

PN-AAX-265

ISN 86855

A.I.D. Technical Report No. 8

Center for Development Information and Evaluation



Capital Projects
U.S. Aid and Trade in Egypt

AGENCY FOR INTERNATIONAL DEVELOPMENT

PN-AAX-265

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Capital Projects
U.S. Aid and Trade in Egypt

by

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March 1994

Other papers prepared for the Capital Projects assessment:

**Using Capital Projects to Promote Development
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Capital Projects: Literature Review and Supplier Survey (forthcoming),
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- Documents on 68 completed A.I.D. capital projects
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Capital Projects: Egypt Case Study, Technical Report No. 20.

*Capital Projects: An Economic and Financial Analysis of Nine A.I.D.
Capital Projects in Egypt*, Technical Report No. 19.

Capital Projects: A Synthesis of Findings (forthcoming), which focuses on
the major findings from the evaluation papers on A.I.D.'s experience with
capital projects in Egypt.

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FOREWORD

There is growing interest in some parts of Congress and the Executive Branch to use U.S. foreign assistance to advance U.S. commercial interests without jeopardizing the international development objectives of the foreign aid program. Congressional proposals have called for the establishment of a capital projects fund, a mixed credit program, and other trade-related programs.

Many ideas have been put forth as a rationale or justification for capital projects. It is important to closely examine the empirical basis of the many ideas put forth in support of such projects. A first step is to analyze A.I.D.'s past experience. As part of that effort, CDIE has launched an assessment of A.I.D.'s experience with capital projects—experience that spans more than four decades.

The CDIE Capital Projects Assessment comprises two parts: First is an examination of the data on World Bank, other donor, and A.I.D. capital project experience. That analysis appears in a forthcoming A.I.D. technical report, *Capital Projects: Literature Review*. The second part examines Egypt, which is A.I.D.'s largest capital projects program.

This capital projects assessment was not designed to evaluate A.I.D.'s assistance program in Egypt but to analyze issues raised by A.I.D. management concerning the benefits and drawbacks of capital assistance. The evaluation was structured around questions related to development and U.S. commercial concerns.

A CDIE evaluation team of engineers, economists, and private sector analysts spent more than a month in Egypt analyzing nine A.I.D. capital projects. The team focused on project- or micro-level impacts on Egypt's economic development and U.S. commercial interests. The evaluation team's findings are contained in *Capital Projects: The Egypt Case Study*, A.I.D. Technical Report 20. Although that analysis provided a number of very interesting findings, the broader macro-level setting also needed to be addressed.

That analysis is contained in this paper, which takes the macro perspective as it examines total U.S. aid and trade relationships with Egypt over the past 16 years 1975-91. It is interesting to note that the commercial findings from the micro- or project-level study are very similar to the findings of this study—U.S. exporters and engineering firms are clearly helped by A.I.D. capital projects (since nearly all procurement is tied to the United States), but these projects produced little follow-on business. Consequently, neither total A.I.D. assistance nor capital project assistance to Egypt appears to have greatly developed or expanded U.S. commercial (non-aid-financed) sales in Egypt.

SUMMARY

This paper analyzes the relation between U.S. exports and U.S. economic assistance, with particular attention to Egypt. The report concludes that *U.S. economic assistance has not been effective in generating commercial U.S. exports to Egypt*. The fundamental problem has been the stagnation of overall Egyptian imports. Egypt's policies have impeded the growth of export earnings, thus limiting the country's capacity to buy U.S. goods. Moreover, particular assistance modalities, such as capital projects, cannot overcome this constraint. In relation to other exporters to Egypt, the fact that the United States provides the bulk of bilateral aid has not given the United States a privileged share in the Egyptian market for capital equipment. Compared with its competitors, U.S. market penetration for capital equipment is actually lower in Egypt than in developing countries generally. Nevertheless, the primary constraint to the growth of U.S. exports to Egypt has been the stagnation of Egypt's import capacity, not lack of U.S. market share.

GLOSSARY

- CIP - Commodity Import Programs
- FY - fiscal year
- GDP - gross domestic product
- GE - General Electric
- LMI - Logistics Management Institute
- OECD - Organization for Economic Cooperation and Development

MAP OF EGYPT

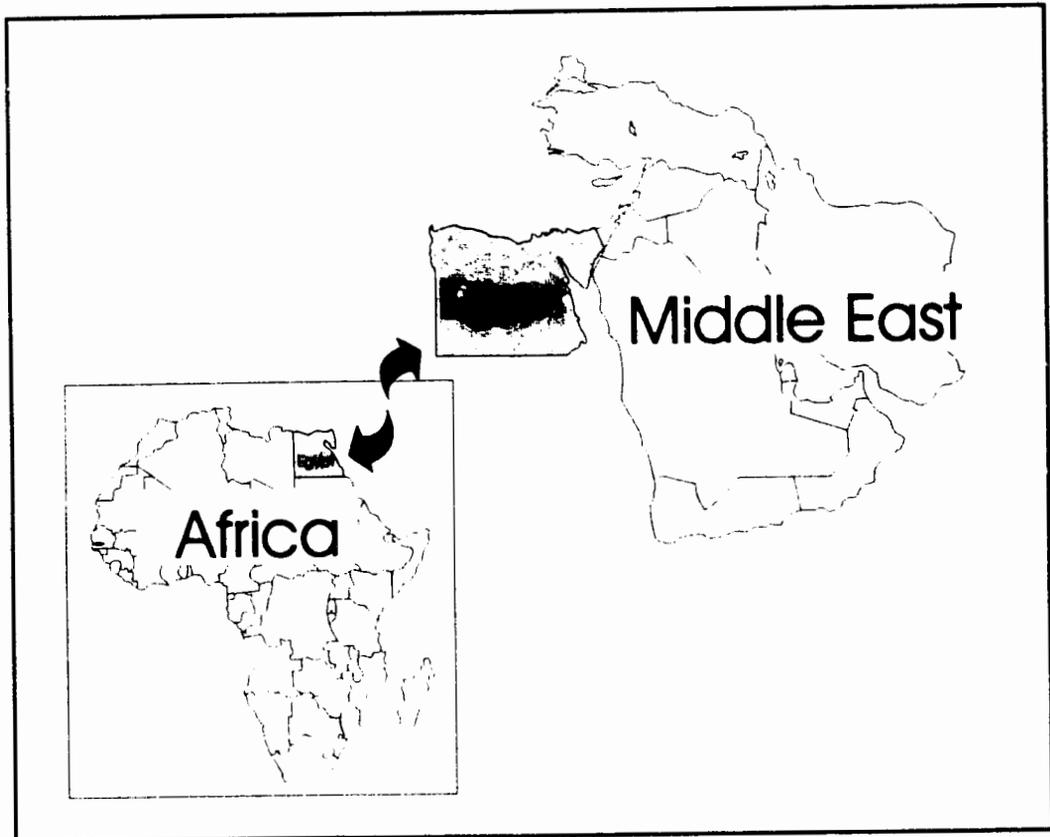
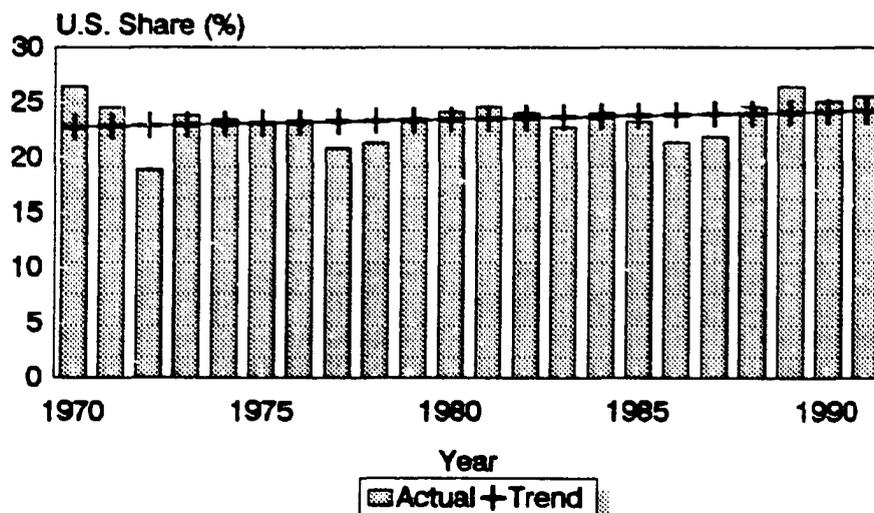


Table 1. U.S. and OECD Total Exports to Non-OECD Countries, 1970-91
(Million Constant 1989 Dollars)

Year	All OECD Exports	U.S. Exports	U.S. Share %
1970	161,649	42,741	26.4
1971	170,940	41,969	24.6
1972	186,940	35,307	18.9
1973	248,347	59,233	23.9
1974	346,132	81,113	23.4
1975	379,769	88,125	23.2
1976	372,097	86,691	23.3
1977	405,999	83,017	20.4
1978	449,282	95,514	21.3
1979	477,231	111,334	23.3
1980	539,095	129,889	24.1
1981	524,610	128,927	24.6
1982	450,003	107,997	24.0
1983	400,167	90,846	22.7
1984	388,578	93,259	24.0
1985	366,697	85,315	23.3
1986	376,313	80,591	21.4
1987	408,969	89,392	21.9
1988	461,323	113,311	24.6
1989	479,335	126,303	26.3
1990	511,165	128,262	25.1
1991	566,432	144,751	25.6

Source: OECD database, converted to constant dollars using the U.S. GNP deflator.

Figure 1. U.S. Share of OECD Exports to all Non-OECD Countries, 1970-91



Source: OECD database

2. THE LINK BETWEEN ASSISTANCE AND TRADE¹

In principle, a donor's assistance should generate additional donor exports. For most developing countries, a dollar of aid will be used ultimately to buy a dollar's worth of imports. For pure balance of payments support, the donor country would expect the exports generated by that support to be proportional to its share of the recipient country's import bill. For example, a donor normally providing 20 percent of a recipient's imports would expect its exports to rise by 20 cents as a result of providing 1 dollar of untied balance of payments support.²

The case described above must be distinguished from the case in which aid finances only procurement from the donor country (i.e., the aid is "tied"). A dollar of tied aid will produce a dollar of exports. It would be more precise, however, to say that such aid *consists of* exports. In effect, the donor government simply purchases some of the exporting firm's output and ships it to the recipient country. Such a transaction is not an export in the usual sense that a foreigner purchases a U.S. product. Instead, the foreigner accepts a product that the donor government has purchased. The donor government would have the same impact on the producer by dumping the product in the ocean after purchase.

There are three further complications, described below, on the link between aid and trade. The first complication tends to reduce the actual impact below the apparent one, while the other two complications tend to make it larger than it appears.

¹The A.I.D. program in Egypt did not place major emphasis on U.S. export promotion. It was designed to meet political and developmental objectives. Therefore, this report does not attempt to assess the A.I.D. program in Egypt or its objectives. It does, however, examine the linkages between aid and trade over a 15-year period.

²This discussion refers only to the direct or visible impact of such aid. Indirect influences also operate in several dimensions and tend to vitiate welfare benefits of the increased exports. The increase in exports to the aid recipient by other trading partners will stimulate demand for imports from the original donor by those countries. Grant aid would also marginally affect the donor country's exchange rate and marginally reduce its imports and increase its exports because of the depressing effect on the economy of the taxation required to fund the government aid program.

Understanding the Complications

Aid and additionality. For some projects, the absence of U.S. aid changes the source of funding, but does not eliminate the project. If the World Bank were to fund a project rejected by A.I.D., some U.S. exports would still be generated. Because the World Bank uses international competitive bidding, the amount of U.S. exports would be greater than zero, but almost certainly less than if U.S. procurement had been required. Thus, there is some degree to which A.I.D. financing would not provide "additionality." The exports would have occurred without A.I.D. financing, so the real effect on U.S. exports is lower than it appears.

Development impact. The results from aid on the recipient's economy will also affect exports from the donor country. If assistance improves policies or breaks bottlenecks to economic growth, total imports will increase from the rest of the world, including from the donor country. As discussed in the previous section, it is the growth in total import demand that in the longer term provides the main impetus to donor-country export growth. If the aid does not impact development, the market will not grow and the total effect will be limited to the subsidized exports. In the worst case, assistance could have a negative impact on development, thus reducing the prospect for future donor exports. One A.I.D. project, at least as designed, appears to fit this category.³

Follow-on impacts. A second factor—usually called follow-on effects—could make the impact of aid on exports larger than it seems. This occurs for instance when an A.I.D.-financed procurement from the United States leads to subsequent commercial transactions. There are several reasons to expect this. First, a piece of U.S. equipment, such as a generator, will require over its useful life a stream of spare parts and maintenance items that is likely to follow the purchase of original equipment fairly automatically. Second, the owner of the equipment will have some preference for the same kind of equipment in subsequent expansions. For example, the owner of a power plant using General Electric (GE) generators will be motivated to buy additional GE generators to economize on the inventory of spare parts and the technical knowledge of workers who have already acquired expertise on this equipment. Third, A.I.D.-financed procurement may lead U.S. firms to establish better sales or distribution capabilities that will produce subsequent export sales into that market. Finally, the requirement for U.S. procurement may lead a donor-country importer to discover that a U.S. firm is a better supplier than

³The Project Paper (A.I.D., N.d.) for the Egypt Shoubrah El Kheima Thermal Power Plant, Amendment 3 (Project 263-0030), contains an economic analysis concluding that the economic rate of return on the project is minus 12 percent. (See pp. 35-36 and Appendix M of the Project Paper).

