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Contract Enforcement

And Its Impact on Bilateral Trade

Master Thesis within Economics

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Jönköping June 2008

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Date: June 2008

Keywords: Gravity model, international trade, contract enforcement, contract-intensive money, Polity IV

Abstract

Today it is well known that institutions have a significant impact on growth and development. Less research has been investigating how institutions and institutional quality affect trade. This thesis will specifically examine the effect contract enforcement has on bilateral trade. Secure property rights and contract enforcement are important for a country's productivity and growth.

The empirical analysis is based on the gravity model of trade to examine what explains the trade flows and more importantly what impact contract enforcement has on the bilateral trade. Instead of using one of the many existing subjective measurements of contract enforcement, an objective measurement called Contract-Intensive Money (CIM) is used.

The results show that contract enforcement of the exporting country has a greater impact on exports than that of the importing country. As expected the institutionally dependent sector of machinery and transport equipment requires a higher level of contract enforcement than the standardized food sector. It implies that the exporting country will have a comparative advantage in exporting complex products and import simple products. The results also indicates that the effect on exports is higher when there is development of a country's poor contract enforcement rather than improvement in already high-quality contract enforcement in the partner country.

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1 Introduction

What determines trade flows between countries? According to the gravity model of trade much of the trade is explained by the size of the economies and the distance. Of course there are many other factors that play a large role in determining trade. The role of institutions in achieving economic growth and increasing trade has received plenty of attention in the recent decades. Institutions usually refer to arrangements that have an effect on economic development: contract enforcement, property rights, protection of investment, the political system, and many others. Specifically imperfect contract enforcement has been proved to reduce international trade. Anderson and Marcouiller (2002) analyze the imperfect contract enforcement in Latin American countries and its negative effects. The markup on price put a restraint on trade when the legal structure cannot enforce contracts and there is no transparency and impartiality. They show that the insecurity of contracts in these countries reduces the international trade as much as their tariffs.

According to Douglass C. North (1994, p. 98) “economic history is overwhelmingly a story of economies that failed to produce a set of economic rules of the game (with enforcement) that induce sustained economic growth.” Much of the literature takes institutions as given, but for economic growth it is important to remember that development of institutions creates an environment for the economy to become more productive.

Many times the theory assumes that there are no transaction costs, however, we know that this is not the case in the real world. There are transaction costs surrounding trade and institutions are necessary when the costs exist. An institutional framework makes transactions between countries easier and less costly. This paper will make a contribution to the discussion of what effect contract enforcement has on international trade.

1.1 Background and Previous Research

Throughout history humans have created institutions to make exchange possible and reduce the uncertainties [Greif, 2006]. When exchange in a society is personal no uncertainty exists. The main enforcement is the traders’ reputation and the punishment is ostracism if they do not commit. Therefore no trader wants to jeopardize his or her reputation in a closed society. Merchants that want to expand their market and trade with other societies cannot rely on reputation since it is not common knowledge. Reputation does not matter when the exchange is impersonal and a one-time deal, consequently another type of enforcement is demanded to make both parties commit. Hence, institutions will evolve to make impersonal exchange possible between societies.

Countries that have better institutions and countries with a high level of trade tend to grow faster. Dollar and Kraay (2003) finds a positive relationship between openness and the “rule of law”, however, the authors argue that it might be difficult to separate cause and effect. Anderson and Marcouiller (2002) find evidence of high transaction costs for insecure exchange hampering international trade. They find that there is a price markup that acts like a hidden tax on international trade because of poor contract enforcement among other things. That institutional quality and similar quality of governance largely affects trade flows are results of de Groot, Linders, Rietveld, and Subramanian (2004). Their results also indicate that large differences in the efficiency of institutions reduce bilateral trade.

Do and Levchenko (2006) show evidence of how comparative advantage affects financial development. This is explained by a country’s specialization of production and how it affects the demand for external financing. Nunn (2007) suggest that the same reasoning can

be applied to contract enforcement. Countries that specialize in industries that are contract intensive have greater motivation to improve and sustain a good environment of contract enforcement. This builds on the understanding that under-investment will occur if the contracts cannot be enforced and investments are relationship-specific. Countries that have a comparative advantage in the production of the good that need relationship-specific investments have a better contract enforcement and therefore less under-investment. Nunn's estimates show that enforcement of contracts is more significant in explaining the patterns of trade than countries' capital endowments together with skilled labor. Berkowitz, Moenius and Pistor (2006) find evidence of legal institutions giving exporters comparative advantage in production and export of complex goods and therefore a lower comparative advantage in production of simple goods.

Levchenko (2007) reach significant conclusions when modeling institutional comparative advantage using the incomplete contracts framework. The developed countries will gain from trade with their institutional comparative advantage while the developing countries might lose. When there are imperfect institutions, rewards from factors will vary between industries even if there is perfect intersectoral mobility. Additionally, with the comparative advantage in institutions, the developed countries are the ones who will produce the institutionally dependent good under trade.

1.2 Presentation of the Problem

It is a fact that institutions have a positive effect on economic development in a country [Acemoglu, Johnson and Robinson, 2001; Dollar and Kraay, 2003; North, 1991, 1994] and a great deal of research has been acknowledging it. Less research has investigated the effect institutions and contract enforcement has on international trade. Contract enforcement is one of many things that are important for economic growth and international trade. Institutionally intensive sectors need a good framework of institutions in the country where they are allocated. Standardized sectors require a lower level of contract enforcement than sectors producing for example electronics and machinery.

Many papers dealing with institutions and contract enforcement are based on a subjective measurement, that is, manually observed and created from countries characteristics. One is the Polity IV Index that will be used in this thesis together with another measurement that is calculated from money data and called Contract-Intensive Money (CIM). Hence, the CIM measurement is not a subjective measure as it is observed from reported financial statistics. This is interesting since there are not many studies made with an objective measurement of contract enforcement. Because CIM is fairly unused, the Polity IV Index will be a complementing contract enforcement measurement for robustness.

Three time periods have been chosen, 1994 to 1996 (period 1), 1998 to 2000 (period 2), and 2002 to 2004 (period 3), to see the effects that contract enforcement has on international trade. To avoid problems of time series analysis different periods were chosen to see how the effect contract enforcement has on trade at different points in time. First period 1 and 3 were chosen, but then period 2 was added for robustness.

