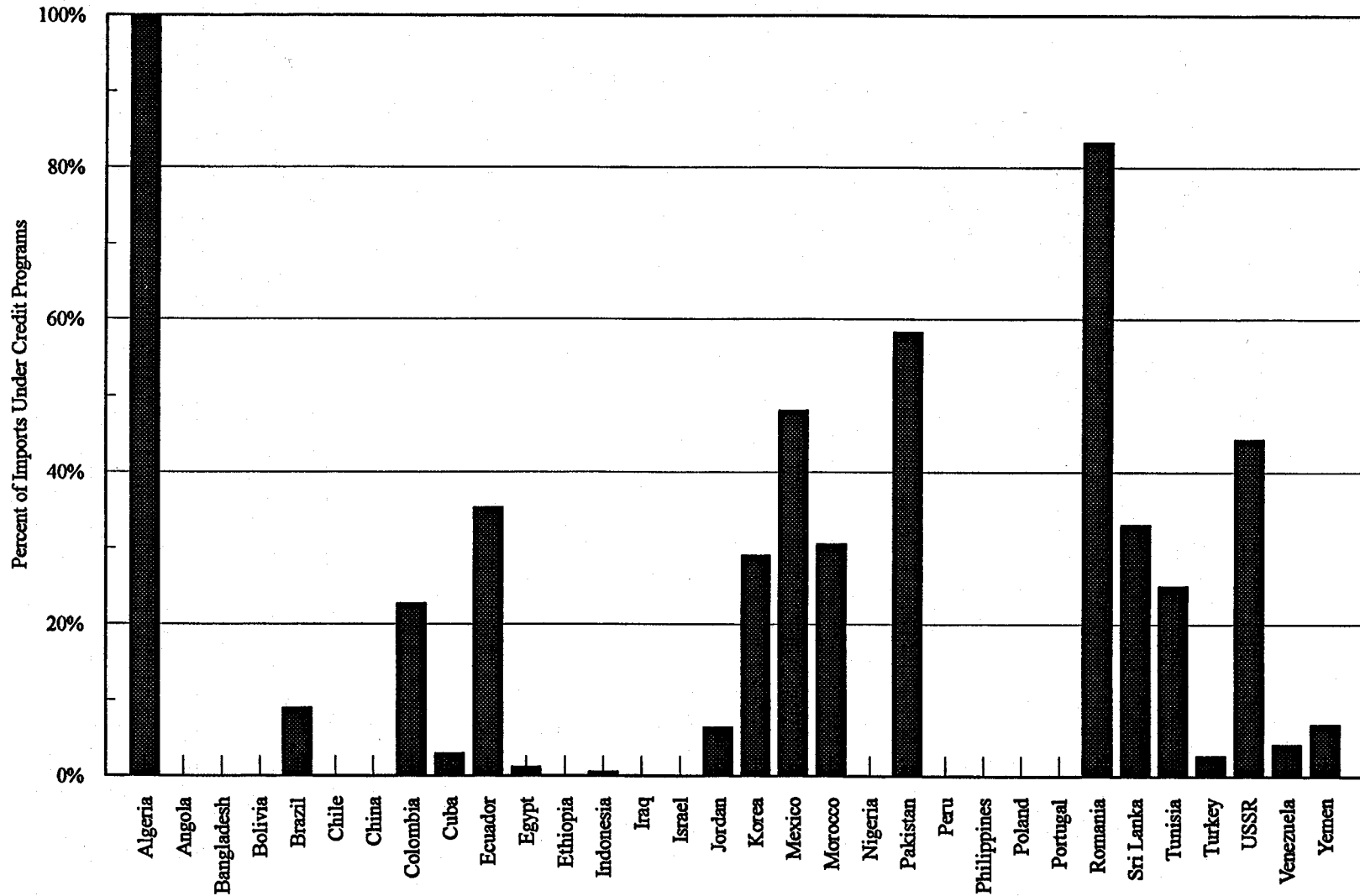


Figure 3.6 Percent of Wheat Imports Under Credit Programs, by Importing Country, 1990-1992.

Metric Tons

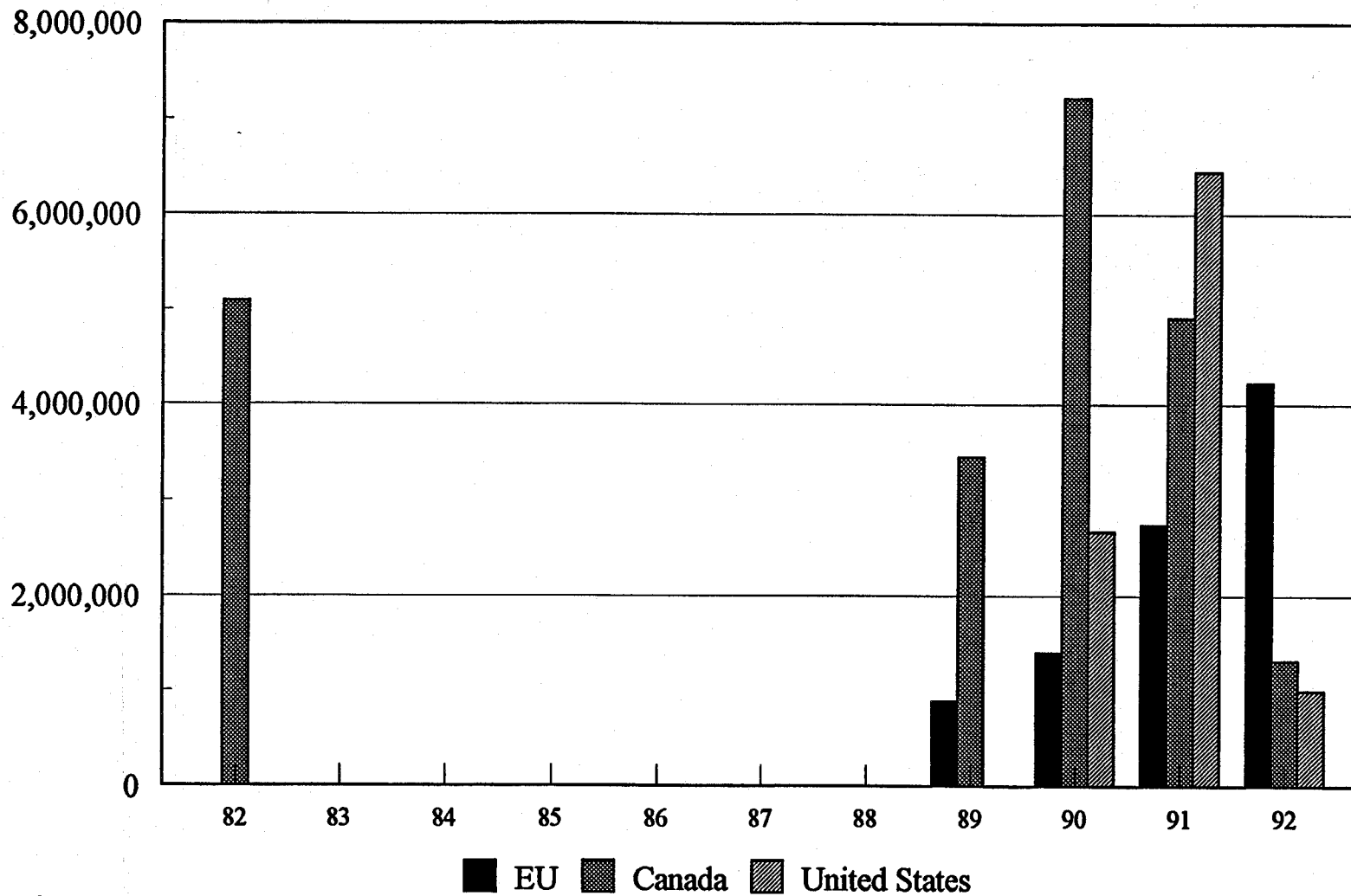


Figure 4.0 Wheat Imports Under Credit Programs to the USSR or FSU, by the United States, EU, and Canada, 1982-1992.

In March 1993, the FSU started to make payments to Australia on outstanding credit arrears of US\$50 million under credit arrangements for grain shipped in 1991. Australia agreed to extend future credit on a revolving basis as long as payments on arrears continued.

The Paris Club met on April 2, 1993.⁴ Its main purpose was to alleviate Russia's external debt situation, estimated in excess of \$80 billion. Provisions were made to reschedule \$15 billion of this debt, which included \$1 billion of U.S. GSM-102 credits. Arrears under GSM-102 exceeded \$759 million at that time.

In April 1993, Canada extended additional credits totaling C\$200 million, half of which reactivated 477,000 tons of wheat exports under previous agreements that had been suspended in 1991. Further, the U.S. extended a new aid package of \$1.6 billion of which \$700 million was for the PL-480 Food for Progress program which was subject to cargo preference requirements (75 percent of shipments to be carried on U.S. vessels). Since freight rates for U.S. vessels exceeded world rates, this reduced the value of U.S. assistance. Estimates indicated that \$200 million of the \$700 million would be required to meet U.S. shipper's transportation costs.

In May 1993, the U.S. and FSU agreed to split transportation costs required by cargo-preference requirements of PL-480 for aid granted in April 1993. Future grain sales to the FSU by all exporting countries were expected to remain at 80 percent credit and 20 percent barter trade (IWC, April 1993, p. 1:1-1:4). Arrears by the FSU under Food and Freight Credits from May 1993 to September 1994 are shown by exporting country in Table 1 and Figure 5.

By the end of September 1993, net arrears under the GSM-102 program were \$1.3 billion. The United States and Russia signed the agreement to reschedule \$1.07 billion in GSM debt set out during the Paris Club meetings in April of that year. In the agreement, Russia agreed to pay \$444 million in three installments by December 31, 1993. Payments were being made to the U.S. France, and Canada in February 1994 (Grain Market Report). In March 1994, accumulated arrears under food and freight credits outstanding to the U.S., Canada, France, EU, and Australia rose to \$1,922, \$968, \$508, \$122, and \$87 million, respectively (Figure 5.0).

⁴The Paris Club is a forum where debtor and creditor countries meet to reschedule international debt.

Table 1. Accumulated Arrears Under Food and Freight Credits by the Former Soviet Union, 1993-1994

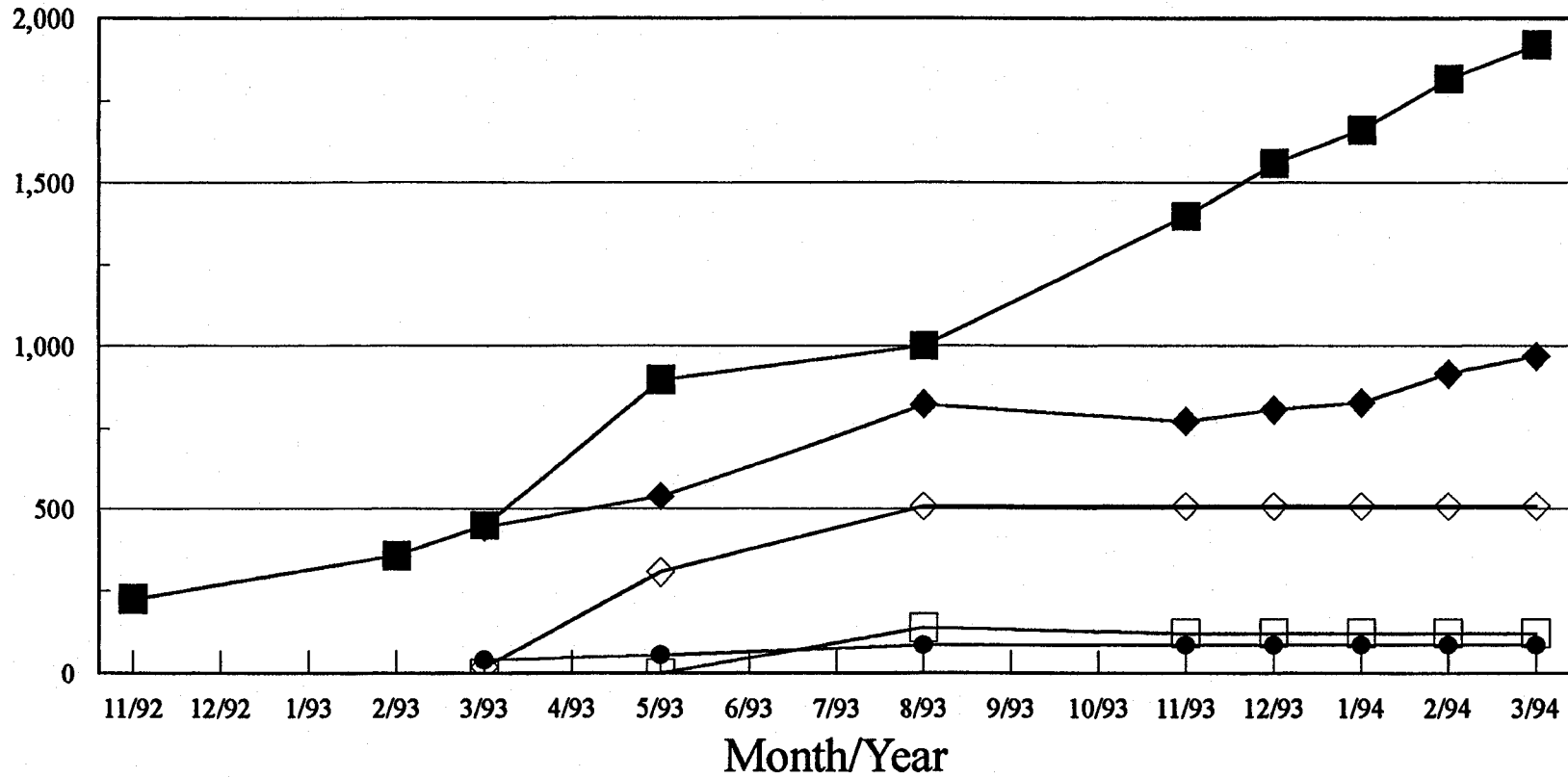
Item/Country	1993			1994		
	Mar 1	May 1	Aug 1	Feb 1	Jun 1	Sep 1
----- (million dollars) -----						
Food Credits						
Australia	41	56	87	87	87	87
Austria	--	--	33	33	33	33
Canada	442	539	823	915	1092	1221
EU	--	--	140	96	130	114
EU COFACE	19	305	508	508	727	1017
EU Italy	8	38	68	81	87	104
Germany	--	--	--	--	223	223
Hungary	3	3	3	20	26	26
Thailand	52	63	63	58	57	57
Turkey	--	--	113	120	120	120
U.S.	448	897	1001	1817	2509	2793
Freight Charges						
Third countries	3	5	3	3	3	6
CIS companies	75	78	78	77	68	67
Russian companies	74	38	13	5	6	26
Total	1145	2023	2933	4020	5329	6054

Sources: IWC GMR 216 p.1:5 Aug 1993, Agrokhleb Sept 1994.

