

Trade and growth – once again.

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Abstract

There has been a broad debate on relations between trade policy and growth among economists in recent years. A stylized fact is that liberal trade policies *may* stimulate growth. However, there is no academic consensus that liberal trade policies are neither necessary nor sufficient ingredients in growth promoting policies. This paper adds to the literature in two respects. First, my measure of trade policy is not only average tariff rates which has been used by others, but applied average tariff rates in agriculture and in manufactures. The results indicate opposite results of the two: Protection of manufacturing correlates negatively with growth, while agriculture protection seems to have a weaker though positive correlation. Second measures of governance are interacted with trade and trade policy. The results indicate (weakly) that control of corruption have importance for the effects of trade policy.

1. Introduction

Do liberal trade policies foster growth and development, or should, or could, protectionism and tariffs constitute ingredients in growth promoting policies? Questions like these have been debated intensively in recent years. This is so in economics and among the general public. The fact that economists disagree on these issues, despite century long theorizing and hundreds of advanced empirical studies available, suggests important challenges for the research discipline.

Text book economics suggests that countries should engage in trade. The theories of comparative advantages and the ‘new trade theory’ almost unanimously conclude that international trade promotes mutual benefits for the trading partners. But apart from simple text book economics, economics of trade, growth or development do not conclude clearly on these issues. A very short review of some issues is given in section 2 below.

Neither is the data clear. The recent surge of empirical literature on relationships between trade and growth reflects challenges for empirical research. Even after renewed energy has been devoted to these issues, we still lack clear cut conclusions. In their authoritative review of the literature, Durlauf *et al.* (2005) cite 18 studies (and refers to 20 anonymous others) on the relationships between trade, trade policy and growth. According to Durlauf *et al.* ten studies report a positive and significant result, three a positive, non-significant result, six studies report unclear effects while six report negative (for which two were significantly so) correlations between various trade related variables and economic development.¹

¹ Several studies report more than one result so there is no contradiction that more results than studies are reported.

So, on the balance, one might believe that the literature weakly suggests a positive relationship. Rodriguez and Rodrik (2001), however, reject this conclusion. They claim that several results wrongly conclude about a positive relationship. After scrutinizing a sample of important papers, they conclude that

“Our bottom line is that the nature of the relationship between trade policy and economic growth remains very much an open question. The issue is far from having been settled on empirical grounds. We are in fact skeptical that there is a general, unambiguous relationship between trade openness and growth waiting to be discovered. We suspect that the relationship is a contingent one, dependent on a host of country and external characteristics”.

Section 3 below does not aim at repeating the reviews (by Rodriguez and Rodrik and others) available. It does, however, discuss some of the commonly used measures of trade policy. The existing literature has used advanced econometric methodology to reveal openness. Simple data available has not been used to the same degree. Tariff data have been used in some studies only. In this study, use is made of tariff data broken down at agriculture and manufacturing.

Section 4 discusses these data in some detail together with the other data used in this paper. The main empirical methodology is the standard one: In addition to standard and robust explanatory variables in cross-sectional growth studies, some new measures of trade policy are included. Thus, the main data are the usual ones used in this literature.

Section 5 presents the findings. These suggest that when tariff data for manufacturing and agriculture are used separately, there is a negative, significant and robust relationship between tariffs in manufacturing and growth, while this is not the case for agriculture protectionism. Some evidence on interaction with variables reflecting governance and institutions (as suggested by Rodriguez and Rodrik) are also reported.

Section 6 concludes.

2. A short review of the literature

2.1 Trade, trade policy and growth theory

An extremely rough review of economic theory and development is the following:

Static models of comparative advantages give reason for engaging in international trade. Ricardian trade models suggest that international trade will increase welfare and factor rewards. Resource based trade theory explains how trade may give rise to distributional conflicts, although still beneficial for all countries in the sense that gains for winners in each countries potentially can more than compensate losers in the same countries. But, resource based trade theory predicts that trade creates conflicts. Such conflicts may potentially be very costly. Theories about international trade is summarized in many textbooks. See e.g. Krugman and Obstfeld (2009) or Feenstra (2004)

Static models based on increasing returns, i.e. so-called 'new trade theories' similarly most often predict mutual gains from trade. But, in some models, specialization according to market size effects may disproportionately benefit large countries. The reason is that increasing returns combined with trade costs stimulate localization of production where markets are large. De-industrialization in small countries may occur, but in terms of welfare, theory most often predicts gains from trade also for de-industrialized countries. When there is migration of factors of production, de-industrialization is more likely since market size becomes endogenous. These types of theories are summarized by Feenstra (2004), Dixit and Norman (1980) and Fujita *et al.* (1999). In many ways, these new trade theories give support to and formalization of older theoretical approaches proposed by among others Kaldor (1972), Myrdal (1957) and Posner (1961).