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the importer's previous source. Though some observers⁴ suggest that the magnitude of the follow-on effect is significant, no one appears to have attempted to measure it.

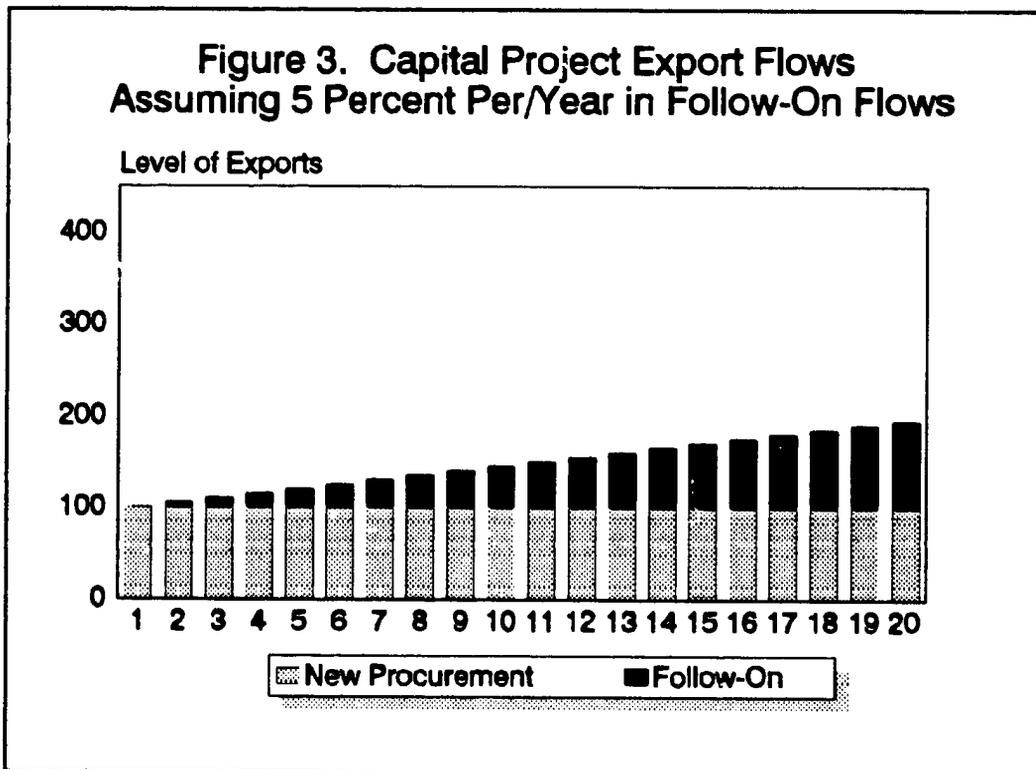
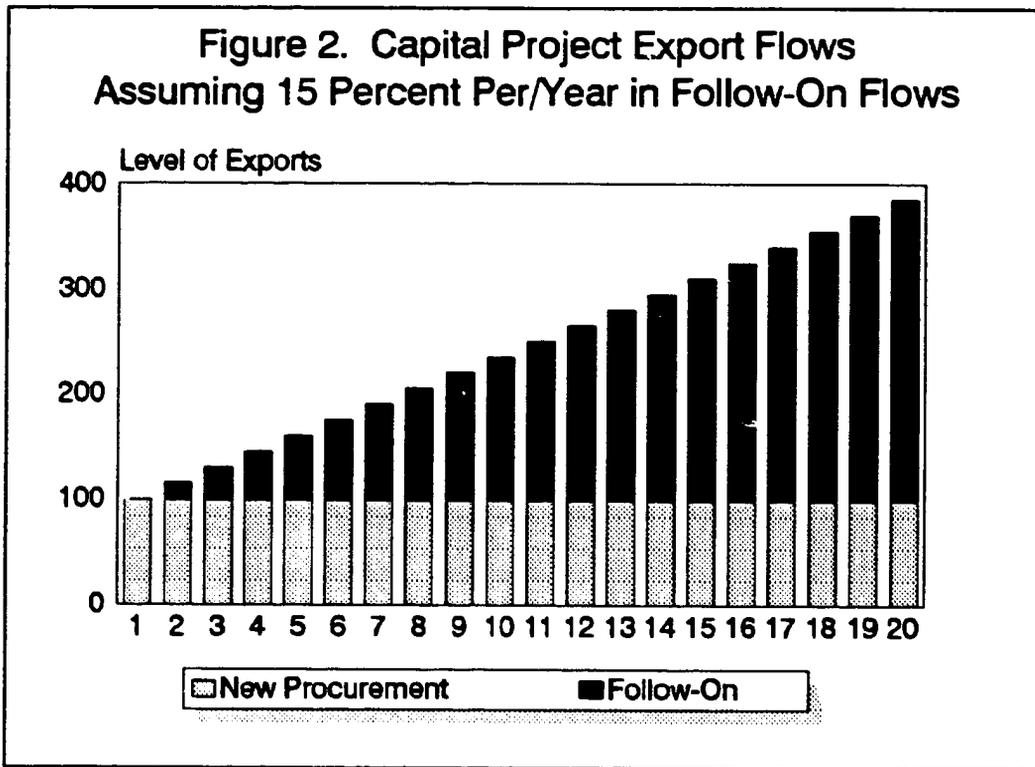
Conceptualizing the Empirical Significance of Follow-On Exports

How does one test the validity of the hypothesis of follow-on sales? The case of a capital project (or a piece of military equipment) is the simplest. In principle, one would expect a capital project to generate an immediate surge in imports for the original equipment. After completion of the project, the flow of imports would be steady, but at a fraction of the original procurement. To have a "large" follow-on effect, one would expect subsequent year imports to be, say, 10-15 percent of the initial procurement.

Measuring this impact is made easier if the donor is financing a steady stream of new projects. In this case, the donor's exports should continue to grow, as follow-on procurement for subsequent projects is added to the import stream. Figures 2 and 3 summarize this concept for two different rates of follow-on procurement. In the first example, a donor provides \$100 per year in financing for new projects, and each previously financed project generates 15 percent in annual follow-on sales. In this case, total donor country exports will double by the eighth year, with exports of \$100 for the new projects and \$105 in follow-on exports from the projects of the previous 7 years. The second example lowers the follow-on rate to 5 percent. At this rate, donor country exports will increase by 50 percent in 10 years and double only over 20 years.

If the donor is financing raw materials or intermediate goods instead of capital equipment, the follow-on effect is likely to be more tenuous. A permanent relationship that leads to follow-on exports may be established, but less predictably than for capital equipment involving proprietary technology and spare parts.

⁴Ernest Preeg (1989) speaks of a "multiplier effect on future sales in such sectors as telecommunications, computers, and power generation" that can follow on from initial tied-aid capital projects.



3. U.S. ASSISTANCE TO EGYPT

For the last 15 years, Egypt has been second only to Israel in the amount of U.S. assistance it has received, totaling more than \$33 billion since 1960. (In 1991 dollars, the total exceeds \$50 billion.) Of this total, \$18 billion has been in economic aid and \$15 billion in military aid. Egypt is also a country in which the United States has made a considerable effort to ensure a close link between U.S. aid and U.S. exports.

The U.S. aid presence in Egypt is dominating. It constitutes about one-quarter of Egypt's total imports from the industrial countries, is more than one-half of all economic aid from all member countries of the Development Assistance Committee, and roughly equals all U.S. exports to Egypt. Consequently, in Egypt, the favorable effects of U.S. aid on U.S. exports should be most evident. In seeking to quantify such effects, this paper examines trends in U.S. assistance and U.S. exports to Egypt in total and for particular categories.

U.S. bilateral assistance to Egypt takes three main forms: A.I.D. projects and programs, PL 480 agricultural commodity assistance, and military aid. Table 2 shows the trend from 1960-91 in annual obligations for each category of aid.

A.I.D. Programs and Projects

A.I.D. activities in Egypt take several forms, described below, with differing impacts on U.S. exports. Data on the breakdown of A.I.D. assistance among the three categories are not readily available.

- *Project aid.* A significant part of U.S. economic assistance to Egypt comes through projects, which finance inputs for a specific identifiable product. Projects vary widely in design—some producing physical outputs, such as water systems, others seeking organizational changes through training and technical assistance. These differences in design lead to differences in the way in which projects use U.S. goods or technical services. Project aid can be considered of two types:

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Table 2. U.S. Aid and U.S. Exports to Egypt, 1960-91
(Million Current Dollars)

Year	Economic Aid			Military Aid	Total U.S. Aid	Total U.S. Exports
	A.I.D.	PL 480	Total			
1960	92	28	120	100	220	151
1961	260	21	221	86	307	162
1962	71	113	184	156	340	234
1963	128	49	177	161	338	209
1964	126	52	178	102	280	268
1965	150	48	198	118	316	158
1966	2	26	28	0	28	189
1967	1	12	13	0	13	66
1968	0	0	0	0	0	49
1969	0	0	0	0	0	67
1970	0	0	0	0	0	77
1971	0	0	0	0	0	63
1972	2	0	2	0	2	76
1973	0	1	1	0	1	225
1974	9	13	21	0	21	455
1975	253	117	370	0	370	681
1976	688	177	865	0	865	808
1977	699	209	908	0	908	949
1978	751	192	943	0	943	1,093
1979	835	253	1,088	1,500	2,588	1,232
1980	865	301	1,166	1	1,167	1,745
1981	829	301	1,130	551	1,681	1,949
1982	771	294	1,065	902	1,967	2,113
1983	750	255	1,005	1,327	2,332	2,094
1984	853	251	1,104	1,367	2,471	2,221
1985	1,065	227	1,292	1,177	2,469	1,964
1986	1,069	224	1,293	1,246	2,539	1,648
1987	820	196	1,016	1,302	2,318	1,509
1988	718	156	874	1,302	2,176	2,089
1989	816	152	968	1,302	2,270	2,593
1990	900	193	1,093	1,296	2,389	2,221
1991	783	215	998	1,302	2,300	2,688
Total Flow, 1960-91						
Current \$	14,244	4,076	18,320	15,297	33,616	32,046
Constant 1991 \$	22,253	6,865	29,118	21,106	50,224	48,550

Source: A.I.D., Overseas Loans and Grants; Data on U.S. Exports from OECD database.

Notes: Aid is for fiscal years. Data for FY 1976 are four-fifths of the amount for the fiscal year and transition quarter. Totals may not sum due to rounding error.

- *Capital projects.* A.I.D. has financed a number of large-scale infrastructure projects in Egypt in such sectors as telecommunications, power, and urban water. Capital projects will generate significant exports of U.S. equipment for project implementation, although the magnitude will differ sharply by sector. Foreign equipment might represent only 10 to 20 percent of the total cost of a water and sewerage project, but is likely to represent the bulk of total costs in the power and telecommunications sectors. It is in these latter sectors that follow-on exports have been argued to be significant.
- *Other projects.* Whereas capital projects typically require substantial purchase of equipment, other types of projects vary widely in how they use resources. Other projects may allow primarily local costs (such as Egyptian Government spending) or foreign costs (such as technical assistance or training), which do not involve procuring U.S. goods. In general, the procurement of U.S. goods is likely to be significantly larger for capital projects than for other projects.
- *Commodity Import Programs.* Commodity Import Programs (CIPs) are a form of program aid that provides foreign exchange for purchasing U.S. goods. A one-to-one relationship should exist between CIP aid and U.S. direct exports, since funds are disbursed to the U.S. supplier when the goods are shipped. CIPs would be expected to generate some follow-on exports by sparking interest among U.S. firms in the Egyptian market, introducing or strengthening links between U.S. suppliers and Egyptian firms, and encouraging the use of U.S. technologies or standards.
- *Cash transfers.* A portion of A.I.D.'s annual funding for Egypt is composed of a cash transfer, which requires accounting for the use of resources, but is not linked specifically to particular import transactions.

PL 480 Commodities

Under PL 480, the United States provides long-term credits for purchasing U.S. agricultural commodities. The value of the assistance should equal the value of U.S. exports. The follow-on effects of such aid, however, may be more limited than for the two other types of aid. While PL 480 sales may promote development of a commercial market for agricultural products such as wheat, the link between such purchases and U.S. producers is much weaker than for highly differentiated products such as trucks or generators.

