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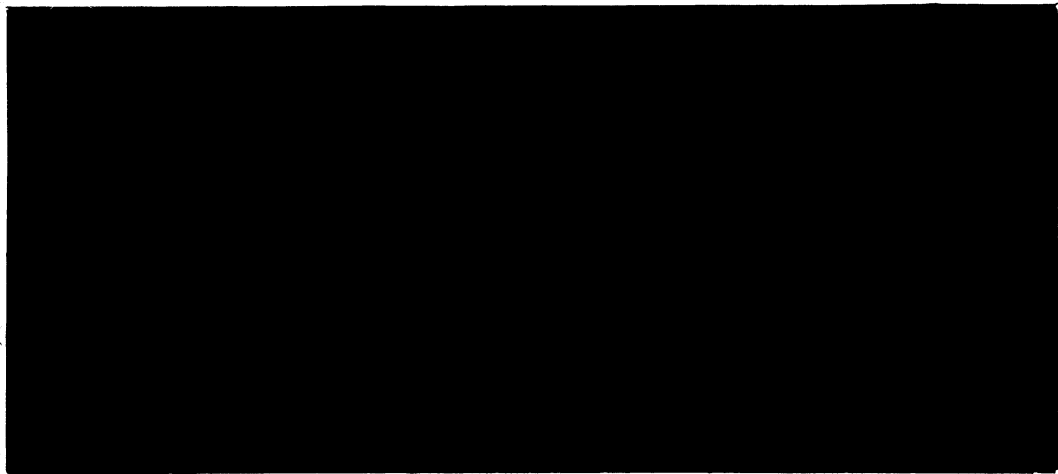
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TRADE EFFECTS OF THE GREEK ASSOCIATION WITH THE
EUROPEAN ECONOMIC COMMUNITY, 1963-1977

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TRADE EFFECTS OF THE GREEK ASSOCIATION WITH THE EUROPEAN ECONOMIC COMMUNITY, 1963-1977[†]

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TRADE EFFECTS OF THE GREEK ASSOCIATION WITH THE EUROPEAN ECONOMIC COMMUNITY, 1963-1977[†]

I.   Introduction

Greece has been an associate member of the European Economic Community (EEC) since November 1, 1962. The association agreement was designed to establish a customs union between Greece and the EEC gradually over a 12-year transitional period, with a timetable for gradual abolition of quantitative trade restrictions from both sides and a 22-year timetable for harmonization of Greek agricultural policy with that of the EEC.[1]

The colonels' coup in Greece in April, 1967, led to the "freezing" of the association agreement from the EEC until 1974 when the downfall of the *junta* and the return of Greece to parliamentary democracy reactivated the agreement and led to the Greek application toward full membership in the EEC. The economic and trade impact of the freeze is not obvious, however.

During the freeze of the association agreement, Greece continued abiding by its legal provisions. The same is not clear from the EEC side. The Greeks have accused the EEC of using the pretext of Greek dictatorship to avoid adhering to the agreement's provisions unfavorable to particular European interest groups.[2] Nevertheless, during the freeze the tariff cutting was continued as planned although further loans from the European Investment Bank were terminated and the harmonization of the common agricultural policy (CAP) was frozen. The issue has not been settled definitely.

The purpose of this paper is to examine quantitatively the trade effects of the Greek association agreement with the EEC during the period 1963-1977. The major question posed is whether or not the agreement with the granting of

direct and reverse preferences between Greece and the EEC has affected the overall trade between the two blocs positively or negatively.

A simple increase or decrease in exports or imports cannot be considered by itself the result of the association agreement. The relevant comparison is between the actual trade and events that would have occurred had the agreement not been operational. The computation of such a so-called "antimonde" is not an unambiguous process.[3]

Since history can, it is hoped, teach lessons for the future, the importance of the problem at hand is large, given the pending full membership of Greece in the EEC.

In Section II, some previous efforts at addressing the same problem are reviewed. In Section III, the methodology used for the analysis is presented. Sections IV and V give the main analysis and results, while Section VI presents some concluding thoughts.