Standard neo-classical growth models do not suggest dynamic growth effects from international trade (see e.g. Aghion and Howitt, 1998, ch. 11). Capital accumulation leads to higher capital intensity which translates into lower returns from capital. Therefore, there will be income level convergence in the neo-classical growth story. In case of resource based international trade, factor price equalization may speed up convergence of income levels. International trade may also increase convergence in another sense. When there is international trade, capital accumulation allows specialization in more capital intensive industries and thus high growth as a results of accumulation. Ventura (1997) explain how such mechanisms can be important for growth miracles observed for instance in East Asia.

When countries have specialized according to e.g. comparative advantages and take part in international trade, they will benefit differently from economic growth – domestically and in other countries. Some countries may experience negative *terms of trade* effects from growth if they are specialized in industries with low income elasticities. This is the case of 'immiserizing growth' described by Bhagwati (1958). Closely related is the idea that developing countries may lose from trade if they are specialized in for instance agricultural production with low income elasticities (Prebisch, 1959).

Matsuyama (1992) stresses another link between openness and development. In the case of endogenous growth in manufacturing industries, openness versus closeness may be decisive for the consequences of productivity growth in the agricultural sector. In the case of a closed economy, there may be positive links between productivity growth in agriculture and economic growth. The reasons are that productivity growth in agriculture 1) makes it possible to feed a growing manufacturing workers population, 2) releases labour for manufacturing employment and 3) increases supply of domestic savings to finance investments. For the case of an open economy, the links between agriculture productivity and growth may be the opposite: High productivity in agriculture lead to specialisation in agriculture and de-industrialisation. The reason is that countries without comparative advantages in agriculture may get a head start in manufacturing. With learning-by-doing endogenous growth mechanisms, this may make it impossible to compete in manufacturing.

Rattsø and Torvik (2003) argue that the positive negative links between agriculture productivity growth and growth may not necessarily be robust in a development economics perspective. In the case of balance of payment constraints where agriculture production is exported, such export earnings may be necessary to finance imports of capital goods for a growing manufacturing sector. In this case, high growth in agriculture may be a necessary condition for subsequent growth in the manufacturing sectors. According to this view, supportive policies for the agricultural sectors may make a lot of sense, for countries that are credit rationed and have a large share of their export earnings from exports of agricultural goods.

Based on a version of a similar modelling framework, Rodriguez and Rodrik (2001), argue for the opposite policy receipt: Manufacturing should be supported at the cost of agriculture production. Because of learning by doing in manufacturing, the optimal tariff in for manufacturing sectors may be positive. The reason is that such a tariff will increase manufacturing employment and therefore learning by doing at the cost of agriculture employment where there is no such growth engine.

The modelling framework of the above two-sector models may be easily illustrated. Let X^M denote manufacturing production and X^A agriculture production. Production functions are given by:

- 1) $X_t^M = M_t F(n_t)$
- 2) $X_t^A = AG(1 - n_t)$
- 3) $\dot{M}_t = \delta X_t^M$

Above, M denotes productivity in manufacturing and A denotes productivity in agriculture; F and G are production functions with standard neoclassical properties and n_t denotes the share of the workforce that is employed in manufacturing. δ is a positive parameter. Thus, production in the two sectors depends on the division of the working force between them.

Agriculture productivity is static (or has exogenous change) while there is endogenous growth in manufacturing in the learning-by-doing-sense so that productivity growth depends on production. This last property is described in equation 3.

Employment dynamics in the two sectors is be determined by the equilibrium condition for the labour market

$$4) \quad AG'(1 - n_t) = p_t M_t F'(n_t)$$

Above, p_t is the price of manufacturing goods in terms of agricultural goods.

Preferences are assumed non-homothetic and with an income elasticity for food less than one. For the closed economy case, Matsuyama shows that these assumptions result in a steady state with a constant share of employment in each of the two sectors. In this steady state there is a constant growth rate for the manufacturing sector. Further, a productivity increase in agriculture release employment to manufacturing and thus results in permanent higher growth rates for this sector and for the economy. In the closed economy case, therefore, there is a positive link between agricultural productivity and economic growth.

