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EU ACCESSION EFFECTS ON IMPORTS OF MANUFACTURES: THE CASE OF GREECE

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Discussion Paper 2003-02

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Abstract

This paper evaluates the effects of Greece's accession to the EU on imports of manufactures and static welfare. A dynamic specification of the Almost Ideal Demand System (AIDS) based on cointegration techniques and error correction models, is used. Based on Greek trade data we find that this formulation performs well on theoretical grounds, as the restrictions imposed by demand theory are supported by the data. We find that Greek imports of manufactures from both sources - EU and the rest of the world (ROW) -substituted for domestic sales, implying net trade creation and consequently, improving static welfare and resource allocation.

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1. Introduction

Greece entered the EU as a full member in 1981. Being an associate member since 1963, the country had gradually reduced tariff protection, so that by 1981, imports of manufactures not produced domestically were totally liberated, while tariffs on imports of products produced domestically had fallen by 60%. This fact led many researchers to argue that Greece's accession to the EU would not have substantial implications on Greek imports (Filactos, 1979, and Mitsos and Papageorgiou, 1979). Yet, protection by other means (quotas, financial stringencies, the tax system, etc) was very large and its abolition has harmed the country's trade balance from the import side considerably, although, of course, it improved static welfare. This partly explains the troubles that the Greek economy met, over the first 15 years of accession during which this protection was gradually faced out, despite the huge amount of net resources the country received from the European budget over this period.

A number of studies have, in the past, considered the implications of entry, on Greek imports, both before and after accession, using the analytical or the residuals approach (see e.g. Arghyrou, 2000, Georgakopoulos, 1993, Plummer, 1990, Giannitsis, 1988, Mitsos 1983, Tsoukalis, 1979). These studies have however used either elasticity estimates coming out of single equation import demand models or ex-post indices (growth rates, income elasticities, shares in apparent consumption etc). The former approach is well known to have a number of disadvantages, including the two stages procedure in estimating import functions (Winters, 1984a), whereas the latter only crude estimates of the effects of accession on imports can provide.

The present study estimates the effects of accession on Greek imports of manufactures, using an Error Correction Almost Ideal Demand System (EC AIDS). The AIDS, first developed by Deaton and Muellbauer (1980), was applied on import functions by Winters (1984a, b, and 1985). Its basic advantage, as pointed out by Winters (1984a), is that it avoids the separability assumption and treats both decisions concerning the size and the structure of imports simultaneously. But the classic AIDS approach assumes that consumers have adjusted to equilibrium in every time period. This assumption is far from reality as habit persistence and incorrect expectations about real price changes affect short run behavior (Anderson and Blundell, 1983).

Winters' however paid no attention to the statistical properties of the data. As we shall see below, the time series concerning Greek imports of manufactures and their prices are I(1). This means that the demand systems can be estimated only if their variables are cointegrated, which means that their estimated residuals are I(0). The work on the estimation of cointegrated systems, the variables of which are I(h), where $h \geq 1$, is recent (Johnson et al. (1992), Balcombe and Davis (1996), Attfield (1997), Karagiannis, Katranidis and Velentzas (2000)) and follows the procedure that was developed by Engle and Granger (1987).

It is found that imports of manufactures from both sources substituted for domestic sales, indicating only net trade creation and thus, improving resource allocation. The cumulative reduction in the domestic sales of manufactures was estimated 11.1% of the 1980 total expenditure (i.e. gross value of domestic production plus total imports minus total exports of manufactures) and to 8% of the 1980 GDP.

The model used is shown in the next section, while in the third, the empirical results are presented. In the fourth section, the estimated elasticities are presented and discussed, while in the fifth section, predictions of Greek imports in the anti-monde are given. Finally, some conclusions are drawn. Data definitions and their sources are shown in the Appendix.