First the total trade in the world will be analyzed and then the trade in different sectors, a standardized sector of "food and live animals chiefly for food" and another sector that is

assumed to be more institutionally dependent: “machinery and transport equipment”¹. Since producing complex products requires a higher level of institutional quality than producing simple products. The world countries included in the empirical analysis are countries that have population of 500 000 or more (see Appendix I for a list of countries). However, one of the contract enforcement variables, CIM, has limited data for some countries and reduces the countries used in the regression; the CIM countries with data can be seen in Appendix II. The data and countries for Polity can be seen in Appendix III.

Institutions have a positive effect on gains of trade and this thesis aims to show how the level of contract enforcement affects international trade. The thesis will look at the two different sectors to determine if the theory holds for the standardized food sector requiring less contract enforcement than the machinery and transport equipment sector. Another proposition is that contract enforcement is more important for the exporting country since it is where the goods and services are produced. The exporter requires institutions for the production as well as the administration of exporting the goods and services. The importing country is importing the knowledge and institutions through the goods and services, and this action does not require as high institutional level.

1.3 Purpose

The purpose of this thesis is to analyze the impact contract enforcement has on bilateral trade and whether the effect of contract enforcement differs between sectors.

1.4 Outline

In section two the theoretical framework is presented, mainly the theory about the gravity model of trade but also fairly unused measurement of contract enforcement, Contract-Intensive Money. The third section introduces the dependent and independent variables used in the chosen regression model. Section four is the empirical analysis where the regression results are presented and in section five the results are analyzed to answer the purpose of the thesis.

¹ The export data of bilateral trade is collected from UN Comtrade and the classification SITC Revision 2. Total exports includes “all commodities”, the sector of “food and live animals chiefly for food” has code 0, and “machinery and transport equipment” has the code 7.

2 Theoretical Framework

Here the theory of this thesis is presented, first the gravity model of trade that explains much of the international trade and then the presentation of contract enforcement and how it is important for trade.

2.1 Gravity Model of Trade

Why does a country trade more with some countries and less with others? Empirical evidence shows that there is a strong connection between the size of a country's economy and the amount of its exports and imports. Both Tinbergen and Pöyhönen were the first authors in the 1960's to introduce the gravity equation to examine the pattern of international trade. The gravity model has become an accepted tool for analyzing bilateral trade. The model has been able to explain different flows in areas such as migration, foreign direct investment, and especially international trade (Martinez-Zarzoso, 2003).

Krugman and Obstfeldt (2006) presents a basic form of the gravity model and it predicts that large economies, measured in GDP, will trade the most with other large economies. Large economies spend more on imports since they have a large income, and have a large share of other countries imports since they produce a variety of products. The volume of trade is explained by the gravity equation

$$T_{ij} = f(Y_i, Y_j, D_{ij})$$

where T_{ij} is the trade value between country i and country j , Y_i is the GDP of country i , Y_j is the GDP of country j , and D_{ij} is the distance between country i and j . The volume of trade between two countries is, all else equal, proportional to the product of the two countries' GDP and decreases with distance. Trade is not only determined by the economic size of the exporter and importer, but also by the transaction costs between the two.

Although the basic gravity equation explains a large share of the trade flows, there are other important factors to be taken into account. Martinez-Zarzoso (2003) use the generalized gravity model of trade where the volume of trade is a function of the countries' incomes, their population (can be measured in GDP per capita instead of population), their geographical distance, and a set of dummies,

$$X_{ij} = \beta_0 Y_i^{\beta_1} Y_j^{\beta_2} YH_i^{\beta_3} YH_j^{\beta_4} D_{ij}^{\beta_5} A_{ij}^{\beta_6} u_{ij}$$

where $Y_i(Y_j)$ is the GDP of the exporting (importing) country, $YH_i(YH_j)$ is the GDP per capita of the exporter (importer), D_{ij} measures the distance between the exporting and importing country, A_{ij} is a variable representing other factors that help or inhibit trade between the countries, and u_{ij} is the error term.

2.2 Contract Enforcement

Markets exist in all kinds of societies, rich or poor, developed or undeveloped. Markets are present even in countries where they are forbidden, as black markets. However, there are certain markets that are not as common and more easily constrained and these are particularly important for economic development. Actors demand contract enforcement and property rights to be able to commit, and these markets are not likely to exist when the

demands are not satisfied. Today it is a well known fact that these institutions play a significant role in economic development [North, 1991].

2.2.1 Contract-Intensive Money

Secure property rights and contract enforcement are important for the productivity and growth in a country. Clague, Keefer, Knack & Olson (1999) test this with the idea that enforcement problems can be seen in the pattern of how different types of money and credit are used in trade. The forms of money that are used differ between countries, in some countries currency is the most common type of money. In others, money is to a greater extent invested or held in banks. The authors expect that the level of third-party enforcement can explain the preference of how individuals and firms choose to hold their money. If contracts are not secure, individuals and firms cannot be guaranteed that their money is safe in the financial institutions. If no one wants to hold money in banks, the financial institutions will not earn any money and their charges will be higher. In societies where certain transactions are forbidden it will lead to the creation of black markets, where contracts are even more uncertain and people will prefer holding their money in currency. The opposite holds where contracts are upheld, firms and individuals are more likely to hold currency in bank deposits since it is usually more convenient and safe.

Clague et al. (1999) make a new contribution to the literature by introducing a new measurement of contract enforcement. A measure of data that is easily accessed but also objective of how secure contract enforcement and property rights are in countries. It offers an additional and more straightforward confirmation about how important secure property and contract rights are for investment and economic growth. The measurement is called *Contract-Intensive Money* or CIM, and is defined as the “ratio of non-currency money to total money supply, or $(M2-C)/M2$, where M2 is a broad definition of the money supply and C is currency held outside banks²” (Clague et al, 1999, p. 188). The probability that citizens will hold their money in exchange for compensation is higher when they believe that there is enough enforcement from a third party. Therefore, CIM will be higher when people hold their money in banks instead of in currency.

The hypothesis of Clague et al. (1999) is not that a higher use of the refined noncurrency money will cause improved economic development, but that better institutions (contract enforcement) will allow a country to achieve more varied gains from trade and make it easier to use noncurrency money. The CIM measure mirrors what kind of governance is used in a country and how it allows for economic development rather than a cause of development.