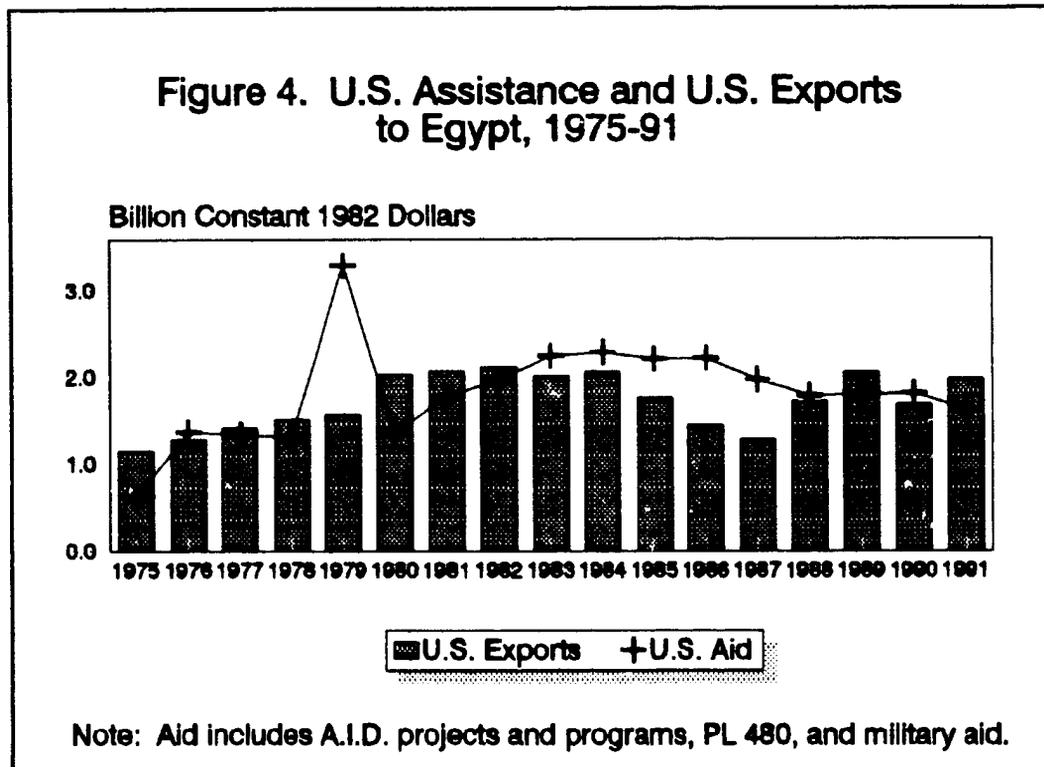
Military Aid

The United States provides Egypt about \$1.3 billion in military aid a year, almost entirely as Foreign Military Financing. This aid supports the sale or grant of military equipment from the United States. Thus, the level of U.S. aid provided and U.S. exports generated should be directly related.⁵ The follow-on effects of military aid should be extremely strong for several reasons: incompatibility among products of different countries, the critical need for a military establishment to minimize the variety of spare parts, and secrecy considerations with respect to particular items.

⁵While the conceptual link between military aid and U.S. military exports should be close, such exports may not be fully reflected in trade statistics for several reasons: secrecy, commodities are provided as grants rather than as loans or as sales, or the equipment being transferred is used. Transactions in used goods or in grant military aid are not included in U.S. export statistics, although treatment of military aid is apparently inconsistent over time.

4. TRENDS IN U.S. EXPORTS TO EGYPT

The first step in examining the potential impact of U.S. aid on U.S. exports is to analyze total U.S. exports and total U.S. assistance. Figure 4 and Table 3 summarize the trends in these two variables over the 1960-91 period.⁶ The data are in constant 1982 dollars.



⁶U.S. export data for 1992 became available after this analysis was completed, but does not materially affect the analysis. Total U.S. exports to Egypt in 1992 rose by 14 percent, but this increase was entirely due (as was most of the increase in U.S. exports in 1991) to increased U.S. exports of military aircraft and arms, probably related mainly to Operation Desert Storm.

Table 3. U.S. and Total OECD Exports to Egypt, 1960-91
(Million Constant 1982 Dollars)

Year	U.S. Exports	OECD Exports	U.S. Share in Percentage
1960	489	1,388	35
1961	519	1,574	33
1962	734	1,755	42
1963	645	1,883	34
1964	815	1,872	44
1965	467	1,642	28
1966	540	1,543	35
1967	184	866	21
1968	130	849	15
1969	168	1,095	15
1970	183	1,336	14
1971	142	1,275	11
1972	163	1,211	13
1973	455	1,733	26
1974	843	3,457	24
1975	1,148	5,194	22
1976	1,281	5,342	24
1977	1,410	5,789	24
1978	1,514	6,323	24
1979	1,567	7,383	21
1980	2,036	9,400	22
1981	2,073	9,535	22
1982	2,113	9,119	23
1983	2,015	8,732	23
1984	2,058	9,075	23
1985	1,761	8,012	22
1986	1,439	6,755	21
1987	1,285	6,274	20
1988	1,722	6,515	26
1989	2,053	6,444	32
1990	1,688	6,847	25
1991	1,972	6,809	29
Total 1960-91	35,615	147,029	24

Source: OECD database.

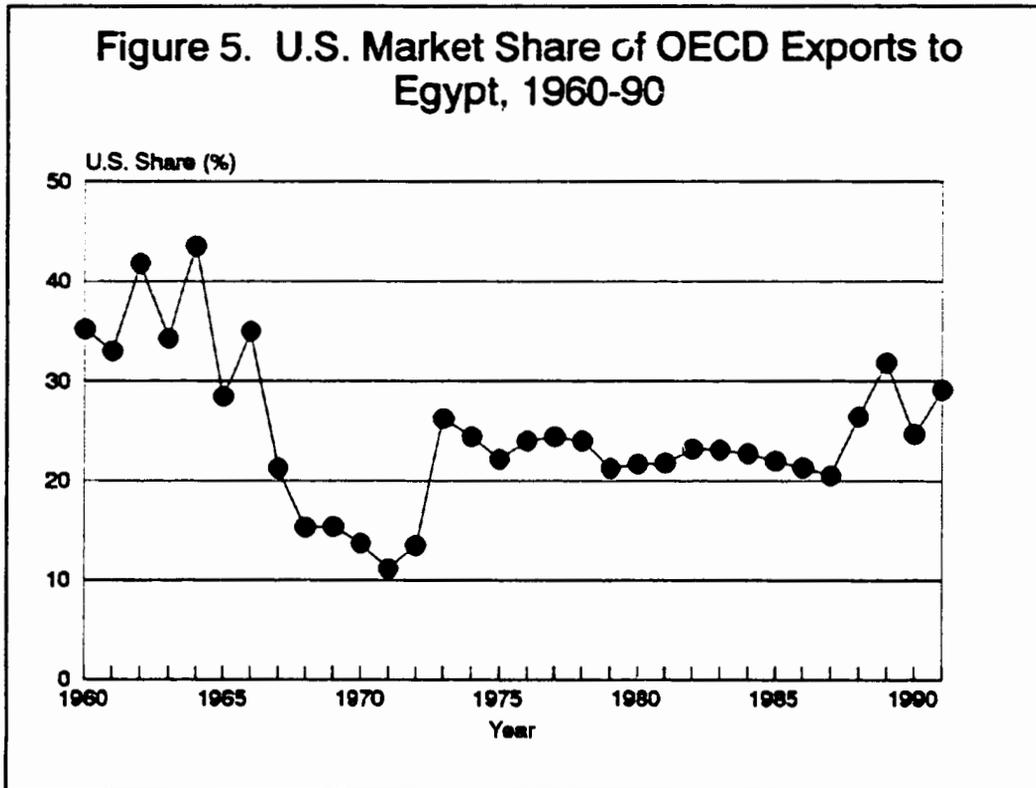
Note: OECD = Organization for Economic Cooperation and Development. Totals may not sum due to rounding error.

As indicated in Figure 4, U.S. exports rose during the last half of the 1970s, peaked in 1982, declined steadily through 1987, and then recovered somewhat. By 1991, U.S. exports were still about 7 percent below the 1982 level. This contrasts to U.S. exports worldwide, which rose by 42 percent (in constant dollars) over the 1982-91 period. U.S. assistance to Egypt remained about stable in nominal terms over the same period, with a slow decline in real value in the late 1980s as inflation eroded the real value of constant nominal levels.

Figure 4 illuminates two striking facts. First, overall U.S. assistance to Egypt has continued to about equal total U.S. exports to the country. In half of the years, aid exceeded exports, and in the other half exports exceeded aid. Overall, during the last 15 years, cumulative U.S. exports in 1982 dollars totaled \$28 billion, while U.S. assistance exceeded \$30 billion. This represents 92 cents in U.S. exports for each dollar the U.S. provided to Egypt over the period. This strongly suggests that U.S. procurement requirements have had no catalytic effect on U.S. exports.

Second, and equally notable, there is no evidence of *any* follow-on impact of U.S. capital projects and CIP activities in the aggregate. If the capital project activity in the 1970s and early 1980s has generated such additional U.S. exports, they have come at the expense of other U.S. products. It is clear that Egypt has been a poor market for U.S. products—and U.S. assistance has not altered this fact.

Given the poor performance of Egypt as a market for U.S. exports, what happened to the relative position of the United States compared with that of other OECD countries? These countries are the United States' most direct competitors for manufactured exports. Figure 5 illustrates the trend in this variable for the years 1960-1990. The United States had a dominant position in Egypt during the first half of the 1960s, accounting for more than 35 percent of Egypt's imports from the industrial countries. This share fell dramatically after U.S. aid was cut off, but recovered in 1973 and 1974 to 25 percent. The resumption of large-scale aid in FY 1976 appears to have had no effect on the U.S. share of the OECD total, which declined moderately between 1975 and 1987. The U.S. share rose again during 1988-90 to 28 percent. Overall, the United States has been able to maintain its market share in Egypt vis-à-vis other industrial countries during the period.



The stagnation of the overall Egyptian market for imports is the main factor that has limited growth in trade with the OECD. Strong empirical evidence points to economic policies as the determinant of growth in trade over the long run.⁷ Analyses of the Egyptian economy by USAID/Cairo economic staff⁸ and World Bank⁹ studies emphasize that in the Egyptian case, poor economic policies—including a very inward-oriented trade regime, extensive price distortions, heavy government control of productive enterprises, and limited scope for market forces—hurt both growth and trade.

⁷See, for example, Greenaway and Reed (1990) or Edwards (1992).

⁸See Adler (1989).

⁹The view that Egypt's prospects for economic growth and growth in international trade are severely constrained by Egyptian economic policies has been a continual one in World Bank economic memoranda on Egypt. See, for example, World Bank reports for 1986 and 1989.

Empirically Testing the Aid-Trade Relationship

The simplest empirical test of the relationship between U.S. aid levels and U.S. exports is linear regression. This technique measures statistical associations between the level of a variable to be explained (in this case, U.S. exports or the U.S. share of all OECD exports) and other variables that are put forward as explanatory factors (e.g., U.S. aid levels, Egyptian total imports). This study uses two approaches: (1) explaining the U.S. *share* of all OECD exports by the level of U.S. assistance and (2) explaining the U.S. *level* of exports by the level of U.S. assistance and the level of Egyptian imports from the OECD. The tests were run for two alternate time periods (1961-91 and 1976-91) to include and exclude the period in the early 1970s when U.S. assistance was cut off. Several specifications of U.S. aid (total aid, economic aid, and Official Development Assistance) were tried. All regressions used data in constant dollars.

Explaining the U.S. Share

There appears to be no relationship between U.S. aid and U.S. exports to Egypt. For the 1961-91 period, the regression had no explanatory power in relating U.S. economic aid to the U.S. share of OECD exports to Egypt (R-squared of .02), and the regression coefficient was statistically insignificant. For the 1976-91 period, the regression had a higher R² (R-squared of .34), but a negative regression coefficient (i.e., an increase in U.S. aid would reduce U.S. share). Regression equations for economic aid, with t-statistics for coefficients shown in parentheses, are as follows:

(1961-91)	U.S. Share = .232 + 0.00002 x U.S. Economic Aid	R ² = 0.017
	(3.1) (0.7)	
(1976-91)	U.S. Share = .316 - 0.00007 x U.S. Economic Aid	R ² = 0.34
	(12.4) (2.7)	

For both the 1961-91 and 1976-91 periods, regression produced similar results for both U.S. economic aid and total U.S. (including military) aid.