In April 1994, Russia had again applied to the Paris Club for rescheduling of debt payments due in 1994 (Grain Market Report). By May 6, 1994, accumulated defaults on GSM credits by Russia totaled \$2.5 billion. Russia remained ineligible for new credits under the GSM programs. Further, CCC was for the first time examining extension of GSM credits to Russia based on the creditworthiness of Russian banks rather than the Russian government. However, USDA had not yet acquired reports from Russian banks for 1993 that would allow USDA to construct a private sector program (Vanderbeek).

On June 5, 1994, the Paris Club rescheduled US\$7 billion of Russia's debt to foreign governments. Repayment will be over 15 years with a three-year grace period. This made Russia current on payments for GSM loans and eligible for further commitments (Knight Rider).

US \$ Millions



US Canada France EU Australia
 —■— —◆— —◇— —□— —●—

Figure 5. Accumulated Arrears Under Food and Freight Credits by the Former Soviet Union, by Exporter, Nov. 92 - Mar. 94.

Source: VAO ExportKhleb, Grain Market Report.

Changing Composition of Importers

The composition of importing countries using export credit programs for wheat and wheat flour has undergone important changes during the past two decades. In this section, indicators of financial conditions for wheat importing countries are examined, and economic factors associated with the use of credit programs are identified.

Data Sources and Scope

To provide some perspective on changing conditions, selected financial indicators were collected for countries importing wheat in 1973, 1982, and 1992. Financial indicators examined included total external debt, gross national product, exports of goods and services, imports of goods and services, international reserves, current account balance, total debt rescheduled, and Euromoney risk rating (score). The Euromoney score is an index scaled from 0 to 100, with 100 representing highest creditworthiness. Several ratios were also included: the debt service ratio (interest and amortization relative to exports of goods and services), ratio of international reserves to monthly imports, ratio of current account balance to exports of goods and services, and net debt (external debt minus international reserves) relative to GNP, net debt relative to exports of goods and services; and proportion of short-term debt. Data were obtained from the World Tables and World Debt Tables, published by the World Bank.

Rather than comparing indicators for individual countries, the analysis is based on weighted averages. Two weighting schemes are utilized. First, financial indicators are weighted by each importer's share in total wheat trade. The result is a weighted average for all wheat importing countries (Table 2). The second scheme contains a subset of importing countries that used credit programs in a particular year and is weighted based on the importing country's share of total export credits for wheat from major exporting countries (U.S., Canada, France, Australia, Argentina). Therefore, this second scheme portrays characteristics for an average country importing wheat under credit guarantees (Table 3). Data for deriving trade weights were taken from IWC (1991) and various issues of The Grain Market Report. Data for credit weights were obtained from a number of sources, including IWC, Canadian Wheat Board, EFIC, and USDA-FAS.

Table 2. Mean Wheat Importer Characteristics, Weighted by Percent of Wheat Trade Per Year, for Selected Years*

Item	Year		
	1973	1982	1992
Dollars Per Capita			
Total external debt	114.63 (10.10)	430.92 (36.89)	538.75 (59.37)
Gross National Product	473.15 (34.77)	1014.08 (81.95)	1919.88 (210.66)
Exports goods/services	90.78 (9.33)	235.29 (24.06)	503.00 (71.86)
Imports goods/services	98.28 (9.08)	286.12 (27.27)	545.64 (76.76)
International reserves	51.76 (7.34)	78.28 (17.91)	168.31 (24.32)
Current account balance	-4.32 (1.80)	-46.50 (5.80)	-33.75 (9.56)
External debt rescheduled	.06 (0.01)	.63 (0.22)	28.57 (14.64)
Rankings			
Score	--	49.53 (1.21)	48.05 (2.12)
Ratios (%)			
Debt service ratio	16.15 (1.16)	25.62 (1.84)	21.06 (1.80)
Net debt ratio	18.90 (1.34)	36.65 (3.46)	40.62 (3.30)
Net debt/GNP ratio	21.64 (1.43)	42.95 (3.49)	51.09 (3.96)
Reserve/imports ratio	4.52 (0.22)	4.69 (0.33)	4.74 (0.31)
Cur. account/exports ratio	-3.69 (1.32)	-17.69 (2.73)	-4.00 (3.70)
Percent debt short term	10.58 (0.84)	20.86 (0.86)	28.57 (14.64)

* Standard deviation of values are presented in ().

Table 3. Mean Wheat Importer Characteristics for Countries Importing Wheat Under Credit Guarantees/Insurance, Weighted by Percent of Wheat Trade Under Credit Per Year, for Selected Years*

Item	Year		
	1973	1982	1992
Dollars Per Capita			
Total external debt	74.03 (29.60)	655.67 (39.10)	814.09 (62.56)
Gross National Product	387.60 (91.27)	1268.73 (101.30)	2325.37 (302.02)
Exports goods/services	44.30 (16.55)	246.56 (23.52)	701.04 (96.98)
Imports goods/services	53.93 (20.25)	334.75 (25.38)	740.32 (104.14)
International reserves	67.31 (5.41)	47.27 (5.62)	174.38 (22.74)
Current account balance	-9.36 (3.80)	-80.40 (6.30)	-33.77 (13.06)
External debt rescheduled	.06 (0.03)	.96 (0.22)	7.88 (2.61)
Rankings			
Score	--	47.79 (1.65)	44.18 (2.04)
Ratios (%)			
Debt service ratio	12.08 (5.16)	43.86 (3.60)	35.65 (3.36)
Net debt ratio	14.60 (1.65)	60.52 (5.08)	39.97 (3.00)
Net debt/GNP ratio	10.82 (4.17)	65.30 (5.30)	48.44 (3.40)
Reserve/imports ratio	7.19 (0.39)	2.21 (0.30)	3.15 (0.25)
Cur. account/exports ratio	-6.85 (5.90)	-37.52 (3.43)	-7.99 (2.50)
Percent debt short term	4.20 (1.92)	18.11 (0.88)	14.80 (1.57)

* Standard deviation of values are presented in ().

Results

Table 2 shows economic and financial indicators (weighted averages) for all wheat importing countries in 1973, 1982, and 1992.⁵ Total external debt, gross national product, current account balance, reserves, exports, imports, and reschedulings are all expressed in per capita terms. Euromoney rankings are index numbers. Ratios are in percentages.

Total external debt per capita increased from \$114 in 1973 to \$430 in 1982, the onset of the developing country "debt crisis." The following period, ending in 1992, shows a small nominal increase in external debt to \$539 per capita. In part, this reflects the changing composition of the wheat trade, i.e., shifts in country weights. Countries with high per capita debt loads accounted for a smaller fraction of total wheat trade in 1992 than in 1982.

More revealing are the changes in various ratios. The debt service ratio, a standard measure of debt-servicing capacity, shows a sharp increase between 1973 and 1982, from 16 to 25 percent. It declined thereafter to 21 percent in 1992, indicating an easing of debt service relative to export earnings. On the other hand, net debt ratios (relative to GNP and to exports) show further, moderate increases from 1982-1992. The ratio of reserves to monthly imports, a measure of short-term liquidity, showed little change over the period, while the current account deficit (relative to export earnings) was substantially reduced by 1992.

Euromoney scores were not available prior to 1979, and comparisons across years are somewhat tenuous in any case because of changes in the method of calculation. The weighted averages for 1982 and 1992 show a slight decline (lower creditworthiness) between 1982 and 1992. However, the standard deviation nearly doubled, indicating an increased disparity among countries. This reinforces the mixed impression left by changes in ratios. Although the immediate burden of debt service appears to have lessened by 1992, there are few indications of dramatic improvement in creditworthiness, and, on some measures, the situation worsened for wheat importing countries.

⁵The intent was to choose observations with 10-year intervals. However export credits for wheat were not utilized in 1972, so 1973 was examined instead.

Table 3 provides similar information for the subset of importing countries that bought wheat under credit programs and is weighted by the proportion of total wheat credits utilized. This group has changed through time. Thus, indicators for different years reflect the changing composition of importing countries utilizing credit programs in addition to changing economic conditions. The data show (on average) large increases in debt loads for countries importing wheat under credit. However, between 1982 and 1992, the ratio of net debt to exports decreased from 61% to 40%, while the ratio of net debt to GNP decreased from 65% to 48%. The ratio of reserves to monthly imports also increased marginally from 2.21 to 3.15. These three measures indicated marked improvement in liquidity that has resulted in credit importers having similar or marginally better liquidity than all wheat importers. In addition, the debt service ratio declined from 44% to 36% from 1982 to 1992, but still remains at 150% of the debt service ratio for all wheat importers. The Euromoney score in 1992 shows a slight worsening of creditworthiness for all countries importing wheat and for countries utilizing credit guarantees, but the drop in creditworthiness was largest for importing countries using credit. Apart from these contradictory indicators, the 1992 data generally suggest that situations for credit recipients improved between 1982 and 1992.

Other characteristics of wheat importing countries provide insight on prospective users of export credit programs. Krause et al. examined social and financial characteristics of wheat importers in 1989 to identify market segments. A cluster analysis was used to segment wheat importing countries based on standard of living, the economic welfare of the nation, propensity to trade, propensity to consume, media availability, and degree of urbanization. Their study divided wheat importing countries into 10 clusters. Interestingly, countries importing wheat under credit guarantees from Canada, EU, and the U.S. during 1989-1991 fall into four of these clusters (Groups 1, 5, 6, and 7). Although differing on other characteristics, these four clusters of countries possess similar values for many of the variables used to quantify the standard of living. Countries in these clusters possess moderate to low standards of living with an average GDP of \$825 to \$2772 per capita, average money supply of \$309 to \$2577 per capita, average energy consumption of 363 to 1647 kg of oil equivalent per capita, and average caloric consumption of 2325 to 2947 calories per capita per day.

Krause et al. evaluated the potential to increase value-added exports to each of the 10 clusters of wheat importing countries. They indicate that one of the four groups receiving imports under export credit programs [Cluster 1, (Table 4)] contains some of the poorest countries in the world. These are not candidates for exports of value-added commodities, but are likely candidates for exports of commodities and intermediate processed goods. Therefore, countries in this group could be potential users of GSM credits for wheat. The remaining three groups receiving wheat imports under credit guarantees (Clusters 5, 6, and 7) hold the most potential for future consumption of value-added agricultural goods. These countries are prospective users of GSM programs for wheat, but could also be targeted for sales of value-added products.

Table 4. Country Clusterings

Cluster 1	Cluster 5	Cluster 6	Cluster 7
Bangladesh	Algeria	Barbados	China
Bolivia	Brazil	Botswana	Gabon
Cameroon	Chile	Cyprus	Indonesia
Chad	Columbia	Czecho- slovakia	Madagascar
Comoros	Congo	Guyana	Mexico
Costa Rica	Ecuador	Hungary	Poland
Dominican Rep.	Egypt	Jamaica	Turkey
El Salvador	Iran	Korea	Yugoslavia
Ethiopia	Israel	Lesotho	
Fiji	Jordan	Malaysia	
Ghana	Paraguay	Portugal	
Guatemala	Saudia Arabia	Romania	
Haiti	Suriname	Swaziland	
Honduras	Trinidad and Tobago	Thailand	
India	Venezuela		
Ivory Coast			
Mali			
Mauritania			
Morocco			
Nigeria			
Pakistan			
Panama			
Philippines			
Senegal			
Seychelles			
Sierra Leone			
South Africa			
Sri Lanka			
Sudan			
Syria			
Tunisia			
Uganda			
Yemen			
Zaire			
Zambia			
Zimbabwe			

Source: Krause et al.

EXPORT CREDIT PROGRAMS OF MAJOR GRAIN EXPORTING COUNTRIES

Export credit guarantee and/or export credit insurance programs are offered by most major exporting countries of agricultural commodities. These programs typically cover political and/or commercial risks to exporting firms. Programs for export of agricultural commodities are predominately for short-term coverage (less than 3 years). This section reviews credit programs of major exporting countries for agricultural products. Program provisions, history, terms, and procedures are presented for most agricultural credit programs by exporting country.