In the open economy case however, the link between productivity in agriculture and manufacturing may be negative. In the open economy case, prices on the two goods produced in the economy are given from abroad. Thus the division of labour between agriculture and manufacturing, and therefore the growth rate in the economy (via 3) will be the result of foreign relative prices. A positive productivity shock in agriculture draws employment from manufacturing to agriculture. This increases static welfare, but reduces growth over time. Thus there is a negative link between productivity in agriculture and growth.

Rodriguez and Rodrik (2001) discuss the implications of imposing a tariff on manufactured goods. Such a tariff increases the domestic relative price of manufactured goods and therefore manufacturing employment. For small tariffs, the effect on economic growth will be positive. For larger tariffs, distortionary effects dominate so that positive growth effects tapers off. This is also a dynamic effect since it depends on the size of the manufacturing sector.

Rattsø and Torvik (2003) shows that the negative link between agriculture productivity and growth for an open economy may not necessarily be present. In the cases where agriculture exports finance imports of intermediate goods to be used in the manufacturing sector, manufacturing production may depend on productivity in agriculture. Rattsø and Torvik extend the production function for manufacturing goods with a new factor (intermediates, I) in a Cobb-Douglas fashion. Intermediates have to be imported from other countries and such imports are financed with exports of agriculture goods.

The above discussion indicates that trade policy may play important roles for countries' growth strategies. It is also demonstrated that supportive policies may be appropriate both for manufacturing sectors and for agriculture. Thus, our discussion gives support for investigating the potential different impacts of protecting manufacturing versus agriculture.

Endogenous growth models demonstrate how trade may boost economic growth for the global economy. The existence of international technology spillovers and larger markets often tend to reinforce positive growth effects of economic integrations (Helpman and Grossman, 1991 and Rivera-Batiz and Romer, 1991). But endogenous growth models (as the above and as demonstrated by Lucas (1988) and Young (1991)) can explain the existence of low growth traps because of unfortunate specialisation.

The above discussion shows how economic theories on trade and growth give scope for trade policy. Under certain circumstances, trade policy may stimulate economic growth. Messages from endogenous growth theories point in the direction of protection manufacturing and industries with long term growth potentials. But this is not an unconditional policy receipt. Thus, how to design trade policy to stimulate growth need not be obvious.

In addition, of course, comes all the political considerations on how to stimulate growth by means of trade policy rather than stimulating the needs of pressure groups and lobbyists. These are considerations beyond the scope of this short paper.

2.2 Empirical strategies.

Durlauf *et al.* (2005) cite 18 studies (and refers to 20 anonymous others) on the relationships between trade, trade policy and growth. According to Durlauf and his co-authors ten studies report a positive and significant result, three a positive, non-significant result, six studies report unclear effects while six report negative (for which two were significantly so) correlations between various trade related variables and development. Even if the majority of studies support a positive relationship, the varying results indicate that the relationships are not obvious and they indicate a lack of academic consensus. The reason for this is given in figures 1 through 3 below.

Those figures show simple scatterplots of (log of) income per capita in 1995 and (log of) trade as share of GDP in 1995, growth in income per capita (in the period from 1995 to 2005 and (log of) trade as share of GDP (in 1995) and levels and growth in income per capita versus average applied tariff rates (averaged over the period from 2000 to 2004). The data are described in section 3 below.