2. The model

The linear formation of the AIDS is used in budget-share form:

$$S_i = a_i + \sum_{j=1}^{n} \gamma_{ij} \ln P_j + \beta_i \ln\left(\frac{M}{P}\right), i = 1,..., n \qquad (1)$$

where S_i stands for the share of commodity i in total expenditure (M), P_i is the price of commodity i and P stands for the aggregate price index, which is:

$$\ln P = a_0 + \sum_{i=1}^{n} a_i \ln P_i + 0.5 \sum_{i=1}^{n} \sum_{j=1}^{n} \gamma_{ij} \ln P_j \ln P_i$$

Because of the non-linearity of this index, it is usually replaced by the Stone index:

$$P^* = e^{S_1 \ln P_1 + S_2 \ln P_2 + ... + S_n \ln P_n} \cong P \Leftrightarrow \ln P^* = S_1 \ln P_1 + S_2 \ln P_2 + ... + S_n \ln P_n \cong \ln P$$

The use of this index causes inconsistencies in parameter estimates, but they are more serious in micro rather than in aggregate data (Pashardes, 1993). The restrictions that come out of the demand theory concern additivity ($\sum_{i=1}^{n} a_i = 1, \sum_{i=1}^{n} \gamma_{ij} = 0, \sum_{i=1}^{n} \beta_i = 0$), homogeneity ($\sum_{j=1}^{n} \gamma_{ij} = 0$) and symmetry ($\gamma_{ij} = \gamma_{ji}, i, j = 1...n$).

The next step in our analysis is to investigate the time-series properties of the data used in order to specify the most appropriate dynamic form of the model and to find out if the long-run demand relationships provided by equation (1), are

economically meaningful or they are just spurious. If all variables in equation (1) are I(1) process and cointegrated, the EC AIDS will be given by the following form:

$$\Delta S_{i,t} = \sum_{j=1}^{n} \psi_{ij} \Delta S_{j,t-1} + \sum_{j=1}^{n} \gamma_{ij} \Delta \ln P_{j,t} + \beta_i \Delta \ln \left(\frac{M}{P} \right)_{i,t} + \lambda e_{i,t-1} + u_{i,t} \qquad (2)$$

Δ refers to the difference operator, $e_{i,t-1}$ represents the estimated residuals from the cointegrated equations (1), where $-1<\lambda<0$ and $u_{i,t}$ is the error term. We also assume that the error correction term is common in all share equations. This means that all deviations from long-run equilibrium are corrected at the same point within the time period[1]. The restrictions that arise from the demand theory are the same as the ones of the classic analysis of the AIDS model. Since $\sum_{i=1}^{n} \Delta S_{i,t-1} = 0$ by construction, the EC AIDS is a singular first difference model. Thus, the last column of the matrix of ψ_{ij}`s is deleted. Intertemporal consistency also requires that $\sum_{i=1}^{n} \psi_{ij} = 0$ (Anderson and Blundell, 1982, 1983).

The AIDS and EC AIDS models can also be used to derive the formulas of expenditure elasticities, compensated (Hicksian) and uncompensated (Marshallian) price elasticities and partial elasticities of substitution.

The expenditure elasticities are given by the following formula:

$$E_{im} = 1 + \frac{\beta_i}{S_i} \qquad (3)$$

The coefficients β_i can be either positive, indicating luxuries, or negative, indicating necessities. So, no restrictions are imposed on income elasticities.

The compensated (Hicksian) price elasticities are derived as following:

[1] The results remain unchanged even if the error correction term is not common in all share equations.

$$\varepsilon_{ij}^{H} = -\delta + \left(\frac{\gamma_{ij}}{S_i}\right) + S_j \tag{4}$$

where δ is the Kronecker delta. δ = 1 if i = j and δ = 0 otherwise. From Slutsky equation we obtain the formula for the uncompensated (Marshallian) price elasticities:

$$\varepsilon_{ij}^{M} = \varepsilon_{ij}^{H} - E_{im} S_j = -\delta + \left(\frac{\gamma_{ij}}{S_i}\right) - \left(\frac{\beta_i}{S_i}\right) S_j \tag{5}$$

Own price elasticities of demand, compensated and uncompensated, are expected to be negative, if the expenditure function (equation 1) is concave. No a priori restrictions are imposed on cross-price elasticities of demand, compensated and uncompensated.