II. Review of Previous Studies on the Effects of the EEC–Greek Association Agreement Upon the Greek Economy

When the Greek government in 1961, politically motivated, signed the association agreement with the EEC, there were two other alternatives to be considered. Greece could have been a member of the British-initiated European Free Trade Area (EFTA), or it could simply have kept its nonassociation status. Contrary to the current situation, the association agreement with the EEC was not a very important political issue in the country at that time. However, there were people who opposed the idea immediately after the establishment of the EEC as well as long before the Athens agreement became a reality.

Thus, in 1959, A. Angelopoulos wrote, "Every rational man cannot but agree that such an association will serve anything but the Greek interest" [authors' translation]. E. Eliou also argued that any hope for national economic development with the association should be abandoned since such a step would tie the country politically and economically to the Western European monopolies and the military.

After the Athens agreement was concluded, its terms were the subject of new criticism. A. Papandreou wrote:

"It is fair to say that, given the terms of the association, Greece has a small margin of time in which to achieve the structural transformation needed for survival in the European Common Market."

S. G. Triantis argued that the price elasticity of aggregate demand in the EEC for products exported by Greece was lower than the price elasticity of Greek demand for exports of the EEC. This meant that, in a potential full membership of Greece in the EEC, the gains of free intraunion trade would be divided disproportionally in favor of the EEC. For this reason, he concluded that the Athens agreement of 1961 did not adequately protect the economy of Greece and should be radically revised.

In support of the agreement, J. Pesmazoglou argued that Greece could, if needed, withdraw from the EEC or revise the agreement.[4]

T. Hitiris studied the effects of the EEC on the Greek balance of trade using a partial equilibrium Vinerian model. Using one-digit disaggregation of the economy according to the Standard International Trade Classification (SITC), he estimated import and export functions of the preassociation period. By

extrapolation, he found that the association period (1962-1967) affected Greece's balance of total trade with the EEC negatively. Even for the SITC sections 0 (food and live animals) and 1 (beverages and tobacco), he estimated that the balance of trade would be affected negatively by a full membership of Greece in the EEC. Two shortcomings in Hitiris' study of the association period should be mentioned. First, he had limited observations (five years) for the post-association period; second, he did not take into consideration the competitive ability of Greece with respect to other countries.

M. McQueen used the share approach concerning exports to and imports from the EEC for certain Mediterranean countries. He concluded that Greece experienced substantial gain in its export share to the EEC over the 1963-1971 period but at some possible cost in terms of a higher share of imports from the EEC. J. S. Marsh argued that the structure of the CAP of the EEC restricted the imports of the EEC from the Mediterranean countries resulting in a decrease of the potential development of the region. D. Kebschull, in a special study on tobacco, examined the market shares of various exporting countries in EEC imports and showed that the countries which had preferential agreements with the EEC (Greece, Turkey, and Brazil) hardly changed their positions during the period of the agreement, while Bulgaria's market share increased until the mid-1960s and then came back to its previous share.

G. J. Kalamotourakis studied the effects of the EEC on the Greek economy using a modified model by R. Lawrence. However, this model is not very relevant to the Greek case because it assumes that Greek production can affect world prices. This seems rather unlikely in view of the marginal contribution of Greek exports in world exports of products important to Greece. He looked at the export side of the economy only to conclude that the EEC had positively

affected the export growth of Greece.[5]   Similar results were given by J. B.
Nugent for Greece and Turkey using the export performance approach in a
cross-sectional analysis. Generally, however, the effect on the growth of
exports alone does not have any conclusive significance because it does not
say anything about the effect on imports or, more important, on the balance
of trade. Higher growth in exports may also be due to an increase in the
demand for imports by the EEC or to an increase in the competitiveness of the
country with respect to the rest of the world.

III. Presentation of the Model

In this section, with the extension of a model developed by C. Young, supply
and demand factors will be isolated; and the argument will be made that residual
effects are due to the association agreement itself. Young formed a matrix
where I_1 and I_2 represent two importing countries (or group of countries)
and X_1 and X_2 represent two exporting countries.