2.2.1.1 Example of CIM in The Gambia

With some descriptive statistics for different countries, Clague et al. (1999) show how CIM varies over time and how it reflects the stability and instability in the countries. This can be seen in figure 1 where CIM is seen against time for the African country The Gambia. In 1965 The Gambia became a sovereign state within the British Commonwealth of Nations. The country was one of few stable democracies in Africa during the 1970s and 1980s with general elections and respect for human rights. In 1981 some groups attempted a coup to

² Currency comes from line 14a of International Financial Statistics, “currency outside deposit money banks”, money supply comes from line 35l “money and quasi-money”.

gain the power. The Gambia did not have its own military but the coup was prevented with troops from the neighbor country Senegal. The year after the coup, The Gambia and Senegal signed the Treaty of Confederation intended to unite the states and their economies. (Utrikespolitiska Institutet, 2008) In figure 1, the CIM data shows the upward trend in the contract-intensive money ratio from 1969 to 1989, which corresponds to the stability and democracy in the country. The exception is the interruption in CIM in 1978 to 1982 that is accordingly to the attempted coup and instability. (Clague et al. 1999)

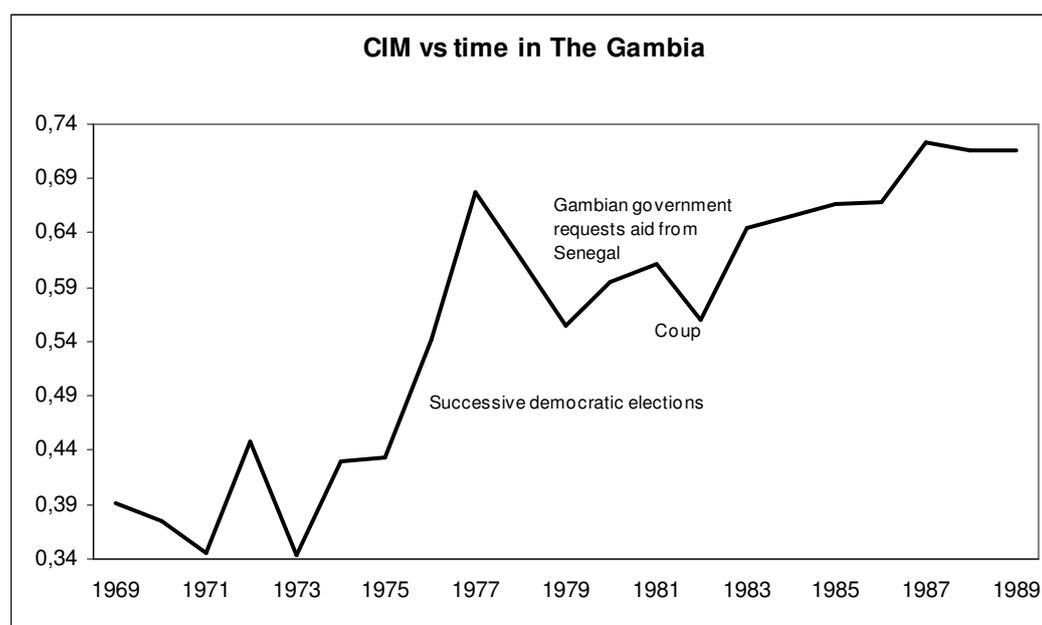


Figure 1. Contract-intensive Money in The Gambia 1969-1989

Source: International Financial Statistics Yearbook (2008)

2.2.1.2 Advantages and Disadvantages with CIM

In subjective measures there is the disadvantage that the measure is affected by the outcome, that economic growth will make the evaluators state that the governance is good. Tests of correlation with CIM and some subjective measures of institutional quality are made by Clague et al. (1999) and show high correlations. This is beneficial for all the measures since they reinforce and add credibility to each other.

The CIM measure could just be another way to measure financial-sector development since research has shown significant results in the relationship between financial development and growth [Levine, 1998]. However, Clague et al. (1999) have several reasons to why CIM is a proper measurement of general contract enforcement and property rights of all sectors and not just the financial sector. Financial development-measures generally show the specific features of the financial sector. On the other hand, the CIM measure gives a more direct and solid result and capture the security of all general transactions where property is put at risk, not only the security of financial-sector transactions. Further evidence that CIM does not only measure financial development is the correlation with other subjective institutional measures as mentioned above. The country example of The Gambia also indicates that CIM relates to the political climate and development in a country and not directly to the financial sector. The conclusion of Clague et al. (1999) is that even though the data is

from the money market, it is appropriate for measuring the quality of institutions and the governance.

2.2.2 Polity IV Index

The Polity IV Index will be used as a complement to the CIM measurement. As explained earlier, the CIM measurement is not a common measure but still reliable and therefore the Polity IV Index is used for robustness. The Polity IV Index is taken from the Polity IV project.

The Polity IV project consists of annual time-series and country-regime datasets, global and regional trends in governance, and also country reports of all the countries included. The dataset includes all sovereign states in the world, with population over 500 000, over the period 1800-2006. The research involves indexing the features of countries' governance to be able to perform comparative and quantitative analyses. The founder of the Polity project is Ted Robert Gurr and it has been widely used by researchers to investigate the results of changes in regimes and the consequences of a regime (Center for Systemic Peace, 2008).

The Polity project measures central institutions and the level of democratic or autocratic authority. It takes into account a range of different authorities, from completely institutionalized autocracies to mixed regimes to entirely institutionalized democracies. The Polity IV Index used in this paper is computed by subtracting the "institutionalized autocracy" score from the "institutionalized democracy" score since many countries exhibit characteristics of both authority patterns. The index gives a score for a country that ranges from +10 (full democracy) to -10 (full autocracy). The specific institutional democracy score measures three important elements in a country. First if there are institutions and procedures that allow the citizens to effectively express their preferences about alternative policies and leaders. Second, if there are institutionalized restrictions on the executive power. Third, the civil rights to all the citizens in their every day life as well as in political involvement. An authoritarian system is defined as the absence of legalized political competition and political freedoms in a society. In the institutionalized autocracy score, autocracy is characterized as a political system where the power is chosen among the elite, and when in charge can realize power with few institutional checks (Marshall & Jagers, 2005).

3 Model Formulation

In this section the different variables used for the empirical analysis are presented as well as the equation in which they will be used.

3.1 Dependent Variable

Export, is the dependent variable in this regression analysis in line with the gravity model. Exports, instead of imports, are chosen since exports are reported as Free on Board (FOB) while imports are reported on the basis of Cost, Insurance, and Freight (CIF). This means that imports tend to have a greater value since there are transaction costs included in the import value. Export is also chosen since the proposition is that the exporting country requires a higher level of institutions than the importing country. The export data is collected from UN Comtrade (2008).

