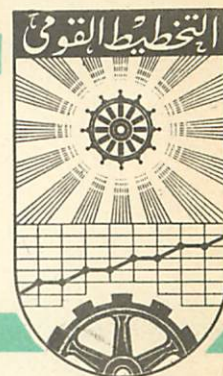# ARAB REPUBLIC OF EGYPT

THE INSTITUTE OF NATIONAL PLANNING

Memo(1325)

Impact of American Foreign

Trade on

Smaller Economies

June 1982

Dr.

Saadia H. Montasser

Introduction:

In a large economy like the American economy with total imports a small proportion of output it is expected a priori that major sources of inflation would be domestic rather than imported. It is further expected that the increase in domestic cost items would be to the effect of exporting inflation to the rest of the world with small economies doing sizeble trade with the States affected the most.

The parpose of this study is three folds:

1- To investigate whether the increases in factors costs affect U.S. export prices more than prices within the U.S. domestic markets.

2- To use the latest U.S. Input-Output tables of 1972 to compare the commodity structure of exports to the commodity structure of total output. The purpose is to find out whether commodity categorses in which exports represent relatively high proportion of total output were subjected to faster price increases than the rest of commodity categories. Otherwise,, one would have to find other entrepratations for price differences.

3- To check if a small economy like the Egyptian economy suffers, on the average, from less favorable terms of trade with the U.S. e.g

higher prices than the general export prices for the same commodity groups using some commodity examples.

To start with, it is well recognized that the United States can export inflation   via two different channels:

a- Rapid increases in the prices of exported commodities, factors of production, including labor and technology.

b- The declining exchange value of the American Currency. Lower exchange rate of the American dollar against other curancies means that American exports become relatively cheaper from the buyers point of view. Thus, demand on American exports is expected to increase pushing their prices up.

Most of the attention in this study is directed toward exporting inflation through trade. According to basic concepts of international trade, prices in both domestic and export markets are determined by the collective effects of supply and demand in domestic and export markets respectively. Since the supply side, which reflects factors costs are common for both domestic and exported commodities, the differences in the price movements in both markets are being discussed to investigate their most problable causes.

According to basic theories of international trade, comparation advantages in the production costs of commodities lead countries to exchange commodities. Under the assumption of free trade, the exchange continues to the point that prices for a specific commodity are equalized in both exporting and importing countries(see for example kreinin (7)P. 249 and P. 281).

If some trade barriers exist, e.g. import duties levied by the importing country, the tarrif will be divided between the two countries, exporting and importing, in proportion to the elasticity of their supply and demand curves respectively. The end result would be to the effect that consumers in the importing country would be paying higher prices for the commodity, thus demanding less quantity. If supply by the exporting country is elastic and the quantity reduced in demand by the importing country can be rechanneled to other countries, or other uses, then the imposed tarrif will mainly be paid by the consumer in the importing country. On the other hand, if the quantity imported is sizable enough to affect the total demand on a specific commodity, then the exporter will find it beneficial to respond in terms of reducing the price to encourage demand thus absorbing part of the imposed tarrif. The implication of this to the importing country is that even though consumers will be paying higher price for the commodity than consumers in the exporting country, yet the

country as a whole will be paying only the market price less the tarrif
which is considered as a revenue. The end effect would be less prices
paid by the importing country, meaning that domestic prices in the ex-
porting country would be higher than the prices obtained from exports
(see kreinin(7) PP. 276-278).

In the light of these basic concepts of international
trade, differences in price movements between U.S. domestic markets
and U.S. Export prices will be examined and discussed.

Methods and Variables:

Two techniques of multivariate analysis are used to find out
whether results of one supports the other's One technique is multiple
regression analysis and the other technique is canonical correlation
analysis. In both techniques two sets of variables are used; one is
designated as dependent or criterion set, and the other is designated
as independent or predictor set. Percent changes in domestic and
export prices make the first set. Domestic, imported material .cost,
and labor costs all are factor cost items which constitute
second set.

Explicitly, the Variables are:

1) Changes in gross national product price deflator Y_1; which is
   used to measure changes in domestic prices.

2) Changes in the unit value of exports Y_2. Each of Y_1 and Y_2 is used
   as a dependent variable in a regression equation, together they con-
   stitute the criterion variables set for the canonical correlation
   analysis.

3) Change in unit labor cost in private businesses X_1 is used to measure
   the cost of labor input adjusted for changes in productivity.