Exporting countries	Importing countries	
	I_1	I_2
X_1	r_{11}	r_{12}
X_2	r_{21}	r_{22}

Country I_1 has a preferential agreement with country X_1, while there is no pref-
erential agreement among other countries. In the matrix, r_{ij} represents the
compound rate of growth of exports from country i to country j during the study
period. The objective is to identify how r_{ii} has been affected by the preferential

agreement of country I_1 with country X_1. To isolate this effect, the ratio r_{11}/r_{21} is examined first. If this ratio is greater than one, this means that country I_1 increased its share of imports from country X_1. Thus, demand from country I_1 does not alone explain the total increase of exports of X_1 to I_1 (demand effect). This increase may be due also to the ability of country X_1 to supply the export goods competitively compared with country X_2. To isolate this possibility (supply effect), the ratio r_{12}/r_{22} is examined; and it is argued that, if the competitiveness of country X_1 is the reason for an increase in the ratio r_{11}/r_{22}, the equation,

$$(1) \qquad \frac{r_{11}}{r_{21}} = \frac{r_{12}}{r_{22}},$$

should hold. However, even if $r_{11}/r_{21} > r_{12}/r_{22}$, meaning that the preferential agreement has positively affected the rate of growth in imports of country I_1 from country X_1, one has to examine the possible existence of what Young called "informal privileges" which could have affected r_{11}. The informal privileges are institutional ties, acquired tastes, better knowledge of a particular country's product, better trade channels, etc.

Young's testing procedure is consistent only when all the elements of the matrix r_{ij} are positive. If certain elements of the matrix r_{ij} are negative, the test might be inconsistent. Assume, for example, that $r_{11} = r_{12} = r_{22} = 10$ and $r_{21} = -10$. The conclusion in such a hypothetical situation should be that the preferential agreement has positively affected the imports of country I_1 from country X_1. If, however, the ratios r_{11}/r_{21} and r_{12}/r_{22} are compared, one obtains $r_{11}/r_{21} < r_{12}/r_{22}$ which, according to Young's procedure, can lead to erroneous conclusions; namely, the preferential agreement has affected negatively the imports to country I_1 from country X_1.

A testing procedure consistent with positive as well as negative rates of growth consists simply of computing differences between rates of growth instead of ratios. Hence, if $r_{11} - r_{21} > 0$, country I_1 has increased its share of imports from country X_1. In order to test whether or not the competitive ability of the exporting country is the reason for $r_{11} - r_{21} > 0$, the quantity,

$$(2) \qquad (r_{11} - r_{21}) - (r_{12} - r_{22}),$$

is formed next. If $(r_{11} - r_{21}) - (r_{12} - r_{22}) > 0$, then the preferential agreement has positively affected the rate of growth of imports to country I_1 from country X_1.

Young applied his model to analyze the effects of the preferential agreement of the Associated African States and Madagascar (AASM) with the EEC. He examined total exports to and imports from the EEC for the period 1959-1969 using other less-developed countries as a control group. McQueen applied Young's method for six Mediterranean countries and criticized Young's model on a number of grounds.

1. It operates at too high a level of aggregation; also, it is very sensitive to commodity composition and the chosen control country or group of countries X_2. The choice of the control country is extremely important in the model. If appropriate results are to be obtained, the control country should have at least two basic characteristics: (i) it should not have any preferential agreement with the other countries during the study period and (ii) it should produce and trade similar products with the country under consideration.

2. The model is criticized for attributing the total residual of the trade growth to the preferential agreement of country X_1 with country I_1. There may be other factors (identified with the informal privileges) not captured by the model that have affected trade flows.

3. The results of the model are sensitive to the time period of measurement, particularly when exports consist in large proportion of agricultural products (due to cyclical problems in production).

4. McQueen criticized Young's method for not posing the "alternative case"--i.e., what would have been the level of trade in the absence of an agreement? He discussed this point by comparing actual exports at year t of the association period with the exports of the same year t found by extrapolation of the preassociation export growth. However, his analysis is more susceptible to criticism since it assumes away a number of factors that may have affected trade flows between different time periods, such as international trade policy movements (the Bretton Woods agreement and Kennedy-round negotiations), shift in demand patterns, and supply constraints.

In the present study, most of these shortcomings are eliminated by (i) taking Spain as the control country during the period 1963-1970 (Spain had no agreement with the EEC while Greece was an associate member and, moreover, these two countries produced and traded similar products); (ii) applying the model to individual specific commodities as well as groups of commodities; and (iii) including in the computations of growth rates the average of two years

at the beginning and at the end of a period.[6] Thus, the sensitivity of the model to a particular starting and ending year is avoided.

The second criticism still remains; however, there is apparently no way to avoid it. The only thing to be said is that the results should be interpreted as upper bounds of the effect of direct and reverse preferences.

