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WHY HAS TRADE GROWN FASTER THAN INCOME?

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ABSTRACT

Trade of the OECD countries has grown faster than income during the postwar period. This paper tests a number of different hypotheses for the observed growth in the trade/income ratio. For small open economies, increases in real output and international reserves, as well as declines in tariff rates are associated with growth in the ratio. There are important differences in the behavior of the trade ratio across time and country size.

Why Has Trade Grown Faster Than Income?

Andrew K. Rose[1]

I: Introduction

International trade has grown faster than income during the postwar period; the ratio of nominal exports plus imports to nominal GNP (hereafter, the "trade ratio") for an average OECD country grew by over 1% per annum from 1950 through 1985. This paper is a quantitative attempt to explain why the trade ratio grew so quickly after the second world war.

During the period in question, the typical OECD country experienced changes in a variety of other variables which might be expected to account for the growth in the trade ratio. In particular, the average OECD country experienced decreases in: tariff rates (4% decline per annum); the relative price of tradeable to non-tradeable goods (1% decline p/a); and transportation costs (.1% decline p/a). In addition, capital/labor ratios and per-capita levels of real income tended to converge across countries.

In this study, reduced-form regression techniques are used to disentangle the relative importance of these factors. While such non-structural analysis cannot *confirm* structural theories, it may allow one to *reject* explanations for the growth of the trade ratio. The empirical analysis uses a panel of data covering fourteen countries over thirty-five years.

The results indicate that the growth in the trade ratios of small open economies can be explained primarily by means of three factors: trends in output, international reserves and tariff rates. The analysis is unable to explain increases in the trade ratios for larger economies.

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Section II uses models of international trade to frame a number of hypotheses about the growth of trade. The next part of the paper describes the methodology and data used in the empirical analysis; actual results are described in section IV. The paper ends with a brief summary.

II: Potential Causes for Fast Growth in Trade

The fact that trade has grown faster than income during the postwar period, is well-known to international economists; see e.g., Krugman and Obstfeld (1988, pp 1-2). Helpman and Krugman (1985, p2) use this fact to motivate their analysis of models of international trade with increasing returns to scale.[2]

This section explores a number of reasons which can plausibly contribute to an empirical explanation of the observed growth of the trade ratio over the post-war era. Given the long span of the sample period in question, it seems hard to believe that the persistent growth in the trade ratio is a manifestation of some initial disequilibrium. Rather, a variety of exogenous factors which can potentially explain the trend growth in the relative importance of international trade, are considered.

The analysis focuses on seven factors: a) convergence of national capital/labor ratios; b) convergence in national levels of real income per capita; c) declines in the price of tradeable goods relative to non-tradeables; d) declines in tariff rates; e) declines in transportation costs; f) growth in international reserves; and g) the growth of real income.[3] In the text, each of these phenomena is discussed in turn. Intuitive explanations of the link between the exogenous factors and the trade ratio are provided; a longer version of this paper (available upon request) provides mathematical analysis.

The popular theory of international trade due to Heckscher and Ohlin argues that trade results from disparities in factor proportions. Countries which are relatively well endowed with labor tend to have relatively low wage rates; the relative price of goods which use labor intensively therefore tends to be relatively low. The

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[2] However, recent trends in trade ratios should not be viewed as immutable phenomena; Gagnon and Rose (1990).

[3] A comparable exercise for developing countries would be forced to include a number of additional considerations, including the role of export promotion or import substitution policies, as well as the role of foreign direct investment (in particular, whether FDI tends to be trade-creating [as might be the case if FDI were motivated by low wages in LDCs] or trade destroying [as might occur if FDI were motivated by barriers to trade]).

Heckscher-Ohlin theory predicts that such countries will find it advantageous to export labor-intensive goods to countries which are relatively well endowed with capital, in return for imports of capital-intensive goods. The underlying motivation for trade stems from factor proportions which differ across countries; thus, convergence in factor proportions removes the incentive. Hence growing similarity of countries in terms of factor proportions should lead to a reduction in the trade ratio.

