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Import protection and export performance: Their impact on economic growth

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I. Introduction

For a long time economists have been presuming a strong and positive relationship between a country's engagement in international trade and its economic performance. Already Adam Smith stressed the importance of trade as a means of widening markets, thereby increasing the division of labour and thus raising the level of productivity; John Stuart Mill on the other side laid greater emphasis on the dynamic effects of international trade (called "indirect effects")[1]. Thus it was generally believed that countries with a high engagement in international trade perform much better than countries that protect their home markets - the latter not being able to make use of the benefits of trade as a source of economic growth.

In more recent times the view that trade is favourable to economic growth is strongly associated with the "export-led growth" - hypothesis[2]. In several models the contribution of exports to economic growth has been evaluated[3]. However, the statistical evidence from the existing studies seems to be not at all definitive. Most of the studies simply correlate the growth rate of domestic output with the growth rate of exports. The high concordance of both variables is usually taken as evidence in favour of the export-led growth hypothesis. Nevertheless, these investigations have at least two shortcomings. First, since exports are part of GDP, the growth rate of both variables must naturally be highly conformable[4]. Second, since international trade might only

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[1] See Choi (1983).

[2] The term "export-led growth" was introduced by Kindleberger (1962).

[3] Balassa (1978), Choi (1983), Crafts (1973), Emery (1976), Feder (1982), Jay and Michalopolous (1973), Lubitz (1973), Ram (1985), Smith (1975), Syron and Walsh (1968) and Voivodas (1973).

[4] Michaely (1977).

be one of the sources of economic growth, an at least simple underlying growth model - in which the additional impact of export performance could be tested - in most cases is missing. Only a few of the existing empirical studies examine the impact of exports on economic growth as well as international differences in capital accumulation and labour endowment[5]. But again, the use of export growth rates as an indicator of trade performance jeopardizes the validity of the results. (The growth rate of imports or of private consumption might have done the same job.) Other studies, in which the share of exports in GDP is taken as a straightforward indicator of export performance are rare and fail to support the hypothesis of export-led growth[6]. But the reason for this outcome may be that the economic size of the countries investigated has been neglected. The present paper tries to overcome some of these shortcomings.

A different approach is taken to evaluate the contribution of trade to economic growth. Since a country's level and structure of tariff protection are direct indicators of its willingness to engage in international trade, the hypothesis that trade is favourable to economic growth, might also be tested directly with the help of data on protection[7]. Since such data are by now available for about fifty countries in the nineteen sixties and seventies, it seems possible to assess in a comprehensive empirical test how much economic growth has been foregone due to direct political intervention to restrict international trade.

To test these hypotheses a simple growth model is used, in which economic performance depends on capital accumulation as well as on technological adaption possibilities. The ad-

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[5] Balassa (1978), Feder (1982), Jay and Michalopolous (1973) and Ram (1985).

[6] See for example Choi (1983).

[7] Numerous country studies suggest a negative relationship between protection and economic performance. See for example Bhagwati (1978), Donges (1976), Krueger (1978).

ditional impact of export performance as well as of a high
or low level of tariff protection might then be separated
from other sources of economic growth. The next section
gives some theoretical foundations and describes the "ba-
sics" of the underlying simple growth model. In chapter III
it is first empirically tested whether favourable export
performance exerts a positive influence on economic growth.
Secondly, the available international data on protection and
the empirical evidence about the impact of protection on
economic performance is presented. Conclusions are drawn in
the last section.

II. Theoretical Foundations

A. Theoretical Considerations

In the early years after the war, growth or development
economics in many countries was dominated by structuralist
views, which played down the role of prices and of flexibi-
lity in resource allocation. Import substitution was often
thought to be important and the role of exports in the
course of economic growth was largely dismissed. Only in the
early sixties, perhaps when the economic costs of these
policies became more and more obvious, the discussion shift-
ed: Exports again were thought to be an important source of
economic growth.

Since then, numerous economists have analyzed the benefits
of trade on economic performance, but there has been no
general agreement on the specific export-growth nexus. The
perhaps most noteworthy investigations on the relationship
between exports and growth, which also give theoretical
descriptions of the potential adjustment mechanisms, are
those by Kindleberger (1962), Lamfalussy (1963), Beckerman
(1962), Corden (1971), Black (1970) and Caves (1965)[8]. In
these studies the "direct" as well as the "indirect" effects

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[8] See the survey of these studies in Choi (1983).

of trade on economic performance are examined. But as the weights given to demand and supply conditions and to other factors differ widely, the studies suggest a large variety of possible ways by which exports have a dominant, positive influence on economic growth. Seen together, the studies seem to pay too little attention to competitive pressures as the more "dynamic" effects of trade as well as to other possible sources of growth.