IV. Application of the Model

The model has first been applied for the period 1963-1970. The results for imports to Greece and Spain and for exports from these countries are shown in Tables 1 and 2, respectively. The commodities included in the analysis are the one-digit SITC subgroupings excluding group 3 (mineral fuels) which is composed mostly of petroleum imports from the Middle East and group 9 (goods not classified by kind). The growth rates are computed from the undeflated figures of the Organization for Economic Cooperation and Development (OECD) in U. S. dollars. (The same tables were also compiled after deflating the data by the U. S. wholesale price index, and the results were very similar.)

Table 1 exhibits the export growth rates of Greece and Spain to the EEC and the rest of the world. Looking at the column labeled $r_{11} - r_{21}$, it can be seen that, during the period 1963-1970, Greece increased the EEC share of its exports in the aggregate and in all groups of commodities except in beverages and tobacco and in machines and transport equipment. Spain, by comparison, seems to have decreased its EEC export share during the same period. By looking at the last column, it can be inferred that Greece benefited from the association agreement with the EEC during the years 1963-1970 in all sectors except possibly in its exports of crude materials.

Table 1--Compound Annual Export Growth Rates, 1963-1970

Commodity	Standard International Trade Classification Code	Exporting Countries	Importing Countries		Differences in Growth Rates		
			EEC	Rest of the World	$r_{11} - r_{21}$	$r_{12} - r_{22}$	$(r_{11} - r_{21}) - (r_{12} - r_{22})$
					percent		
All Merchandise Trade	0-9	Greece	17.15	9.02	2.72	- 9.12	11.84
		Spain	14.43	18.14			
Food and Live Animals	0	Greece	17.04	7.05	10.90	- 2.88	13.78
		Spain	6.14	9.93			
Beverages and Tobacco	1	Greece	2.59	-4.19	-10.23	-13.05	2.82
		Spain	12.82	8.86			
Crude Material (Excluding Fuel)	2	Greece	4.81	7.43	1.36	3.64	- 2.96
		Spain	3.45	3.79			
Animal and Vegetable Oils and Fats	4	Greece	42.90	8.89	28.52	0.31	28.21
		Spain	14.38	8.58			
Chemicals	5	Greece	44.90	37.20	22.18	22.25	- 0.07
		Spain	22.72	14.95			
Basic Manufactures	6	Greece	51.87	39.08	27.44	15.12	12.32
		Spain	24.43	23.96			
Machines and Transport Equipment	7	Greece	46.78	- 2.14	- 1.11	-32.28	31.17
		Spain	47.89	30.14			
Miscellaneous Manufactures	8	Greece	52.80	27.89	23.07	- 1.70	24.77
		Spain	29.73	29.59			

Source: Computed from data in Organization for Economic Cooperation and Development.

Table 2--Compound Annual Import Growth Rates, 1963-1970

Commodity	Standard International Trade Classification Code	Exporting Countries	Importing Countries		Differences in Growth Rates		
			Greece	Spain	$r_{11} - r_{21}$	$r_{12} - r_{22}$	$(r_{11} - r_{21}) - (r_{12} - r_{22})$
					percent		
All Merchandise Trade	0-9	EEC	13.19	12.48	0.01	-1.35	1.36
		Rest of World	13.18	13.83			
Food and Live Animals	0	EEC	12.04	3.25	4.74	-4.66	9.40
		Rest of World	7.30	7.91			
Beverages and Tobacco	1	EEC	17.76	20.64	-1.48	5.99	-7.47
		Rest of World	19.24	14.65			
Crude Material (Excluding Fuel)	2	EEC	11.65	16.37	0.84	-3.15	3.99
		Rest of World	10.81	19.52			
Animal and Vegetable Oils and Fats	4	EEC	25.40	-1.58	1.12	10.92	-9.80
		Rest of World	24.28	-12.50			
Chemicals	5	EEC	9.61	14.77	-0.19	-4.21	4.02
		Rest of World	9.80	18.98			
Basic Manufactures	6	EEC	10.95	13.37	2.29	-3.49	5.78
		Rest of World	8.66	16.86			
Machines and Transport Equipment	7	EEC	15.09	11.14	-5.73	-0.65	-5.08
		Rest of World	20.82	11.79			
Miscellaneous Manufactures	8	EEC	11.63	20.55	1.83	-0.17	2.00
		Rest of World	9.80	20.72			

Source: Computed from data in Organization for Economic Cooperation and Development.