United States Export Credit Programs

The United States has several programs that provide export credit guarantees for agricultural products. The main credit guarantee programs are GSM-102 and GSM-103, operated by the Commodity Credit Corporation (CCC). GSM-102 provides short-term (less than 3 years) and GSM-103 provides medium-term (3 - 10 years) loan guarantees for exports of U.S. agricultural products. In addition, the CCC has another program that was authorized in 1990 that offers credit guarantees to emerging democracies. That program provides additional funding for the GSM-102 and GSM-103 programs and is targeted toward emerging democracies in eastern Europe. Other credit guarantee programs administered by CCC are authorized, but not operational. The Foreign Credit Insurance Association (FCIA) also provides export credit insurance that may be used to guarantee direct credit sales made by the Export Import Bank of the United States (Eximbank). Use of FCIA guarantees and Eximbank direct credit sales for export of agricultural commodities from the U.S. has been limited. The U.S. also provides concessional credit sales through P.L. 480 Title I.

GSM-102 and GSM-103

GSM-102 and GSM-103 provide export credit guarantees for agricultural commodities purchased by foreign buyers. GSM-102 was initially authorized in 1980 and is used to grant short-term credit of 3 years or less from U.S. banks at commercial rates. Under this program, the CCC guarantees 98 percent of the port value plus 4.5 percent (lowered to 2.8 percent in July of 1992) of the accrued interest up to 3 years. The Food, Agriculture, Conservation, and Trade Act of 1990 made \$5 billion available for this program annually. In fiscal year 1993, \$5 billion in credit guarantees were available for this program.

GSM-103 was authorized in 1985 and is used to grant credit for between 3 and 10 years at commercial interest rates. In this case, CCC guarantees 98 percent of the port value and 4.5 percent of accrued interest for up to 10 years. This program is designed to help developing countries make the transition from concessional financing to cash purchases. For fiscal year 1993, \$500 million in credit guarantees were available for GSM-103.

The Food, Agriculture, Conservation, and Trade act of 1990 modified provisions of GSM-102 and GSM-103. Provisions of the Act prohibit the Secretary of Agriculture from issuing export credit guarantees to any country that the Secretary determines cannot adequately service the debt. The Act also prohibits issuance of export credit guarantees for foreign aid, foreign policy, or debt rescheduling purposes. Provisions suggest a shifting of policy objectives away from determination of allocations of credit guarantees based on export market potential and toward limiting potential losses incurred by the programs. The 1990 Act also established a new credit guarantee program for emerging democracies. This new program provides at least \$1 billion in additional GSM-102 and GSM-103 credit guarantees to promote agricultural exports to emerging democracies for 1991-1995. A portion of these guarantees can be used to establish or improve handling, marketing, processing, storage, or distribution facilities within emerging democracies (Smith et al., 1991).

In 1982, a three-year blended credit program was implemented to expand exports. Under the program, interest-free direct government credits (GSM-5, described in a later section) were blended with government guaranteed private credits (GSM-102) to produce a lower interest rate. Credit was blended at the ratio of four parts of guaranteed private credit (GSM-102) to one part interest-free direct credit (GSM-5). These credits were principally offered to developing countries for up to three years. Blended credit was suspended in 1985 following a legal ruling that it would be subject to the Cargo Preference Act, which stipulated that half of all government-impelled shipments be made in U.S. vessels.

Procedures for GSM-102 and GSM-103

Congress determines the maximum amount of credit exposure allowed for both GSM-102 and GSM-103. Each year, FAS establishes recommendations for country allocations of credit guarantees. Foreign buyers then arrange financing through a U.S. financial institution, purchase an agricultural commodity from a U.S. exporter, and arrange a letter of credit issued in favor of the exporter by a CCC-approved foreign bank in the buyer's country. The exporter applies for the credit guarantees from the CCC. Applications can be either accepted as is, accepted with modifications, or rejected. After applications are accepted and the commodity is shipped, the exporter assigns the letter of credit to the U.S. financial institution in exchange for cash. The foreign bank makes periodic payments to the U.S. financial institution. If the foreign bank defaults on payments as specified, within 10 days of the default, the U.S. financial institution must file a claim with the CCC. The CCC pays the guaranteed amount to the claimant who in turn assigns the delinquent loan to the CCC. Responsibility for collection of loan payments is then given to the CCC. Importing countries can use all, a portion, or none of the credit guarantees allocated to their country for individual commodities.

Prior to 1990, FAS recommendations for commodity by country credit allocations were made by assessing 1) marketing possibilities in individual countries, as assessed by the commodity divisions in the Commodity and Marketing Programs (C&MP), 2) limits for

foreign banks as determined by CCC, and 3) Trade and Economic Information Division (TEID) country risk profiles. However, during this time, decisions on GSM-102, GSM-103 allocations relied almost exclusively on market potential. In 1990, procedures were changed so that information from CCC assessments of foreign banks and risk profiles of TEID increased in importance in the decision-making process for commodity by country allocations of credit. Procedures were changed again in 1993 (USDA-FAS, 1990, 1993).

Each year TEID generates country credit risk profiles from May to September and updates them if required. Credit risk profiles use three analytical procedures to determine key risk elements:

1. A country risk letter grade, based upon the country's willingness and ability to service its foreign debt in a timely manner. Grades range from A-F with designations of + or - to indicate a borderline case or that conditions are changing.
2. A country profile which analyzes economic, financial, political, and social conditions.
3. An annual credit exposure guideline, which provides a means of limiting risk based on current economic, financial, and political conditions.

Each year, starting in July, the FAS Reconciliation Committee meets monthly to review country credit risk profiles and decide on allocation levels for countries being analyzed. Eligible countries must offer potential for long-term market development and have debt or foreign exchange reserve situations which offer reasonable prospects for repayment, but with repayment risks greater than private U.S. banks will tolerate. FAS recommendations are sent to the National Advisory Council on International Monetary and Financial Policies for review and advice. The National Advisory Council is composed of members of the Departments of Agriculture, State, Treasury, and Commerce; the U.S. Trade Representative; the Federal Reserve; the Export-Import Bank; and the International Development Cooperative Agency. When approved by the National Advisory Council, FAS announces each country by commodity credit guarantee allocations for the year (USDA-FAS, 1990).

New Provisions for GSM-102, GSM-103 Established in 1993

The decision-making process for allocating GSM guarantees was modified in 1993. Procedures for analysis of risk assessment were modified so that they are more in line with current practices for risk assessment in the financial industry. General responsibilities and procedures for determination of credit allocations are as follows:

- a. FAS Program Development Division (PDD) develops country program allocations from information derived from Trade and Economic Information Division (TEID), Commodity and Marketing Programs (C&MP), Program Analysis Division (PAD), and the Financial Management Division of the Agricultural Conservation and Stabilization Service (FMD).
- b. TEID provides country risk assessments.
- c. C&MP provides reports which recommend country programming levels based on market potential.
- d. PAD is the Reconciliation Committee Coordinator and maintains historical GSM program usage data and compiles country packets.
- e. FMD provides assessments of eligibility for participation by foreign banks.
- f. Directors of PDD, TEID, C&MP, and FMD and other senior officials within FAS sit on the reconciliation committee. This committee determines the appropriate level of programming for potential country participants based on initial recommendations.
- g. Depending on risk grade, size of guarantee, and percentage the recommendation exceeds the annual exposure guideline, higher USDA officials may review the decision. Otherwise, the decision of the reconciliation committee is sent to the National Advisory Council. When approved, results are published.

In the TEID risk analysis, a general background report and qualitative reports are generated that examine the country's political situation, macroeconomic environment, balance of payments, liquidity, foreign debt burden, and debt repayment history. A quantitative analysis is used to assess risk using a risk rating model which establishes a baseline letter grade. Procedures for the quantitative analysis were modified in 1993. This analysis now focuses on 13 variables in the areas of macroeconomic environment, balance of payments, liquidity, foreign debt burden, and debt repayment history. New to the TEID analysis is an annual exposure guideline. This guideline is established by assessing IMF quota, risk grade, liquidity, confidence factor, and analysis of reserves. Annual exposure guidelines can be adjusted based on cumulative exposure analysis and adjustments (total exposure for a country), previous fiscal year's guideline, private versus public sector borrowing, and type of GSM credit. Final letter grades are adjusted up or down from baseline letter grades based on qualitative risk reports, comparisons with private sector ratings (Euromoney, Institutional Investor) and Interagency Country Risk Assessment System risk grades (group headed by office of Management and Budget with representatives from the Departments of State, Treasury, Eximbank, AID, USDA, and other agencies), and annual exposure guidelines.

Annual exposure guidelines are used to limit cumulative exposure to high risk countries. A total exposure guideline is set at 200 percent of the annual exposure guideline. If cumulative exposure exceeds the total exposure guideline, then that country is specified as overexposed and further analysis is required to determine if there should be adjustments. For cumulative exposures from 200 to 300 percent of annual guidelines, adjustments are small. If cumulative exposure under the GSM programs exceeds 300 percent of annual exposure levels, then strategies to limit overexposure become more drastic and can include limits on extension of credit, shortening of terms, and/or receiving payments on existing loans before granting new ones. These measures are particularly important if there are also other unfavorable conditions, e.g., low letter grades (USDA-FAS, 1993).

Both GSM-102 and GSM-103 require a fee paid by the importer. Fees range from 0.15 percent to 0.67 percent of the guaranteed value of exports under GSM-102, to 1.5 percent to 2.67 percent under GSM-103. Coverage does not include c.i.f. or c&f, except to match competing countries' offers or if the U.S. cannot compete without covering freight. In practice, the vast majority of exports under GSM guarantees are on an f.o.b. basis. All U.S. agricultural products are eligible for export under GSM-102 and GSM-103. Initially, 4.5 percent of interest was covered. In July 1992, the maximum interest covered was reduced to 2.8 percent. Interest rates charged under GSM-102 and GSM-103 are prime rate or LIBOR (London Interbank Offer Rate). This is less than rates charged without the credit guarantee because the financing bank assumes less risk.

Interest rates were fixed for the term of the loan until September 26, 1994, when CCC announced a new adjustable interest rate for both the Fiscal Year 1995 GSM-102 and GSM-103 programs. The adjustable rate is fixed for a period of one year based on the 52-week rate for Treasury bills and is adjusted annually. Rates for GSM-102 and GSM-103 are not to exceed 55 percent and 80 percent respectively, of the average investment rate of the most recent Treasury 52-week bill auction prior to the date rates are adjusted.

GSM-5 Direct Export Credit

In 1956, the USDA implemented the GSM-5 credit program under Commodity Credit Corporation (CCC) authority. This program was initially authorized in 1956 and was in operation from 1956 to 1980 and 1984. Under GSM-5, the CCC acted directly as the lender for foreign purchases of U.S. commodities. Initially, all sales were made out of CCC stocks. In 1965, CCC was authorized to purchase private stocks for direct credit sales. Interest rates charged were initially higher than CCC's cost of borrowing from the Treasury and later changed to .5 to 1.5 percentage points above the U.S. prime rate. In 1984, it was set at 1.5 percentage points higher than rates paid by the Treasury on 52-week Treasury bills. Maturities varied between 6 and 36 months. The GSM-5 program is authorized, but has not been operational from 1985 to the present.

GSM-101, GSM-201, GSM-301

The Agricultural Trade Act of 1978 authorized the credit programs GSM-101, GSM-201, and GSM-301. GSM-101 (The Non-Commercial Risk Assurance Program) provided credit guarantees for noncommercial risks such as foreign import embargoes, wars, or the freezing of foreign exchange. It provided credit through commercial institutions for 6 to 36 months. CCC guaranteed 98 percent of the principal and interest up to a maximum of 8 percent per year. The exporter was required to pay a guarantee fee to CCC. This program was in operation from 1979 to 1981 when it was merged into GSM-102.

GSM-201 and GSM-301 were intermediate term (3-10 years) direct credit programs. GSM-201 was authorized for sales of breeding animals and GSM-301 for financing market infrastructure. Both programs were authorized in 1993, but are not operational.

Export-Import Bank of the U.S.

The Export-Import Bank was established in 1934 to grant direct loans to exporters and guarantee private credits for export sales. Its mission was to promote U.S. exports, compete with foreign officially supported export financing, and supplement private export financing. In 1961, the bank created the Foreign Credit Insurance Association (FCIA). The FCIA is a composite of 50 private insurance companies operating under the Export-Import Bank umbrella. The FCIA provides export credit insurance for political and commercial risks to exporters and their banks. FCIA relies largely on opinions of the bank involved, major banks, private rating firms like Dun and Bradstreet, and Berne Union to determine when to extend credit guarantees. Premiums for FCIA guarantees are based on the type and length of the loan, the type of buyer, and the credit rating of the buyer. Rates increase as firms are classified from government buyers to private buyers. Since 1979, guarantees have required a 15 percent downpayment and will guarantee only 90 percent of the commercial risk. Guarantees for some agricultural exports can be increased to cover 98 percent of the risk.