Figure 1 Income and trade

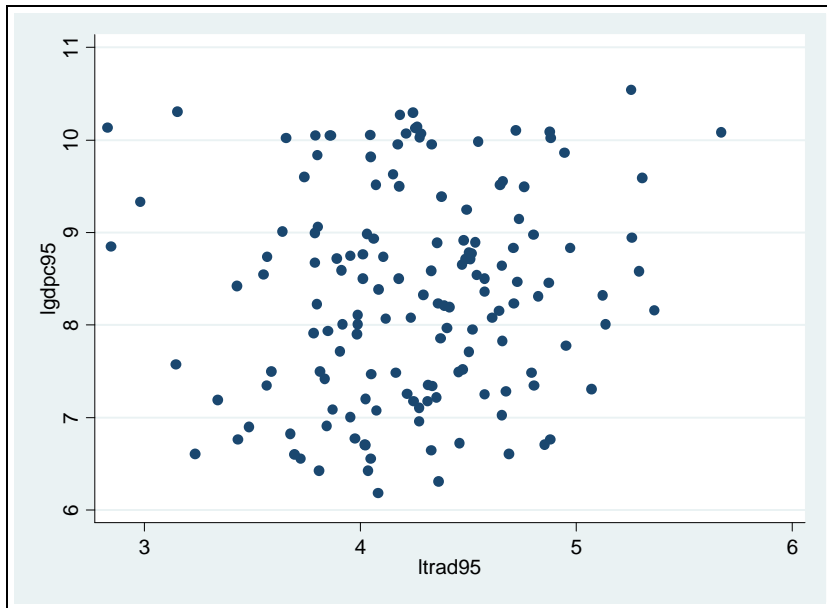


Figure 2 Growth and trade

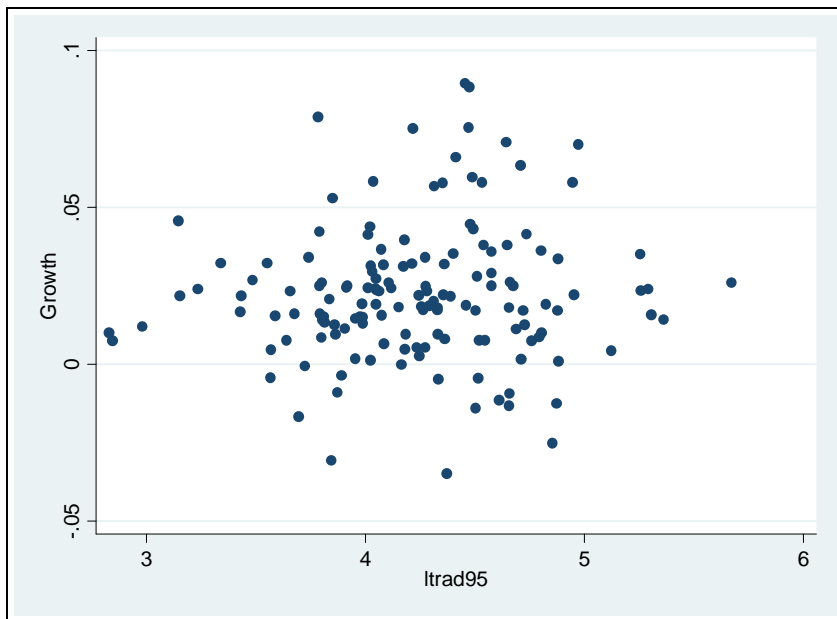


Figure 3 Income and tariffs

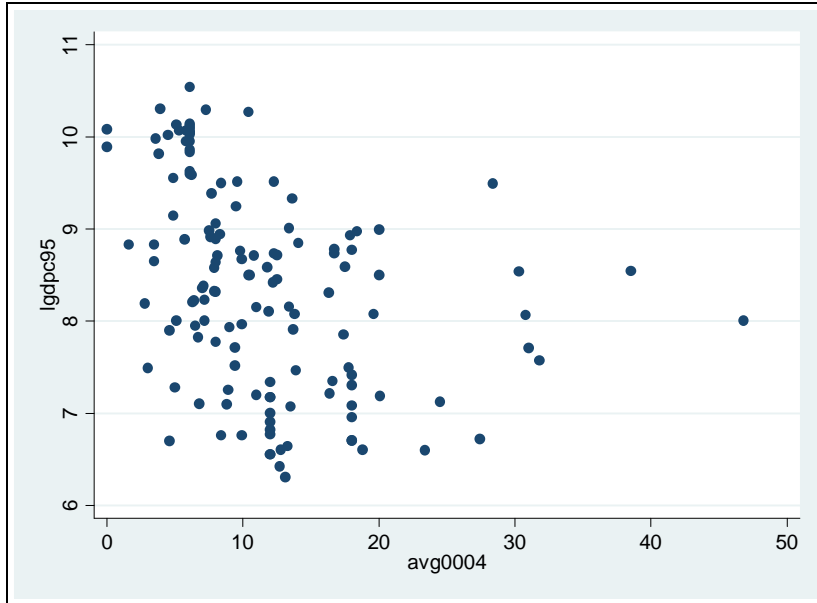
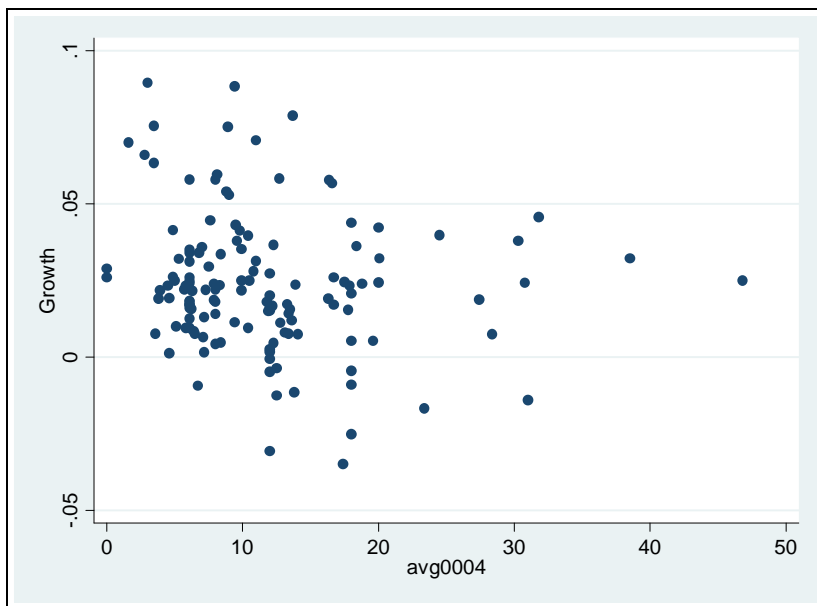