The formula for the partial elasticities of substitution are given by:

$$\sigma_{ij} = \begin{cases} \dfrac{\gamma_{ij} + S_i^2 - S_i}{S_i^2}, i = j \\ 1 + \dfrac{\gamma_{ij}}{S_i S_j}, i \neq j \end{cases} \tag{6}$$

Concerning the partial elasticities of substitution (σ_{ij}), own elasticities are expected to be negative, implying that the postulates of the consumer theory are satisfied. Cross-elasticities of substitution can be either positive, indicating substitution between the two commodities, or negative, indicating complementarity. The only restriction that is imposed on the partial elasticities of substitution is that $\sigma_{ij} = \sigma_{ji}$.

In this model two protection variables have been added. L_1 represents quotas and other non-tariff protecting measures that Greece had to abolish due to membership. L_2 refers to the gradual abolition of the regulatory levy, a measure

providing huge protection of domestic production through indirect taxes[2]. These variables have the form of an index and are given in the Appendix. Because of the adding-up restriction, the sum of the parameters for each of these variables is zero.

3. Empirical results

In the empirical analysis we used annual time-series data for domestic sales of manufactures (DS) (i.e. domestic production minus total exports), imports from EU and ROW, and their prices. The sample covers the 1970-1998 period. Manufactures include categories 5-8 of the Standard International Trade Classification (i.e. chemical products, manufactured goods classified by raw material, machinery and transport materials and various manufactured goods, respectively). As an index for the price of domestic sales we used the wholesale price index of manufactures. But this index includes the taxes levied on that stage of production. Therefore, the unit value indices of imports were adjusted with import taxes and tariffs. The AIDS and the EC AIDS were estimated using a seemingly unrelated regression (SUR) procedure. The SUR process is very sensitive on the equation deleted when we have singular systems with autoregressive disturbances, as the EC AIDS (Berndt and Savin, 1975). So, the procedure must be iterated. The iteration process ensures that the estimates obtained asymptotically approach those of the maximum likelihood method (Judge et al., 1980).

In order to investigate the time-series properties of the data, we performed both the augmented Dickey-Fuller test (ADF) and the Phillips-Perron test (PP). The results of these tests are presented in Table 1 and show that none of the variables is

[2] Protection was provided via both fictitious increases in the taxable base of imports and nominal rate differentiations. In 1984, this protection was embodied in a special levy, called the regulatory levy, which was gradually faced out between 1984 and 1989.

stationary in level, but all are stationary in first difference, i.e. I(1). Testing for cointegration, we found that the estimated residuals are stationary in each case, i.e. I(0). We employed the Akaike´s information criterion to select the appropriate lag lengths for the ADF test. This result means that the budget shares are cointegrated with domestic and import prices of manufactures and real expenditure. In other words, these variables are moving together in the long-run, i.e. there is equilibrium. Of course, by construction, budget shares are bounded between 0 and 1, so we expect them to be stationary in the very long run (Attfield, 1997). But for this specific sample of data, S_i have all the characteristics of an I(1) time-series.

(Table 1)

The next step in the present analysis is to test if the restrictions that arise form the demand theory are supported by the data, in the EC AIDS. A Wald test has been performed. The null hypothesis concerns the existence of homogeneity, symmetry and joint homogeneity and symmetry. The results are presented in Table 2 and show that the restrictions imposed by the demand theory cannot be rejected at a 5% significance level, which suggests that the empirical results are consistent with economic theory.

(Table 2)

The parameter estimates of the EC AIDS are presented in Table 3. These results embody the properties of homogeneity and symmetry.

(Table 3)

As Table 3 shows, the parameter λ is negative and statistically significant at 1% level, which means that deviations from the long-run equilibrium due to non-stationarity of the variables are corrected at the same point within the next time period. This table also indicates that some habit effects may be embodied in equation (2). This linear habit formation means that the previous distribution of domestic sales and imports from all sources, affects current decisions. Performing a Wald test on the joint hypothesis that all ψ_{ij} equal zero (i.e. there is no habit formation), we found that this hypothesis cannot be rejected at a 5% level. The calculated value of the χ^2-statistic is 5.86. The critical value for 4 degrees of freedom and 5% level of significance is 9.49. This means that habit effects are not significant in explaining the pattern of demand for manufactures.