The Export-Import Bank grants loans primarily for purchases of capital goods, and loans for agricultural exports have been limited. A sizeable portion of the Export-Import Bank's exposure in agriculture has been for exports of cotton and tobacco. It has also focused on financing foreign production of sugar. Export insurance for agricultural commodities are extended under a variety of Export-Import Bank programs. Insurance is for 360 days and covers 100 percent of the political and 98 percent of the commercial risk and interest up to the U.S. Treasury rate plus 1 percent. Premiums for Eximbank credit insurance range from .03 to 4.9 percent of the export value. Export loans and guarantees for agricultural commodities by the Export-Import Bank from 1934 to the present have formed only a minor percentage of total Export-Import Bank loans and have generally been less than \$100 million dollars per year (Ackerman and Smith).

*P.L. 480*⁶

All the major exporting countries (Canada, Australia, EU, Argentina) have food aid programs, as do other highly developed countries like Japan. The U.S. provides subsidized credit sales to needy countries under P.L. 480 Title I. Grants to needy countries are provided under P.L. 480 Title II. The U.S. is the only country that provides a portion of food aid as concessional financing. Other countries only provide food aid as grants.

P.L. 480 was established in 1954 from a combination of credit and aid programs. P.L. 480 contains three titles. Title I was initially authorized for credit sales to foreign countries with payments received in foreign currency. This title was initiated to allow purchases of commodities by foreign countries who were previously not able to purchase because of the inconvertibility of their currencies. Initially, loans were made for 3 to 5 years at market interest rates. Loans were repaid assuming a fixed exchange rate. This provided a foreign exchange subsidy to recipient countries if their currencies depreciated. Currencies were accumulated by the United States in foreign countries and used to partly defray U.S. expenses in that country. Title I sales required countries to pay for shipping. On shipments under Cargo Preference requirements, the recipient country was required to pay shipping costs equivalent to rates for shipment aboard foreign vessels and not the higher shipping costs for U.S. vessels.

Title II allowed donation of commodities to meet famine and other extraordinary relief requirements. Food aid under this title was in the form of government-to-government grants where various voluntary and international food agencies took over allocation and distribution within recipient countries. On Title II shipments, the recipient country does not pay for shipping, but is responsible for the costs of internal distribution of commodities. Title III was initially authorized for barter trade in strategic goods with food needy countries.

Title IV was added to PL 480 in 1959. This allowed long-term credit sales of surplus CCC agricultural commodities for U.S. dollars. Terms of sale included up to a 10-year delivery schedule for agricultural commodities purchased on credit, with a maximum term of 20 years. This title was initiated because the United States could not find ways to spend all the foreign currencies it was accumulating under Title I. Countries where the U.S. was accumulating foreign currencies were encouraged to accept dollar credit sales instead of sales for foreign currency.

In 1960, Title II was modified to permit donation of CCC inventories for economic development and self-help activities within recipient countries. It also authorized contributions under Title II to the World Food Program of the United Nations.

⁶Much of the information in this section is based on Cochrane and Ryan, Tarrant, Smith et al., and Ackerman and Smith.

In 1963, the Title III barter trade effort to obtain strategic materials had obtained significant stockpiles, and the program was used to procure goods for the U.S. military and foreign assistance agencies overseas. Prior to 1963, barter trade involved CCC stocks in inventory. After 1963, private stocks were exported under authority of the CCC Charter Act. The barter trade program portion of Title III was suspended in 1973. Foreign barter sales were made again with Jamaica in 1982-1984.

In 1966, modifications to P.L. 480 incorporated Title IV long-term dollar credit sales into Title I. Long-term credit sales for foreign currencies that were convertible were authorized, and a transition to dollar credit sales was initiated. At this time, recipient countries signing agreements under the convertible currencies provisions of Title I had a maximum term of 40 years to repay their loans. Recipient countries were required to put down a deposit of 5 percent of the value of the loan upon signing a PL 480 agreement. By 1973, dollar credit sales had totally displaced sales for foreign currencies. In 1968, foreign currencies collected under Title I were authorized for investment in local self help and other development programs.

In the period 1973-1975, U.S. and world stocks of commodities were drawn down, causing the United States to evaluate how much and to whom food aid should be distributed. In 1973-1974, 70 percent of concessional sales were required to go to countries most affected by food shortages as designated by the United Nations. In 1975, this was increased to 75 percent and special attention was directed toward increasing agricultural production in countries with under \$300 annual per capita income.

In 1975, a minimum level of 1.3 million tons of agricultural commodities was authorized to be distributed under the Food for Peace (Title II) program. This minimum level has subsequently been raised numerous times under succeeding legislation (1985 legislation changed the minimum to 1.9 million tons for 1987-90) (Ackerman and Smith).

Title III was reactivated in 1977 as the Food for Development Program to reinforce self-help development provisions enacted in the 1966 revision of P.L. 480. Countries were encouraged to use proceeds from sales of Title I commodities to support agricultural and rural development projects, nutrition and health services, and population planning. Eligibility for 75 percent of concessional aid was changed to the 1977 poverty level established by the International Development Association.

In 1985, P.L. 480 was amended to allow repayment of long-term loans under Title I with foreign currencies. Commodities sold for foreign currencies or donations were required to be shipped on U.S. vessels.

Other aspects of P.L. 480 were changed again in the 1990 Farm Bill. Administration of Title I is now under the direction of the Secretary of Agriculture. Titles II and III are under the direction of USAID. Title I now contains provisions for debt forgiveness, and concessional sales are to continue for those countries which have the ability to repay,

demonstrate the greatest need, and have potential of becoming markets for U.S. commodities. Title I concessional sales are no longer required to have 75 percent of allocations directed to countries defined as the poorest. Credit terms were decreased to a maximum of 30 years with up to a 7-year grace period, from 40 years with a 10-year grace period. Loans can be obtained with payments in U.S. dollars or foreign currencies. Title II provides grants of agricultural commodities through government and private organizations to combat hunger and for emergency food aid.

Cargo preference laws for Title II grants were modified and now require that 50 percent of the bagged, processed, or fortified commodities be shipped on a lowest landed-cost basis, regardless of the vessel's country of registration. New provisions also allow shipments on vessels designated as American Great Lakes vessels to be counted toward cargo preference requirements. Title III allows government-to-government grants of commodities to developing countries to be used for direct feeding programs and building emergency food reserves. This title also allows for Title I loans to be forgiven if the commodities are sold and all the local currencies generated are used for specified development projects. Countries receiving aid under Title III must

"demonstrate the greatest food need, the capacity to use food aid effectively, and a commitment to policies to promote food security, and to those countries that have a long-term plan for broad-based, equitable, and sustainable development." (Smith et al., p. 66).

Canadian Export Credit Programs

Canada provides guaranteed credit through the Canadian Wheat Board and the Export Development Corporation. The Canadian Wheat Board (CWB) has offered direct credit sales since 1952. In 1968, the CWB was authorized to extend credit guaranteed by the Minister of Finance. Currently, credit sales are extended by the CWB under the Credit Grain Sales Program. Loans are available for 100 percent Canadian origin wheat and barley (the only grains marketed by the CWB). CWB finances sales at market rates borrowed from Canadian chartered banks for maturities from 6 to 36 months. Credit lines are guaranteed in full by the Minister of Finance and offered in either Canadian or U.S. dollars. Credit guaranteed sales are only made to importers who have obtained a sovereign guarantee from their importing country. This nationalizes the debt and provides the Canadian Wheat Board/Minister of Finance recourse against the importing country if the importing firm defaults. However, this arrangement was changed within the 1995 budget, in particular \$1 billion of sales will be provided to non-sovereign buyers of Canadian Wheat Board wheat, barley and other Agri-food products.

Credit is allocated to countries on a revolving credit line. Countries may borrow against this credit line until the credit ceiling for a country is reached. Then new loans are granted only after payments on loans extended are made. A maximum ceiling on all credit

lines for all countries is also present. However, this ceiling has far exceeded loan activity throughout the history of the program.

Country credit allocations are determined by the following process. Throughout the year, the Canadian Wheat Board identifies countries where it thinks it can conduct business under the Credit Grain Sales Program. This information is conveyed to the Department of Finance which undertakes a creditworthiness study of importing countries. This incorporates many of the same creditworthiness criteria used by U.S. officials in the GSM-102 and GSM-103 programs. Recommendations for country credit allocations are assessed quarterly by a committee composed of members from the Departments of Finance, Agriculture and Agri-Foods, and Foreign Affairs and International Trade, and the Canadian Wheat Board. This committee makes recommendations on credit allocations which are forwarded to the Department of Finance where they must be ratified (Stewart).

CWB credit can be specified in U.S. or Canadian dollars. U.S. dollar credit is borrowed in the Euro-dollar market at LIBOR rates. Credit in Canadian dollars is specified as .0025 percent below the most favored customer rate. No fee is required for participation in the Credit Grain Sales Program, but a down payment is required. The size of the down payment varies with the credit risk of the importer. Commonly, 3-year credit has required a 10 percent downpayment with the balance being paid in 3 annual installments. Credit sales are typically made on an f.o.b. basis. Inclusion of c&f or c.i.f. reduces the amount of credit sale on a dollar-per-dollar basis and is made only to counter similar terms offered by competing countries. Although the CWB offers credit, greater emphasis has been placed on price as a means of maintaining export market shares in recent years (GAO, 1992b).

The Export Development Corporation (EDC) provides short term (1-3 years) guarantees for both agricultural and non-agricultural exports. It is authorized to guarantee credit, extend intermediate term credit (3-10 years), and subsidize interest rates. However, the EDC has not subsidized interest rates or provided intermediate credit since 1972. Credit guarantees of less than one year cover 95 percent of the principal and interest and 100 percent for purchases by foreign governments. Credit guarantees with terms up to 3 years are only available as responses to foreign competitors who are using similar credit guarantees. Credit guarantees are offered at commercial interest rates and include a fee of 0.5 to 1.5 percent and a C\$1,000 processing fee (Harris) (Table 5).

Argentina Export Credit Programs

The Argentina Central Bank grants limited credit, not exceeding 12 months, to Latin American countries. Peru and Cuba have been the only markets utilizing this credit program. Credit programs have been mostly geared toward economic assistance and, due to financial constraints, are sporadic. Argentina has chosen to compete against other exporting countries' credit terms by offering lower prices (Harris, IWC).

Australia Export Credit Programs

Credit sales of Australian agricultural commodities are provided on a limited basis by the Australian Wheat Board (AWB). AWB credit sales increased during the 1980s to meet credit use by competing exporting countries. AWB credit is guaranteed by the Export Finance and Insurance corporation (EFIC), a public agency under supervision of the Australian Trade Commission's (AUSTRADE) Export Credits Division. EFIC also provides insurance and direct loans for non-wheat exports. However no direct loans are currently made for agricultural exports.

EFIC guarantees payment of 75 percent of the principal and interest for AWB credit, while the AWB covers 100 percent of the export value. Thus, the AWB and ultimately the Australian wheat growers bear a portion of the costs of credit programs in Australia. If EFIC determines insurance, loan, or credit guarantees to a given country are commercially inappropriate, EFIC may appeal to the Minister for Industry, Technology and Commerce for a National Interest Cover. If granted, the Australian government assumes 100 percent of the risk for amounts covered by EFIC. For high risk loans under National Interest cover, EFIC only covers 80 percent of the export value.

Terms for EFIC insurance are up to 3 years. National Interest coverage carries 2 to 3-year terms. All countries are eligible for EFIC insurance except South Africa. Countries are ranked for risk on a scale from A to D. Some countries are under discretionary limits on the amount of coverage or receive less coverage. EFIC insurance premiums for exporters range from .2 to 2 percent, depending on risk and payment timing. Premiums for exports under National Interest coverage are A\$2.28 per hundred for all countries except Egypt and Iraq, whose premiums were raised to A\$2.73 in 1987. Coverage levels are 85 percent of the export value for all countries except Egypt and Iraq, where coverage is 80 percent. Premiums for National Interest coverage are paid for the exporter by the AWB. Interest rates for credit sales by the AWB are commercial rates. However, loans obtaining credit guarantees receive more favorable rates due to removal of much of the political and commercial risk (Harris).

Table 5. Terms and Conditions of Export Credit Programs of Major Exporting Countries.

Country	Entity Extending Credit	Maximum Credit Terms	Coverage	Downpayment	Premium	Freight Guarantee	Interest Subsidies	Exchange Risk Guarantee
U.S.	GSM-102	3 years	98% + 4.5% interest	none	0.15 - 0.67%	cif/c&f on matching basis	none	none
	GSM-103	10 years	98% + 80% interest	none	1.5 - 2.67%	cif/c&f on matching basis	none	none
	Eximbank	ag commodities 360 days up to max of 10 years on limited basis	98 - 100% + daily prime - .5%	15%	0.03 - 4.90%		none	
France	COFACE	10 years	up to 100%	none	0.67 - 2.67%	cif/c&f french flag	available via BFCE	available
Australia	Australian Wheat Board/EFIC	3 years +	100% political up to 100% commercial	none	0.2 - 2.67%	none	none	none
Canada	Canadian Wheat Board	3 years	up to 100%	10 - 25%	none	c&f	none	none
	Export Development Corporation	3 years	100% political 95% commercial	CA \$1,000	0.5 - 1.5%	none	none	none
Italy	SACE	2 years	90%	15% + \$73	1.6% - 5.4%	none	direct credit and refinancing	available
	Medicredito	over 18 months	85%	variable	variable	none	available	none
U.K.	ECGD	3 years	up to 95 %	none short 15% 2-3 years	0.5-1.5% short 1-3% 2-3 years.	none	none	none

Source: Derived from Harris

EU Export Credit Programs

Prior to credit extensions by the EU to the Former Soviet Union in 1991, the EU as a unit did not grant credit for exports of grain. Some of the member states maintained credit programs for grain exports. For example, France (COFACE) has granted credit for up to 3 years to traditional markets such as Egypt, Tunisia, and Morocco. This action was motivated by the need to match credit terms offered by competing suppliers, namely the United States. Credit has been granted to these markets at market interest rates, with a COFACE guarantee of 95 percent of the total amount. The stated objective of these credit arrangements was not to increase market shares, but to maintain traditional markets. However, recent sales under COFACE credit have been made to Bulgaria and Romania.