Explaining the Level of U.S. Exports

An examination of the relationship between the level of U.S. economic assistance to Egypt and OECD exports to Egypt on the one hand and U.S. exports to Egypt on the other produced the results discussed below. A regression using total U.S. aid (including military) produced similar results, although with a lower R-squared. The regression equations for economic aid are as follows, with t-statistics for coefficient shown in parenthesis:

$$(1961-91) \quad \text{U.S. Exports} = 86 + 0.08 \times \text{U.S. Economic Aid} + 0.21 \times \text{OECD Exports} \quad R^2 = 0.94$$

(0.5) (7.8) (4.1)

$$(1976-91) \quad \text{U.S. Exports} = 931 - 0.48 \times \text{U.S. Economic Aid} + 0.18 \times \text{OECD Exports} \quad R^2 = 0.77$$

(5.9) (4.7) (16.3)

The coefficients are generally statistically significant. The interpretation of the first equation is that an increase of 1 dollar in U.S. economic aid will increase U.S. exports to Egypt by 8 cents, and an increase of 1 dollar in Egypt's imports from the OECD will increase U.S. exports to Egypt by 21 cents. For 1976-91 (period since resumption of U.S. aid), the results are similar for the importance of OECD exports, but show a negative sign for U.S. economic aid. For this period, a decline in the level of U.S. aid is associated with a higher level of U.S. exports.

The relationship between U.S. aid and U.S. exports is examined on a multicountry basis in a study conducted recently for A.I.D. by Logistics Management Institute (LMI) (1991).¹⁰ The study found, for its sample, 1 dollar of U.S. economic aid was associated with 30 cents of additional U.S. exports. Although some of the methodological elements of the LMI regression are open to question (e.g., the inclusion of population as an explanatory variable separate from aggregate income), the LMI model was run for Egypt using both the 1978-88 time period from LMI's study and 1978-91. Both regressions produced the same result—1 dollar in aid added 7 cents to U.S. exports, but this figure was not statistically different from zero.

To summarize, the statistical record shows no evidence of a significant impact of U.S. assistance on U.S. exports. It suggests that a much larger payback to U.S. exports would come from steps to increase Egyptian imports rather than from additional U.S. aid.

Looking at the Egyptian Market for U.S. Capital Goods

Capital goods are the leading edge of U.S. international competitiveness. Such goods—machinery of all types and transport equipment (motor vehicles, airplanes, and ships)—are the backbone of U.S. exports. In 1990, capital goods constituted \$172 billion—nearly half—of total exports, including products with the most dynamic potential for continued growth and the greatest embodiment of new technology. Thus the interest in aid as a promotional vehicle for U.S. exports often centers on this group of products—products for which the issue of U.S. competitiveness and market share among OECD countries is also of greatest public attention.

For these reasons, trends in each of the major categories of capital goods in U.S. exports to Egypt were compared with exports from other OECD countries. Because trends in U.S. exports to Egypt cannot be abstracted from the issue of U.S. global

¹⁰Appendix I of the study provides the econometric analysis.

competitiveness, data were also collected on the U.S. share of OECD capital goods exports to all developing countries.

The trends in U.S. market shares in Egypt and in all developing countries for each of the major categories of capital goods is summarized in Table 4, and shown in Appendix A. The United States provided an average of 21 percent of Egypt's capital goods imports from the developed countries during 1978-90, compared with a 23 percent U.S. share for all developing countries. The U.S. market share has been increasing in both markets. Growth in the U.S. share has been faster in Egypt than in all developing countries (average increase of 9 percent versus 5 percent over the 1978-90 period), so that by 1990 the U.S. share in Egypt had reached the developing country average.

It is clear from the disaggregated data, that U.S. market penetration is lower in Egypt than in the developing countries in general for most types of capital goods. The U.S. market share in Egypt during 1978-90 was higher on average than in all developing countries in only two of the nine capital goods categories—power generating equipment and other transport equipment. For other electrical equipment and computers, the U.S. share in Egypt is dramatically lower than in the rest of the developing world.

Table 4. U.S. Share of OECD Capital Goods Exports to Egypt and all Developing Countries, 1978-90

Capital Goods Sector	Average U.S. Market Share			Change in U.S. Market Share		
	Egypt (%)	All DCs (%)	Egypt/DC Difference (%)	Egypt (%)	All DCs (%)	Egypt/DC Difference (%)
71--Power generating equipment	29	26	3	-8	3	-11
72--Specialized machinery	21	23	-2	2	-4	7
73--Metalworking machinery	12	14	-2	3	2	1
74--Other industrial machinery	17	19	-2	-5	-3	-2
75--Office machines/computers	30	46	-15	17	7	10
76--Telecom./sound equipment	19	19	0	16	2	14
77--Other electrical equipment	13	27	-14	-3	13	-16
78--Road motor vehicles	13	15	-3	-8	1	-9
79--Other transport equipment	38	31	6	64	-21	85
Total	21	23	-2	9	5	4

Source: OECD Foreign Trade Statistics.

Note: DC is developing country.

The trend in U.S. market share in Egypt is somewhat more positive. The trend is better (i.e., increasing faster or declining more slowly) in five categories and worse in four. The rise in the U.S. share in Egypt's market for other transport equipment has been dramatic, because of Egypt's large purchases of aircraft over the last several years for both military and civilian purposes. Aircraft have been the single largest U.S. capital goods export to Egypt in recent years, usually accounting for one-fourth to one-third of the total. Excluding aircraft, the U.S. share of the Egyptian market for capital goods shows a decline.

Egyptian Imports and Egyptian Economic Growth

Egyptian imports stagnated during the last decade. Yet, according to the usual measures of gross domestic product (GDP), Egypt's economy grew much faster than the average for developing countries. According to the World Bank, Egypt GDP grew at an annual average rate of 7.3 percent between 1965 and 1980 and at an average of 5.0 percent between 1980 and 1990. Overall, according to Egyptian national accounts, real GDP grew by 150 percent between 1975 and 1990, while real imports grew by only 15 percent. (For most countries, and for the world as a whole, international trade has grown faster than production, as economies have become more integrated.)

While Egypt has become progressively more isolated from the rest of the world in trade terms, its real welfare has improved significantly. Social indicators (life expectancy, infant mortality, education) all strongly suggest a marked improvement in the average quality of life; indeed, in some areas (e.g., secondary school enrollments) Egypt's attainments match those of countries typically with a much higher per capita income. Nonetheless this weakened link to the rest of the world poses a problem.

Part of the declining importance of imports to Egypt might be explained simply by domestic oil production, which eliminated the need for oil imports. For the rest, two interpretations suggest themselves. First, the declining trend in imports may result from progressive success in import substitution. Imports of machinery provided Egyptian firms with the capability of manufacturing items that had been previously imported. Second, Egypt's national accounts measurement of output growth may overstate the actual improvement. Like Eastern Europe and the former Soviet Union, Egypt's production growth may have been too insulated from technological progress and competition in the rest of the world to permit proper valuation of the economy's output. Thus, the import substitution may mean that inferior goods are being produced, but their value is overstated. In the case of Eastern Europe, it was only the opening of the economy to the world that exposed the failure to keep up and led to dramatic reductions in valuation of GDP. If Egypt is similar, a broad opening of Egypt's economy by trade liberalization would cause a similar decline in measured per capita income and, consequently, a downward revision of growth over the past several decades.

5. POSSIBLE CAUSAL FACTORS IN U.S. EXPORT PERFORMANCE

The considerable weight of evidence showing no follow-on effect of U.S. aid on U.S. exports to Egypt is so counterintuitive that some discussion of the possible causes for this phenomenon is required. First, and most important, the decline in the Egyptian market for imports from all OECD countries over the last decade has made exporting to Egypt less than a zero-sum game. Without rapid growth in Egyptian exports—which poor government policies have historically precluded—there is no way that Egypt can be a dynamic market for exports from the United States or elsewhere. Whatever U.S. assistance has accomplished in Egypt, it has not led to the creation of a dynamic open economy that would make a better market for U.S. products.

The significance of this dynamic factor can be seen in Figures 6 and 7, which compare U.S. economic aid and U.S. exports to Central America with U.S. economic aid and exports to Egypt. For Central America, where A.I.D. provided close to \$5 billion in assistance over the 1983-90 period, U.S. aid supported reforms that opened those economies and increased their capacity to import from the world. As a consequence, U.S. exports more than doubled over the period. Although not shown in the figures, U.S. exports continued to grow rapidly in 1991 and 1992, even as U.S. aid levels declined.

Second, the structure of Egyptian import regulations may interfere with the development and maintenance of stable supplier-buyer relationships. The Government's extensive control over imports through its direct monopoly on much of importing, its prohibitions, its import licensing, and its frequently changing regulations on access to foreign exchange all impede operation of normal trading patterns. An Egyptian manufacturer cannot count on continued regular access to imports of a particular item. Indeed, a perusal of the disaggregated U.S. export data over the 1985-91 period suggests considerable evidence on this point (Table 5). In constant dollars, U.S. exports increased by 12 percent over the period. Nevertheless, the relative stability of total exports masks great year-to-year fluctuations in exports of individual products. At the two-digit level, the *average* standard deviation for U.S. exports is 75 percent. In other words, U.S. exporters in a particular sector are operating in a wildly unstable market. Next year's exports can be expected to fall within a range of 25 percent to 175 percent

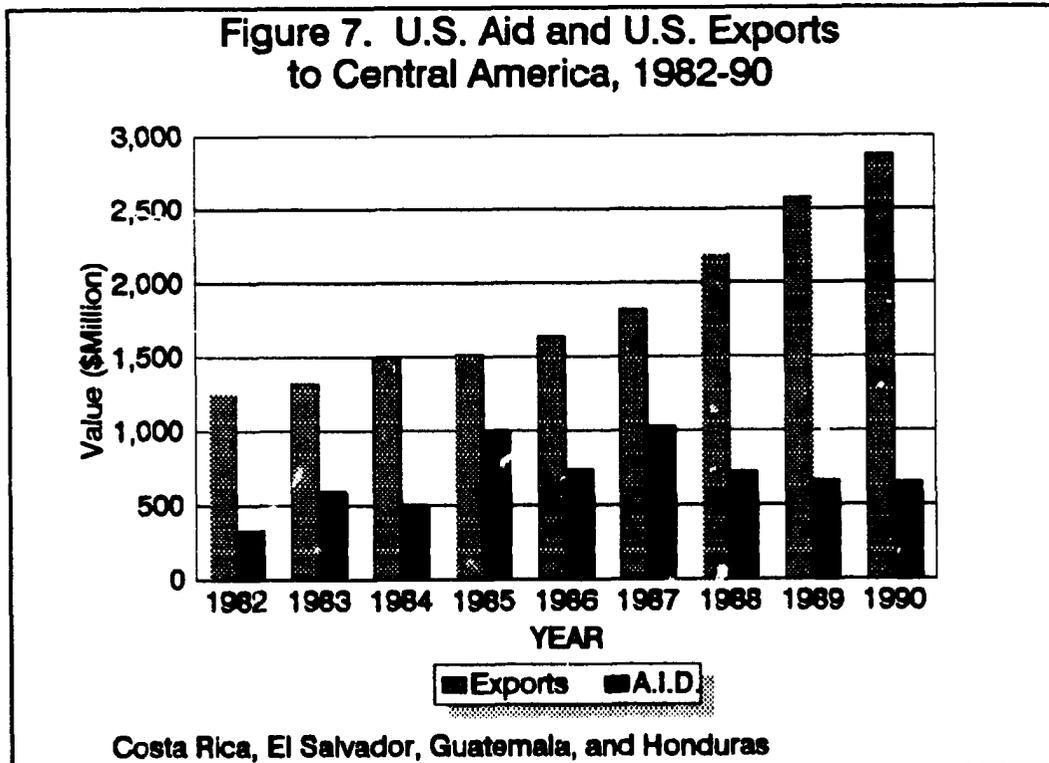
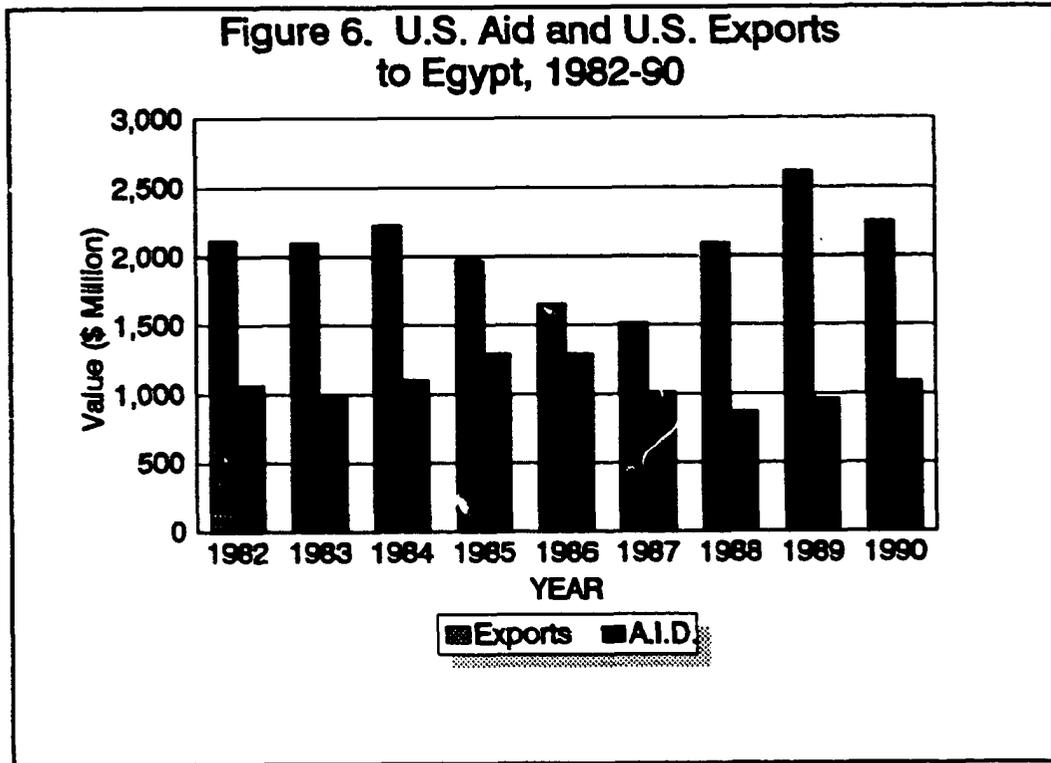