4. Elasticity estimates

The estimates of the elasticities are presented in Table 4. They obtained by using the formulas (3)-(6) and the parameter estimates of equations (2).

(Table 4)

We can observe that the expenditure elasticity for domestic sales of manufactures is greater than unity, which indicates that these goods behave as luxuries in the Greek economy. On the contrary, the expenditure elasticities of imported manufactures from both sources (EU and ROW) are below unity, which means that imports behave as necessities in the Greek economy. This result is

plausible because Greece imports most of the industrial inputs that are necessary for domestic production.

Own elasticities (partial substitution, Hicksian and Marshallian) are all negative, which is consistent with demand theory. It is interesting to note that the demand for ROW imports is price elastic, either with income compensation or not. The demand for domestic sales of manufactures is also price elastic when there is no income compensation.

All Hicksian cross price elasticities of demand that correlate domestic sales with imports, are significant. On the contrary, the effect on the demand for imports from one source when the price of imports from the other source changes, is not significant. When the price of domestic sales changes and there is income compensation, the demand for ROW imports tends to be price elastic. In all other cases cross price compensated elasticities are below unity.

Most of the Marshallian cross price elasticities are not statistically significant. When there is no income compensation, the only substantial effect that takes place is the change on demand for ROW imports when the price of domestic sales changes, and vice versa. The above effects are price inelastic.

Finally, elasticities of substitution show that there is significant substitution between domestic manufactures and imported ones from both sources. On the other hand, the positive substitution elasticity between EU imports and ROW imports indicates substitutability between these two sources. But this effect is not statistically significant.

5. The effects of the EU accession on the demand for manufactures

In order to evaluate the effects on expenditure shares due to EU membership, we adopt the analytical approach. This approach can be applied either ex-ante or ex-post (Truman, 1975). The basic assumption is that if Greece had not entered EU in 1981, the protection would have remained unchanged at 1980 level. We use the structural parameter estimates of our model (Table 3). We also concern on time schedule of gradual abolition of trade measures. Multiplying estimated coefficients with the changes of the respective measures we find the percentage changes, which are multiplied with the volume of the respective expenditure share of the last year before accession. We estimate only substitution effects, as the estimation of income effects due to the EU accession, is quite difficult. The reason is that we have to estimate not only the direct effects but also the induced effects on income.

The overall effects are presented in Table 5 as percentages of the 1980 expenditure on manufactures and the 1980 GDP, for each budget share. These effects were estimated for the whole ten-year period 1981-1990, over which protection was gradually faced out, as well for the two five-year sub-periods 1981-1985 and 1986-1990. Concerning the welfare effects, we observe that both for the whole decade, and for the two five-year sub-periods, the result was trade creation, as imports from both sources (EU and ROW) substituted for domestic sales. As Table 5 indicates, the abolition of trade protection measures on imports of manufactures, led to a cumulative effect amounts to 11.1% of the 1980 total expenditure for manufactures and to 8% of the 1980 GDP.

(Table 5)

More analytically, the effects on imports of manufactures due to the abolition of protective measures as percentages of the 1980 GDP are presented in the first three columns of Tables 6 and 7. Columns four and five show total annually and cumulative effects, respectively. These tables also indicate that EU imports mainly substituted for domestic sales of manufactures, as the substitution effect of the ROW imports was small. It is important to notice the significant effect due to the abolition of quotas and other non-tariff measures, in the first year of the EU membership. An interesting result that comes out of Tables 6 and 7 is that in the case of tariffs, ROW imports substituted for a small part of EU imports. The reason is that by the year of accession, tariffs on Greek imports of manufactures not produced domestically were almost abolished. On the other hand, the average tariff rate on ROW imports of manufactures was 5%. The reduction of this tariff rate due to its adjustment to Common External Tariff of the EU, led to this small substitution.