*France-COFACE*⁷

France has helped exporters finance agricultural sales since 1946 through the semi-private Company for International Trade Insurance (la compagnie Francaise D'assurance pour le Commerce Exterieur (COFACE)). The French Government has controlling interest in COFACE through majority ownership of shares. COFACE provides short-term commercial risk insurance for terms of less than 3 years and intermediate insurance (3 to 7 years) for political and commercial risk. Terms for insurance can be stretched to 10 years to meet competitors' offers. COFACE credit guarantees for grain exports are designed to compete directly with the U.S. credit guarantees (GSM-102, GSM-103). All countries are eligible to receive credit under COFACE. Eligible agricultural products are limited to those containing up to 40 percent foreign content (commodities of foreign origin) from other EU countries, up to 30 percent foreign content of non-EU origin grain if the country has a reciprocal agreement with France, and up to 10 percent foreign content with no agreement.

Credit guarantees can cover 90 to 95 percent of the principal and interest for grain exports. Exports must be shipped on a French flag vessel or under a French bill of lading and insured by a French insurance agency if freight is included in the coverage or shipment is on a c&f or c.i.f. basis. Premiums for COFACE guarantees are calculated as a percentage of the maximum value of the contract, including the upper tolerance level. Premiums for 3 and 7-year credit are 0.67 and 2.67 percent, respectively, of the maximum value of the contract plus 5 percent. Premiums are usually paid by the exporter, but are normally reflected in the price to the importer. Credit guarantees may include an exchange rate guarantee if desired for an additional premium. Terms for COFACE guarantees vary across importing countries according to political considerations, import needs, and the country's repayment record.

⁷Much of the following information is based on Harris; IWC 1988, 1990; and Smith, 1988.

COFACE guarantees are under the direction of the Directorate for External Economic Relations, which is jointly administered by the Ministries of Trade and Finance, and by the Commission for Credit Guarantees for Foreign Trade, which is chaired by representatives of the Ministries of Trade, Finance and Foreign Affairs, the Bank of France, COFACE, and the French Bank for International Trade. To obtain COFACE guarantees, countries negotiate a protocol agreement, which is signed by the participating government and the French government. The importing country bank and a committee of French banks sign a financial accord. Normally, the guaranteed loan principal is repaid in equal annual installments, and interest is repaid semi-annually. French banks will usually repay a grain exporter in full at the time of shipment, making good on the guaranteed payment, although this practice is not authorized by the French government.

Interest rates for credit sales are typically either Paris Inter-Bank Offer Rate (PIBOR) for loans to be repaid in French Francs or LIBOR rates for sales to be repaid in U.S. dollars. Credit sales are made by commercial banks or the Banque Francaise du Commerce Exterieur (BFCE). Medium to long-term credit sales are financed directly by the BFCE on behalf of the French government. Short-term credit is financed by commercial banks. COFACE can obtain refinancing from one or more of a consortium of banks. No down payments are required for COFACE guarantees.

COFACE has been under pressure to reduce loan losses for credit guarantees since the late 1980s. Since 1989, COFACE has required that countries repay most or all of their arrears before obtaining further credit guarantees (Harris). COFACE guarantees for Egypt were suspended in 1990 (IWC).

Germany-HERMES KREDITVERSICHERUNGS-AG

The Federal Republic of Germany provides export credit guarantees to German exporters to safeguard against commercial and political risks (HERMES). The German government provides guarantees up to an exposure limit set annually by parliament. Credit guarantees are managed by HERMES Kreditversicherungs-AG and Treuarbeit Aktiengesellschaft. HERMES guarantees had limited use for agricultural commodities until 1991, when credit was used to facilitate export of large stocks of wheat, barley, and flour from East Germany to Russia. Future use is also seen as limited with Russia or the other former Soviet Republics as the only potential recipients. Another future potential use of HERMES is to insure non-delivery risk of barter trade transactions with Russia. Type of coverage varies with the destination and needs of the exporter. No risk classifications are made, and fees are not based on higher or lower risk. Terms are flexible with coverage up to 3 years. Credit guarantees are obtained by arranging a letter of credit among the exporter, importer, and German creditors subject to successful review by HERMES and the Interministerial Committee for Export Guarantees. The Interministerial Committee is composed of representatives from the Ministries of Economics, Finance, Foreign Affairs, and Economic Cooperation (Wenberg).

*Italy*⁸

The Interministerial Committee for Foreign Economic Policy (CIPES) administers all loans and grants supported by the Italian government. CIPES is chaired by the Ministry of Foreign Affairs and includes the Ministries of Budget, Treasury, Agriculture and Forestry, Industry and Commerce, and Foreign Trade. CIPES directs the Special Section for Export Credit Insurance (SACE), which administers Italian export credit guarantees. Export credit guarantees are authorized for medium to long-term credit exports of agricultural commodities. However, credit guarantees in the late 1980s were not granted for terms more than 2 years. SACE covers 90 percent of the political and commercial risk for supplier credits. SACE also covers 95 percent of the political and commercial risk for buyer credits. Buyer credits involving inter-governmental transactions can cover 100 percent of the risk. Premiums for export credit guarantees range from 1.6 to 5.4 percent and require a down payment of 15 percent of the principal. All agricultural commodities are eligible for credit guarantees, but the foreign content of exports may not exceed the 15 percent down payment.

The government of Italy also provides direct export credit under Mediocredito Centrale. Mediocredito Centrale is a publicly chartered and financed institution that will both finance direct export credit at commercial rates and refinance export credits made by medium-term credit institutions to Italian exporters at concessional rates. Direct export credit is provided for up to 85 percent of the value of exports for terms of 18 months or longer. Mediocredito Centrale can also provide interest subsidies when they are not the issuer of credit or refinancing.

*United Kingdom*⁹

The United Kingdom provides credit guarantees through two government programs administered through the Department of Trade and Industry's Export Credit Guarantee Department (ECGD). The Short Term Comprehensive Guarantee provides credit guarantees for credit terms up to 180 days. This program offers combined coverage for up to 90 percent commercial and 95 percent political risk. If ECGD considers a public buyer or finance house as reputable, it can cover 95 percent of commercial and political risk.

The other program is the Supplemental Extended Terms Guarantee. This program was initiated in 1985 and provides guarantees for exports of bulk grains. It provides export credit guarantees for credit sales with a term of 2 years, but may be stretched to 3 years to meet competitors programs. Risk coverage is the same as the Short Term Comprehensive

⁸Much of this information is based on Harris.

⁹Much of the following information is based on Harris and IWC 1988, 1990.

Guarantee. To obtain a Supplemental Extended Terms Guarantee, one must first obtain a Short Term Comprehensive Guarantee.

Premiums for both programs range from .5 to 1.5 percent of the total value. The Supplemental Extended Terms Guarantee requires a 15 percent down payment. Premiums for the Supplemental Extended Terms Guarantee vary from 1 percent for 2 year terms with low risk to 3 percent for 3-year terms with high risk. Interest on credit guaranteed loans are LIBOR rates plus an agreed margin.

Other programs guaranteeing credit in the U.K. include bank guarantees, existing credit line guarantees, and insurance through private banks. Export credit guarantees may be supplemented by guarantees to the exporter's bank. This guarantee covers 100 percent of the value of the loan, but the exporter is responsible for 5 to 10 percent of the contract value in the case of default. Premiums are 25 pence per UKL 100. Interest rates are .625 percent over the bank's base rate.

Existing lines of credit at U.K. banks can be guaranteed by the ECGD. With an existing line of credit guarantees, the buyer is required to pay a 15 percent down payment directly to the exporter, and the UK bank pays the remaining 85 percent.

Insurance for Extended Terms Guarantees can be obtained from U.K. banks by purchasing Finance Contracts Endorsements (FINCOBE). The use of FINCOBEs allows exporters to obtain credit guarantees through U.K. banks rather than approaching ECGD. With a FINCOBE guarantee, the exporter pays a down payment of 15 percent directly to the exporter, and the U.K. bank pays the remaining 85 percent.

THE SUBSIDY VALUE OF CREDIT GUARANTEES

The extension of credit guarantees, by reducing risks to lenders, makes it possible for importers to borrow at lower than commercial interest rates. Thus, credit guarantees provide an implicit interest subsidy. The implicit subsidy in export credit guarantee/insurance programs has been estimated for a range of programs and time periods (Baron, Abraham, Raynauld, among others); GSM programs are the focus of Skully and Hyberg et al. Most of these studies have focused on officially supported export credit insurance/guarantees of commercial products falling under OECD agreements, although Skully estimated subsidies for both GSM and PL 480 programs. This section reviews methodologies for measuring the interest subsidies implied by credit guarantees and presents results from previous studies. Implicit subsidies are estimated for GSM-102 credit guarantees for specific importing countries and years.

Previous Studies Estimating Export Credit Guarantee Subsidies

Baron analyzed levels of subsidies for Canada, France, Germany, Italy, Japan, the United Kingdom and the U.S. for officially supported export credits (sources of information included studies done by Eximbank). Baron indicates that the implicit subsidy depends on the alternative, commercial credit rate facing the borrower. The implicit subsidy is measured as:

$$\text{Implicit Subsidy} = (1 - r/i) [1 - (e^{-iM} - e^{-iT}) / (i(T - M))] \quad (1)$$

where

- r is the Eximbank lending rate,
- i is the market rate of interest,
- e is the base of the natural logarithm,
- T is the term of the loan, and
- M is the length of moratorium on payments.

Total implied subsidies are estimated by multiplying the subsidy rate by the loan principal.

Baron applied this methodology to the measurement of subsidies for Eximbank credit programs in 1979-1981. He measured subsidies for Eximbank direct credits for Agriculture/construction, Communication, Manufacturing, Mining/refining, Power, Aircraft, Other Transportation, and Miscellaneous sectors. Subsidies over this period ranged from 18.36 percent to 29 percent of the value of the loan. The subsidy for direct Eximbank loans from 1979-1981 for Agriculture/construction was 20.25 percent. Since Eximbank generally lends for capital improvements (equipment/buildings) and for longer terms (up to 10-15 years), these subsidy rates are generally higher than for export of agricultural commodities.

Abraham reports subsidy estimates for officially supported exports of the United Kingdom, France, Belgium, and Germany. He advances two methodologies for estimating credit subsidies (net difference method and the net present value method) and one to measure export credit insurance subsidies. The net difference method values subsidies as the summation over the years of the loan of the difference in interest rates times the amount of loan principal outstanding. The implied subsidy is defined as:

$$\text{Subsidy}_K = \sum_{t=T}^K U_t (r_K - R_t) \quad (2)$$

where

- U_t is total credits authorized in t and outstanding in K ,
- R_t is the officially supported interest rate on loans authorized in t ,
- T is the year in which the oldest still-outstanding loan was authorized, and
- r_K is the market interest rate charged in K .

The net present value method measures subsidies as the net present value of the difference in income flows from guaranteed and non-guaranteed loans.

$$\text{Subsidy}_K = U - \sum_{t=1}^{Z-K} \frac{R_t}{(1 + r_K)^t} \quad (3)$$

where

U is the total value of loans authorized in K,
 R_t is the total repayment in year t on loans authorized in K,
 r_K is the market interest rate in year K, and
 Z is the last year of repayments on loans authorized in K.

Subsidy values for export credit insurance are estimated as the difference in the pure insurance premium and the subsidized insurance premium.

$$\text{Subsidy}_K = A_K (v_K - o_K) \quad (4)$$

where

A_K is the value of insured contracts in year K,
 v_K is the pure insurance premium in year K (in percentage terms), and
 o_K is the subsidized insurance premium in year K (in percentage terms).

Abraham reported on subsidy measures for French direct credits and measured credit insurance subsidies for COFACE insurance. Subsidy rates for direct credits ranged from 0.5 percent to 5.1 percent for 1970-1984. He found that implicit subsidies for COFACE insurance guarantees increased from .3 percent of the value of guaranteed exports in 1973 to 2.29 percent in 1987. Abraham adjusted these subsidy rates to incorporate recoveries on claims paid by the French Treasury. Adjusted subsidy rates were less than 1 percent of the value of exports in all years (1973-1987). However, he cautions that not all recoveries paid by the French Treasury reflect payments collected on claims. These estimates are significantly lower than those estimated for Eximbank credits by Baron.

Skully (1991) presents a methodology for estimating the level of subsidies in U.S. agricultural export programs, including GSM-102, GSM-103, and P.L.480 Title I. He established the value of subsidies by calculating the spread between loans granted with GSM credits and the alternative cost of borrowing for individual importing countries. Skully estimates the implicit subsidy rate as:

$$\text{Implicit subsidy rate} = \sum_t P_t (1 + r)^t (1 + \delta)^{-t}$$

where

P is principal,

r is the GSM interest rate,

δ is risk adjusted interest rate in importing country j, and

t is the term of the guarantee.