Figure 4 Growth and tariffs



The relationships do not support any clear cut conclusion. In particular there is no relationships between openness (measured as trade as share of GDP) and performance (income per capita and growth) while there seems to be weak negative correlations between performance and average tariff rates. The negative relationships are more pronounced between income per capita and tariff rates than between growth and tariff rates. Thus, from the correlations above, we do not find evidence that open countries

neither are richer nor grow faster than closed economies. Nor is there any clear evidence that countries with liberal trade policies do differently from countries that protect their industries. There is a weak negative relationship both between growth and tariffs and between income per capita and tariffs, but these are so weak that they cannot support clear conclusions.

The lack of clear evidence has spurred a large literature. Some examples of this literature are mentioned below. These examples are chosen since they are often cited and since they employ different research strategies. A major research challenge has been how to measure openness. The examples listed below show different choices.

Edwards (1993 and 1998) gives a broad discussion of conceptual problems with measuring trade policies and openness. Openness as such, for instance measures such as trade as share of GDP, is one strategy. Above it is showed that this strategy does not reveal a clear relationship. This does not mean that trade does not influence development. First, and common for all relationships, other variables influence on growth. A regression based methodology where more variables are included, is needed. Second, trade is also influenced by many variables. One is trade policy. Others are economic size, population and localisation. From the gravity equation it is well known that trade depends on total income and bilateral distance between trading partners. Inclusion of trade as share of GDP (as in Edwards, Levine and Renelt (1992) and many others) cannot therefore, be expected to measure the impact of trade policy on growth.

Dollar (1992) constructs two indicators of openness. These are real exchange rate distortion and this indicators variability. Real exchange rate distortion is meant to reflect deviations from the law of one price and therefore deviations from free trade. Rodriguez and Rodrik argue that both measures hardly reflect trade policies and that many other variables, including bad macroeconomic policy, will be captured by both variables.

Edwards (1998) regress growth in total factor productivity, TFP, on nine different measures of openness. He finds that several of these, among them trade as share of GDP, openness indicators (see below), black market premiums and tariff rates all correlate negatively with growth. Rodriguez and Rodrik find that most of these findings however, are due to econometric misspecifications and inappropriate weighting (based on total GDP).

The fact that many variables reflect openness motivated Sachs and Warner (1995) to try to construct a composite indicator of openness. Their indicator is a dichotomous variable that depends on six individual measures. A country was characterised as closed if any of five different criteria was fulfilled. These five are high tariff rates (above 40 %), high coverage of non-tariff barriers, a socialist economic system, state-monopoly for major exports and a high black market premium for foreign currencies. Sachs and Warner found positive and significant effects of their openness indicator. Their result however, was harshly criticised by Rodriguez and Rodrik. They claim that the result is due to two of the indicators least related to trade policy (black market premium and state monopoly). Wacziarg and Welch (2008) update and adjust the openness indicator developed by Sachs

and Warner. They find that liberalisation, i.e. shift from closed to open, stimulates growth. They are not, however, able to find clear and significant effects in cross-section regressions.