In contrast to the above studies, Kravis (1970, 1973) questions the dominant, positive role of exports in the course of economic growth. In particular, he contradicts the famous view of Nurkse (1961), that trade had worked like an "engine of growth" through demand effects of a growing world economy[9]. He argues that economic performance instead depends primarily on internal factors, which produce both growth at home and a more competitive position in world markets. Thus, trade must be seen merely as an extension of favourable opportunities at home and it may be only one among many factors affecting growth. Because it is unlikely that trade is the dominant variable in many instances, he argues that the term "handmaiden of growth" better conveys the role trade can play than the term "engine of growth". The latter involves expectations which cannot be fulfilled by trade alone. Kravis' view is of course not to deny that trade may be helpful in achieving growth, but to him the most important role played by trade is "that a relatively open market enabled the growing country to find its areas of comparative advantage and to avoid the development of insulated, high-cost, inefficient sectors" (Kravis, 1970, p. 858). Last, but not least, as may be added, competition through trade is the best anti-monopoly policy to prevent such high-cost industries (Sohmen, 1959).

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[9] Lewis (1980) recently presented a model which works on lines similar to Nurkse's. Riedel (1984) argues against it.

The present approach tries to combine both strands of the literature. Trade is seen as an important source of economic growth as suggested by the studies on "export-led" growth. But the interpretation of this relationship is in line with Kravis (1970): Trade is only one among other (internal) factors affecting growth and its main impact stems from competitive pressures, which prevent inefficiencies.

B. The Model

According to this reasoning a simple model of economic growth has been developed, where the growth of per capita GDP of a country depends on trade or openness as well as on other, internal factors. The other factors, thought to be important in respect to economic growth of a country, are the country's technological adaptation set, its capital formation and its growth rate of the labour force[10]. As for technical progress, in comparison to other growth models some special assumptions are made. It is presumed that the technological progress of a country - if it is not the technological leader - is merely a function of technological adaptation possibilities, since technological progress is not only achieved by domestic discovery and application, but to a large extent by transfer from abroad. Thus, because the production of technological knowledge is more costly than its imitation and duplication, the lesser developed country is in a more favourable position than the producers of technological knowledge (usually the most advanced country or technological leader).

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[10] This approach has been developed by Parvin (1975), who used a Cobb-Douglas production function of the "Tinbergen-type". However the trend parameter, which in the original version represented technological progress, was substituted for indicators of technological adaptation. Other models, in which a technological adaptation set or technological gap is of central importance, have been suggested by Gomulka (1971), Cornwall (1977) and Marris (1982). The present approach has also been applied in Heitger (1985), to explain comparative growth since the early fifties.

But extreme "economic backwardness" is not at all bliss, not even in this respect since the potential adaptation set then is limited by the country's endowment with human capital. Thus the available adaptation set is smaller than the technological gap and the "catching-up" potential is accordingly smaller.

If one agrees on this reasoning as well as on the assumption that the relative per capita income of a country (i. e. relative to the industrial leader) is a convenient measure of the technological gap and that the country's human capital endowment may be represented by the adult literacy rate, the following simple growth model emerges:

(1) gGDP = a + b RGDP + c AD LIT + d INV SH + e gPOP

where gGDP,   growth rate of per capita income
      RGDP,   relative per capita income
              (relative to the industrial
                  leader),
      AD LIT, adult literacy rate,
      INV SH, share of investment in GDP and
      gPOP,   population growth (population as proxy
                  for labour).

In this model the per capita growth rate of a country depends on the technological gap and on the actual endowment with human capital as well as on capital accumulation and the growth rate of the labour force (proxied by population growth). With the help of this approach, it is possible to test for other sources of economic growth by adding convenient variables, specified by additional hypotheses on economic growth, to the equation. In the following it will be tested if exposure to international trade exerts such an additional influence on economic performance. This exposure to international trade might be tested either with a country's export share as a measure of openness, as suggested by Kravis (1970), or alternatively with data on effective protection as a measure of seclusion.