3.2 Independent Variables

Gross Domestic Product, GDP, measures the value of all goods and services produced in a country. It is presumed to be positive for the exporting country since a large income is a sign of a high level of production, which indicates a higher access to goods for export. The GDP of the importing country is supposed to be positive since a large income implies higher imports. (Martinez-Zarzoso, 2003) The GDP data, measured in constant US dollars with 2000 as base year, comes from World Development Indicators (2007).

Distance, measures the distance between the economic centers of the exporting country and the importing country. It is supposed to be negative since it involves transactions cost that have a negative effect on trade volumes. Therefore, the greater the distance between the exporter and the importer the lower the trade values. The data of the distance between countries is collected from CEPII (2008) and is in thousands of kilometers.

Contract-intensive money, CIM, is the objective measurement of contract enforcement as described in section 2.3. The value of CIM ranges from 0 to 1, the higher the value the larger the share of money held in non-currency, i.e. the higher the value the higher level of contract enforcement. The CIM variable is estimated to have a positive relationship to trade since a high level of contract enforcement implies a high level of trade. The CIM data is retrieved from International Financial Statistics Yearbook (2008). (See Appendix II for a list of the CIM index of all countries)

Polity. As described in section 2.4, the Polity variable is computed by subtracting the Institutionalized Autocracy Index from the Institutionalized Democracy Index. A subjective measure used to show the level of institutionalized authority. The index ranges from -10 to +10 but was recalculated to range from 0 to 1, to make comparisons in the regression results possible between CIM and Polity variables. Polity is supposed to have the same sign as the CIM variable since they both control for institutions, therefore it should be positive. The Polity data is from the Polity IV Project of the Center for Systemic Peace (2006). (The Polity index for all countries can be found in Appendix III)

CC_iCC_j and PC_iPC_j. As an interaction term centered values of the contract enforcement variables are used. To calculate the centered values, the CIM/Polity mean for all countries is subtracted from the CIM/Polity value for country *i* to get the centered CIM/Polity value for country *i*. More specifically,

$$CC_i = CIM_i - \overline{CIM} \quad \text{or} \quad \text{Eq. (1)}$$

$$PC_i = Polity_i - \overline{Polity} \quad \text{Eq. (2)}$$

Then the centered CIM/Polity values for the exporting and importing country are multiplied to get the variable used in the regressions, CC_iCC_j and PC_iPC_j .

3.3 Regression Equation

The gravity model used with the added contract enforcement variables is a log-log equation. The equation will estimate what effect the dependent variables have on bilateral trade.

Eq. (3)

$$\ln X_{ij} = \beta_1 + \beta_2 \ln GDP_i + \beta_3 \ln GDP_j + \beta_4 \ln D_{ij} + \beta_5 CIM_i + \beta_6 CIM_j + \beta_7 CC_iCC_j + \varepsilon_{ij}$$

where X_{ij} is the value of exports between the exporter i and importer j , GDP_i and GDP_j is the gross domestic product in the exporting and importing country. D_{ij} is the distance between country i and j , CIM_i and CIM_j is the level of contract enforcement in country i and j , and ε_{ij} is the disturbance term to adjust for unexplained information. \ln represents the natural logarithm of the dependent variables except the contract enforcement variables since they are indices.

To control for the robustness of the CIM measure the Polity index is also used in a separate regression equation, where CIM_i has been exchanged for $Polity_i$, CIM_j for $Polity_j$, and CC_iCC_j and PC_iPC_j .

Eq. (4)

$$\ln X_{ij} = \beta_1 + \beta_2 \ln GDP_i + \beta_3 \ln GDP_j + \beta_4 \ln D_{ij} + \beta_5 Polity_i + \beta_6 Polity_j + \beta_7 PC_iPC_j + \varepsilon_{ij}$$

4 Empirical Analysis

In this section the empirical analysis of the gravity model is presented. All the data has been carefully analyzed and have a normal distribution of the residuals. There is evidence of heteroscedasticity in the data and it is corrected for by performing White's test.

For all periods the averages of the variables have been calculated to get more accurate results. There may be fluctuations during the three-year periods and with averages the problem is avoided.

Rodrik, Subramanian, and Trebbi (2004) investigate what effect institutions, trade, and geography have on income levels. They show that institutions have the largest effect on income levels around the world. In the dataset of this thesis there is evidence of correlation between income levels and contract enforcement. GDP per capita and contract enforcement both measures country development and hence express the same pattern. Therefore GDP per capita was excluded from the gravity equation presented in section 2.1.

First, regressions of the total exports in the world are presented. Then two sectors of exports will be analyzed, the food sector and machinery transport equipment sector, to see if contract enforcement have different effects in the two. The assumption is that contract enforcement is more intensively used in high-technology sectors, as machinery and transport equipment, than in standardized sectors such as food.

4.1 Regressions Results and Analysis

The results of the regressions will be presented, interpreted as well as analyzed to show if contract enforcement affects trade positively and if there is variation between the three different periods. Total exports will be interpreted and analyzed followed by the two sectors to then go on to a summary and comparison. Other research will be presented supporting the results of this thesis.

For every group of exports, six regressions have been made. Two groups of three regressions, representing the two contract enforcement variables (CIM and Polity) and the three time periods.

4.1.1 Total Exports

Table 1. Regression results of total exports

Variable	CIM						Polity					
	Period 1		Period 2		Period 3		Period 1		Period 2		Period 3	
	β	Prob.										
CIM_t	1.48	0.000	0.76	0.001	1.22	0.000						
CIM_{t-1}	-0.15	0.556	-0.29	0.136	0.53	0.024						
CC_{t-1}	19.6	0.000	14.2	0.000	10.1	0.000						
$Polity_t$							0.45	0.000	0.22	0.001	0.32	0.000
$Polity_{t-1}$							0.12	0.181	0.24	0.000	0.23	0.001
$PC_t PC_{t-1}$							1.07	0.000	1.50	0.000	0.78	0.001

Dependent variable: Export Total

The results of the regressions in table 1 (see table 1 in appendix IV for more detailed table) show the effect the explanatory variables have on world exports of all commodities. The R-square for the CIM(Polity) variable ranges from 0.59(0.65) to 0.63(0.69) between the three

periods, which is a fairly high goodness of fit. The dependent variables explain the value of export to a rather high degree.

The distance variable has the expected negative relationship to trade in all three periods, since the greater the distance the higher the transaction costs. Countries will trade less with countries when the distance increases. The GDP coefficient estimates show significant values for all regressions of both CIM and Polity for all periods. The GDP in the exporting and importing country has a positive effect on exports as expected. The results also show that the GDP of the exporting country has a larger impact on the exports than the GDP of the importing country.