Trade is endogenous in the sense that trade both may influence growth but also be influenced by other factors that also influence growth directly. Because of this, it may be that countries that experience high growth rates for some reasons are also observed to expand their trade. Therefore, researchers may be led to conclude that trade causes growth. This may be a wrong conclusion or it may lead researchers to conclude too strong effects from trade. Some authors, such as e.g. Frankel and Romer (1999), have tried to construct measures of openness that take such endogeneity into account. The approach is to estimate expected trade. Based on this methodology, where predicted trade is estimated based on other variables that do not influence on growth, as e.g. geographical variables, Frankel and Romer find a large and robust positive effect of trade on income.

In a similar vein, Romalis (2007) hypothesise that trade is influenced by market access in other countries. Romalis estimates the extent to which increased openness induced by greater market access caused faster growth in developing countries in the time-series and cross-section dimension. He finds that market access seems to accelerate growth. Romalis' approach is that market access can possibly be a solution to the endogeneity problem. However, it may be that market access is one type of openness with its own effect on trade and growth apart from countries' own trading policies. This is not discussed by Romalis.

As is demonstrated above, very few of the studies in question use tariff rates as such as their indicator for openness. Reasons for this are many.

First, tariff data have not been readily available. Now, however, the WTO (and other sources) gives access to different tariff data at different levels of aggregation for many countries.

Second, countries in the world have made use of a wide set of trade policy tools, of which tariffs are only one type. There are many trade policy tools, like non tariff barriers, export subsidies and a large set of 'red tape' barriers. Thus, it is not sure that tariff barriers necessarily accurately reflect a country's trade policy.

Third, many countries discriminate between their trading partners. In recent years, many new regional trade agreements (RTAs) have been signed so that most favoured nations (MFN) average tariff rates actually may be atypical and applied to 'least favoured nations' trading partners.

Fourth, it is not always clear what tariff rates to use. Should one use applied tariff rates, bound tariff rates, MFN tariff rates, un-weighted average tariff rates, weighted tariff rates etc.

Fifth, the scatterplots of the relationships between tariffs and economic performance above are indicative for many studies in this field: There is no clear correlation between tariff and growth. Our theoretical discussion above also warns about a priori expectations about such correlations.

The fact that tariffs have been used so seldom in the literature can therefore easily be understood and defended. In this paper, however, we will use tariff rates as our main indicator for countries trade policy.

3. The data

The data used in this paper are standard data used in the literature. Economic variables for our cross section of countries are taken from the World Development Indicators. The period chosen is for 1995 to 2005. The reason for this is twofold: First, 1995 is a natural starting year for the recent period of globalisation. The results of the Uruguay round was being introduced from 1995 onwards with establishment of the WTO. In 1995 the transition shock for the post-communist countries was over (though many transition problems remain). Second, many more observations are available from 1995 onwards as compared to inclusion of earlier year. Restricting the period to the period from 1995 onwards therefore results in a larger cross-section dataset.

The data included in the below growth regressions are the most common ones included in cross country growth regressions. They are those that were concluded to be robust by Levine and Renelt (1992). They are standard variables when one wants to test for inclusion of other variables (like tariff data in this respect).

Average applied tariff data, for all goods and for manufacturing and agriculture separately (and much more) are available from the WTO for the most recent year. The data used in this paper, however, are taken from the World Trade Indicators. These are documented in the *user guide* for the project and both the paper and the data are downloadable from the World Banks webpage.

The data for governance indicators are from the World Governance Indicator project (also available from the World Banks webpage). These indicators are presented and discussed by Kaufmann *et al.* (1999a and b and 2004).

4. Results

Tables 1 reports results for cross country growth regressions. The first column in table 1 is for well known established explanatory variables. These are (log of) initial income (lgdpc95), investment shares of GDP in terms of gross fixed capital formation averaged over the period (agfc), average secondary school enrolment in the beginning of the period (avgsec) and population growth (pgrowth). It is seen that the regression results are 'respectable' in the sense that explanatory power is acceptable and that the variables enter with expected signs and significance.