Table 2 compares the imports of Greece and Spain from the EEC and the rest of the world during the same period. The results seem to indicate that reverse preferences granted by Greece to the EEC have helped to increase the EEC share in the Greek market compared with the EEC performance in the Spanish market over the same period. The last column especially substantiates this conclusion for five out of the eight analyzed commodity groups and the total of all commodities.

The above overall results are similar to those reported by McQueen which is not surprising, given that he examined roughly the same period.

Turning to the more recent period, 1971-1977, we now examine the export and import growth rates of Greece and Spain to the EEC and the rest of the world.

In October, 1970, a Spain-EEC trade agreement came into force. The concessions mutually granted, however, were not significant for the period, 1971-1977 (see Commission of the EC, 1978), and were certainly less than the concessions that Greece and the EEC had agreed to grant each other. Since July 1, 1968, Greece has (supposedly) had the advantage of intracommunity treatment--namely, customs franchise--for all of its industrial exports to the EEC and almost all of its agricultural exports (see Commission of the EC, 124/76).

Under these conditions it ought to be true that Greece should have continued to increase its EEC export share compared with Spain as shown to be true of the early association period. Tables similar to Tables 1 and 2 but covering the later period were formed in order to examine this hypothesis.[7]

Table 3 presents the results of the analysis. The outcome is the opposite of that expected. In the column labeled $r_{11} - r_{21}$, five out of the eight entries, as well as the entry for the entire aggregate, are negative implying that in this period Greece decreased its EEC export share. In the same period, on the contrary, Spain increased its EEC export share as evidenced by the positive

Table 3--Compound Annual Export Growth Rates, 1971-1977

Commodity	Standard International Trade Classification Code	Exporting Countries	Importing Countries		Differences in Growth Rates		
			EEC	Rest of the World	$r_{11} - r_{21}$	$r_{12} - r_{22}$	$(r_{11} - r_{21}) - (r_{12} - r_{22})$
					percent		
All Merchandise Trade	0-9	Greece	26.73	32.14	2.25	10.11	- 7.86
		Spain	24.48	22.03			
Food and Live Animals	0	Greece	24.78	31.43	6.95	9.69	- 2.74
		Spain	17.83	21.74			
Beverages and Tobacco	1	Greece	1.08	18.55	-24.31	0.67	-24.92
		Spain	25.39	17.88			
Crude Material (Excluding Fuel)	2	Greece	17.77	17.64	- 4.81	- 4.96	0.15
		Spain	22.58	22.60			
Animal and Vegetable Oils and Fats	4	Greece	4.33	27.33	10.17	7.06	3.11
		Spain	- 5.84	20.27			
Chemicals	5	Greece	20.58	23.36	- 9.74	- 6.96	- 2.78
		Spain	30.32	30.32			
Basic Manufactures	6	Greece	27.97	44.97	- 0.34	15.58	-15.92
		Spain	28.31	29.39			
Machines and Transport Equipment	7	Greece	19.87	72.60	-12.19	48.45	-60.64
		Spain	32.06	24.15			
Miscellaneous Manufactures	8	Greece	66.68	33.00	37.63	19.62	18.01
		Spain	29.05	13.38			

Source: Computed from data in Organization for Economic Cooperation and Development.

first entry in the column labeled $r_{12} - r_{22}$. An examination of the last column, which gives the differences between the first two, leads to a conclusion diametrically opposite to that which was expected. Greece seems to have lost considerably in export performance compared to Spain, a close competitor. It thus seems that the association agreement had a negative impact on Greek exports in this more recent period.

An examination of Table 4, which analyzes the EEC and rest-of-the-world import shares to Greece and Spain, again leads to unexpected results. The negative first entry in the last column of Table 4 seems to support the conclusion that the reverse preferences granted by Spain to the EEC were more effective than the ones granted by Greece.

V. Benefits and Costs to Greece from the Association Agreement with the EEC

The association agreement of Greece with the EEC has affected both imports to and exports from the country. Hence, the analysis should be continued with the calculation (if possible) of the value of trade creation and trade diversion due to the agreement. Furthermore, if data exist on the level of reduction in trade barriers among the countries in agreement and with respect to third countries, the benefits and costs of the agreement could be measured.