4) Change in the wholesale price index of crude materials X_2 is used to
   measure changes in domestic material costs.

5) Change in the unit value of imports X_3 to measure changes in the cost
   of imported material.

Variables 3,4, and 5 are used to measure the costs of factor inputs.
In some trials but did not yield significant results subsequently it was
removed. The factor cost variables are used as independent variables Set
in regression analysis and as predictor variables Set in canonical correla-
tion analysis.

Results:

Quarterly data for the period 1970-1979 yielded the following results:

a) Regression Results[1]

Price equation for domestic prices in which all independent variables were lagged one quarter is:

$$(Y_1)_{t+1} = 1.0615 + .1074 \ X_1 + .0311 \ X_2 + .0923 \ X_3$$

$$(1.58) \qquad (1.54) \qquad (3.69)$$

$$F_{3,34} = 9.64 \qquad R = .678 \qquad D\text{-}W = 1.74$$

Corrasponding price equation for exports is:

$$Y_2 = -.6814 + .8818 \ X_1 + .2351 \ X_2 + .331 \ X_3$$

$$(5.53) \qquad (4.96) \qquad (5.64)$$

$$F_{3,34} = 43.66 \qquad R = .891 \qquad D\text{-}W = 1.92$$

Figures in parantheses under the coeffecients represent their t values. Regression results indicate that export price coeffecients are higher and have higher significante than their corresponding domestic price coefficients. This is true for the coefficients of every factor cost variable. The two sets of coeffecients representing the two regression equations were found to

---

1) An extended discussion of price models can be found in William Nordhaus(5) PP. 16-49.

be significantly different which indicates that cost factors

affect export prices much more than domestic prices. Since

both exports and domestic prices are subjected to the same

cost structure, it is suggested that differences exist on the

market side.

It is noteworthy to mention that the addition of ether

factors on the cost side, e.g. interest rate did not lead to any

improvements in the estimates. Also, the addition of variables

reflecting demand side to the domestic price equation produced

either insignificant changes as in the case of using a proxy for

excess demand or had the wrong sign as in the case of money

supply which was found to be highly correlated with unit labor

cost X_1. The incluston of money supply led indeed to a decrease

in the regression coeffecient of labor input and a reduction in

its significance level.

As to the demand side factors on U.S. exports they are ex-

pected to be numerous. Their end effect on prices would depend on

the nature of markets in which commodities are traded. If markets

are organized and are dealing in highly standardized products, pri-

ces in different markets, i.e. prices in domestic and export

markets will tend to differ only as a result of shipping costs
and trade barriers. On the other hand, for highly differentiated
goods, the sellers would exercise big influence in setting prices.
Clark, Enzler, and lowrey(2) estimated that the dollar price of
exports of agricultural commodities rose from seven to ten percent
as a direct consequence of the net effective depreciation of the
dollar between 1971 and mid-1973, when the depreciation was at its
maximum. As to U.S. exports of finished and semi-finished manu-
factured goods, they were unable to detect any significant excha-
nge rate effect. They concluded that cost and demand conditions
in the U.S. manufacturing sector appear to nearly explain all of
the variations in the prices of U.S. manufactured exports.

b) Canonical Correlation Results[1]:

Canonical correlation is used to find two linear combinations one
of each of the two sets of variables, dependent and independent,
which have the maximum correlation between them. Canonical variates
measure the importance of each one of the original variables in
its own set.

The resulting two canonical correlations are significant beyond
the .05 level(table I). This is an indication that there are two

---

1) Technical aspects of canonical correlation analysis are explained
   in the appendix.

significant ways of relating the two sets of variables. The

first canonical function produced =.78, meaning that the derived

two linear composites account for 78% of the shared variation

between the two sets of variables.

Table I

equation Number	λ	canonical Correlation	Wilks' Lambda	Chi-Square	D.F.	Significance
1	.782	.884	.178	51.79	4	0.00
2	.183	.428	.817	6.87	2	0.03

The canonical variates of the first equation reveal that "export

prices" is the main criterion variable contributing to the relation-

ship(table II). While the canonical variates for the predictor

variables reveal about equal weights for the three cost variables.