Table 5. U.S. Exports to Egypt, 1985-91
(Million Constant 1983 Dollars)

TWO-DIGIT HARMONIZED SYSTEM CATEGORY	1985	1986	1987	1988	1989	1990	1991
ALL COMMODITIES	1,761	1,439	1,285	1,722	2,053	1,689	1,972
01--Live Animals	0	0	1	2	0	1	2
02--Meat and Edible Meat Offal	29	31	29	19	11	9	3
03--Fish, Crustaceans and Aquatic	1	0	1	1	1	2	0
04--Dairy Prods, Bird Eggs, Honey	44	15	3	1	0	0	7
06--Live Trees, Plants, Bulbs, Flowers, etc.	1	0	0	0	0	0	0
07--Edible Vegetables, Certain Roots and Tubers	3	5	0	0	0	0	0
08--Edible Fruit and Nuts; Citrus	2	0	0	0	0	0	0
10--Cereals	330	319	298	376	507	309	301
11--Milling Products; Malt; Starch	100	105	96	94	96	60	41
12--Oil Seeds, etc.	2	26	14	15	14	10	3
13--Lac; Gums, Resins	0	0	0	0	1	0	0
15--Animal or Vegetable Fats, Oils, etc.	129	46	48	63	56	11	23
17--Sugars and Sugar Confectionary	0	0	2	0	0	0	0
19--Prep Cereal, Flour, Starch or Milk	2	1	0	0	0	2	5
20--Prep Vegetables, Fruit, Nuts	0	0	0	0	0	0	1
21--Miscellaneous Edible Preparations	2	4	2	3	2	3	3
23--Food Industry Residues, Animal Feed	20	50	52	52	33	29	17
24--Tobacco	91	76	22	27	10	13	21
25--Salt, Sulfur, Earth and Stone, Lime	4	2	1	0	1	0	1
27--Mineral Fuel, Oil, etc.	24	20	22	21	26	25	31
28--Inorg Chem, Prec and Rare-Earth Met	4	3	2	2	3	4	3
29--Organic Chemicals	23	34	26	25	37	31	34
30--Pharmaceutical Products	4	4	3	3	3	2	3
31--Fertilizers	1	1	1	1	0	1	1
32--Tanning and Dye ext., etc; Dye, Paint	2	2	3	3	2	2	2
33--Essential Oils, etc; Perfumery	1	1	1	1	2	1	2
34--Soap, etc.	3	1	1	7	1	1	1
36--Explosives, Pyrotechnics; Matches	3	1	1	1	9	5	6
37--Photographic Goods	1	1	0	0	0	0	1

Table 5. U.S. Exports to Egypt, 1985-91
(Million Constant 1983 Dollars)

TWO-DIGIT HARMONIZED SYSTEM CATEGORY	1985	1986	1987	1988	1989	1990	1991
38--Miscellaneous Chemical Products	15	14	15	20	16	11	13
39--Plastics and Plastic Articles	20	13	27	24	33	32	43
40--Rubber and Rubber Articles	1	1	14	4	4	2	3
42--Leather Art; Saddlery, etc.	0	0	0	0	0	1	0
44--Wood and Wood Articles	17	47	30	11	9	16	12
47--Pulp of Wood etc.	9	9	11	12	23	10	13
48--Paper and Paperboard Articles	10	14	13	13	30	34	42
49--Printed Books, Newspapers, etc.	6	4	5	3	4	3	3
52--Cotton, Including Yarn and Fabric	47	31	20	28	46	88	87
54--Manmade Filaments	20	9	10	12	3	6	6
55--Manmade Staple Fibers	2	2	2	2	18	20	22
56--Wadding, Felt, etc; Sp Yarn; Twine	2	1	1	1	0	0	0
59--Impregnated Text Fabrics	0	0	0	1	0	0	1
65--Headgear and Parts	0	0	0	0	0	1	0
68--Art of Stone, Plaster, Cement	1	1	1	3	3	2	3
69--Ceramic Products	1	0	1	2	0	1	0
70--Glass and Glassware	1	1	1	1	2	3	3
71--Nat Pearls, Prec Stones	0	0	0	0	1	0	0
72--Iron and Steel	18	15	14	20	20	21	17
73--Articles of Iron or Steel	18	11	8	11	15	16	14
74--Copper and Copper Articles	3	4	2	2	2	4	5
75--Nickel and Nickel Articles	1	0	0	1	0	0	0
76--Aluminum and Aluminum Articles	1	1	2	2	1	2	4
80--Tin and Tin Articles	0	0	0	0	0	1	1
81--Base Metals Neso	1	0	0	0	0	0	0
82--Tools, Cutlery, etc. of Base Metal	5	3	2	3	3	4	4
83--Miscellaneous Articles of Metal	2	1	2	1	1	1	1
84--Reactors, Boilers, Machinery, etc.	381	207	185	217	290	265	310
85--Electric Machinery, etc.	100	110	107	151	155	112	166
86--Railway or Tramway Stock, etc.	24	0	4	3	6	14	8
87--Vehicles, Except Railway	65	62	38	30	118	60	208

Table 5. U.S. Exports to Egypt, 1985-91
(Million Constant 1983 Dollars)

TWO-DIGIT HARMONIZED SYSTEM CATEGORY	1985	1986	1987	1988	1989	1990	1991
88--Aircraft, Spacecraft, and Parts	84	79	91	347	282	230	305
89--Ships, Boats, and Floating Structures	6	0	0	1	2	1	4
90--Optic, Photo, Medic Instruments	39	34	31	55	45	46	62
93--Arms and Ammunition	1	1	1	1	75	119	69
94--Furniture, Bedding, etc.	14	4	3	4	2	6	2
95--Toys, Games and Sport Equipment	1	0	1	1	0	1	1
96--Miscellaneous Manufactured Articles	1	1	1	1	1	1	0
97--Works of Art, Antiques	0	0	0	0	0	0	0
98--Special Classification Provisions	17	6	7	9	22	26	24
SUMMARY							
Agricultural Products	758	679	568	656	733	450	427
Other Primary Products	28	23	23	22	27	26	32
Manufactures	959	732	686	1,035	1,271	1,187	1,489
Military	49	58	60	87	317	240	445
Non-Military	910	674	627	947	954	947	1,045

Source: U.S. Department of Commerce, FAS Values deflated by U.S. GDP Deflator; military exports are author's estimates from perusal of disaggregated data.

of this year's level. Such instability inherently makes normal business relationships difficult. Firms are unlikely to spend resources to develop a market in which arbitrary government actions will frequently undo their efforts.

Third, A.I.D. used modalities for linking assistance to U.S. exports that can limit the potential for developing the ongoing relationships that make a steady stream of exports possible. Financing of capital projects is episodic by its nature. CIPs can also lead to episodic exports by individual U.S. firms, since each sale comes as a result of competitive bidding. While competitive bidding is a vehicle for ensuring that the lowest price is obtained, it is a relatively blunt instrument—one more attuned to large capital projects than to ongoing purchases of raw materials or intermediate goods. For such purchases, competitive bidding necessarily specifies the dimensions of the transaction only incompletely. The buyer may be concerned about the supplier's willingness to adjust shipping dates or alter specifications, or by his or her response to defective products (e.g., how quickly replacements will be provided). The growing economic

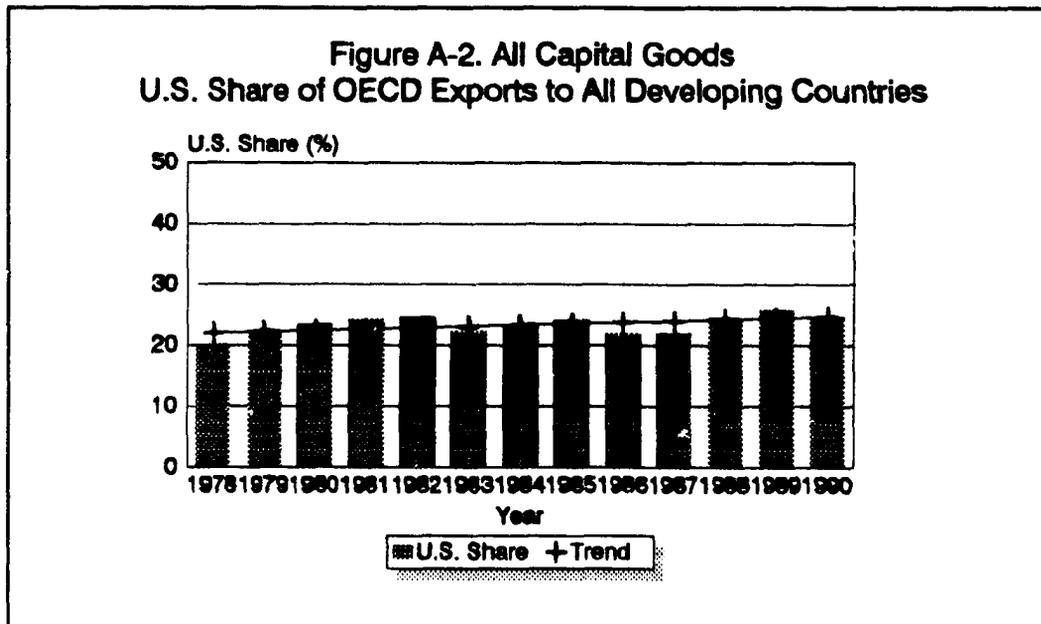
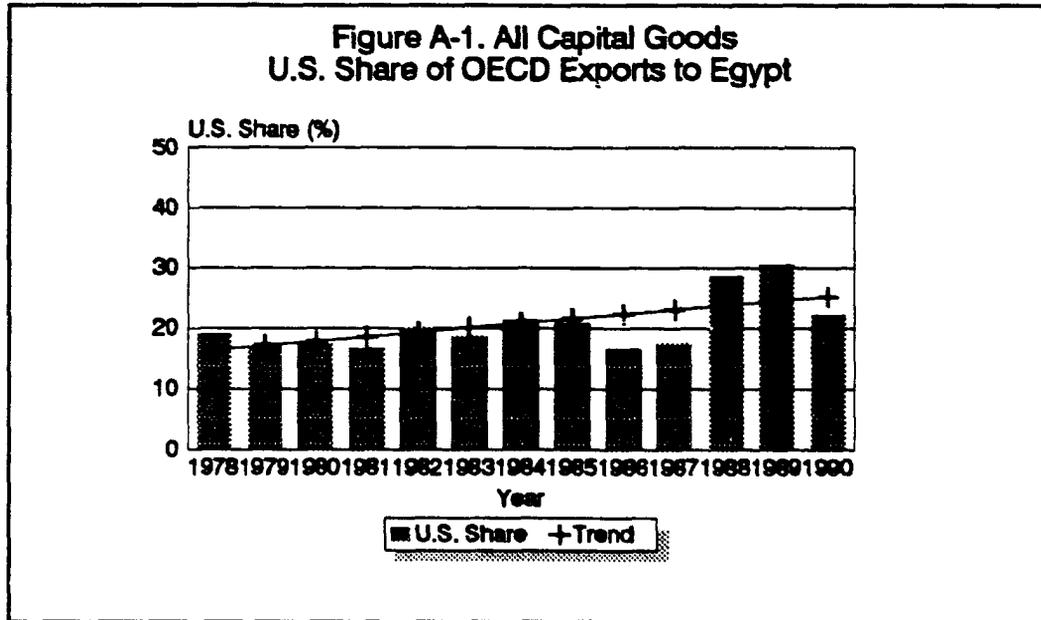
literature on transaction costs explains why businesses fail to use formal competitive bidding for much of their ongoing purchases. They need to develop relatively permanent relationships with particular suppliers to develop the trust and sense of shared benefits that minimize costs over the long term. Interposed between the buyer and seller of U.S. products, A.I.D.'s competitive bidding processes may prevent such relationships from developing, possibly making U.S. firms less willing to commit resources to cultivating potential buyers in Egypt.