A number of economists have argued that convergence in levels of real per capita income leads to increased international trade. For instance, Linder's (1961) "representative demand theory" posits that the volume of international trade (especially in manufacturing goods) rises, the more similar are "demand patterns". Assuming that income distribution and tastes are similar internationally, the trade ratio should be positively correlated with similarity in income per capita (Linder (1961, p. 94)). Helpman and Krugman (1985) argue that convergence in levels of income per capita lead to increased trade (see also Helpman (1988) and Hunter and Markusen (1988)). Their argument uses a model which incorporates both factor-proportions trade and intra-industry trade which results from increasing returns to scale.

Balassa (1964) argues that the relative price of tradeables falls secularly with the level of real income, because productivity grows faster in the production of tradeable goods. If the relative price of tradeables in terms of non-tradeables is exogenously determined by productivity differentials between the two sectors (as suggested by Balassa) it is a potentially appropriate determinant of the trade ratio, insofar as consumers substitute increasingly inexpensive tradeables for non-tradeables.

It is well known that both "natural" impediments to trade such as transport costs and "artificial" (i.e., created) impediments (such as tariffs) shrink trade; see Samuelson (1968). When a tariff is levied in a competitive market, the domestic price rises, discouraging consumption and encouraging domestic production. Imports fall, being merely the difference between consumption and production. Simultaneously, production of exports falls and consumption of exports rises; thus exports and hence total trade also fall.[4]

The potential determinants of the trade ratio discussed thus far can all be rigorously derived from theories of international trade. If these theories provide a good explanation for the data, then they should be able

[4] This analysis assumes that the income effect does not overwhelm the substitution effect.

to explain the growth in the trade ratio without auxiliary variables; in an econometric sense, the five variables should provide a good fit of the data with "correctly" signed coefficients. However, alternative hypotheses are also provided in this paper. In particular, the growth rates of both international reserves and real income are included in the regression analysis.

While neither income nor international reserves have been shown to affect the trade ratio in a theory of international trade, both have been suggested as potential explanatory factors. Hicks (1959) argues that over long periods of time, technological innovation can be biased towards trade creation; non-homothetic preferences also imply that real income plays a role in determining the trade ratio, as demonstrated by Markusen (1986). On the other hand, Arad and Hirsch (1981) show that standard factor-proportions assumptions (constant returns to scale and homothetic preferences) imply that trade ratios should not vary with country size for small open economies; see also Helpman and Krugman (1985). Haberler (1964) argues that increased global liquidity leads to a rise in the level of international integration.

III: Data and Methodology

Most of the data for the study is taken from International Financial Statistics of the IMF; the tariff data are mostly taken from data in Mitchell (1980), and has been updated using data from the IMF's Government Finance Statistics. The data have been checked extensively for transcription errors and outliers; all data and programs are available upon request.

The trade ratio is measured by the ratio of nominal merchandise exports plus nominal imports to nominal GDP (or GNP). Figure 1 is a plot of the trade ratio for the US and Canada (a representative small open economy). While the trade ratio is an indicator of the degree of importance of international trade to an economy, it is certainly not a perfect indicator of openness. The trade ratio does not

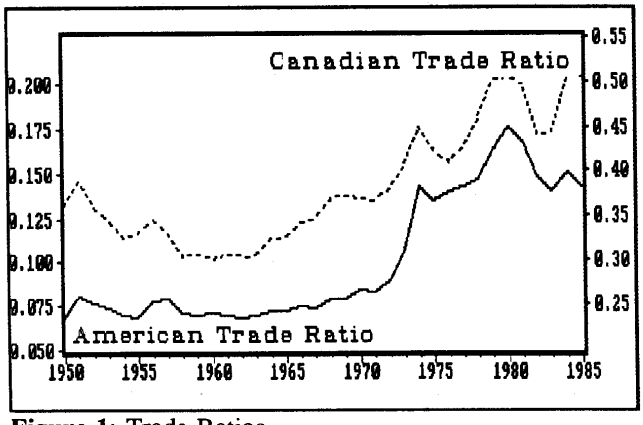

Figure 1: Trade Ratios

directly incorporate any evidence regarding the degree of financial openness of an economy; further, the trade ratio represents the average importance of international trade in the economy rather than the marginal sensitivity of the economy to international trade. Nevertheless, interest in the trade ratio has historical precedent (e.g., Kuznets (1959)), in part because it can be easily derived without a variety of auxiliary structural assumptions.[5]

The tariff rate is the ratio of tariff revenues to total imports; Figure 2 displays plots of American and Canadian tariff rates. Manifestly, this measure ignores other non-quantifiable sources of protectionism such as non-tariff barriers (NTBs), as well as the possible importance of prohibitive tariffs. Insofar as the tariff rate seems to be strongly negatively correlated with imports, the latter is not likely to be of great empirical importance. Country-specific influences which are stable over time (such as chronic delays in processing traded goods) will be accounted for through the use of a "fixed effects" estimator in the empirical work.