(Table 6)

(Table 7)

6. Conclusions

The purpose of this paper was to estimate the effects on the Greek imports of manufactures due to the EU accession. In the demand analysis we used a dynamic specification of the classic AIDS model, in order to correct the disequilibrium problem that comes out of the existence of a unit root in the variables. This specification confirms the restrictions placed by demand theory. No rejection of the null hypotheses concerning homogeneity, symmetry and joint homogeneity and symmetry, allows the use of this model for estimations about the effects of Greek

imports of manufactures due to the EU accession. Confirmation of demand theory implies that the parameter estimates are valid and accurate.

The above estimates are robust and support the view that Greece' participation in the EU improves the welfare of Greek consumers. Using the analytical approach, we found that the cumulative substitution effect of the accession was a reduction of the domestic sales of manufactures, which equals 8% of the 1980 Greek GDP. This result is also equals 11.1% of the 1980 total expenditure for manufactures. Imports of manufactures from both sources substituted for domestic sales. EU imports mainly substituted for domestic sales. This result equals 6.2% of the 1980 GDP. On the contrary, the EU accession effect on ROW imports of manufactures was small (1.8% of the 1980 GDP). The cumulative effect for the first post-accession decade was net trade creation. This result holds also for both sub-periods. We conclude that the abolition of trade protection in the sector of manufactures improved static welfare and resource allocation.

Acknowledgements

I would like to thank Professors Theodore Georgakopoulos and Panos Pashardes, for their constructive suggestions and helpful comments. The usual disclaimer applies.

Appendix

Sources of the data:

a) National Statistical Service of Greece: External Trade Statistics (various issues).

b) National Statistical Service of Greece: Industrial Review (various issues)

c) National Statistical Service of Greece: Statistical Yearbook of Greece (various issues).

d) National Statistical Service of Greece (unpublished data)

Definitions of the variables:

DP: Gross value of domestic production of manufactures; source b.

X: Value of total exports of manufactures; source a.

M_{EU}: Value of EU imports of manufactures; source a.

M_{ROW}: Value of ROW imports of manufactures; source a.

DS (domestic sales of manufactures) = DP - X

M (total expenditure of manufactures) = DS + M_{EU} + M_{ROW}

S (share in total expenditure) = Share of each of the above flows in M.

P_{DS} : Wholesale price index of manufactures; source c.

P_{EU}: Unit value index of EU imports of manufactures adjusted with import taxes*(1+t) (1982=100). The source for unit value index is a. The source for import taxes and t, which expresses tariff rate, is d.

P_{ROW}: Unit value index of ROW imports of manufactures adjusted with import taxes*(1+t) (1982=100). The unit value index for ROW imports has been calculated with the following formula: [(total imports of manufactures – EU imports of manufactures, at current prices)/ (total imports of manufactures – EU imports of manufactures, at constant 1982 prices)]*100. The source for import taxes and t, which expresses tariff rate, is d.

L_1: Protection variable that refers to quotas and other tariff-equivalent measures; table A.1

L_2: Protection variable that refers to the regulatory levy; table A.1

Table A.1
Protection variables

Year	L_1 (DS)	L_1 (EU)	L_1 (ROW)	L_2	Year	L_1 (DS)	L_1 (EU)	L_1 (ROW)	L_2
1970	1.00	1.00	1.00	1.00	1985	0.00	0.00	0.00	0.80
1971	0.88	1.00	0.60	1.00	1986	0.00	0.00	0.00	0.65
1972	0.88	1.00	0.60	1.00	1987	0.00	0.00	0.00	0.45
1973	0.82	0.92	0.60	1.00	1988	0.00	0.00	0.00	0.25
1974	0.76	0.84	0.60	1.00	1989	0.00	0.00	0.00	0.00
1975	0.70	0.84	0.40	1.00	1990	0.00	0.00	0.00	0.00
1976	0.60	0.76	0.28	1.00	1991	0.00	0.00	0.00	0.00
1977	0.56	0.68	0.28	1.00	1992	0.00	0.00	0.00	0.00
1978	0.56	0.68	0.28	1.00	1993	0.00	0.00	0.00	0.00
1979	0.50	0.60	0.28	1.00	1994	0.00	0.00	0.00	0.00
1980	0.40	0.52	0.16	1.00	1995	0.00	0.00	0.00	0.00
1981	0.22	0.20	0.12	1.00	1996	0.00	0.00	0.00	0.00
1982	0.12	0.13	0.09	1.00	1997	0.00	0.00	0.00	0.00
1983	0.06	0.06	0.05	1.00	1998	0.00	0.00	0.00	0.00
1984	0.00	0.00	0.00	0.90					