In table 1, the first period show that CIM_i is significant and CIM_j is insignificant, implying that contract enforcement is more important for the exporter than for the importer. These results are consistent with the Polity regressions that show the same results. For the second period the contract enforcement for the importing country, CIM_j , is insignificant. However, this is not supported by the Polity regressions where the contract enforcement in the importing country is significant and has about the same effect on trade as contract enforcement in the exporting country. Period 3 show significant coefficient estimates for CIM of both the exporter and the importer, which also holds for the results of the Polity regressions. It implies that today the contract enforcement of the exporting country, as well as the importing country, is important and has an effect on trade. However, it still holds true that the contract enforcement in the exporting country is more essential than for the country importing the goods.

To explain it more carefully a calculation will be made to show how changes in the CIM values for the exporter and/or importer affects export. Interesting here is the interaction term and how the contract enforcement of the exporter relates to that of the importer. In equation (5), β_3 represents the elasticity of export for the interaction term and how it depends on the centered CIM values for country i and country j .

$$\beta_3 \left(CIM_i - \frac{\sum CIM_i}{n} \right) \left(CIM_j - \frac{\sum CIM_j}{n} \right) \quad \text{Eq. (5)}$$

Table 2. Effect of equal change in CIM on total exports

	CIMi/j: 0.85			CIMi/j: 0.95			Difference:		
	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3
CIMi's effect on export	1.26	0.65	1.03	1.40	0.72	1.16	0.15	0.08	0.12
CIMj's effect on export	-0.13	-0.25	0.45	-0.14	-0.28	0.50	-0.02	-0.03	0.05
CCiCCj's effect on export	0.12	0.05	0.01	0.62	0.36	0.19	0.50	0.31	0.18

In table 2 the effect of CIM on total export is presented³. Starting at an initial level of CIM being 0.85 for both exporter and importer and what effect the level of contract enforcement has on trade. The level of contract enforcement is increased to let CIM equal 0.95 for both countries and then the difference in the effect on export is presented. The table shows that the exporter's level of contract enforcement has a higher impact on export (1.26

³ For simplicity disregarding that the coefficient estimates of CIM_j for period 1 and 2 are insignificant. The negative relationship discussed is therefore somewhat inaccurate.

for period 1) compared to that of the importer (-0.13 for period 1), which is consistent for all periods. Even though the importer's contract enforcement show a negative relationship to export, the interaction term show a positive relationship implying that both traders contract enforcement is important. Increasing contract enforcement from CIM=0.85 to CIM=0.95 will in period 1 increase the trade with 0.15 for the exporter and conflictingly decrease with 0.02 for the importer. However, the interaction term express that the trade between the two will increase with 0.5, implying that the improvement in contract enforcement for both traders will in fact increase the trade. It is also reflected in the total effect the improvement have on trade, which is positive and 0.63 for first period.

Table 3. Effect of unequal change in CIM on total exports

Total	Difference:					
	CIMi: 0.92, CIMj from 0.82 to 0.87			CIMi from 0.92 to 0.97, CIMj: 0.82		
	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3
CIMi's effect on export				0.07	0.04	0.06
CIMj's effect on export	-0.01	-0.01	0.03			
CCiCCj's effect on export	0.14	0.09	0.05	0.05	0.02	0.00

Table 3 presents the difference in effect contract enforcement has on trade when improvements occurring only for either the exporter or importer separately. If the exporter has a contract enforcement level of CIM=0.92 and there are improvements in the importer's CIM from 0.82 to 0.87, there will be an increase in trade of 0.14. However, when improving the contract enforcement of the exporter from 0.92 to 0.97 keeping the CIM of the importer at constant level of 0.82, there will be an increase of 0.05. Interestingly this imply that improving poor contract enforcement is better than improving already high-quality contract enforcement.

4.1.2 Exports in Food Sector

Table 4. Regression results of food sector exports

Variable	CIM						Polity					
	Period 1		Period 2		Period 3		Period 1		Period 2		Period 3	
	β	Prob.										
CIM _i	1.46	0.000	1.03	0.000	-0.07	0.834						
CIM _j	-0.16	0.538	-0.37	0.149	-1.39	0.000						
CC _i CC _j	13.9	0.000	16.6	0.000	23.7	0.000						
Polity _i							0.94	0.000	0.65	0.000	0.75	0.000
Polity _j							-0.19	0.033	-0.24	0.005	-0.01	0.899
PC _i PC _j							0.94	0.000	1.85	0.000	1.72	0.000

Dependent variable: Export Food

A problem for the food sector is the low R-square observed in table 4 in appendix IV, this may be explained by the restrictions that are more common in the agriculture market than any other market. It implies that the chosen model for the food sector does not fit the data to such great extent, meaning that there is unexplained information that has an effect on the trade flows. The coefficient estimate for the distance variable in the food sector has the expected negative relationship to export. The GDP show significant and positive relationship, but the difference between the exporters and importers GDP is smaller compared to total exports. It implies that countries that are trading in the food sector are about the same size even though the exporter is somewhat larger.

For the regressions with CIM, period 1 and 2 show that contract enforcement is significant for the exporter and insignificant for the importer, same evidence as for total exports. However, the Polity regressions for the same periods show that the importers contract enforcement is significant but also negative, which does not support the theory. The third period show conflicting results, where the CIM variable is insignificant for the exporter and significant and negative for the importer. Although, the Polity regressions for period 3 show good results that is similar as for total exports.

Table 5. Effect of equal change in CIM on food sector exports

	CIMi/j: 0.85			CIMi/j: 0.95			Difference:		
	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3
CIMi's effect on export	1.24	0.88	-0.06	1.39	0.98	-0.07	0.15	0.10	-0.01
CIMj's effect on export	-0.14	-0.31	-1.18	-0.16	-0.35	-1.32	-0.02	-0.04	-0.14
CCiCCj's effect on export	0.08	0.06	0.03	0.44	0.42	0.45	0.35	0.36	0.42

In table 5 the effect contract enforcement have on trade in the food sector is presented⁴ by using equation 5 as in previous section. As in the case of total exports the exporter's contract enforcement has a higher impact on export than that of the importer. It is also true for the food sector that the interaction term gives us a positive effect on trade even though CIM for the importer has a negative relationship to trade. The negative relationship can somewhat be disregarded since in the end the improvement in contract enforcement for both exporter and importer do have a positive effect on trade.