Because the alternative cost of borrowing (for non-guaranteed credit) was not directly observable for many countries, Skully created a proxy based on an estimated relationship among country risk measures, the value of secondary debt, and a bond yield index. Subsidy estimates were also developed for other U.S. export programs, including EEP and PL. 480. For importing countries, the aggregate subsidy value of these U.S. programs ranged from 1.5 to 100 percent of export volume in FY 1987 (Table 6).

Hyberg et al. recently expanded this research on the subsidy component of GSM programs. Annual subsidies were estimated by commodity for wheat, corn, soybeans, sorghum, barley, flour, soybean meal, and soybean oil from 1979-1992 for all importers. Estimates of the interest subsidy for all GSM credits extended for wheat exports from 1988 to 1992 ranged from a low of 4.3 percent in 1991 to a high of 6.33 percent of the value of GSM allocations in 1988 (Table 7). From 1979 to 1992, interest subsidies on GSM credits for wheat exports have averaged 4.39 percent of the value of allocations. This is an indication of the potential magnitude of implicit interest subsidies extended to countries for given commodities.

Hyberg et al. indicate that the estimated interest subsidies vary by commodity and type of commodity, whether processed or not. Average implied interest subsidies from 1979-1992 for processed products, soybean oil and meal (6 percent), and wheat flour (7 percent) were higher than subsidies for bulk commodities (4-5 percent) (Appendix Table 1). They indicate this may be because importers of processed products under GSM programs lack a developed processing sector and are less creditworthy.

Table 6. Export Volumes and Subsidy Equivalents for U.S. Wheat, FY 1987.

Subsidized Markets	Estimated Subsidy	Export Volume
	percent of export value	1,000 MT
Columbia	1.5	200
Mexico	1.5	180
South Korea	1.8	1,888
Chile	9.3	105
Brazil	10.9	362
Belize	12.1	8
Ecuador	19.5	344
Philippines	22.3	841
Iraq	26.1	903
Benin	30.0	22
Cote d'Ivoire	30.0	2
Ghana	30.0	53
Togo	30.0	32
China	30.4	898
Tunisia	30.9	632
Poland	31.8	553
Soviet Union	33.7	4,055
Algeria	35.9	1,422
Turkey	37.5	245
Peru	39.8	250
Yugoslavia	40.0	481
Jordan	43.2	191
Senegal	43.6	64
Pakistan	43.9	194
Costa Rica	44.2	136
Yemen	46.0	233
Mozambique	47.9	47
Mauritania	48.6	4
Zaire	49.3	185
Morocco	53.9	1,673
Sri Lanka	56.8	355
Jamaica	56.9	162
Sudan	58.6	399
Honduras	60.3	109
Madagascar	63.5	16
Egypt	65.6	2,072
Indonesia	65.8	271
Bangladesh	68.7	713
Dominican Rep.	68.7	207
Guatemala	76.0	145
El Salvador	77.5	114
Kenya	80.3	38
Ethiopia	80.4	16
Haiti	83.8	133
Guyana	88.0	49
Zambia	97.6	7
Bolivia	96.8	186
Uganda	100.0	10

Source: Skully, 1992.

Table 7. GSM Allocations and Interest Subsidy Estimates for U.S. Wheat Exports, 1979-1992.

Year	Wheat Allocations	GSM Subsidy	GSM Subsidy
	-----million dollars-----		Percent
1979	416	4	0.96
1980	389	3	0.77
1981	586	4	0.68
1982	679	10	1.47
1983	1603	45	2.81
1984	1896	66	3.48
1985	971	47	4.84
1986	810	56	6.91
1987	738	45	6.10
1988	1075	68	6.33
1989	1521	88	5.79
1990	1211	63	5.20
1991	837	36	4.30
1992	1592	95	5.97
Total	14325	629	4.39

Source: Hyberg et al.

Estimated Subsidies for Selected GSM-102 Credit Guarantees - by Country

Skully (1992) and Hyberg et al. aggregated country-by-country estimates of implicit interest subsidies, but did not report individual observations. To provide an example of the potential range of results for individual countries (importers), implied interest subsidies were calculated for selected countries receiving GSM credit guarantees. GSM guaranteed loans are typically structured with annual or semi-annual payments over the term of the loan. Since Baron's subsidy estimation assumes continuous discounting, a discrete formulation following Raynauld was used.¹⁰ Implicit subsidy rates were estimated as:

$$\text{Subsidy rate} = 100 * (1-r/d) * (1-(1-1/(1+d))^T)/(d*T)$$

where

Subsidy rate is expressed as a percentage of the loan value,
r is the GSM interest rate,
d is the reference or discount interest rate, and
T is the term of the loan.

Thus, subsidy rates depend on the term of the loan and the spread between the GSM and the importer's risk adjusted rates. The relationship among these factors is demonstrated in Figure 6.

Countries were selected on the basis of availability of observations for interest rate spreads and use of GSM guarantees for wheat imports. An effort was made to obtain countries that represented a cross section of countries utilizing GSM guarantees based on the potential to default. Data on interest rate spreads over LIBOR were gathered for selected countries and years from Leipold et al. and Collyns et al. (Table 8). Quantities and values of wheat exports under GSM programs were obtained from USDA-FAS. Interest rates for exports under GSM credit guarantees were assumed to be LIBOR plus 25 basis points (Barovick). Implied subsidies are presented both on a dollars per ton and percent of export value basis.

¹⁰The discrete subsidy estimation by Raynauld is similar to Skully (1992), however Raynauld directly estimates the implicit subsidy, whereas Skully estimates the discounted value of the loan guaranteed from which the subsidy can then be established.

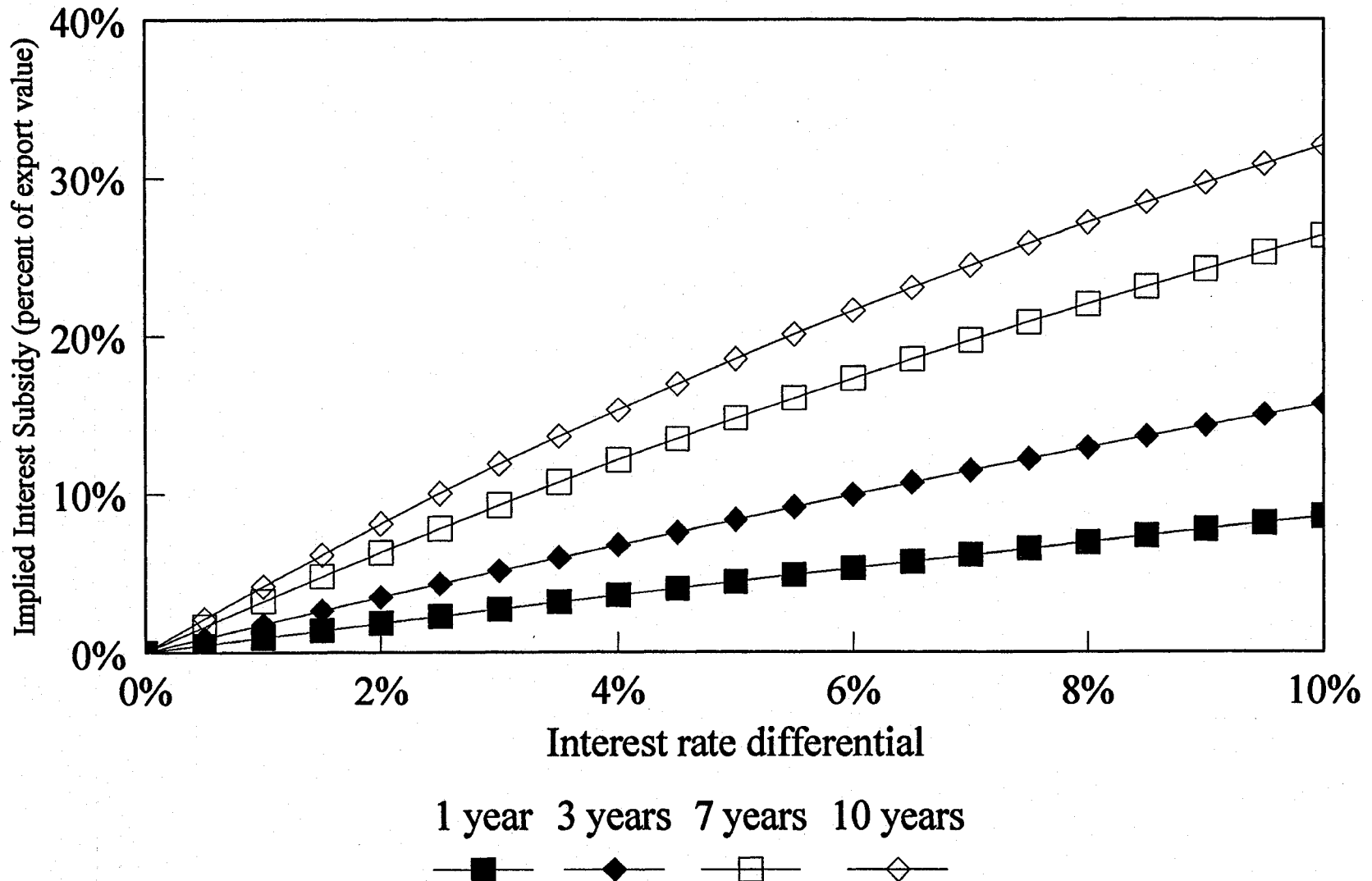


Figure 6. Relationship Between Interest Rate Differential and Implied Interest Subsidy, by Term of Guarantee.

Table 8. LIBOR and Interest Rate Spreads for Countries, by Year.

Year	LIBOR	Algeria	Brazil	Mexico	Tunisia	Turkey	Venezuela
------(Interest spread over LIBOR)-----							
83	11.29					1.37	
84	8.64		1.86			1.02	
85	6.85		1.86		0.75	0.75	
86	7.30		1.95		0.85	0.85	
87	8.13		2.08		0.94	0.94	
88	9.27	1.49		8.20		1.93	1.85
89	8.35	1.00		3.66		1.66	2.60
90	6.08		5.23	2.01			2.30
91	3.90		4.01	1.95			2.56

Implied interest subsidies for the selected countries ranged from \$18.89 per ton for Mexico in 1988 to \$0.29 per ton to Tunisia in 1986 (Table 9). Subsidies measured as a percent of export value ranged from 0.89 percent for Tunisia and Turkey in 1985 to 12.43 percent for Mexico in 1988. Most of the countries examined had implied interest subsidies in the range of \$2 to \$6 per ton (1 to 5 percent of export value). This is within the range of subsidies for credit guarantees estimated by Skully (1992) and Hyberg et al.

Differences in subsidy levels for individual countries varied from year to year (Figure 7, Table 9). For example, Mexico dropped from a subsidy of \$18.89 per ton (12.43 percent) in 1988 to \$8.79 (5.59 percent), and \$4.02 per ton (2.99 percent) in 1989 and 1990, respectively. All of the other countries examined showed similar variability across years. Both inter-country and inter-year differences in subsidies can be substantial. However, since data on interest rate differentials/spreads are limited, further research in this area would be useful.

Table 9. Estimated Interest Subsidies for Wheat Exports Under GSM-102 for Selected Countries and Years.

Country	Year	Allocation	Quantity	Subsidy	Subsidy	Subsidy
		\$ mil	tons (1000 m.)	dollars (1,000)	\$/ton	percent
Algeria	1988	211.0	1276	4,426	3.47	2.10
Algeria	1989	203.5	826	2,636	3.19	1.30
Brazil	1984	283.3	2876	7,745	2.69	2.73
Brazil	1985	65.9	450	1,850	4.11	2.81
Brazil	1986	9.5	327	279	0.85	2.94
Mexico	1988	70.6	465	8,778	18.89	12.43
Mexico	1989	47.2	300	2,639	8.79	5.59
Mexico	1990	36.0	268	1,078	4.02	2.99
Mexico	1991	51.6	307	1,545	5.03	2.99
Tunisia	1985	34.9	068	309	4.55	0.89
Tunisia	1986	11.7	431	123	0.29	1.05
Tunisia	1987	30.2	397	361	1.11	1.20
Turkey	1983	24.0	161	442	2.75	1.84
Turkey	1984	10.1	200	134	0.67	1.32
Turkey	1985	59.2	508	525	1.03	0.89
Turkey	1986	18.4	245	194	0.79	1.05
Turkey	1988	91.2	413	2,576	6.22	2.82
Turkey	1989	29.3	252	707	2.81	2.41
Venezuela	1988	70.0	179	1,885	10.54	2.69
Venezuela	1989	21.7	160	860	5.37	3.96
Venezuela	1990	18.1	145	650	4.49	3.59
Venezuela	1991	42.4	225	1,767	7.85	4.17