It can be argued that the association agreement did not cause any trade creation from Greece to the EEC or vice versa. This may be so because, if the world excess supply for a commodity is perfectly price elastic (as under the small-country assumption) and there are some postassociation imports to the countries in agreement from third countries, there could be no trade creation (E. M. Truman).

Table 4—Compound Annual Import Growth Rates, 1971-1977

Commodity	Standard International Trade Classification Code	Exporting Countries	Importing Countries Greece	Spain	$r_{11} - r_{21}$	$r_{12} - r_{22}$	$(r_{11} - r_{12}) - (r_{21} - r_{22})$
					percent		
All Merchandise Trade	0-9	EEC	19.25	20.32	-10.04	- 6.04	- 4.00
		Rest of World	29.29	26.36			
Food and Live Animals	0	EEC	15.92	10.44	- 2.00	-12.39	10.39
		Rest of World	17.92	22.83			
Beverages and Tobacco	1	EEC	30.26	20.35	8.94	3.03	5.91
		Rest of World	21.32	17.32			
Crude Material (Excluding Fuel)	2	EEC	23.73	23.32	3.88	4.34	- 0.46
		Rest of World	19.85	18.98			
Animal and Vegetable Oils and Fats	4	EEC	38.11	18.20	38.61	- 0.45	39.06
		Rest of World	- 0.50	18.65			
Chemicals	5	EEC	23.32	22.50	4.78	4.70	- 0.08
		Rest of World	18.54	17.80			
Basic Manufactures	6	EEC	17.00	20.01	- 4.00	- 2.63	- 1.37
		Rest of World	21.00	22.64			
Machines and Transport Equipment	7	EEC	19.09	19.41	-12.26	1.35	-13.61
		Rest of World	31.35	18.06			
Miscellaneous Manufactures	8	EEC	22.34	21.79	- 0.50	- 2.77	- 2.27
		Rest of World	22.84	24.56			

Source: Computed from data in Organization for Economic Cooperation and Development.

In the absence of trade creation, benefits and costs to Greece are due to direct preferences granted by the EEC to Greece and reverse preferences granted by Greece to the EEC, respectively. In such a case, benefits B to Greece due to exports of all commodities to the EEC are given by

$$(3) \qquad\qquad B = V^E \cdot t^E$$

where V^E is the value of exports diverted to the EEC and t^E is the reduction in trade barriers granted to Greece by the EEC, i.e., the difference between the tariff of the EEC for imports from Greece and third countries (not in preferential agreement with the EEC). Similarly, costs C to Greece due to imports of all commodities from the EEC are given by

$$(4) \qquad\qquad C = V^I \cdot t^I$$

where V^I is the value of imports of Greece diverted from other sources to the EEC and t^I is the tariff preference granted by Greece to the EEC with respect to third countries. The net effect (NE_i) is then $NE = B - C$. This method of computation implicitly assumes that reduction of trade barriers leads to higher prices for the producers in the exporting country but not to lower prices for the consumers in the importing country. Hence, the benefits and costs for a country are directly related to the volume of export or import diversions of that country.

Young calculated trade diversion to be equal to the difference between the actual trade shares at the end of the study period and the hypothetical shares that will constrain the ratio r_{11}/r_{21} to be equal to one, with total demand unchanged. This is equivalent to assuming hypothetical constant market shares at the beginning and at the end of the period. However, this measurement is restricted since it does not account for changes in the ability of the exporting

country to supply its products competitively relative to the control country. To avoid this shortcoming, the trade diversion is defined as equal to the difference between the actual imports (the analysis also applies for exports) and the hypothetical import pattern of Greece that will make the ratio, $(r_{11}/r_{21})/(r_{12}/r_{22}) = 1$. This assumes that total demand for Greece has remained equal to the actual one, but the market share of imports at the end of the period should be readjusted so that $(r_{11}/r_{21})/(r_{12}/r_{22}) = 1$. This is equivalent to assuming that the hypothetical Greek market share would have developed in the same fashion as the market share of the control country.