Table II

	Canvar 1	Canvar 2
Y_1	-.111	-.892
Y_2	.993	.451
X_1	.488	.31
X_2	.441	.31
X_3	.514	.09

After the first relation is accounted for a second relation is obtained and gave a canonical correlation of .428. Naturally, the second relation is less significant than the first one, yet it is still significant bayond the .05 level. In the second relation, cononical variates are different than the in the first one. However, the second relation should be interpreted as augmenting the results of the first relation, thus being of a secondary importance. an important conclusion of correlation analysis is that it supports results of regression analysis about the stronger effect of cost factors on export prices. Price differences between domestic and export markets may in part reflect differences in the commodity composition between the two markets. While domestic prices rose by 182% between first quarter of 1970 and first quarter of 1979 at an annual rate of about 7% and rose by 12.7 for the year 1979, the corresponding figure for exports were 229 between 1970 and 1979 or an annual rate of 9.5% and ty 15.8% of the year 1979. Examination of the commodity structure of exports may reveal that some commodity groups whose prices rose sharply constitute higher proportion of exports than of domestic use. The 1972 input-output tables which were published in 1979, reveal that total exports account for 6.15% of total commodity output. Highest commodity exports in dollar value and as a percentage of commodity output is in agriculture products 13.9% motor vehicle and equipment

6.3%; and aircrafts and parts 18.4%. Agriculture export prices
were found to fluctuate a great deal. As an example export
prices for edible nuts, fresh or dried, rose by 54% in 1978 and
declined by 5% in the folloaing year. Dried Fruit export prices
declined by 18.9% in 1980 while export prices of beens, peas,
and lentils rose by 18.8% for the same year.

Export prices for transportation equipment rose by 10.5%
for lorries and trucks rose by 9.1%, and for parts of motor
vchicles rose by 12.8% for the same year of 1980. For aircrafts,
export prices rose by 8.3% in 1978, by 5.1% in 1979 and by 6.5% in
1980. Parts of aircrafts, export prices rose by 9.1% in 79 and
by 11.4% in 1980. These figures reveal that except for agriculture
products, no export price in these categories exceed the general
increase in domestic prices which was 9% in 1978 and 12.7% in 1979.
Thus, differences in prices between domestic and export prices
cannot be mainly attributed to differences in commodity composition
of the two markets, since the commodity groups which have high ex-
port output ratio are not the ones with relatively higher export
prices.

On the other hand, since commodities whether directed to domes-
tic or export markets are in general subjected to the same cost struc-
ture, it is expected that their responses to cost factors could be

attributed to differences on the market side. In addition to many
situation in which U.S. companies would be facing more favorable
market conditions abroad than at home, there is the additional power
exercised by multinational or global corporations which control a
substantial portion of world trade. As in Barnet and others
(1), PP. 157-159 , "More than half of all U.S. exports take the
form of exports from U.S. parents to their subsidiaries overseas".
The impact is crucial on the balance of payments of the importing
countries. "The issue is the nature of the impact. Whether exports
benefit a poor economy depends critically on the price. It does not
help the foreign-exchange problem of a poor country to export goods
at a bargain. When global corporations buy from and sell to their
own subsidieries they establish prices that often have little connec-
tion to the market price. Indeed, when the corporate headquarters is
acting as both buyer and seller, the very concept of the market has
lost its significance."

Maximizing over all profits is the objective of global cor-
porations. Exports and imports prices in different countries are
manipulted to achieve this obgective. "In addition to the standard
practice of over pricing imports are cruder practices which divert
foreign exchange and tax revenues from poor countries". "There are

several other advantages to the company(global corporation) in addition
to tax avoidance in manipulating import and export prices. Minimizing
local profits is often an essential public relations strategy. Moreover,
in countries which impose a percentage limitation on the repatriation
of profits, over pricing imports and under pricing of exports are good
ways to repatriate more profits than the local government allows. All
of this makes good business sense, but its impact on the economy of
poor countries is cruel. It means exorbitant consumer prices for such
necessities as lifesaving drugs and a loss of tax revenues and foreign
exchange. It is one more example of the basic conflict in outlook,
interest, and goals between the global corporation and countries trying
to solve the problems of poverty, unemployment, and inequality". Such
practices reflect a weak bargaining power on the part of underdevelop-
ed countries. This is mainly due to the lack of trained administrators
who are no match for the corporate negotiator; a lack of effective laws
to control foreign businesses ub their countries; and the lack of suf-
ficient information about alternative sources of supply.

To what extent does the preceding argument apply to Egypt.
Exports to Egypt is used as an example of U.S. trading with a small
country. Comparisons are made between some selected U.S. general export
prices and Egypt's imports from the U.S. for the same commodity groups.