III. Empirical Evidence

A. Export Performance and Economic Growth

The present approach in a first step concentrates on export shares. This variable seems to be much better suited to indicate a country's export performance or openness to international trade than growth rates of exports, since its use on the one hand avoids the bias of using a component of GDP and it is on the other hand a straight-forward measure of a country's exposure to international trade. However, empirical tests which use this variable are rare and have failed to support the view that exports are growth enhancing[11]. One reason for this failure might be that market size as an important determinant of a country's engagement in international trade has been neglected[12]. Thus, to prepare an empirical test of export shares and economic growth, it is first necessary to "normalize" the export shares.

To do so, average export shares and gross domestic products of all countries for which data in the 50s, 60s and 70s were available have been calculated and the relationship between export shares and market size has been estimated (Table 1). As expected, countries with a high internal market size have a low export share and vice versa. The deviations from this "normal pattern" may be used to indicate a country's higher or lower than "normal" exposure to international trade.

To test if a higher than "normal" export share is favourable to economic development, these residuals may enter the underlying growth model as an additional variable. Data of the other variables specified above have been obtained from Summers and Heston (1984), who estimated real product and its composition for more than hundred countries since the

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[11] Choi (1983).

[12] Kindleberger (1962).

Table 1 - Export Shares and Market Size, 1950-80[a]

Endogenous Variable[b]	Constant	Exogenous Variable[c]	$\bar{R}^2$	F	N
ln EX SH =	3.74 (56.64*)	- 0.29 ln GDP (-11.22*)	0.31	125*	277

t-values in parantheses. - *Significant at 5 p. c.

[a]Combined international cross-section analysis, 1950s, 1960s and 1970s. - [b]EXSH, share of exports in GDP in constant prices. - [c]GDP, market size, gross domestic product in international dollars of 1975.

Source: Summers and Heston (1984). - The World Bank (1984).
         - Own calculations.

early 50s. Table 2 gives the results for all countries and for developed countries alone. As can be seen, the under-lying hypothesis of the simple growth model are well supported: A technological gap favours economic development in less developed countries, so that there is a general tendency for "catching up". But at the same time, a relatively low human capital endowment can limit the ben-efits from technological adaptation. In addition "own ef-forts" - that is a high share of investment in GDP - are necessary to achieve economic growth[13].

With regard to openness, the regression results are at first sight somewhat disappointing, since deviations of export shares in both cases turn out to be insignificant. However, a comparison of investment shares and the calculated devia-tions from the "normal" export shares reveals a positive relationship between export performance and investment ef-forts[14]. Thus, the contribution of a high export share might

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[13] The variable gPOP proved to be not significant and has therefore been dropped.

[14] In the case of all countries, this relationship is quite strong. When the sample is restricted to industrialized countries, the empirical fit is less pronounced, but still significant.

Table 2 - Regression Results[a]

Endogenous Variable[b]	Constant	Exogenous Variables[c]	$\bar{R}^2$	F
		All Countries (N = 277)		
g GDP =	-0.48	-0.04 RGDP + 0.02 AD LIT + 0.15 INV SH - 0.17 DEV EXSH	0.25	24.0*
	(-1.33)	(-5.37*) (4.38*) (7.00*) (-0.68)		
INV SH =	19.24	+7.42 DEV EXSH	0.24	92.5*
	(47.78*)	(9.62*)		
		Industrialized Countries (N = 63)		
g GDP =	-1.13	-0.06 RGDP + 0.05 AD LIT + 0.11 INV SH - 0.64 DEV EXSH	0.49	15.9*
	(-0.23)	(-7.09*) (0.96) (3.39*) (-1.91)		
INV SH =	25.73	+2.73 DEV EXSH	0.06	5.1*
	(41.79*)	(2.25*)		

t-values in parantheses. - *Significant at 5 p. c. - [a]Combined international cross-section-analysis 1950s, 1960s, and 1970s.
[b,c]Same as in table 1. - INV SH, share of investment in GDP. - RGDP, relative per capita income (relative to the industrial leader, i.e. the United States). - AD LIT, adult literacy rate. - DEV EXSH, deviations of observed export shares from predicted values, according to calculations in table 1.

Source: Table 1. - Rusett et al. (1964). - Own calculations.

be insignificant only due to multicollinearity. But perhaps
one can conclude that a high export share favours capital
accumulation and this in turn promotes economic growth.