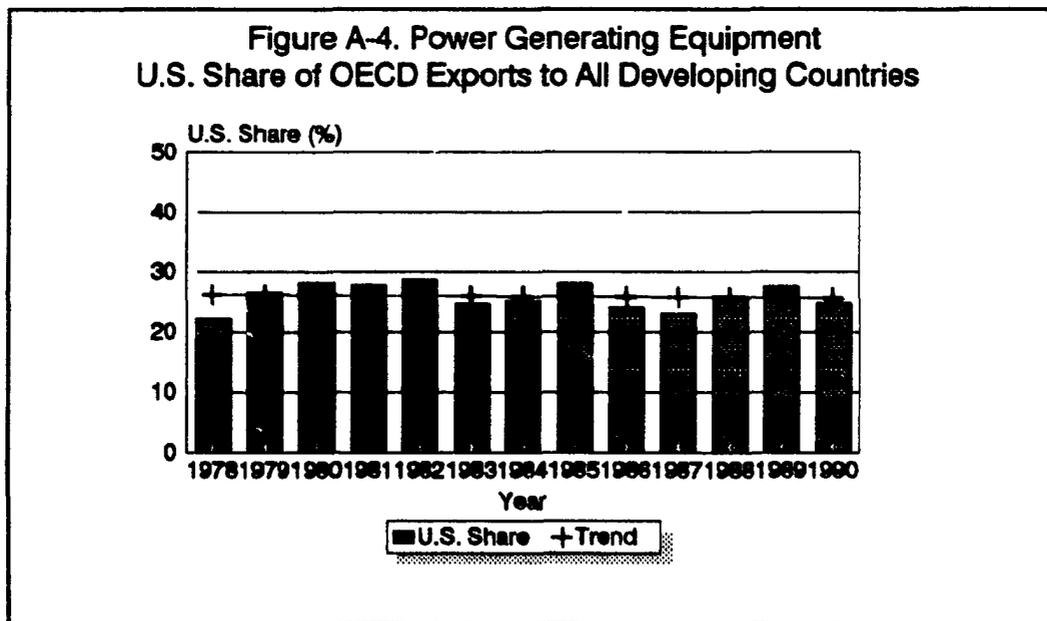
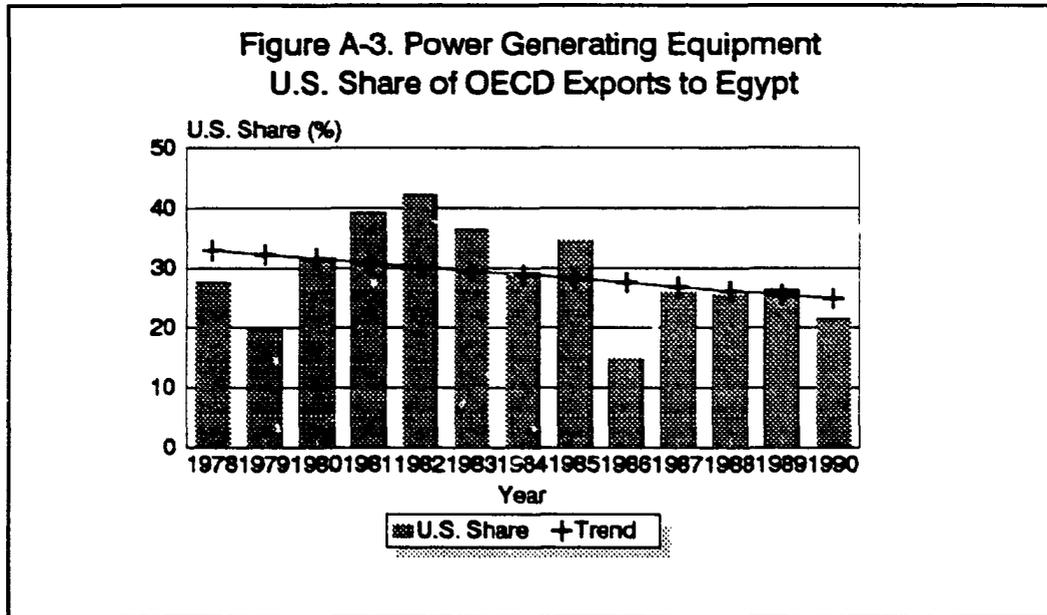
Finally, the presence of a large state sector in the Egyptian economy may mean that economic considerations take a lower place than other factors in choices of what to buy from whom. An important justification for the follow-on hypothesis is the expectation that buyers of a particular manufacturer's equipment will wish to standardize on that product. State enterprises may not follow this philosophy, and anecdotes abound of government agencies in some developing countries with equipment from a dozen different suppliers—much of it sidelined for lack of spare parts. In such cases, the offer by some exporter of attractive financing, or of bribes to appropriate officials, may be a larger factor in a buyer's decision than economic efficiency.

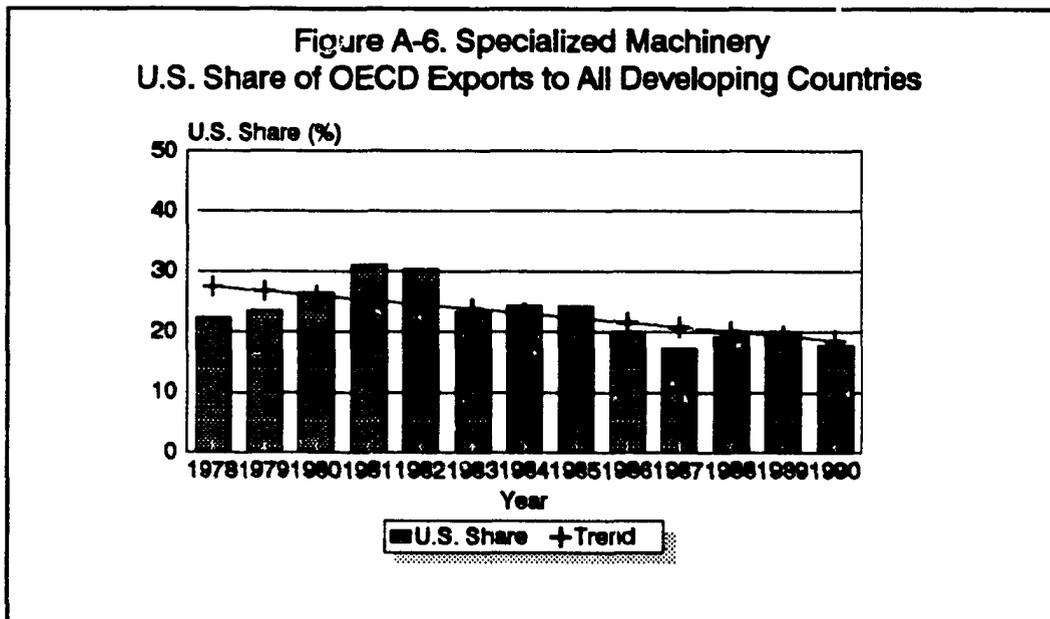
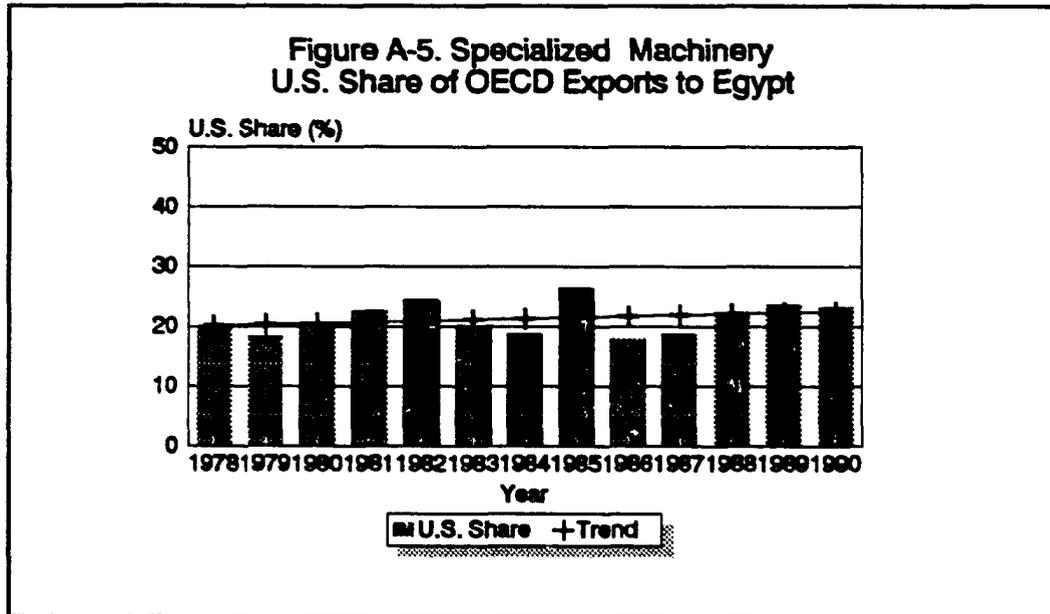
The over-riding rationale for U.S. assistance to Egypt since 1975 has been to move the Middle East peace process forward, and in particular, to maintain peace between Egypt and Israel. Nevertheless, this aid was also intended to promote Egyptian economic growth, and, at least in the view of some, expected to stimulate increased U.S. exports. It is clear from the evidence marshalled in this paper, however, that U.S. support to Egypt since 1975 has not produced growing export opportunities for U.S. business. Egypt has been a poor market—and U.S. assistance has not altered this fact.

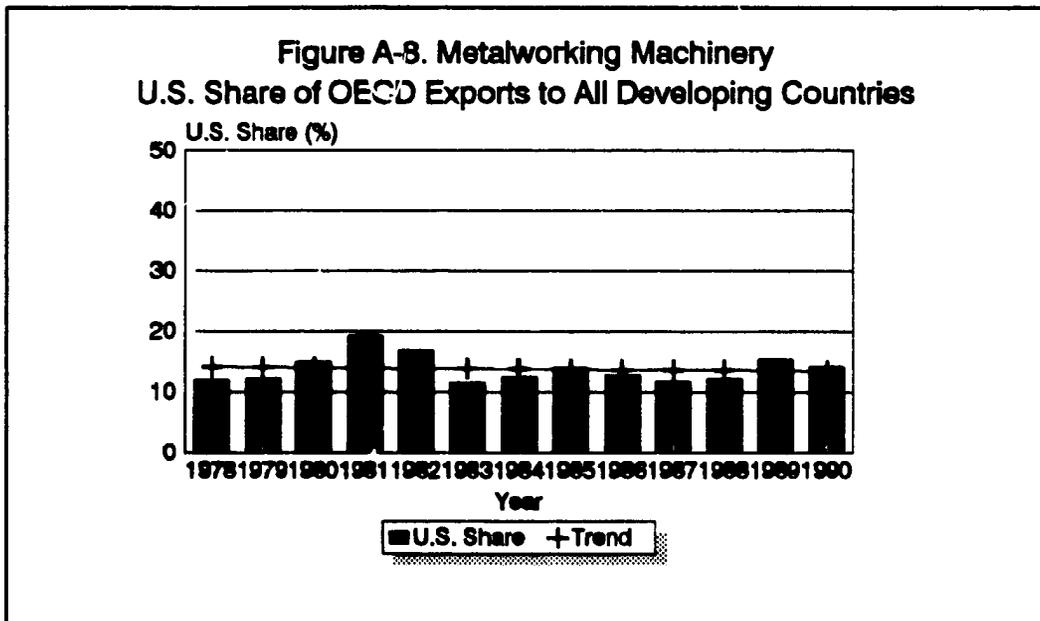
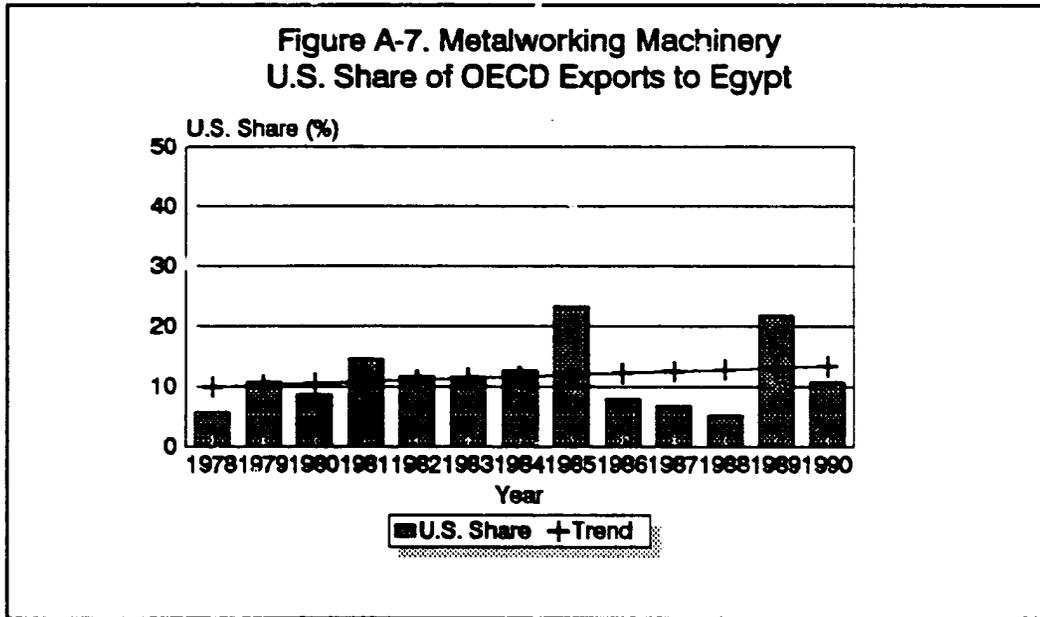
APPENDIX A