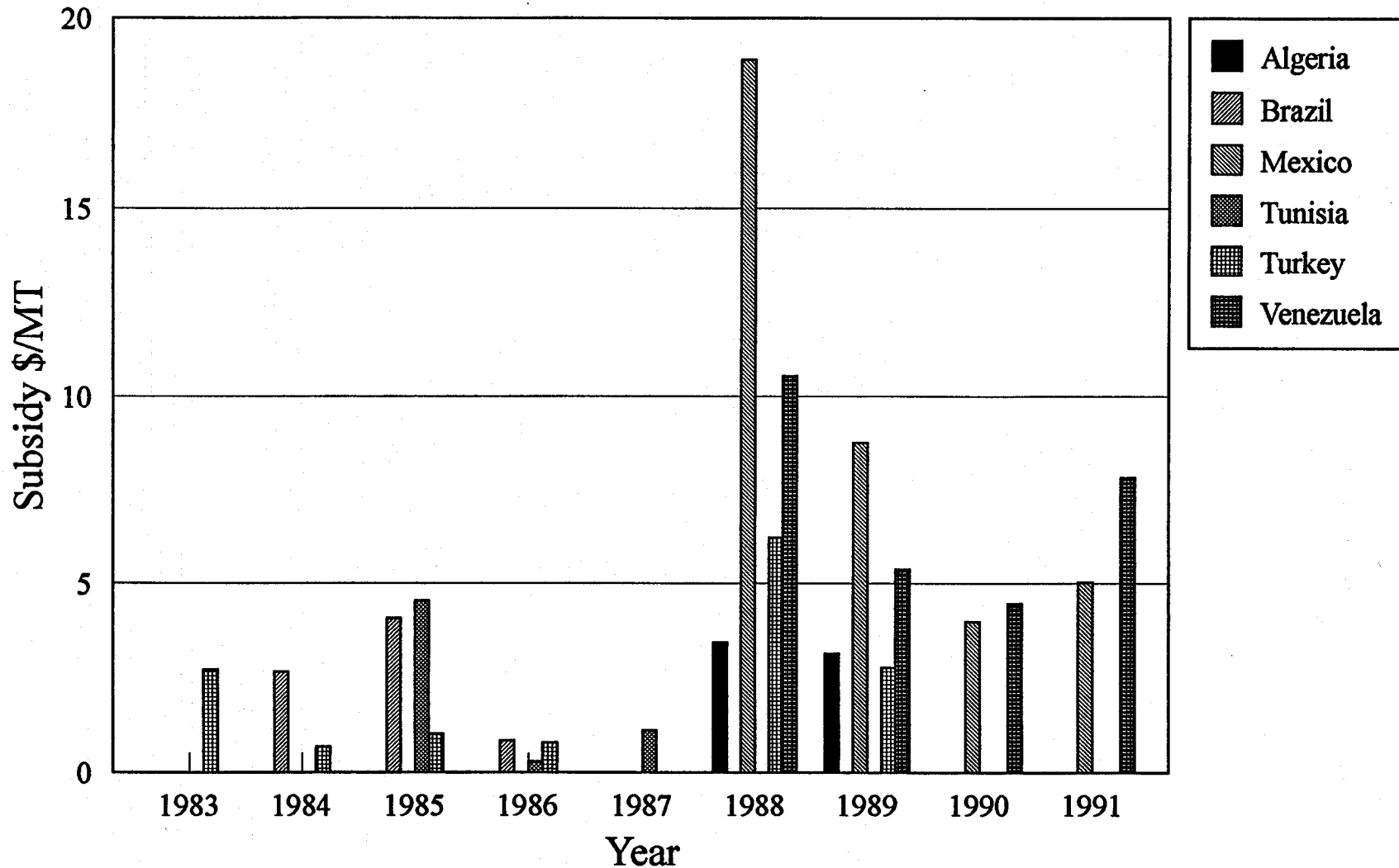


Figure 7. Implied Interest Subsidies for Wheat Exports Under GSM-102 for Selected Countries and Years.

PREVIOUS STUDIES ON EXPORT CREDIT

Effects of export credit insurance/guarantees have been examined in previous studies from a number of perspectives. Much of the research has focused on welfare gains and losses, costs of credit programs, the effectiveness of credit programs in terms of trade creation (additionality), and other justifications for extending credit guarantees. This section reviews selected studies related to export subsidies and credit guarantees.

Value of Credit Guarantee Programs - Subsidy Element and Justification

Extension of credit guarantees and insurance has fostered discussion of the value of export credit guarantee programs. Baron examined Eximbank programs and indicates that there are several rationales for extension of credit guarantees. He identifies 6 justifications for Eximbank programs:

- 1) they are a means of responding to capital market imperfections that impede foreign trade, 2) they are a means of responding to capital market deficiencies that are perceived to bias the market-dictated allocation of resources against the export of large scale projects and long lived capital assets, 3) they provide direct measures to improve the balance of payments and to increase employment, 4) they maintain U.S. product dominance in certain industries, 5) officially supported export financing is a form of aid to developing countries, and 6) foreign officially supported export financing necessitates a U.S. response in order to maintain the competitiveness of U.S. exports and convince other nations to cease their concessionary financing (pp. 59-69)

These are largely relevant to agricultural commodities except for item (2), concerning long-lived capital assets. Item (6), concerning the need to maintain the competitiveness of U.S. exports in the face of competitor programs, is frequently made by proponents of expanded EEP and GSM credit allocations.

Another claim that has been debated heavily is that export subsidies can be welfare-enhancing to the exporting country in specific situations. Paarlberg argues that policymakers may attach different values to the welfare of producers, consumers, and taxpayers. In this case, it may be rational for policymakers to undertake export subsidy programs despite the welfare losses they impose. Alston et al. indicate that a rationale for extending agricultural export subsidies is that they can be a component of a more cost-effective means of producer price support than direct output subsidies.

Barichello and Vercaemmen proposed a methodology for measuring benefits of extending credit guarantees using an alternative maximization objective for policymakers (that of maximizing producer surplus or specifically, benefits to farmer pools in Canada). They indicate that measurement of benefits to pools could be measured in two ways. One method

is evaluating differences in interest rate differentials for guaranteed and non-guaranteed sales and using elasticities for excess supply and excess demand to determine how much of the differential is captured by the farmer pools. A second method assumes that the Canadian Wheat Board is able to exert market power either through limits on the quantity of export credit allocated or through monopoly power to charge higher prices for credit guaranteed sales. If so, the benefit to farmer pools could be evaluated by examining the price differential between cash and credit guaranteed sales.

Brander and Spencer, using a game theory approach, show conditions under which export subsidies are a rational strategy for exporters. Extending this line of analysis to export credit programs, it is possible to cast strategic decisions in the form of a "prisoners' dilemma" : two competing exporters may each extend credit programs to a particular market, fearing a loss of market share if they do not. Thus, extension of credit (and the implied subsidies) by both competitors can be welfare decreasing, absent any mechanism for coordination.

Welfare Effects on Trade

Much of the theoretical research on export subsidies has implications for export credit guarantee programs. Seitzinger and Paarlberg reviewed theoretical and empirical research relating to export assistance and trade. Research has addressed both global and targeted export subsidies, and different forms of subsidy (price, transfer, and in-kind).

Theoretical research on export subsidies has utilized general equilibrium, partial equilibrium, and game theory approaches to examine export assistance, whether in the form of cash subsidies, transfers of goods, or payments-in-kind (Dixit and Norman; Grigsby and Dixit; Karp and McCalla, among others). Empirical and theoretical research of global cash export assistance usually indicates that exporter welfare is reduced, and that exporting producers and foreign consumers benefit at the expense of domestic consumers, taxpayers, and foreign producers.

Abraham examined the effects of export credit and insurance subsidies using a partial equilibrium conjectural variation model of an international oligopoly. The model was used to examine effects of export financing subsidies on EU exporters in different states and non EU-exporters. Abraham found that cost-reducing and revenue-increasing export financing subsidies by an EU country expand exports at the expense of non-subsidizing exporters. However, if competing countries respond with countervailing subsidies, the effects of subsidies on export market shares and volumes can be negated. Further, he found industry-specific conditions can alter the effects of subsidies. Export subsidies provide a greater stimulus to exports when

1) subsidies are substantial, 2) the cost difference between competitors is not too large, 3) market demand is price elastic, 4) competition within the industry is intense, 5) product differentiation is limited, and 6) there exist economies of scale in the industry (p. 130).

Seitzinger and Paarlberg reviewed theoretical research on targeted export assistance. Research in this area has indicated that there is potential for increasing exporter welfare when subsidies are targeted to countries with more elastic demand functions and subsidies are not countered by other exporting countries. If subsidies are countered, then welfare declines for all exporters. Empirical research has indicated that targeted assistance offers small benefits in expanding exports, but substantial disruption of trade flows.

A number of articles have indicated potential situations in which general and targeted subsidies can be welfare increasing in the subsidizing country (Brander and Spencer, 1985; Feenstra, Itoh and Kiyono, and Abbott et al.). Situations identified include subsidizing marginal goods, failure to take advantage of market power in a second or third good, and the ability to price discriminate across importing markets with differing import elasticities. However, Bohman et al. indicated that in the case of U.S. wheat, the likelihood of such conditions is limited.¹¹

Studies on Factors Affecting Allocation of Export Credit Programs

There has been little research on factors affecting credit allocation decisions by major exporting countries. Yang and Wilson examined factors affecting allocations of U.S., EU, and Canadian credit programs. They examined factors affecting allocation of credit guarantees and quantities extended using three types of models (Tobit model, two-step Cragg Model, and a Dominance Model). They found the two-step Cragg model fit allocation and quantity decisions for the U.S. and Canada, while a Tobit model provided a better fit for EU decision processes.

Results indicated that credit allocations by the U.S. and Canada reflect a two-step decision process: the first decision is whether to provide credit to a particular country; the

¹¹Studies not focusing on export credit in this area include a study by Anania et al. which examined the justification and effectiveness of the Export Enhancement Program. They used a partial equilibrium spatial model to examine whether the EEP program was welfare enhancing, cost effective, and budget neutral; provided additionality of exports; and was targeted toward countries the EH subsidized heavily. They indicated that in the area of new trade research, specific situations have been identified when export subsidies would be welfare enhancing. However, they also argued that none of these conditions exist in the case of the world wheat market for the U.S.

second decision is how much to provide. Exogenous variables can have different impacts on the two stages of the decision process. Results indicated that the U.S. targets larger markets than do competing exporters with credit programs. The U.S. was more likely to allocate credit to countries with higher risk assessments and lower ability to repay. However, it was less likely to extend large amounts of credit to these countries. Results for Canada were similar to those for the United States. Results for the EU indicated a one-step process, where the allocation decision and quantity were influenced by the same criteria, notably market size.

Johnson (1995) examined importer credit allocation decisions for a two-exporter case. A non-linear programming model was constructed to examine the effects of credit programs on prices, trade volumes, and welfare. His results indicate a number of things. First, extension of export credit can be welfare enhancing when credit is constrained in the importing country. Second, if credit is constrained, extension of credit by one country can be welfare enhancing for competing exporters by relaxing credit constraints for all products. Third, credit programs are not necessarily welfare enhancing for exporters. This depends on the size of the credit program and the size of the implicit subsidy. Fourth, crossprice effects of competing countries affect additionality of exports. U.S. exports to countries where U.S. wheat is a close substitute will produce higher additional exports than where U.S. wheat is less substitutable. Fifth, extension of credit can produce additionality through a price-subsidy and/or credit-expansion effects. Sixth, measuring additionality and welfare effects when competing countries have credit programs depends on the organizational structure of the exporting agencies.

Additionality of Exports

Several studies have quantified export additionality (trade creation) induced by credit loans and guarantees, primarily for the Eximbank. Baron examined additionality of exports for Eximbank credit programs. He reviewed three studies on Eximbank loans (U.S. Department of the Treasury, 1980; Export-Import Bank, 1981, 1982). These studies classified additionality as 1) additional exports obtained that would have been lost due to foreign concessionary financing, 2) additional exports that would have been lost because the cost of financing was unacceptable or unavailable, and 3) additional exports that would have been lost because foreign products had better quality, terms, or delivery specifications. Subjective assessments of additionality were developed for each loan in the years under study. Scores for each measure were weighted and combined to form an overall index of additionality for each type, averaged across loans.

Baron indicates that Treasury and Eximbank methodologies relied heavily on subjective assessments to determine weighting and ranking of additionality. Further, in all 3 studies, portions of the classifications relied on assessments by Eximbank. This could have biased the results; however, Baron mentions that assessments from Eximbank were obtained from divisions not directly making loans. Baron's primary criticism of these studies is that

the measurement of additionality focuses on Eximbank and should focus instead on the effective price to importers. He indicates that effect of credits on exports should be measured as a function of interest rate, credit/export value, export value, repayment schedule, and competition. Further, these studies ignore the effects of competitors' officially supported credits.

The GAO examined the additionality of Eximbank programs through surveys of program participants (GAO, 1987). Respondents were asked to estimate the level of exports with and without Eximbank guarantees. Their results indicated that 11 percent of the insured value of export volumes and 73 percent of the insured shipments would proceed without Eximbank insurance.

Studies have also examined additionality of other export programs, including GSM credit guarantees. Fleming examined the effect of PL.480 and GSM credit programs on rice exports. She found that extension of GSM programs increased imports of rice by 55 percent. However, this model did not consider the effects of EEP or competitor programs, and focused only on countries receiving credit. Another study by Grigsby and Dixit (1986) indicated that credit programs would increase total exports only when tied to additional exports. Otherwise, export credit-financed sales would simply replace commercial sales. Other studies have examined effects of export programs by treating export programs, including credit guarantees, as exogenous variables (typically, dummy variables). These include studies by Arnade and Davison, and Koo and Karemara.