Table 6. Effect of unequal change in CIM on food sector exports

Food	Difference:					
	CIMi: 0.92, CIMj from 0.82 to 0.87			CIMi from 0.92 to 0.97, CIMj: 0.82		
	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3
CIMi's effect on export				0.07	0.05	0.00
CIMj's effect on export	-0.01	-0.02	-0.07			
CCiCCj's effect on export	0.10	0.11	0.13	0.03	0.02	0.01

Table 6 show calc the improvements of either the exporter or importer's contract enforcement occur. The interaction term shows that the effect of improving poor contract enforcement has a larger effect on trade, 0.10, compared to improving good contract enforcement, 0.03 (for period 1).

⁴ For simplicity disregarding that the coefficient estimates of CIMi for period 3 is insignificant, as well as CIMj for period 1 and 2. The fact that the total effect on export is negative for period 3 will therefore be ignored. This is also true for table 6.

4.1.3 Exports in Machinery and Transport Equipment Sector

Table 7. Regression results of machinery and transport equipment sector exports

Variable	CIM						Polity					
	Period 1		Period 2		Period 3		Period 1		Period 2		Period 3	
	β	Prob.										
CIM _i	1.81	0.000	1.38	0.000	3.36	0.000						
CIM _j	-1.05	0.000	-0.76	0.001	-0.52	0.084						
CC _i CC _j	20.6	0.000	19.0	0.000	18.4	0.000						
Polity _i							1.23	0.000	0.97	0.000	1.06	0.000
Polity _j							-0.49	0.000	-0.33	0.000	-0.25	0.006
PC _i PC _j							1.76	0.000	2.53	0.000	1.60	0.000

Dependent variable: Export Machinery & Transport Equipment

The R-square (see table 7 in appendix IV for more detailed regression results) for the CIM(Polity) regressions ranges from 0.56(0.62) to 0.58(0.65) which is fairly high. The chosen model does therefore fit the export data of the machinery and transport equipment sector adequately. The distance and GDP variable show the general trend also in the machinery and transport equipment sector. The coefficient estimate for the distance variable is negative and for GDP variables it is positive. The difference between the GDP of the exporter and importer for the machinery and transport equipment sector show the same pattern as for total exports. The size of the exporter has a larger effect on trade than the size of the importer.

The contract enforcement of the exporting countries is positive as expected, for both the CIM and Polity regressions. However, there is a problem with the negative sign of the importing country's contract enforcement. This would imply that the lower the level of contract enforcement in the importing country the more they will import. On the other hand, the interaction term is large and significant and implies that higher contract enforcement will in fact cause an increase in exports and will be explained below.

Table 8. Effect of equal change in CIM on machinery and transport equipment sector exports

Machinery export	CIMi/j = 0.85			CIMi/j = 0.95			Difference:		
	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3
CIMi's effect on export	1.54	1.17	2.86	1.72	1.31	3.19	0.18	0.14	0.34
CIMj's effect on export	-0.89	-0.65	-0.44	-1.00	-0.72	-0.49	-0.11	-0.08	-0.05
CCiCCj's effect on export	0.12	0.07	0.03	0.65	0.48	0.35	0.53	0.41	0.32

Table 8 presents how trade is affected by changes in contract enforcement in the machinery and transport equipment sector by using equation 5 as in previous sections. It also holds true for the machinery and transport equipment sector that the contract enforcement of the importer has a negative relationship to trade, but the interaction term shows that improvement in importer's, as well as the exporter's, contract enforcement has a positive effect on trade.

Table 9. Effect of unequal change in CIM on machinery and transport equipment sector exports

Machinery	Difference:
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	CIMi: 0.92, CIMj from 0.82 to 0.87			CIMi from 0.92 to 0.97, CIMj: 0.82		
	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3
CIMi's effect on export				0.09	0.07	0.17
CIMj's effect on export	-0.05	-0.04	-0.03			
CCiCCj's effect on export	0.15	0.12	0.10	0.05	0.03	0.01

Table 9 show improvements in exporter or importer's contract enforcement for the machinery and transport equipment sector. By the interaction term we see that developing poor contract enforcement of the importer have a larger effect on trade (0.15) than improving already developed exporter's contract enforcement (0.05)

4.2 Summary and Comparison

The standard variables of the gravity equation, distance and GDP, show for all regressions the expected relationship to trade. The distance variable has a negative relationship to export since trading with countries that are geographically further away involves transaction costs. Total exports and the sector of machinery and transport equipment have the same trend in GDP for the exporting and importing country, where GDP of the exporting country has a larger effect on export than the GDP of the importing country. The results suggest that the size of the exporting economy has a larger effect on trade than does the size of the importing economy.

On the other hand, in the food sector the GDP of both the exporter and importer have less effect on export compared to the results of total exports. Therefore, the size of an economy in the food sector is not as important as for total exports. It can be explained by larger economies being well endowed in factors of production such as capital, while smaller economies are usually developing economies and have agriculture as main production and export.

An assumption was that there should be a difference in how large effect contract enforcement has on trade between the food sector and the machinery and transport equipment sector. The results show that a country requires a higher level of contract enforcement when exporting in the machinery and transport equipment sector than when exporting in the food sector. The high-technology sector is more dependent on contract enforcement than the standardized food sector. Nunn (2007) supports these findings with evidence of countries with high contract enforcement having an advantage in industries where relationship-specific investments are important. Berkowitz, Moenius, and Pistor (2006) argue that good legal institutions are vital for the country exporting complex products since it hinder the exporter to break contracts. They find evidence of countries having high-quality institutions exporting complex products and importing simple products, implying comparative advantage in complex products. What they also note is that good institutions of the importing country positively influence trade by reducing the risk of predatory behavior.

Berkowitz et al. (2006) discuss that better institutions in an exporting country lead to a higher comparative advantage in complex products and lower in simple products. Improving institutions in the importing country will cause a shift from importing complex products to simple products. Applied to this thesis it supports the results that exporting countries requires a higher level of contract enforcement since they are exporting complex products to countries that have a lower level of contract enforcement. The importers of complex products do have a comparative advantage in exporting simple products where less contract enforcement is needed.

Méon and Sekkat (2008) argue that not all kinds of exports imply economic development and growth. It is the exports of the manufacturing sector that is most probable to lead to development compared to exports of nonmanufactured goods. Supporting this statement is evidence seen among countries that have a diverse production of exports and have therefore reached a higher level of development. The growth rates seem to have a positive relationship to the growth of the manufacturing sector and its exports. Méon and Sekkat (2008) also come to the conclusion that the best way is to differentiate manufactured and nonmanufactured exports to see what effect institutions have on trade flows since they demand different institutional quality. The results of this thesis show the same pattern, the different sectors require different levels of contract enforcement. The manufacturing sector of machinery and transport equipment needs a higher level of contract enforcement than the sector of food. Bad institutional quality, and hence contract enforcement, is therefore likely to pervert the composition of exports in a way that is disadvantageous for a country's development.