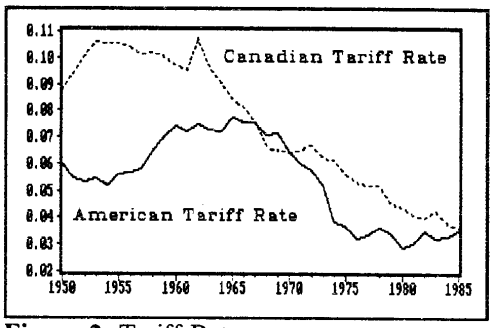

Figure 2: Tariff Rates

The relative price of tradeable to non-tradeable goods is represented as the ratio of the PPI to the CPI; the Canadian and American ratios are plotted in Figure 3. Insofar as the PPI measures the price of goods which are mostly tradeable while the CPI incorporates many non-tradeables (chiefly services) the PPI/CPI ratio should be positively correlated with the relative price of tradeables. While variables of this sort have been used before (e.g., Balassa (1964)), they must be regarded as approximations to the variable which is truly of interest, namely the unobservable relative price of tradeables in terms of non-tradeables.

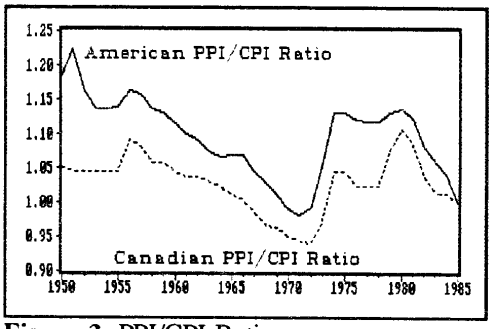

Figure 3: PPI/CPI Ratios

The ratio of cif to fob imports is used as a crude proxy for transportation costs, the ratio of the two variables representing the cost of insurance and freight. The ratios for the USA and Canada are graphed in

[5] Deflation of exports and imports by their respective unit-value indices, and GNP by the GNP deflator does not greatly affect most of the results below, although coefficients on the relative price of tradeables fall.

Figure 4. A decline in such shipping costs can be expected to lead to more international trade, all things remaining equal. Insofar as declining costs of internal trade are ignored, this variable may be a poor proxy for the relevant variable which is the relative cost of shipping goods internationally rather than domestically.

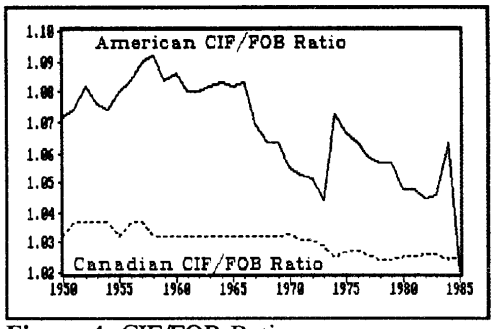

Figure 4: CIF/FOB Ratios

The terms of trade is included throughout the empirical analysis as a conditioning variable (the coefficient is expected to be positive, as an exogenous improvement in the terms of trade leads to an increase in the volume of international trade in standard models of international trade).[6] While the impact of the terms of trade is not of direct interest in this study, ignoring the terms of trade might result in mis-specification of the empirical equations if the terms of trade are correlated with any of the other variables of interest. The ratio of export to import unit value deflators is used to measure the terms of trade. Again, the American and Canadian series are plotted in the adjacent figure. While the use of unit-values has a number of disadvantages associated with it (for instance, difficulties associated with changes in the quality composition of traded goods), there does not appear to be an alternative series available for the study's sample.