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Table 1
Tests for unit root and cointegration
for the demand for manufactures in Greece, 1970-1998

Variable	Unit root test				Cointegration test		
	ADF		PP				
	Level	First difference	Level	First difference	Residuals	ADF	PP
S_{DS}	-1.47	-5.63***	-0.95	-7.54***	S_{DS}	-3.53***	-3.19***
S_{EU}	-1.44	-6.10***	-0.84	-7.44***	S_{EU}	-3.33***	-3.07***
S_{ROW}	-2.27	-5.68***	-2.71	-7.88***			
lnP_{DS}	-0.52	-4.47***	-0.32	-3.64**			
lnP_{EU}	-0.88	-3.41*	-0.33	-3.24**			
lnP_{ROW}	-0.56	-3.85**	-0.91	-6.51***			
ln(M/P)	-2.63	-4.50***	-2.45	-5.53***			

Values represent t-statistic of coefficient γ.
Critical values for the unit root test: Intercept and trend: -4.38 (α=0.01), -3.60 (α=0.05) and -3.23 (α=0.10).
Critical values for the cointegration test: -2.66 (α=0.01), -1.95 (α=0.05) and -1.62 (α=0.10).
*** Significance for α=0.01, ** Significance for α=0.05, * Significance for α=0.10.

Table 2
Wald test for restrictions imposed by the demand theory

Null hypothesis	Degrees of freedom	χ^2-statistic	
		calculated value	critical value (α = 0.05)
Homogeneity	2	0.01	5.99
Symmetry	1	0.58	3.84
Joint homogeneity and symmetry	3	0.75	7.81

Note: The above tests have low power since most of the parameters γ_{ij} are not statistically significant.

Table 3
Parameter estimates of the EC AIDS
for the demand of manufactures in Greece, 1970-1998

Parameters	Domestic sales	EU imports	ROW imports
β_i	0.0389	-0.0194	-0.0195
	(0.5930)	(-0.3853)	(-)
γ_{i1}	-0.0388		
	(-0.6988)		
γ_{i2}	-0.0125	0.0251	
	(-0.2918)	(0.6668)	
γ_{i3}	0.0513	-0.0126	-0.0387
	(2.5511)	(-0.7755)	(-)
k_i	0.0706	-0.0238	-0.0468
	(1.2152)	(-0.7200)	(-)
m_i	0.0805	-0.0741	-0.0064
	(1.3540)	(-1.6347)	(-)
ψ_{i1}	-0.2185	0.3301	-0.1116
	(-0.5966)	(1.1714)	(-)
ψ_{i2}	-0.5682	0.7001	-0.1319
	(-1.1540)	(1.8192)	(-)
λ	**-0.8956**		
	(-6.0460)		

k_i corresponds to L_{1i} and m_i corresponds to L_{2i}
t-statistics are given in parentheses and (-) indicates that the parameter was derived using the adding-up restrictions.