Wilson and Yang examined additionality of exports by analyzing the effectiveness of principal export strategies (credit guarantees, long-term trade agreements, PL 480, and the Export Enhancement Program) on market shares. Their results indicated that the responses of U.S. and Canadian market shares to credit were significant in 1982. However, the effectiveness of U.S. credit programs declined with the advent of the EEP program and did not significantly affect market shares from 1986 forward. Further, the elasticities indicated that in 1982, the Canadian credit programs were more effective than U.S. programs, i.e., extension of Canadian credit decreased U.S. market shares more than U.S. credit programs decreased Canadian market shares.

Baxter and Smith discuss the influence of exchange rate risk and dollar appreciation on export credit guarantee programs. They examine the potential for an exchange rate guarantee program, which would place a ceiling on the rate of exchange to be used in repaying dollar loans, thereby making credit programs more attractive to importers. If this program produces additional credit exports (without displacing other U.S. exports) that are greater in value than the cost of operating the program, it could be judged successful. However, the authors conclude that the break-even level of exports is not likely to be attained. In addition, they indicate that those countries that have the greatest potential for using additional export credits also show the greatest potential for displacing other U.S. commercial exports (export volumes extended under credit programs would tend to replace

commercial exports). Thus, they argue that an exchange rate program may not be cost effective.

Costs of Programs

Oversight hearings of the Trade Titles of the 1990 Farm Bill examined previous studies of loan losses under GSM-102 and GSM-103. Testimony on May 21, 1991, discussed a 1991 GAO report and defense of FAS and USDA testimonies (U.S. Congress, House, 1991). In this testimony, two estimates of loan losses are examined. USDA estimated historical default losses at 10.4 percent of loans granted. However, the GAO (1991) estimated that potential losses under GSM programs would run 60 percent of average loan amounts outstanding. Further, the GAO estimated the average risk of GSM credits and PL. 480 aid outstanding using secondary market prices for commercial bank loans. Results indicated a higher risk component in the GSM credits outstanding than for PL. 480 aid.

USDA and FAS argued that the GAO study overstated potential losses for 4 reasons: 1) CCC debt becomes sovereign debt when CCC acquires it. This is not the same as the previous debt. 2) CCC is able to reschedule most of the debts and continue to receive payments, so the debt is not lost. 3) Countries tend to pay back this debt first. Thus, repayment is more sure than other debt. 4) Countries also tend to stay current to continue their eligibility for loans (U.S. Congress, House, 1991, pp. 84-86).

GAO examined potential defaults by GSM programs again in 1992. Potential losses were again estimated by assessing the value of debt in secondary markets. Losses were estimated as 48 percent of total loans outstanding as of December 1992 (\$6.5 billion in losses). They also indicated that losses under the GSM program would increase at the rate of \$74 million per year if loan guarantee exposure to participating countries remains unchanged (GAO, 1992).

ISSUES CONFRONTING U.S. CREDIT GUARANTEE PROGRAMS

Many issues are currently confronting export credit guarantee programs for grains. These issues relate largely to program justification, implementation, and the cost of credit guarantee programs. The remainder of this section discusses issues related to credit terms, additionality and inter-country rivalry, and credit allocation decisions.

Credit Terms

Many of the export credit guarantee programs were developed in the late 1970s and early 1980s. Programs were designed with longer terms to offset balance of payments problems experienced by importers and were generally made on a country-to-country basis. In the early 1990s, most export credit guarantees were transacted with foreign banks rather

than foreign governments/central banks. Therefore, CCC now analyzes risk for individual banks within a country in addition to country risk. Since most transactions are with importing banks rather than governments, a relevant issue is: why credit guarantees are extended for such long terms (e.g., 3 years), much longer than needed to process and consume the commodity. More generally, there is a need to reevaluate current credit guarantee programs provisions.

Another facet concerns the implicit interest subsidy provided to importers. Loan guarantees are typically made for terms up to 3 years. However, these terms (and the implicit interest subsidy) are not necessarily transmitted by foreign banks to foreign buyers. Rather, the importer's bank may extend credit at (higher) commercial rates and for shorter terms (e.g., 3-6 months). The U.S. guarantee, in this case, provides a low-cost source of funds to foreign banks, which may not be fully transmitted to buyers that would influence their purchase decisions of U.S. commodities. A potential remedy, now being examined, is to eliminate the importing bank and guarantee direct lending by U.S. banks to foreign buyers, at commercial terms (30, 60, 90, 180 days) and low interest rates.

The competitiveness or value of U.S. export credit guarantee programs in comparison to competitors' programs is another issue. Terms for U.S. programs are standardized, while other exporting countries have more flexible terms. For example, the U.S. programs charge all countries the same premium for obtaining GSM guarantees. Premiums are based solely on the period of the guarantee. Other guarantee programs (e.g., Canada's) set premiums based on the inherent risk of the loan. Thus, less risky borrowers pay less than high risk borrowers. Other changes to program provisions that have been suggested include the addition of coverage for freight and shipping, and exchange rate guarantees. What is the cost of making terms of U.S. programs more flexible and/or adding coverage? Of what value are these changes to prospective importers? In addition, the U.S. announces aspects of its export credit programs at the beginning of each marketing year, whereas competitors like France make program terms and allocations less transparent.

Competing countries' programs are also changing. COFACE dominates both intra-EU trade and non-EU trade in the EU, but other competing firms are providing minimal quantities of guarantees. COFACE is under pressure to merge with Societe Francaise d'Assurance Credit (SFAC) so that all terms of credit guarantees could be obtained within one agency. In addition, ECGD (UK short-term Guarantee Agency) is being pressured to turn private within the next 5 to 10 years. The EU is also opening up private insurance to all companies within the Union. Thus, firms do not have to have a presence in the issuing country. This indicates there may be competitive pressure on export credit agencies of EU member states from private firms. However, there also exists the potential for consolidation among export credit agencies or the development of EU credit guarantors rather than private firms (The Banker, 1989, pp. 40-48).

Export Additionality Exports and Inter-country Rivalry

The justification of credit guarantee programs, and export subsidies in general, is increasingly called into question. Increasing costs of program operation, due to increased defaults on loans and competing exporting countries' retaliation, are forcing countries to evaluate the whole area of export subsidy programs. Oversight hearings and GAO studies on GSM-102 and GSM-103 have examined the costs of credit guarantee programs (GAO 1991, 1992).

Justification for providing credit guarantees has been argued on the basis of providing additional exports to credit constrained countries over and above those that would have occurred in the absence of export credit guarantee programs. However, additionality is difficult to substantiate, particularly in view of uncertainties about competing countries' export subsidies and the fungibility of commodities like wheat. If the United States is able to displace exports from another country in one market, through credit sales or direct price subsidies, the competitor may target a second market. Effects of U.S. subsidies are mitigated by competitor responses in one market or another. Thus, while market shares may shift on a regional basis, the aggregate impact on U.S. export volume may be insubstantial.

Industry representatives have also indicated that use of GSM credit guarantee programs allows them to leverage lending to importing countries and exceed their own internal country lending limits. However, the extent that any one country is able to increase borrowing is uncertain. Representatives indicate that in the current competitive environment, the extension of credit guarantees may be required to maintain export market shares. However, a basic tenant in finance literature, the Fischer separation theorem, states that production-investment decisions are separate from consumption-financing decisions when finance markets are efficient. Thus, it can be argued that incorporation of reduced credit terms would simply result in a shifting of the timing of purchases rather than additional exports.

Credit Allocation Decisions

The mix of countries and the allocation of credit guarantees is another issue being discussed. In light of recent defaults, GAO has suggested that GSM guarantees should be targeted to countries with lower risk of default. However, USDA-FAS has indicated that most countries with low risk of default can obtain financing without credit guarantees and that the potential to expand agricultural imports to these countries is limited. Expanded exports are more likely to occur in less creditworthy countries (GAO, 1992).

Revisions of the 1990 trade act have prohibited extension of GSM credits to countries unable to service loans, for foreign policy purposes, or as foreign aid or debt rescheduling. These provisions moved some countries into Food Aid that had previously received GSM credits. Because the 1990 trade act mandates a minimum of \$5 billion in guarantees, CCC

may not be able to extend minimum levels of guarantees within these constraints. In 1991, concerns were also raised about these provisions in light of extension of \$1.5 billion in credits to Russia and the long-term costs of credit guarantee programs. Discussion on credit programs at that time focused on making sales for reasons of national interest. However, this did not appear to be consistent with the legislative intent.

Use of credit guarantees versus direct price subsidies in export promotion is also a major issue. Direct price subsidies, as in the case of EEP, appear on budget as costs to the exporting country in the year that they are granted and count toward GATT limits. However, costs for credit guarantee programs are essentially expected costs and, if incurred, are deferred. As such, they don't appear on budget until an actual default occurs. This difference in export promotion programs will become more important now that the GATT agreement has been enacted. Further, extension of credit guarantees/insurance may be a method for exporting countries to shelter or hide their export subsidies.

GSM-102 and GSM-103 have come under fire for non-compliance with requirements on U.S. origin of commodities receiving export credits in the case of tobacco in 1988. This spawned requests for examination of other commodities to determine if similar problems exist.

Funds for U.S. export credit programs have been examined in relation to the type of export guaranteed. Oversight hearings have revealed that, while agriculture gets a major share (75 percent) of funds allocated to export promotion, it comprises only about 11 percent of total exports (U.S. Congress, House, 1992, p. 347). The Clinton administration has indicated a willingness to transfer export promotion funds from agriculture to promote industrial goods (Kiplinger Letter, Oct. 1993, p. 3).

SUMMARY AND CONCLUSIONS

Export credit guarantees have become an important factor in the world wheat trade. All major exporting countries of agricultural commodities have some form of export credit insurance/guarantee program, although their utilization has varied. The U.S. granted the majority of export credit guarantees for wheat during the 1980s and early 1990s, although Canada extended significant quantities in the late 1980s and early 1990s. Egypt, Brazil, and China were significant recipients of export credit guarantees for wheat during the early 1980s. In the late 1980s, Egypt, Iraq, Korea, Morocco, and Algeria were significant recipients. Significant quantities and proportions of credit guarantees have been extended by most wheat exporting countries to the Former Soviet Union in the late 1980s and early 1990s. In fact, credit guarantees for wheat exports during 1990 and 1991 by all countries are heavily concentrated in guarantees extended to the FSU. This heavy concentration of guarantees in a single country poses a significant problem for all exporters in light of recent defaults by Russia.

Financial indicators for all wheat importers show major changes in external indebtedness and debt-servicing ability in the past two decades. On some measures (e.g., debt service ratios), the situation improved on average for wheat importers in the decade after 1982. However, recipients of export credits and credit guarantees continued to show high debt-service ratios in the early 1990s and lower average creditworthiness than the average for wheat importers. Cluster analysis results indicate that wheat importers using guarantees have similar characteristics, in terms of average standard of living and other economic variables. Identification of common characteristics may help target other potential users of GSM programs.

Most credit programs offered by countries exporting agricultural products provide more flexibility, both in terms and administration, than programs provided by the United States. Further, the U.S. program is operated as a highly visible public credit guarantee program, in contrast to the programs of other countries, which are more comparable to insurance and are less transparent.

Total interest subsidies (estimated by Skully (1992), Hyberg, et al., and in this study) indicate that subsidies to importers inherent in GSM guarantees are substantial. Implicit interest subsidies for aggregate bulk agricultural commodities for 1979 to 1992 averaged 4 to 5 percent of the value of exports. Implicit interest subsidies for individual countries for wheat were generally within this same range. However, they varied widely across countries and years with a high of \$18.89 per metric ton (12.43 percent of value) to Mexico in 1988.

Research in the area of export credit guarantees and export subsidies in general has focused on welfare effects, program costs, the subsidy value of export credit guarantees, and the additionality they entail. Studies have indicated that subsidies have limited potential for increasing the welfare of exporting countries; in the case of wheat, in particular, the weight of the evidence is that export subsidies are unlikely to enhance welfare in the exporting country.

Other justifications or rationales for subsidies have been advanced. Subsidies have been promoted as a more cost-effective means for supporting producer prices and as a response or deterrent to competitors' programs.

Many issues are important and will continue to affect credit guarantee programs for agricultural exports in the near future. Most of these relate to program justification, additionality, program costs, provisions, and competition with EEP subsidies and other exporting countries' programs. Additional research would help policymakers resolve these issues. The future evolution of credit guarantee programs will reflect changing global disciplines on export subsidies and continuing concern by policymakers about the costs of operating these programs.

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APPENDIX

Appendix Table 1. GSM Discounts by Selected Commodities, 1979-1992.

Fiscal Year	Wheat	Corn	Soybeans	Sorghum	Barley	Flour	Meal	Oil	Total
	----- (million dollars) -----								
1979	4	*	0	*	0	0	0	5	9
1980	3	3	0	*	0	*	*	1	8
1981	4	13	2	*	*	*	3	1	24
1982	10	2	2	*	0	*	1	4	19
1983	45	23	11	12	1	4	4	7	106
1984	66	13	3	7	6	1	7	4	105
1985	47	6	3	5	0	1	4	6	71
1986	56	23	19	3	*	7	7	6	122
1987	45	35	23	5	1	7	10	6	132
1988	68	59	25	8	4	3	20	14	202
1989	88	50	24	14	2	8	23	9	219
1990	63	42	11	13	3	3	11	8	153
1991	36	70	20	11	1	*	27	3	166
1992	95	47	25	11	2	2	30	6	220
Total	629	387	166	89	20	37	148	79	1556
	Discounts as percent of approvals								
Percent	4	4	4	4	6	7	5	5	4

* = less than \$0.5 million.

Source: Hyberg et al.