B. Import Protection and Economic Growth

Since the early seventies numerous country studies on ef-
fective protection in developing as well as in developed
countries have been carried out. Although these studies vary
somewhat in methodology, their estimates might be used at
least as rough estimates of protective practices and as a
measure of insulation from international trade. Moreover,
Havrylyshyn and Alikhani (1982) presented an annotated bib-
liography of effective protection studies for LDCs and a set
of summary tables, showing effective rates of protection for
LDCs after having re-organized the data in consistent cate-
gories. Thus the tables probably provide - as intended by
the authors - the "best" effective protection rate estimates
for countries where they have been made. To complete the
data set for developed countries, calculations from Balassa
(1965) can be used.

Tables 3 and 4 give a survey of the estimates. From these it
follows that protective practices were much more common in
developing than in developed countries. This policy might
have been a reflection of the structuralist vision of deve-
lopment economics of the 1940s and 1950s, which played down
the role of prices and of flexibility in resource alloca-
tion[15]. Thus, although the costs of the import substitution
strategy became more and more obvious during the sixties and
seventies, protectionist activities in these countries were
still high in these decades. While protection in LDCs on
average reached 98 p.c., protection in developed countries
amounted to about 12 p.c. The countries with the highest
protection rates are Uruguay, Ghana and Chile, while the

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[15] Agarwala (1983).

Table 3 - Average Effective Rates of Protection in Manufacturing in
Developing Countries, 1960s and 1970s

Country	1960s			1970s		
	Year	ERP[a]	STD[b]	Year	ERP[a]	STD[b]
Argentina	1969	95	100	1977	46	46
Brazil	1967	80	46	-	-	-
Chile	1961	346	634	-	-	-
Columbia	1969	88	166	1979	56	27
Costa Rica	1968	23	15	-	-	-
Dominican Republic	-	-	-	1971	118	104
Egypt	1966/67	88	64	-	-	-
El Salvador	1968	44	48	-	-	-
Ghana	1968	404	600	-	-	-
Greece	1961	52	57	-	-	-
Guatemala	1968	32	27	-	-	-
Honduras	1968	59	68	-	-	-
India	1968/69	138	109	-	-	-
Israel	1968	89	67	-	-	-
Ivory Coast	-	-	-	1970/72	72	74
Jordan	-	-	-	1979	56	73
Kenya	1967	105	141	-	-	-
Korea	1968	14	44	-	-	-
Malaysia	1963	32	58	1970	68	66
Mexico	1960	32	24	1970	39	34
Nicaragua	1968	63	66	-	-	-
Pakistan	1963/64	-	-	1970/71	202	122
Philippines	1965	42	130	1974	60	82
Singapore	1967	6	10	-	-	-
South Africa	1963/64	17	20	-	-	-
Spain	1968	53	39	-	-	-
Sri Lanka	-	-	-	1970	123	72
Sudan	-	-	-	1971	246	237
Taiwan	1966	84	62	-	-	-
Tanzania	1966	137	135	-	-	-
Thailand	1969	16	29	-	-	-
Uruguay	1968	411	304	-	-	-

[a](Unweighted) Average Effective Rate of Protection. - [b]Standard
Deviation of ERP.

Source: Havrylyshyn and Alikhani (1982).

Table 4 - Average Effective Rates of Protection in
Industrial Countries, 1965

Country	ERP[a]	STD[b]
United States	11.6	6.9
United Kingdom	11.5	6.2
Common Market	11.9	3.6
Sweden	6.8	4.6
Japan	16.2	7.6

[a]Average Effective Rate of Protection. - [b]Standard Deviation of ERP.

Source: Balassa (1965).

lowest rates can be found in South East Asia (Singapore, Korea, Thailand).

In addition, as can be seen from the tables, high levels of average protection rates did go hand in hand with a high variance of protection among products[16]. A regression between average protection and its standard deviation gives a highly significant coefficient of 0.81[17]. Thus, the discrimination between domestic and foreign products was fortified by discrimination of particular products.

The data set on levels and dispersions of effective protection rates allows a comprehensive, cross-sectional test of the central hypothesis, that protection is growth-retarding[18]. As the data on protection in general are only available since the early sixties, the empirical test had to be

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[16] A fact already mentioned by Balassa (1982).