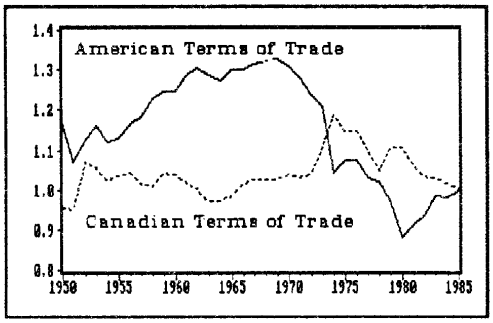

Figure 5: Terms of Trade

The remaining variables in the study are more straightforward. Real GDP is used as the measure of real income. The nominal domestic value of gold plus foreign exchange reserves, deflated by the GDP price deflator is used for the international reserve variable. The capital stock is constructed by cumulating current investment to the lagged capital stock, after the latter has been reduced by a 5% depreciation rate (using a 10% depreciation rate does not substantially change any results). The capital stock is initially set in 1950 to 250% of GNP (though results are not very sensitive to this figure). The capital-labor ratio is the ratio of the capital stock to

[6] While the terms of trade can be treated exogenously for small open economies, simultaneity bias potentially exists for larger economies; this is addressed in the empirical section below.

population. Dispersion of capital-labor ratios is then measured as the absolute value of the difference between domestic and sample average capital-labor ratios. Dispersion of income per capita is represented as the absolute value of the difference between real income per capita (in US$) and the unweighted sample average real income per capita.

Table I displays some descriptive statistics for the variables. The log of each variable was regressed on a constant and a deterministic time trend; the coefficient on the trend (multiplied by 100, to convert the coefficient to a percentage growth rate) is displayed in the table.

A number of facts should be noted from Table I. The trade ratio, output, and international reserves, have exhibited trend growth in virtually all countries. On the other hand, tariff rates and the PPI/CPI ratio have declined secularly; the CIF/FOB ratio has also demonstrated a slight tendency to fall. However, there has been no uniform tendency for either capital-labor ratios or per-capita income levels to converge (the same is true of the terms of trade, which is not tabulated). If there is a common set of factors which explain the growth in the trade ratio, it seems probable a priori to be among the following: real output; international reserves; tariff rates; and the relative price of tradeables (as proxied by the PPI/CPI ratio).

The equation used in empirical estimation below takes the form:

$$((X+M)/Y)_{i,t} = \beta_{KL}KL_{i,t} + \beta_{ID}ID_{i,t} + \beta_{TR}TR_{i,t} + \beta_{TC}TC_{i,t} + \beta_{RP}RP_{i,t}$$
$$+ \beta_{IR}IR_{i,t} + \beta_{RO}RO_{i,t} + \alpha_{TT}TT_{i,t} + \alpha t + \alpha_i + \Sigma\alpha_{t,t}D_{t,t} + \varepsilon_{i,t}$$

where: (X+M)/Y denotes the trade ratio; KL denotes dispersion in the capital/labor ratio; ID denotes dispersion in income per capita; TR denotes the tariff rate; TC denotes transportation costs; RP denotes the relative price of tradeables to non-tradeables; IR denotes real international reserves; RO denotes real output; TT denotes the terms of trade; $D_{t,}$ denotes a set of year dummies (e.g., the 1960 dummy is unity in 1960, and zero elsewhere) to represent a host of common temporary taste and technology shocks such as the oil price shocks and years of exchange rate instability; and ε denotes an iid disturbance, to represent irrelevant omitted factors, such as taste shocks.

Natural logarithms of raw variables are used throughout this study. Estimation is conducted in first-differences (of logarithms) to account for country-specific idiosyncratic intercept terms. Such "fixed effects" would be important in a variety of contexts, e.g., if size or location per se affects the trade ratio as in "gravity" models of international trade.

There is no clear reason to suspect significant simultaneity bias for the small open economies; hence (aside from issues of measurement error) estimation with ordinary least squares (OLS) is optimal. For larger economies, the terms of trade may be endogenously determined with the trade ratio. However, when various measures of the real effective exchange rate are used as instrumental variables for the terms of trade, the results are not different at statistically significant levels.

IV: Results

The empirical results are presented in Table II. Coefficients which are statistically significant from zero at the .05 level are marked with an asterisk; two asterisks denote significance at the .01 level. Standard errors are tabulated in parentheses.

The countries are divided into two groups: seven small open economies (Canada; Denmark; Finland; Netherlands; Norway; Sweden; and Switzerland) and five larger economies (Germany; Italy; Japan; UK; and USA). The restriction that the two groups have identical coefficients can be easily rejected with a standard Chow test (F(51,369)=2.11**).