TRENDS IN U.S. MARKET SHARES IN EGYPT AND IN ALL DEVELOPING COUNTRIES









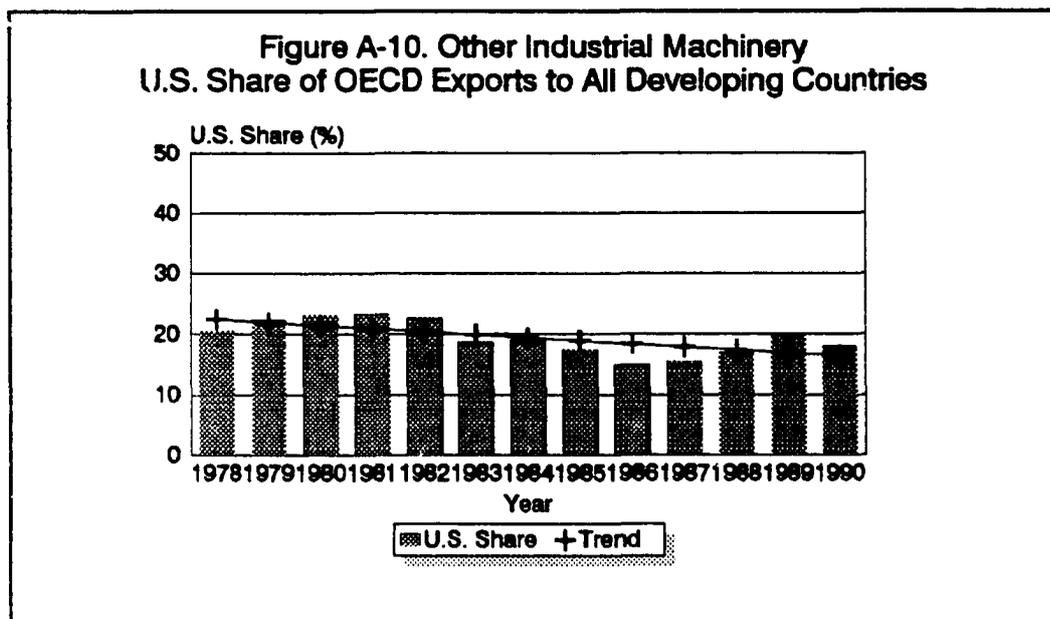
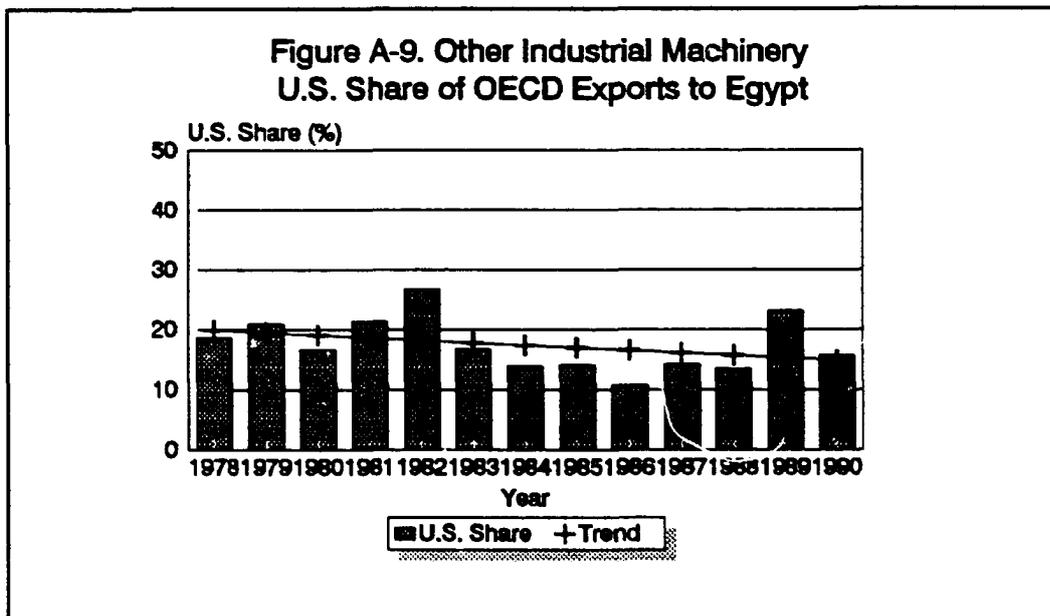


Figure A-13. Telecommunications and Sound Equipment
U.S. Share of OECD Exports to Egypt

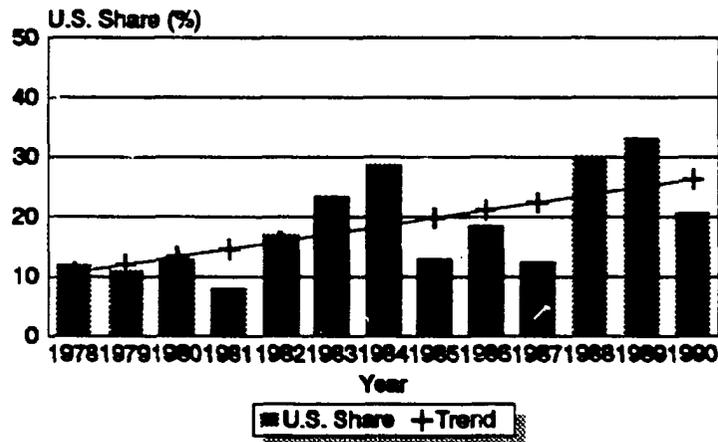
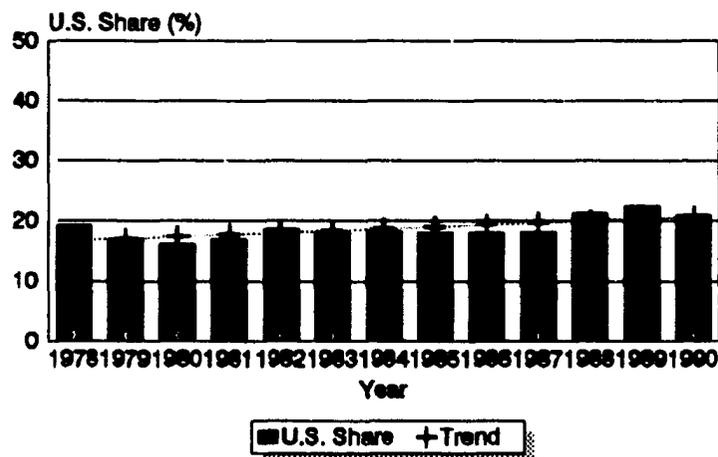
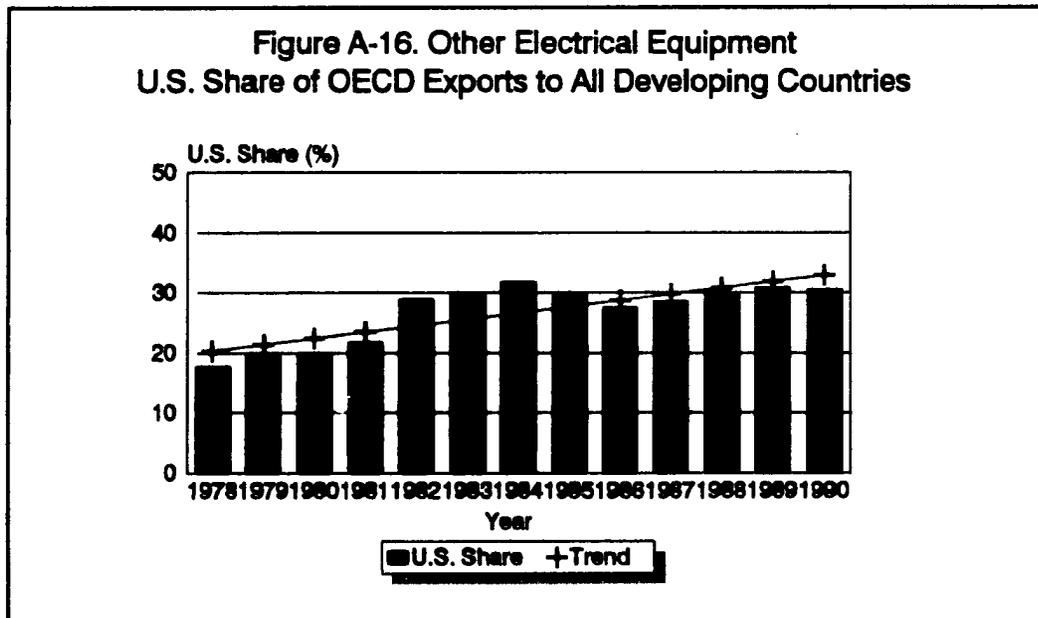
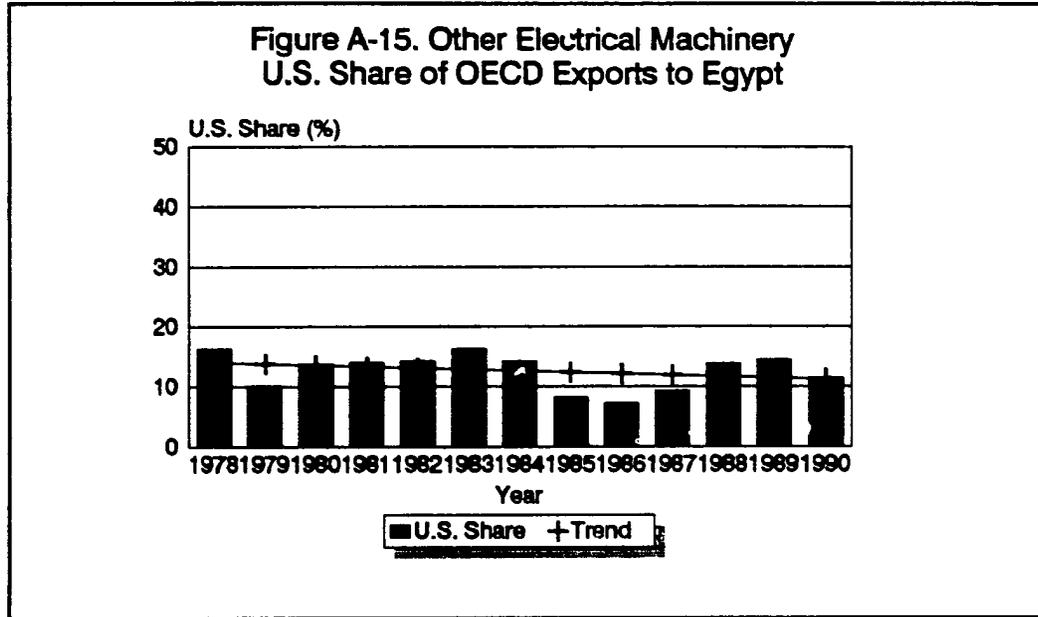
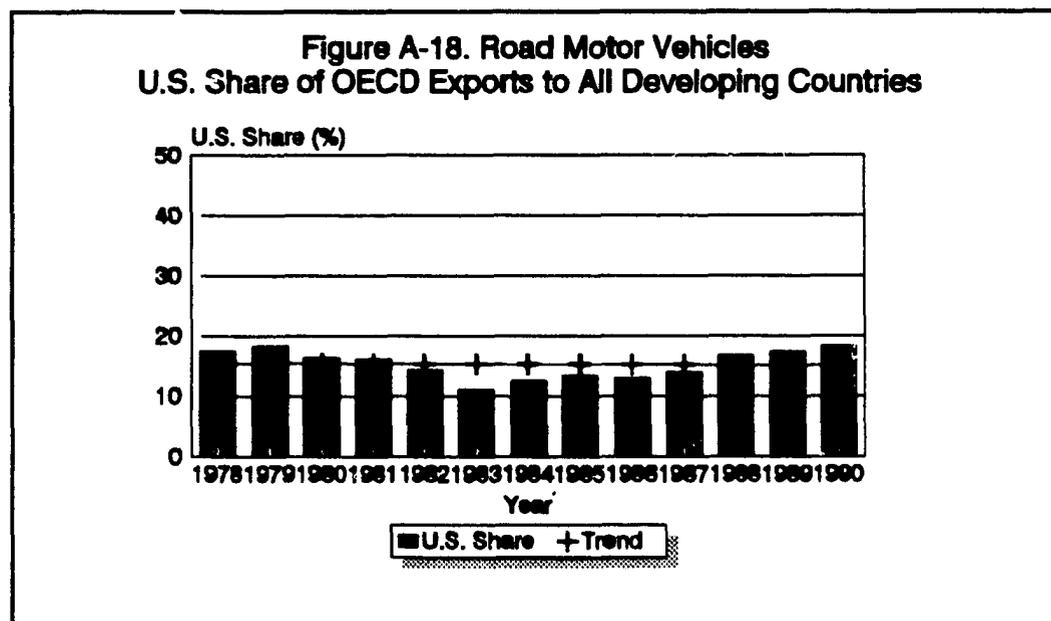
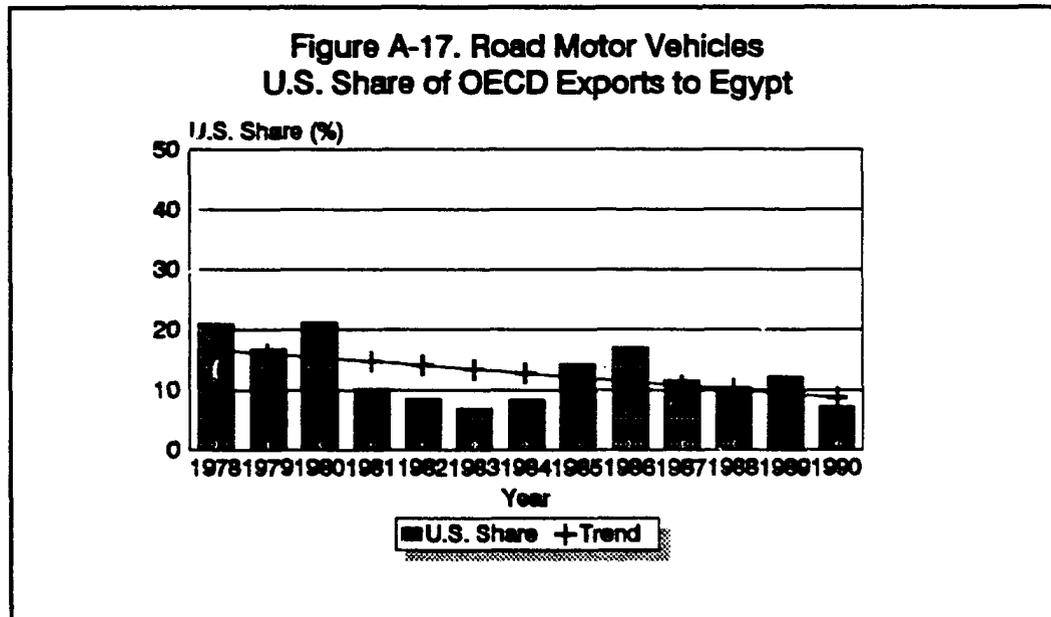