[17] The estimated regression equation is:

$\ln ERP = 0.77 + 0.81 \ln STD$
$\qquad (3.52^*) \quad (14.83^*)$
$N = 47 \quad F = 219^* \quad \bar{R}^2 = 0.82$

[18] From the available data set, the observation of Jamaica - an outlier in the present sample - has been dropped.

restricted to international cross-section data for the 1960s
and 1970s. Table 5 gives the results. One of the main find-
ings of the present approach is that effective protection is
- as expected - an obstacle to economic growth. The influ-
ence of both, that is of a high average level of protection
and/or a highly concentrated protection structure is nega-
tive and statistically significant. Thus, the hypothesis,
that trade is favourable to economic growth cannot be re-
jected. In addition, the hypotheses about the other, in-
ternal factors in respect of economic growth are again well
supported.

From the empirical tests further follows that the impact of
protection on growth was by no means inconsiderable. First,
from the calculations of the beta-coefficients (Table 6) -
to compare the respective contribution of the different
determinants of growth - one can conclude, that the benefits
of the existing "catching-up" potentials were partly de-
voured by the level and structure of protectionist prac-
tices. The same is true, in terms of "investment efforts".
Second, if one assumes a value of the protection variable as
high as the sample mean, the growth loss resulting from pro-
tection on average amounted to 1.9 per cent a year[19]. Thus,
considering that the observed protectionist policies have
lasted at least a decade, standards of living world-wide
could be higher up to one fifth - without protection.

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[19] Of course, similar calculations can be done for other
countries or groups of countries. For example, the loss
of growth due to protection in developing countries was
obviously higher and came to 2.3 per cent a year. The
respective value for developed countries is 1.3 per cent.
If one refers to Uruguay or Ghana as extreme cases of
protectionist practices, per capita GDP could have risen
faster by up to 3.1 per cent a year.

Table 5 - Regression Results[a]

Endogenous Variables[b]	Constant	Exogenous Variables[c]	$\overline{R}^2$	F
(1) g GDP =	1.71	-0.04 RGDP + 0.02 AD LIT + 0.18 INV SH $-$ 0.51 ERP	0.52	13.5[*]
	(1.23)	(-3.63^*) (1.64) (4.79^*) (-2.37^*)		
(2) g GDP =	1.39	-0.04 RGDP + 0.02 AD LIT + 0.18 INV SH $-$ 0.42 STD	0.50	12.5[*]
	(0.92)	(-3.71^*) (1.74^+) (4.46^*) (-1.90^+)		
(3) g GDP =	1.75	-0.04 RGDP + 0.02 AD LIT + 0.18 INV SH $-$ 0.25 ERP*STD	0.51	13.2[*]
	(1.18)	(-3.72^*) (1.68^+) (4.55^*) (-2.21^*)		

t-values in parantheses . - [*]Significant at 5 p.c. - [+]Significant at 10 p.c. - [a]International cross-section analysis (n=47). - [b,c]Same as in tables 1 and 2. - ERP, natural log of average effective rate of protection. - STD, natural log of standard deviation of average effective rate of protection. - ERP*STD, sum of ERP and STD.

Source: Tables 1, 2, 3 and 4. - Own calculations.

Table 6 - Standardized Regression Coefficients[a]

Equation	RGDP	AD LIT	INV SH	ERP	STD	ERP*STD
(1)	-0.58	.[b]	0.67	-0.29	.	.
(2)	-0.62	0.28	0.66	.	-0.27	.
(3)	-0.60	0.26	0.65	.	.	-0.30

[a]beta-coefficients - [b]not significant.

Source: Table 5.

IV. Conclusions

The main purpose of this paper was to empirically analyse whether international trade stimulates economic growth. Since existing empirical tests of this hypothesis in general are not really convincing, a different approach has been undertaken, based on export shares as well as on international data on effective protection. Starting with a simple growth model of technological adaptation, it could be shown that exposure to international competition had a positive influence on growth: Higher than "normal" export shares have a stimulating impact at least on capital accumulation, thus improving the conditions for economic growth. In addition, it could be shown that the level and the concentration of protection in favour of particular industries had a negative influence on economic development in about fifty countries in the sixties and seventies. This impact of protection was by no means of an inconsiderable order, because protection on average took away a large part of the benefits of the existing technological "catching-up" potentials. These results may be interpreted as a first attempt in this field. Further research, especially in regard of the structure of protection among industries, might improve the quality of the results. However, the estimates clearly support the case for trade liberalization. By the means of strengthening competition it would be possible to achieve more flexibility

in resource allocation and to prevent inefficient production
lines. The result would be higher growth rates and higher
standards of living, world-wide.

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