The equations, appear to fit the data relatively well. The standard error of the residual is approximately half the standard deviation of the regressand for both the small open economies (σ=.037, sdev=.067) and the large economies (σ=.041, sdev=.088). The hypothesis that the economic factors are jointly insignificant can easily be rejected; the relevant F-tests (denoted "SLOPES") are included.

The behavior of many macroeconomics variables changed behavior dramatically around 1974. To allow for the possibility of such a shift, the coefficients are estimated for the entire period (the columns labelled "Full"), and are also allowed to change after 1973. The "Post '73" column represents a coefficient estimate for the variable in question multiplied by a dummy which is 0 before 1974, and unity thereafter, so that the

coefficients in the columns labelled "Post '73" represent the innovation to the "Full" sample coefficient estimate. In fact, there is a large and statistically significant difference between the behavior of the trade ratio before and after 1973. The hypothesis that coefficients are unchanged after 1973 can be rejected at all traditional levels of confidence; a F-test of the hypothesis that the "Post '73" coefficients are jointly insignificant is included in Table II, labelled "Post '73". F-tests of the hypothesis that the full-sample and post-73 coefficients are jointly insignificant for each of the economic factors (taken one by one) are also tabulated.

Year-specific dummies play an important role in the equations tabulated in Table II; the hypothesis that they are jointly irrelevant can be rejected at any reasonable significance level (the F statistics, labelled "Years", are also included in the table). Estimates without these variables are presented in the longer version of this paper.

Contrary to the prediction of Heckscher-Ohlin trade theory, increased dispersion in capital/labor ratios is associated with decreased, rather than increased trade; moreover, the associated coefficient is significantly different from zero at the .05 significance level. The hypothesis that increased dispersion in income per capita levels lead to decreased trade is also not corroborated. Indeed, increases in dispersion between per-capita levels of real income per capita are associated with increased trade, although the effects are insignificant at standard levels of statistical significance.

Increases in the decreased relative price of tradeables are associated with increases in the nominal trade ratio. This result could be a reflection of the fact that an exogenous productivity shock to the price of tradeable goods (e.g., imported energy) lowers the price of trade goods more than the volume of traded goods rises, if tradeable goods are inelastically demanded.[7]

Increases in tariff rates are strongly associated with declines in the trade ratio, consistent with the prediction of neoclassical theory. The elasticity is estimated to be -.08; as the average country in the sample experienced an average annual decline in its tariff rate of almost 7%, tariffs seem to have played an important role in the growth of the trade ratio.

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[7] Estimation with instrumental variables (using the ratio of the PPI to the GDP deflator) does not change results.

Transportation costs appear to have a large but imprecisely estimated negative effect upon the trade ratio before 1974. It is possible that the lack of statistical accuracy is a result of the measurement errors discussed in Section III, although this hypothesis awaits more careful examination.

Increased levels of international reserves are associated with increases in the trade ratio, although this effect is eradicated after 1973. The elasticity of the trade ratio with respect to international reserves is relatively small, although precisely estimated.[8]

Increases in real output are strongly associated with increases in the trade ratio; this effect is reduced after 1973. The estimated elasticity of .34 indicates that growth of real output at an annual rate of 4% would lead, ceteris paribus, to an increase in the trade ratio of almost 1.4%[9], larger than the mean annual growth rate of the trade ratio (approximately 1.1%). In this sense, the growth of real output is certainly an important determinant of the growth in the trade ratio. This panel data result stands in sharp contrast to comparable cross-section results (where the economic size of the country is traditionally considered to be *inversely* related to the trade ratio); indeed, the trade ratio is negatively correlated with real GNP in a cross-sectional sense in this data set.[10] The result also contradicts the proposition that the trade ratio should be independent of income for economies engaging in Heckscher-Ohlin trade.

Finally, terms of trade shocks have a positive and significant effect on the volume of international trade before 1974. After 1973 however, this effect is wholly nullified. It is possible that the negative terms of trade shocks associated with OPEC were nevertheless associated with increases in the value of trade because of an inelastic demand for energy.

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[8] Gene Grossman has pointed out that the trade ratio and reserves may be determined simultaneously. If the average propensity to import and lagged reserves are used as instrumental variables for reserves in (1), the estimates of β_{IR} are economically and statistically insignificant.

[9] If the data is analyzed in five-year averages to avoid cyclical effects, this effect is somewhat weakened, but not removed.