The interaction term is significant for all time periods. The coefficient estimates are large and have a great effect on exports compared to the separate contract enforcement variables of each country. The multiplicative interaction term shows that exports will be high if both trading partners have a high level of contract enforcement. Further, the effect on trade is larger when there is development of poor contract enforcement in a country rather than improvement in already high-quality contract enforcement in the partner country. Even though contract enforcement of the importing country show a negative relationship to export in the food and machinery and transport equipment sectors, improvements in contract enforcement will still lead to greater bilateral trade due to the interaction effect as explained earlier. The exporters will not earn more from exporting if trying to develop their own high-quality contract enforcement, but might instead focus on helping other countries develop their contract enforcement to increase the trade. The interaction of two countries' level of contract enforcement is of importance and the export will be at the highest level if they both have a good institutional framework.

Anderson and Marcouiller (2002) find that the price markup on traded goods is due to the degree of insecurity of the exporter and importer's institutions. Wealthy countries trading are relatively unaffected by transaction cost dealing with insecurity, while trade between poor countries is more likely to be influenced. The findings of de Groot et al. (2004) support the evidence of this paper; they find that dissimilar institutions have an impact on trade between countries with the best institutions and those with poor institutional framework. There are adjustment costs when two countries do not share the same efficient institutions, causing a trade diversion that will probably be most critical for countries with insecure institutions.

The fact that trade can be improved if the efficiency of institutions differs between two countries has important policy implications. A country with developed contract enforcement trades with a country that has poor contract enforcement and wants to increase the export will receive greater benefits by improving the poor contract enforcement of its trade partner. Countries that are already developed should therefore shift the focus from themselves to their trading partners if they want to increase their export revenues. Improving institutions will reduce the transaction costs and the trade with countries that previously had poor contract enforcement will increase.

Conclusion and Further Research

The purpose of this thesis was to analyze to what extent contract enforcement affects bilateral trade. There was also an interest in whether contract enforcement has different impact on trade between sectors as suggested by other authors.

The empirical results suggest that the level of contract enforcement have a large impact on trade flows, as expected. The high-technological sector of machinery and transport equipment requires a higher level of contract enforcement when exporting such products compared to the exporting in the food sector. Having a large share of exports of complex products necessitates a good institutional framework and specifically good legal institutions. The countries that are exporting complex products are therefore importing simple products from countries that do not have as good institutions and contract enforcement. The importing countries are indirectly importing the institutions and the knowledge from the more institutionally intensive countries. Countries that have a high level of contract enforcement have a comparative advantage in producing more complex products that require developed institutions and import simple products. The same applies to countries that have a low level of contract enforcement; they will produce and export simple products and import complex products.

An interesting conclusion of the results is that development of contract enforcement in an institutionally poor country will have a larger effect on trade than improvement of already high-quality contract enforcement in the partner country. This holds true even in those cases where the level of contract enforcement of the importer is shown to have a negative effect on trade. Exporters having high level of contract enforcement will therefore not increase their trade by as much if they try to increase their own level of contract enforcement. The interaction of trading partners' level of contract enforcement is important; if both have a high level of contract enforcement they would reach the highest level of trade between the two.

Contract enforcement play a significant role in increasing the volume of trade between countries and have an even larger effect if both countries have high level of contract enforcement. For further studies it would be interesting to investigate whether the significance of contract enforcement and institutions have changed over time since many take institutions as constant. Instead of examining contract enforcement's effect over time one can do a cross-sectional analysis and compare different regions.

Another interesting question to study is the cause and effect of contract enforcement and international trade. Instead of analyzing what impact contract enforcement have on trade one can examine what impact trade have on contract enforcement. Increasing trade should lead to a development of contract enforcement.

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Appendices

Appendix I

World countries

Afghanistan	Ecuador	Lebanon	Rwanda
Albania	Egypt	Lesotho	Saudi Arabia
Algeria	El Salvador	Liberia	Senegal
Angola	Equatorial Guinea	Libya	Serbia and Montenegro
Argentina	Eritrea	Lithuania	Sierra Leone
Armenia	Estonia	Macedonia	Singapore
Australia	Ethiopia	Madagascar	Slovakia
Austria	Fiji	Malawi	Slovenia
Azerbaijan	Finland	Malaysia	Solomon Islands
Bahrain	France	Mali	Somalia
Bangladesh	Gabon	Mauritania	South Africa
Belarus	Gambia	Mauritius	South Korea
Belgium	Georgia	Mexico	Spain
Benin	Germany	Moldova	Sri Lanka
Bhutan	Ghana	Mongolia	Sudan
Bolivia	Greece	Morocco	Swaziland
Bosnia Herzegovina	Guatemala	Mozambique	Sweden
Botswana	Guinea	Myanmar	Switzerland
Brazil	Guinea-Bissau	Namibia	Syria
Bulgaria	Guyana	Nepal	Taiwan
Burkina Faso	Haiti	Netherlands	Tajikistan
Burundi	Honduras	New Zealand	Tanzania
Cambodia	Hungary	Nicaragua	Thailand
Cameroon	India	Niger	Togo
Canada	Indonesia	Nigeria	Trinidad and Tobago
Central African Republic	Iran	North Korea	Tunisia
Chad	Iraq	Norway	Turkey
Chile	Ireland	Oman	Turkmenistan
China	Israel	Pakistan	Uganda
Colombia	Italy	Panama	Ukraine
Comoros	Ivory Coast	Papua New Guinea	United Arab Emirates
Costa Rica	Jamaica	Paraguay	United Kingdom
Croatia	Japan	Peru	United States
Cuba	Jordan	Philippines	Uruguay
Cyprus	Kazakhstan	Poland	Uzbekistan
Czech Republic	Kenya	Portugal	Venezuela
Denmark	Kuwait	Qatar	Vietnam
Djibouti	Kyrgyzstan	Republic of the Congo	Yemen
Dominican Republic	Laos	Romania	Zambia
East Timor	Latvia	Russia	Zimbabwe