Let $\hat{X}_T$ and $\hat{Y}_T$ be the value of the hypothetical Greek imports from the EEC and the rest of the world at the end of the study period, respectively, such that the following two conditions hold:

$$\text{(5)} \qquad \hat{X}_T + \hat{Y}_T = M_T$$

$$\text{(6)} \qquad \frac{\hat{r}_{11}}{\hat{r}_{21}} = \frac{r_{12}}{r_{22}} = K.$$

In (5), M_T is the total actual Greek imports at the end of the period. In (6), $\hat{r}_{11}$ and $\hat{r}_{21}$ are the hypothetical annual growth of imports to Greece from the EEC and the rest of the world, namely,

$$\text{(7)} \qquad \hat{r}_{11} = \left(\frac{\hat{X}_T}{X_0}\right)^{1/T} - 1 \qquad \text{and} \qquad \hat{r}_{21} = \left(\frac{\hat{Y}_T}{Y_0}\right)^{1/T} - 1$$

where X_0 and Y_0 are the values of actual Greek imports from the EEC and the rest of the world at the beginning of the period and T is number of years in the period. In (6), r_{12} and r_{22} are the actual Spanish rates of import growth from the EEC and the rest of the world, while $K = r_{12}/r_{22}$ is a constant.

To find $\hat{X}_T$ and $\hat{Y}_T$, it is necessary to solve the system,

(8) $\qquad \hat{X}_T + \hat{Y}_T = M_T \qquad$ and $\qquad \left(\dfrac{\hat{X}_T}{X_0}\right)^{1/T} - 1 = K\left[\left(\dfrac{\hat{Y}_T}{Y_0}\right)^{1/T} - 1\right],$

which is reduced to the single equation,

(9) $\qquad \left[\left(\dfrac{\hat{X}_T}{X_0}\right)^{1/T} - 1\right] = K\left[\dfrac{\left(M_T - \hat{X}_T\right)^{1/T}}{Y_0} - 1\right].$

When $K = 1$, Young's constant market share hypothesis is obtained. This equation is of the general nonlinear form, $X = f(X)$. Solution of this equation is obtained by a standard iteration method which starts at an initial guess of X.

The results of the trade diversion for the periods, 1963–1970 and 1971–1977, using $K = 1$ and $K = r_{12}/r_{22}$, are reported in Table 5. In the table the entries are the differences between actual Greek two-year-average, end-of-period exports to or imports from the EEC and the estimated hypothetical value. The figures are all in 1970 prices. (The original trade data were deflated by the U. S. wholesale price deflator.) For instance, the figure 126 in the first row of column 2 means that, under the assumption of unchanging market shares, the average Greek exports to the EEC in 1969–70 would have been $126 million (1970 prices) lower than the actual amount. Similarly, a negative figure in the import column means that hypothetical Greek imports from the EEC are larger than the actual ones, meaning a beneficial trade diversion potentially due to the association agreement.

Table 5--Trade Diversion of Greece Due to the Association Agreement with the EEC
1963-1977

	Standard International Trade Classification Commodity Code	Method			
		$K = 1$		$K = r_{12}/r_{22}$	
Period		Imports 1	Exports 2	Imports 3	Exports 4
		million dollars (1970 prices)			
1963-1970	0-9	0	126	61	162
1971-1977	0-9	-770	-167	-268	-281

Source: Computed.

The above discussion implies that beneficial trade diversion for Greece would be represented by positive numbers in the export columns and negative ones in the import columns. It can be seen from the table that both methods give similar results which are quite interesting. In the earlier association period, the results indicate that there was beneficial export diversion to Greece but disadvantageous import diversion. In the more recent period, this pattern has reversed itself indicating beneficial import diversion but disadvantageous export diversion for Greece.

For an accurate estimate of benefits and costs according to (3) and (4), it is necessary to know by how much the price of each commodity of the country traded with the EEC exceeded the price of the cheapest source $\left(\text{i.e., } t_i^E \text{ and } t_i^I\right)$. Then a weighted average should be obtained for an estimate of the aggregate reduction by commodity group. This task is, of course, virtually impossible due to the heterogeneity of commodities, the fluctuation in trade barriers (even in the short period, especially for agricultural products, levies, and countervailing duties), and the numerous preferential agreements of the EEC with third countries. In the present study, three hypothetical alternatives are considered as far as reduction in trade barriers between Greece and the EEC is concerned. In the first case Greece was granted a 10 percent price overall preference to the EEC while the reverse preference was 5 percent. In the second case a reciprocal 10 percent price preference was granted. The third case is the opposite of the first.