[10] In each of the thirty-six cross sections from 1950 through 1985, the trade ratio is significantly negatively correlated with real GNP.

The results for the larger economies are very different from those of the small open economies. There is remarkably little evidence that the economic factors analyzed have had statistically or economically significant effects on the trade ratios of the large economies.

The curious positive relationship between the relative price of tradeable goods (as measured by the PPI/CPI ratio) noted for the small open economies also characterizes the larger economies, although only after 1973. Another similarity between the small and large countries is the large, but imprecisely estimated effect of transportation costs before 1974.

Increases in real output, but only after 1973 appear to be associated with declines in international trade; growth of the large economies since 1974 appears to be trade-substituting growth (of the type posited by Hicks (1959)), even after a number of economic effects have been taken into account.

After 1973 the terms of trade appear to have exerted an exceptionally large and negative impact on the volume of international trade. The use of four distinct measures of real effective exchange rates as instrumental variables for the terms of trade does not remove this result; the finding of a negative relationship between the terms of trade and the trade ratio seems robust to a variety of statistical perturbations, including changing the sample of countries or time period, and the use of either export or import ratios as regressands. It is also worthwhile to note that the finding for the small open economies is quite similar. It is hard to imagine that omitted variables or measurement error can account for this large negative coefficient. Nevertheless, it is hard to rationalize this finding in existing theoretical models; this result is worthy of further research.

The results in Table II are robust to a variety of statistical perturbations. Use of squared deviations of capital/labor and income per capita ratios (instead of absolute values of deviations) also does not change results. Also, there is no indication that either significant country-specific "fixed effect" intercepts or a deterministic trend are present in the data after has been first-differenced. Adding a lag of each of the regressors does not change conclusions; the hypothesis that the lags are not significant cannot be rejected at conventional significance levels. If the equations are estimated in levels with country-specific intercepts, few results are

changed for the small open economies; results for larger economies are somewhat more sensitive.[11] However, equation standard errors deteriorate by approximately 50% for both panels. Finally, the estimates are insensitive with respect to the sample period; when data from the 1950s are excluded from the sample, Chow tests indicate that the results do not change at standard significance levels. Table III is the analogue to Table II when the sample is restricted to 1961 through 1985, so that data for two more countries can be included (Spain and France).

The empirical results do not lend clear support to any theoretical models of international trade. The fact that dispersion in per-capita levels of real income does not affect the trade ratio is damaging to both the Helpman-Krugman model of intra-industry trade and the Linder "representative demand" model; changes in capital/labor ratios also do not significantly affect the trade ratio, inconsistent with the factor proportions theory.

To summarize: of the five factors predicted by economic theory which could potentially account for the growth in the trade ratio, only the tariff rate has been shown to have an effect which is both reasonable and important. Even this weak result is true only of the small open economies. Standard models of international trade do not predict that either international reserves or real output should affect the trade ratio; however both are of demonstrable statistical relevance for small open economies. There are few economically sensible and statistically significant results for the larger economies. Thus, existing economic theory does not appear to provide a good explanation for the growth in the trade ratio.

V: Summary and Conclusion

It is widely known that international trade has grown relative to income since the second world war, at least for the Western countries. This paper has explored alternative explanations for the growth in the trade ratio.

There is no satisfying economic explanation which explains most of the growth in the trade ratio. Three economic factors significantly help to explain the growth in the trade ratios of small open economies: a)

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[11] In particular, the sign of the income and income dispersion coefficients are changed for the small open economies. For the larger economies, the coefficients on the relative price and real income terms are greatly increased, while a number of the post-73 coefficients change signs.

increases in real output; b) increases in international reserves; and c) declines in tariff rates. Only the last effect is predicted by standard economic theory. The analysis has not shed light on the behavior of the larger economies; none of the eight economic factors considered seem to explain the growth in the trade ratio. In addition, there appear to be important differences in the behavior of the trade ratio both across time (in particular, before and after 1973, but also for individual years) and across countries (in particular, small open economies seem very different from large economies).