Table 1

<i>Growth</i>	<i>Regression</i> <i>1</i>	<i>Regression</i> <i>2</i>	<i>Regression</i> <i>3</i>	<i>Regression</i> <i>4</i>	<i>Regression</i> <i>5</i>
Lgdpc95	-0.010***	-0.010***	-0.011***	-0.012***	-0.010***
Pgrowth	-0.399***	-0.400***	-0.378***	-0.375***	-0.336***
Agfc	0.0007*	0.0007*	0.0007*	0.0008*	0.0005*
Avgsec	0.0003**	0.0002**	0.0002**	0.0003**	0.0003*
Avg tariff		-0.0004			
Avg agri tariff			0.0001	0.0001	
Avg man tariff			-0.0006**	-0.0006*	
Ltrade95				0.0001	0.0005
N	127	127	127	124	137
R ²	0.33	0.34	0.35	0.38	0.34

***, ** and * denote significant at the 1, 5 and 10 per cent levels, respectively. All significance results are reported for hetercedasticity robust standard errors.

In the second column, the effects of including average applied tariff rates are reported. It is seen that the other variables keep their sign and significance and that tariff rates enter with negative sign although insignificant. The p-value is 0.16. The third column presents the main finding in this paper. The regression shows that including tariff rates on manufacturing and agriculture separately, changes the results. In this case, the sign of tariff rates in agriculture is positive, but insignificant. The p-value is 0.17. The coefficient for manufacturing tariff rates, however, are negative and clearly significant (p-value of 0.039). The two last columns show the effect of including trade shares, either additionally to tariff rates or without inclusion of tariffs. The results do not lend support to inclusion of this simple indicator of openness (p-value higher than 0.9). Note that inclusion of trade shares do not change the result for the two separate average tariff rates included.

Table 2 report results that check robustness of the above results. The first two columns report results from inclusion of two separate measures of governance (control of corruption and governance quality) in addition to the results included in column 3 in table 1. The second two columns show results from interacting these governance indicators with our measures of trade policy. The reason for inclusion of governance indicators is that trade policies may very well correlate with other types of policies.² Therefore, it may be that the effect of trade policies reflects effects of quality of governance in general rather than trade policies.

² Inclusion of both corruption and governance, however, resulted in a series of non-significant variables.

Table 2

<i>Growth</i>	<i>Regression 1</i>	<i>Regression 2</i>	<i>Regression 3</i>	<i>Regression 4</i>	<i>Regression 5</i>
Lgdpc95	-0.010***	-0.009***	-0.011***	-0.010***	-0.007*
Pgrowth	-0.372***	-0.557***	-0.369***	-0.570***	-0.373***
Agfc	0.0008*	0.0010**	0.0007*	0.0009**	0.0008*
Avgsec	0.000**	0.0001	0.0002**	0.0001	0.0002*
Avg agri tariff	0.0001	0.0000	0.0002*	0.0001	0.0025*
Avg man tariff	-0.0006**	-0.0003	-0.0008**	-0.0005	-0.0001
Governance	-0.0008		0.0015		
Control of corr		0.0012		0.005*	
Agrita*gov			-0.0002		
Manuta*gov			-0.0000		
Agrita*corr				-0.0002	
Manuta*corr				-0.0001	
Agrita*lgdpc					-0.000
Manuta*lgdpc					-0.0002*
N	127	116	127	116	127
R ²	0.35	0.37	0.35	0.38	0.36

***, ** and * denote significant at the 1, 5 and 10 per cent levels, respectively. All significance results are reported for hetercedasticity robust standard errors.

Partly, this seems to be the case. When control of corruption is included in the regression, trade policy variables are not significant. But neither is control of corruption significant. Thus, control of corruption seems to correlate with trade policies so that their individual effects are indiscernible. The sign of the estimated coefficients remain however. They remain and stay significant when quality of governance rather than control of corruption is included. When interaction terms with governance (regression 3) are included, significance is higher than when these are let out. The opposite is the case when trade policy is interacted with control of corruption (regression 4). Still, the sign of the estimated coefficients remain.

Conclusions

The findings reported in this paper are based on direct use of tariff data as indicator of trade policy. In the recent surge of empirical studies of relationships between growth and trade policy, such data are seldom used. Instead many studies use a wide set of different measure of openness. This paper adds to the literature by using average applied tariff rates in agriculture and manufacturing separately. The findings give support for the view that liberal trade policies for manufacturing stimulate growth. This finding turns out to be robust to different specifications. For agriculture goods, however, the findings point

weakly in the opposite direction: Protection of agriculture correlates positively with growth.

Literature

Aghion, P. and P. Howitt (1998) *Endogenous Growth Theory* MIT Press, Cambridge, Massachusetts.