Table 6 shows the estimated benefits (B), costs (C), and net effect (NE = B − C) to Greece due to the association agreement with the EEC for the years 1970 and 1977. Part I of the table describes the estimates under the assumption that the price preferences are captured by the producers (exporters).

Table 6--Benefits and Costs to Greece Due to the Association Agreement with the EEC
1970 and 1977

Period	Standard International Trade Classification Commodity Group	Case 1			Case 2			Case 3		
		B	C	NE	B	C	NE	B	C	NE
		million dollars (1970 prices)								
		Part I								
1970	0-9	14.7	79.2	- 64.5	29.5	79.2	-49.7	29.5	39.6	-10.1
1977	0-9	36.5	157.2	-120.7	72.9	157.2	-84.3	72.9	78.6	- 5.7
		Part II								
1970	0-9	4.1	3.1	1.0	8.1	3.1	5.0	8.1	1.6	6.5
1977	0-9	6.7	14.1	- 7.4	13.4	14.1	- 1.0	13.4	7.1	6.3

Source: Computed.

Part II assumes that the price preferences are passed to the consumer (importer). Hence, Parts I and II may be considered as the upper and lower bounds, respectively, of the benefits and costs to Greece due to the association agreement with the EEC if the bounds of the overall tariff reduction hypothesized in the three cases above are accepted.

The results of the table mostly support the hypothesis that, even under the mild assumptions of the case hypothesized, the net cost of the association agreement can be sizable. The largest negative entry for 1970 is $-64.5 million which is about 10 percent of Greek exports in 1970. For 1977, the largest negative entry is $-120.7 million which is about 6.1 percent of 1977 Greek exports (in 1970 prices). These numbers, of course, represent extreme situations. However, it is interesting to notice that the largest positive entries in the columns for net effects are much smaller in absolute value than the largest negative entries.

VI.   Concluding Remarks

Greece has experienced an export growth significantly higher than that of the OECD countries during its period of association with the EEC (1963-1977). That is, Greece's share in world exports has increased. However, the high rate of export growth has been accompanied by an equally high rate of import growth implying a deterioration in the balance of trade.

The analysis of this paper seems to indicate that the association agreement with the EEC has been unfavorable to Greek foreign trade. Several benefits that seem to have been derived from the agreement during the 1960s did not continue in the 1970s, partly because the EEC extended formal privileges in the 1970s to many countries which compete with Greece. Another factor could be that the EEC has treated Greek agricultural exports unfairly.

In any case the establishment of democracy in Greece and the reopening of stronger commercial ties with Europe in the 1970s does not seem to have had the positive impact of the early years. Currently, 17 years after the original association agreement, there is almost free trade between Greece and the EEC in most products, a condition that was envisioned in the original agreement as a step toward full membership of Greece in the EEC. Hence, full membership is not likely to produce a marginal reduction in import and export barriers as large as that of the 1960s. If these results for the 1970s can then be used to guess at the prospects for Greek-EEC trade during the 1980s, the forecast is that, under the present economic structure in Greece, full membership is not likely to confer large trade gains to Greece.

Since EEC membership for Greece is an almost accomplished fact, it seems then that drastic measures need to be taken to improve the international competitiveness of the Greek economy.

FOOTNOTES

[†]Giannini Foundation Paper No.   (reprint identification only).

[1]For details of the association agreement, see CEE, Porte-Parole de la Commission, Association with Greece.

[2]For a political analysis of the freezing of the association agreement, see V. Coufoudakis.

[3]For thorough reviews of several methods, see P. J. Verdoorn and C. A. Van Bochove and, also, J. Williamson and A. Bottrill.

[4]It is true that, except for a timetable on the reduction of tariffs by both parties, the Athens agreement is generally vague; it includes many exceptions and under certain circumstances allows for measures to be taken independently by each party to avoid economic disturbances and major crises.

[5]Kalamotousakis used tobacco as an example. However, Kebschull did not find an increase in the share of Greece's exports to the EEC for this product. On the contrary, Greece's exports of tobacco have been declining.

[6]Two-year averages have been used in order to avoid effects on the results due to cyclical problems, especially in agricultural production. Sample tests with three or four-year averages gave approximately the same results as the two-year average analysis.

[7]Again, the averages of 1971-72 and 1976-77 were used to compute the growth rates.

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