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Table I: Descriptive Growth Rate Statistics, 1950-1985

Country	Trade Ratio	Real GDP	Int'l Resrv	KL Disp'n	Inc Disp'n	Tariff Rate	CIF/FOB Ratio	PPI/CPI Ratio
Canada	1.3	4.4	-1.3	-.0	-.4	-3.2	-.00	-.1
Denmark	1.4	3.5	4.7	.4	.3	-11.1	-.05	-1.5
Finland	1.2	4.2	3.4	-.9	-1.1	-8.0	-.07	-.4
Holland	.8	4.6	3.4	-2.7	-2.5	-6.3	-.01	.2
Norway	.7	4.1	6.9	1.7	.1	-8.3	-.08	-1.1
Spain	1.6	5.0	10.0	1.3	1.6	-.9	-.24	-1.5
Sweden	1.2	3.2	2.2	.0	-.1	-6.5	-.13	-.5
Switz	1.0	3.2	2.3	.0	-.8	-3.9	-.00	-1.5
France	2.3	4.5	9.0	-.0	-.1	-5.0	-.32	-1.1
Germany	2.3	4.5	6.5	-3.8	-3.5	-7.2	-.23	-.6
Italy	2.7	4.8	6.6	.6	.1	-15.0	-.18	-.3
Japan	.7	7.4	5.2	-6.2	-5.4	.0	-.04	-2.8
UK	.8	2.5	1.6	-.1	-.5	-3.3	-.15	-.5
USA	2.8	3.1	-4.0	-1.1	-.7	-2.2	-.11	-.3

Figures reported are 100β, derived from OLS estimation of $\log(x_t)=\alpha+\beta t+\varepsilon_t$

Table II: Pooled Results for Twelve Countries, 1951-1985

	-----Small Open Economies------			--------Large Economies--------		
	Full	Post '73	Joint F	Full	Post '73	Joint F
K/L Disp'n	-.28* (.12)	.10 (.18)	3.75*	.12 (.22)	.04 (.25)	.90
Inc p/c Disp'n	.16 (.10)	-.15 (.16)	1.39	.14 (.20)	-.31 (.24)	1.21
Rel Price of Trad's	.21* (.10)	-.08 (.13)	3.55*	.05 (.10)	1.05** (.26)	10.60**
Tariff Rate	-.08** (.03)	.04 (.03)	8.75**	-.01 (.03)	.01 (.03)	.09
Transport Costs	-.94 (.69)	1.00 (.94)	.92	-.63 (.40)	1.15 (.76)	1.56
Int'l Reserves	.05* (.02)	-.08** (.03)	3.98*	-.00 (.02)	.02 (.03)	.19
Real Output	.34** (.12)	-.16 (.28)	4.66*	.26 (.15)	-1.09** (.28)	7.98**
Terms of Trade	.27** (.07)	-.47** (.13)	9.01**	.05 (.12)	-.75** (.20)	9.97**
Observations	245			175		
σ	.037			.041		
Slopes	F(16,194)=6.33**			F(16,124)=6.50**		
Years	F(34,194)=6.25**			F(34,124)=5.73**		
Post '73	F(8,194) =4.50**			F(8,124) =7.67**		

Estimation via OLS. Standard errors in parentheses.
* (**) denotes significance at .05 (.01). Constant and Year Controls not reported.

Table III: Pooled Results for Fourteen Countries, 1961-1985

	Small Open Economies		Large Economies	
	Full Sample	Post '73	Full Sample	Post '73
Real Output	.60**	-.50	.03	-.93**
	(.20)	(.30)	(.17)	(.24)
K/L Disp'n	-.04	-.07	-.07	.20
	(.16)	(.20)	(.19)	(.21)
Int'l Reserves	.09**	-.11**	.02	.02
	(.02)	(.03)	(.02)	(.02)
Inc p/c Disp'n	.03	.07	.16	-.28
	(.15)	(.19)	(.21)	(.23)
Tariff Rate	-.06	.02	-.07	.07
	(.04)	(.04)	(.05)	(.05)
Transport Costs	.62	-.37	-.01	.63
	(2.11)	(2.20)	(.36)	(.52)
Rel Price of Trad's	.30*	-.14	.70	-.03
	(.14)	(.16)	(.21)	(.25)
Terms of Trade	.19	-.53**	-.52**	-.29
	(.13)	(.15)	(.14)	(.18)
σ	.036		.032	
Obs	200		150	
Years	F(24,159)=5.64**		F(24,109)=4.50**	
Post '73	F(8,159)=3.74**		F(8,109)=2.78**	

Constant and Year Controls not reported

All notation and estimation is identical to Table II

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