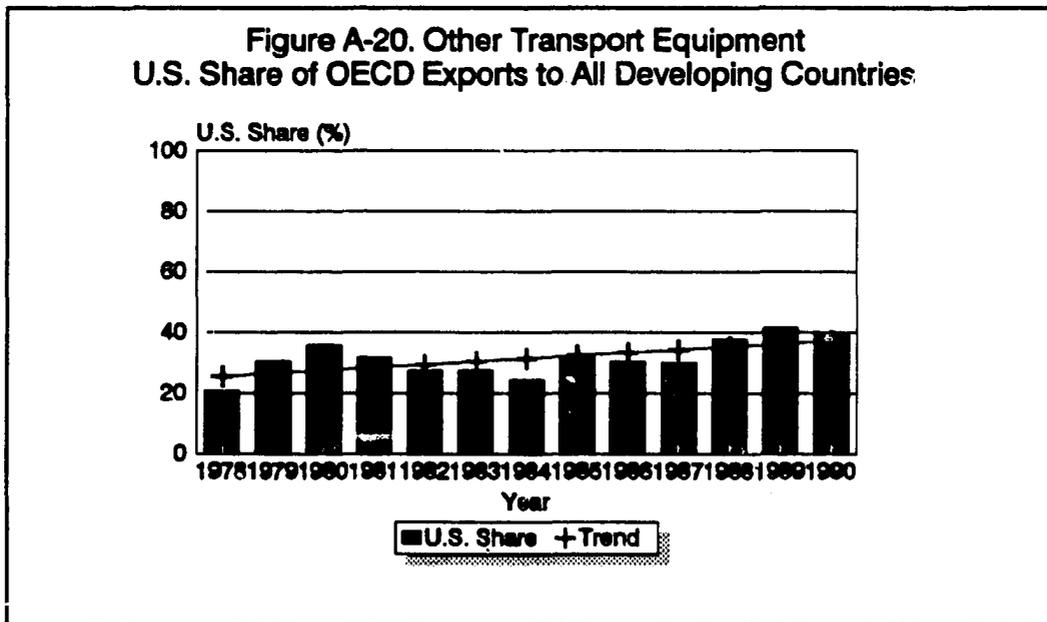
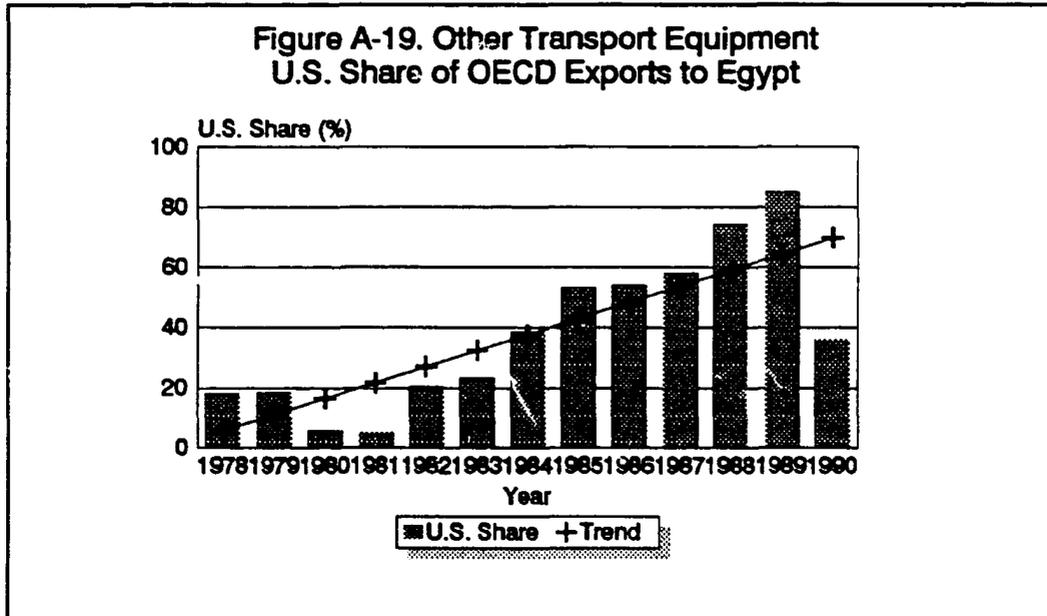
Figure A-14. Telecommunications and Sound Equipment
U.S. Share of OECD Exports to All Developing Countries



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APPENDIX B

USAID/EGYPT COMMENTS ON THE ASSESSMENT FINDINGS

A Note From CDIE: CDIE Program and Operations Assessments are a unique type of evaluation in A.I.D. They are intended to provide an independent examination of development issues. Assessments are at their best when they critically and thoroughly examine and question all of the assumptions of a development issue. This is particularly important since development is an uncertain, high-risk business, where things can easily go awry.

When the findings from this report were discussed with the Mission, there were differences of opinion. The author took the Mission's views into account where possible, but in several cases, where there was still a difference of view, CDIE had to rely on the author's own judgment.

Often in A.I.D., documents go through a clearance process designed to build consensus on major issues. However, with CDIE Assessments, because of the need to ensure the objectivity of findings, they are not subjected to the same clearance process. A.I.D. places special emphasis on ensuring the integrity, objectivity, and independence of CDIE evaluation findings. To help ensure independence, CDIE selects skilled professionals who are not associated with either the USAID Mission or the program being evaluated. In addition, while Missions are always asked to review the draft evaluations and their comments are carefully considered, especially where issues pertain to the accuracy of facts, their concurrence is not a requirement for clearance.

In order to enable the USAID/Egypt Mission a chance to voice its dissenting views without compromising the author's own independent assessment and conclusions, CDIE has included this appendix which contains the Mission's views. CDIE welcomes such debate and differences of opinion as an important aspect of the learning process that will ultimately improve our understanding of development.

This study lacks a balanced approach to a highly complex subject matter. It tries to deal with two separate issues: (1) the impact of capital projects on the generation of follow-on U.S. commercial exports; and (2) the relationship between U.S. economic assistance in the aggregate and aggregate U.S. exports to Egypt. This dual objective is confusing and inappropriate. The analysis of the relation between capital projects should be done at the "micro" level by looking at the impact of specific projects rather than at the "macro" level as done in this study. The analysis of the relationship between aggregate aid and trade is incomplete. This study makes certain erroneous assumptions about the amount of trade which should be generated by USAID-financed capital investments in Egypt. It assumes that the capital investment should generate a requirement for spare parts of 10-15 percent of the original investment per annum. USAID capital projects in Egypt, especially in water and wastewater, have long useful lives and substantial civil works compared to the mechanical components which may

require replacement. They are unlikely to create an annual demand for replacement parts of more than 2-4 percent of the initial investment cost. Since infrastructure projects are long-gestating projects in which system operation does not begin until several years after initial investments have been made; since a 3-to-5 year supply of spare parts is generally included in the initial procurement; and since requirements in the first few years are low; it is highly unlikely that there would be any increase in imports of spare parts discernable through this type of "macro" analysis. To be able to attribute any impact of USAID-financed capital projects on the generation of additional commercial imports would require the type of "micro" analyses which were briefly touched upon in Appendix A of *Capital Projects: The Egypt Case Study*, A.I.D. Technical Report No. 18. We agree with the findings on page 21 of the same report which notes that the market for commercial spares is very small in Egypt. It is interesting to note, however, that in telecommunications, where the requirements for spare parts are negligible, the non-USAID sales of a major U.S. manufacturer are 20 percent of USAID-financed sales. These sales amount to several million dollars per year.

With regard to aid and trade, the study should be balanced against another CDIE report which notes that "slow growth in the Egyptian market for imports (resulting from poor economic policies) has made Egypt a poor market for all industrial country exports." The study does not analyze the recent evolution of U.S. trade with Egypt (after economic reform measures have been introduced) nor does it, apparently, consider U.S. exports of non-factor services.

Based on figures including ones from the U.S. Commerce Department and supported by the Economist's Intelligence Unit [see the Egypt Country Report, number 1/1993], the following observations and statistics are pertinent to the subject and should also be mentioned:

- The United States is Egypt's largest source of imports followed by Germany, France, Italy, and the U.K. U.S. exports to Egypt for 1991 totaled U.S.\$2.7 billion, 28 percent of Egypt's imports compared to U.S.\$2.2 billion in 1990, 21 percent of Egypt's imports. For January to September 1992 they were U.S.\$2.3 billion or about U.S.\$3.1 billion annually.
- Although Egypt's total imports declined by 4.6 percent in 1991, U.S. exports to Egypt increased by 21 percent in the same year.
- Private sector U.S. exports to Egypt accounted for 55 percent of U.S. exports to Egypt while those supported by U.S. Government assistance accounted for 43 percent of total U.S. exports to Egypt. In 1990, U.S. exports to Egypt supported by U.S. government assistance equaled 55 percent of all exports.

We suggest that this increase in U.S. imports is due to a combination of an evolving trade policy environment in Egypt, the collapse of long-standing barter and other trade arrangements with the former Soviet bloc countries, and the increasing competitiveness of U.S. exports vs. European and Japanese exports as a result of the dollar's depreciation against these currencies.

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