Bhagwati, J. (1958) "Immiserizing Growth: A Geometrical Note" *Review of Economic Studies*, 25, 201-205.

Dixit, A. K. and V. Norman (1980) *Theory of International Trade* Cambridge University Press, Cambridge.

Dollar, D. (1992) "Outward-oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976-1985" *Economic Development and Cultural Change* 39, 523-544.

Durlauf, S. N., P. A. Johnson and J. R. W. Temple (2005) "Growth Econometrics" in Aghion, P. and S. N. Durlauf (eds.) *Handbook of Economic Growth Vol. Ia, Ch. 8*, 555-677. Elsevier, North Holland, Amsterdam.

Edwards, S. (1998) "Openness, Productivity and Growth" *The Economic Journal* 108, 383-398.

Grossman, G, and E. Helpman (1991) *Innovation and Growth in the Global Economy* MIT Press, Cambridge, Massachusetts.

Feenstra, R. C. (2004) *Advanced International Trade – Theory and Evidence* Princeton University Press, Princeton and Oxford.

Frankel, J., A. and D. Romer (1999) "Does Trade Cause Growth?" *American Economic Review* 89 (3) 379-399.

Fujita, M., P. R. Krugman and A. Venables (1999) *The Spatial Economy* MIT Press, Cambridge, Massachusetts.

Kaldor, N. (1972) "The case for regional policies" In N. Kaldor (ed) *Further Essays on Economic Theory* Holmes and Meier Publishers, New York.

Kaufmann, D., A. Kraay and P. Zoido-Lobaton (1999a) *Aggregating Governance Indicators*, Policy Research Working Paper 2195, World Bank (available at <http://info.worldbank.org/governance/wgi2007/resources.htm>)

Kaufmann, D., A. Kraay and P. Zoido-Labaton (1999b) *Governance Matters* Policy Research Working Paper 2196, World Bank (available at <http://info.worldbank.org/governance/wgi2007/resources.htm>)

Kaufmann, D., A. Kraay and M. Mastruzzi (2004) "Governance Matters III: Governance Indicators for 1996, 1998, 2000 and 2002" *The World Bank Economic Review* 18, 2, 253-287.

Krugman, P. and M. Obstfeld (2009) *International Economics – Theory and Policy* 8th ed, Pearson Addison Wesley, Boston.

Lucas, R. E. (1988) "On the mechanics of economic development" *Journal of Monetary Economics* , 22, 3-43.

Levine, R., and D. Renelt (1992) "A sensitivity analysis of cross-country growth regressions" *American Economic Review* 82 (4) 942-963.

Matusyama, K. (1992) "Agricultural Productivity, Comparative Advantage and Economic Growth", *Journal of Economic Theory* 58, 317-334.

Myrdal, G. (1957) *Economic Theory and Underdeveloped Regions* Duckworth, London.

Posner, M. V. (1961) "International trade and technical change" *Oxford Economic Papers* 13, 323-341.

Prebisch, R. (1959) "Commercial Policy in the Underdeveloped Countries," *American Economic Review* 49 251–273.

Rattsø, J. and R. Torvik (2003) "Interactions between Agriculture and Industry: Theoretical Analysis of the Consequences of Discriminating Agriculture in Sub-Saharan Africa" *Review of Development Economics* 7, 1, 138-151.

Rivera-Batiz, L. and P. Romer (1991) "Economic Integration and Endogenous Growth" *Quarterly Journal of Economics* 106, 531-555.

Rodriguez, F. and D. Rodrik (2001) "Trade policy and economic growth: A skeptics guide to the cross-national evidence" in Bernanke, B. and K. Rogoff (eds) *Macroeconomics Annual 2000* MIT Press, Cambridge.

Romalis, J. (2007) *Market Access, Openness and Growth* NBER Working Paper, 13048.

Sachs, J. D. and A. Warner (1995) "Economic Reform and the Process of Global Integration" *Brookings Papers on Economic Activity* 1,1-118.

Young (1991) "Learning by doing and the dynamic effects of international trade" *Quarterly Journal of Economics* 106, 369-406.

Ventura, J. (1997) "Growth and Interdependence" *Quarterly Journal of Economics*, 112 (1) 57-84.

Wacziarg, R. and K. H. Welch (2008) "Trade Liberalisation and Growth: New Evidence" *The World Bank Economic Review* 22, 2, 187-231.