Table 4
Mean point elasticity estimates of the EC AIDS
for the demand of manufactures in Greece, 1970-1998

Elasticity	Domestic sales	EU imports	ROW imports
Expenditure			
E_{im}	1.06 (10.81)	0.92 (4.15)	0.81 (-)
Price (Hicksian)			
$\varepsilon_{DS,i}^{H}$	-0.39 (-4.68)	0.21 (3.27)	0.18 (5.95)
$\varepsilon_{EU,i}^{H}$	0.62 (3.27)	-0.66 (-4.01)	0.04 (0.66)
$\varepsilon_{ROW,i}^{H}$	1.18 (5.95)	0.10 (0.66)	-1.28 (-)
Price (Marshallian)			
$\varepsilon_{DS,i}^{M}$	-1.10 (-10.38)	-0.03 (-0.47)	0.07 (2.23)
$\varepsilon_{EU,i}^{M}$	0.00 (0.01)	-0.87 (-5.04)	-0.05 (-0.63)
$\varepsilon_{ROW,i}^{M}$	0.63 (3.20)	-0.08 (-0.50)	-1.36 (-)
Substitution			
$\sigma_{DS,i}$	-0.58 (-4.68)		
$\sigma_{EU,i}$	0.92 (3.27)	-2.90 (-4.01)	
$\sigma_{ROW,i}$	1.75 (5.95)	0.46 (0.66)	-12.54

t-statistics are given in parentheses and (-) indicates that the elasticity was calculated by a parameter that was derived using the adding-up restrictions.

Table 5
Cumulative effects on the budget shares of manufactures due to the EU accession

Year / Period	% of the 1980 expenditure for manufactures			% of the 1980 GDP		
	DS	EU	ROW	DS	EU	ROW
1981	-1.30	0.00	0.00	-0.93	0.55	0.39
1982	-2.03	0.76	0.54	-1.46	0.66	0.80
1983	-2.51	0.92	1.11	-1.81	0.78	1.03
1984	-3.79	1.08	1.43	-2.73	1.41	1.32
1985	-4.65	1.96	1.83	-3.35	1.94	1.41
1986	-5.92	2.70	1.96	-4.26	2.74	1.52
1987	-7.53	3.80	2.12	-5.42	3.80	1.61
1988	-9.14	5.28	2.24	-6.58	4.87	1.71
1989	-11.15	6.77	2.37	-8.02	6.20	1.82
1990	-11.15	6.77	2.37	-8.02	6.20	1.82
1981-1985	-4.65	1.96	1.83	-3.35	1.94	1.41
1986-1990	-6.50	4.81	0.54	-4.67	4.26	0.41
1981-1990	-11.15	6.77	2.37	-8.02	6.20	1.82

Table 6
Effects on EU imports of manufactures due to the abolition of protective measures (% of the 1980 GDP)

Year / Period	Tariffs (1)	Quotas and non-tariff measures (2)	Regulatory levy (3)	Total (4)	Cumulative total (5)
1981	-0.002	0.55	-	0.55	0.55
1982	-0.002	0.12	-	0.12	0.66
1983	-0.004	0.12	-	0.12	0.78
1984	-0.004	0.10	0.53	0.63	1.41
1985	-0.004	-	0.53	0.53	1.94
1986	-0.004	-	0.80	0.80	2.74
1987	-	-	1.07	1.07	3.80
1988	-	-	1.07	1.07	4.87
1989	-	-	1.33	1.33	6.20
1990	-	-	-	-	6.20
1981-1985	-0.016	0.89	1.07	1.94	1.94
1986-1990	-0.004	-	4.26	4.26	4.26
1981-1990	-0.020	0.89	5.33	6.20	6.20

Table 7
Effects on ROW imports of manufactures due to the abolition of protective measures (% of the 1980 GDP)

Year / Period	Tariffs (1)	Quotas and non-tariff measures (2)	Regulatory levy (3)	Total (4)	Cumulative total (5)
1981	0.02	0.37	-	0.39	0.39
1982	0.02	0.39	-	0.41	0.80
1983	0.04	0.18	-	0.23	1.03
1984	0.04	0.20	0.05	0.29	1.32
1985	0.04	-	0.05	0.09	1.41
1986	0.04	-	0.07	0.11	1.52
1987	-	-	0.09	0.09	1.61
1988	-	-	0.09	0.09	1.71
1989	-	-	0.12	0.12	1.82
1990	-	-	-	-	1.82
1981-1985	0.17	1.14	0.09	1.41	1.41
1986-1990	0.04	-	0.37	0.41	0.41
1981-1990	0.22	1.14	0.46	1.82	1.82