Appendix II

CIM Index							
Country	Period 1 94-96	Period 2 98-00	Period 3 02-04	Country	Period 1 94-96	Period 2 98-00	Period 3 02-04
Albania	0.64	0.71	0.71	Guinea	0.52	0.53	0.59
Algeria	0.66	0.68	0.75	Guinea-Bissau	0.63	0.40	0.25
Angola	0.53	0.79	0.81	Guyana	0.84	0.86	0.88
Argentina	0.80	0.85	0.78	Haiti	0.76	0.80	0.82
Armenia	0.45	0.60	0.61	Honduras	0.81	0.88	0.90
Australia	0.94	0.94	0.95	Hungary	0.83	0.85	0.85
Azerbaijan	0.57	0.54	0.61	India	0.79	0.82	0.83
Bahrain	0.93	0.95	0.94	Indonesia	0.91	0.91	0.90
Bangladesh	0.86	0.87	0.91	Iran	0.89	0.90	0.93
Belarus	0.82	0.85	0.84	Iraq			0.53
Benin	0.75	0.63	0.69	Israel	0.97	0.97	0.97
Bhutan	0.87	0.88	0.87	Ivory Coast	0.68	0.62	0.62
Bolivia	0.89	0.92	0.90	Jamaica	0.91	0.90	0.91
Bosnia Herzegovina		0.81	0.72	Japan	0.96	0.95	0.93
Botswana	0.92	0.94	0.95	Jordan	0.78	0.82	0.85
Brazil	0.95	0.95	0.94	Kazakhstan	0.59	0.63	0.77
Bulgaria	0.90	0.75	0.77	Kenya	0.86	0.87	0.87
Burkina Faso	0.56	0.60	0.70	Kuwait	0.95	0.95	0.95
Burundi	0.62	0.66	0.73	Kyrgyzstan	0.27	0.44	0.39
Cambodia	0.63	0.66	0.73	Laos	0.79	0.95	0.90
Cameroon	0.83	0.73	0.77	Latvia	0.64	0.65	0.74
Canada	0.96	0.96	0.98	Lebanon	0.96	0.97	0.98
Central African Republic	0.19	0.23	0.26	Lesotho	0.94	0.92	0.92
Chad	0.32	0.32	0.40	Liberia	0.50	0.72	0.63
Chile	0.93	0.95	0.95	Libya	0.74	0.70	0.77
China	0.87	0.89	0.91	Lithuania	0.67	0.70	0.75
Colombia	0.90	0.89	0.77	Macedonia	0.71	0.78	0.82
Comoros	0.70	0.66	0.64	Madagascar	0.72	0.69	0.69
Costa Rica	0.86	0.79	0.88	Malawi	0.77	0.78	0.78
Croatia	0.86	0.90	0.92	Malaysia	0.93	0.95	0.95
Czech Republic	1.00	0.88	0.88	Mali	0.60	0.64	0.60
Denmark	0.82	0.95	0.95	Mauritania	0.73	0.80	0.86
Djibouti	0.84	0.83	0.85	Mauritius	0.91	0.93	0.94
Dominican Republic	0.80	0.83	0.88	Mexico	0.89	0.90	0.86
East Timor			0.99	Moldova	0.51	0.55	0.67
Ecuador	0.91	0.90	0.99	Mongolia	0.72	0.63	0.80
Egypt	0.86	0.85	0.87	Morocco	0.77	0.79	0.81
El Salvador	0.91	0.92	0.99	Mozambique	0.80	0.84	0.86
Equatorial Guinea	0.47	0.69	0.76	Myanmar	0.36	0.51	0.40
Eritrea		0.86	0.84	Namibia	0.96	0.96	0.96
Estonia	0.67	0.79	0.86	Nepal	0.72	0.77	0.77
Ethiopia	0.61	0.79	0.80	New Zealand	0.98	0.98	0.98
Fiji	0.92	0.88	0.88	Nicaragua	0.85	0.91	0.90
Gabon	0.74	0.76	0.79	Niger	0.57	0.67	0.62
Gambia	0.74	0.73	0.74	Nigeria	0.67	0.72	0.78
Georgia	0.33	0.46	0.58	Norway	0.93	0.94	0.95
Ghana	0.68	0.68	0.70	Oman	0.84	0.88	0.89
Guatemala	0.75	0.77	0.84	Pakistan	0.73	0.74	0.75

Appendix II continue

CIM Index							
Country	Period 1 94-96	Period 2 98-00	Period 3 02-04	Country	Period 1 94-96	Period 2 98-00	Period 3 02-04
Panama			1.00	Swaziland	0.94	0.94	0.94
Papua New Guinea	0.90	0.89	0.89	Sweden	0.91	0.91	0.92
Paraguay	0.82	0.80	0.80	Switzerland	0.93	0.93	0.93
Peru	0.89	0.92	0.90	Syria	0.55	0.61	0.68
Philippines	0.89	0.90	0.90	Tajikistan		0.36	0.57
Poland	0.83	0.87	0.87	Tanzania	0.68	0.70	0.76
Qatar	0.93	0.94	0.94	Thailand	0.92	0.93	0.92
Republic of the Congo	0.53	0.58	0.54	Togo	0.68	0.64	0.77
Romania	0.84	0.90	0.90	Trinidad and Tobago	0.94	0.94	0.94
Russia	0.72	0.72	0.72	Tunisia	0.83	0.85	0.85
Rwanda	0.70	0.77	0.83	Turkey	0.93	0.95	0.94
Saudi Arabia	0.82	0.83	0.87	Uganda	0.69	0.75	0.78
Senegal	0.71	0.76	0.77	Ukraine	0.65	0.57	0.63
Serbia and Montenegro		0.77	0.82	United Arab Emirates	0.92	0.91	0.93
Sierra Leone	0.57	0.58	0.61	United Kingdom	0.96	0.98	0.98
Singapore	0.90	0.94	0.93	United States	0.92	0.92	0.92
Slovakia	0.90	0.89	0.88	Uruguay	0.91	0.94	0.95
Solomon Islands	0.84	0.80	0.80	Venezuela	0.90	0.86	0.84
South Africa	0.95	0.95	0.95	Vietnam	0.59	0.71	0.76
South Korea	0.91	0.95	0.96	Yemen	0.45	0.57	0.65
Sri Lanka	0.83	0.87	0.88	Zambia	0.84	0.86	0.87
Sudan	0.63	0.59	0.67	Zimbabwe	0.89	0.86	0.84

Appendix III

Polity							
Country	Period 1 94-96	Period 2 98-00	Period 3 02-04	Country	Period 1 94-96	Period 2 98-00	Period 3 02-04
Afghanistan	0.38	0.15		France	0.95	0.95	0.95
Albania	0.67	0.75	0.85	Gabon	0.30	0.30	0.30
Algeria	0.28	0.35	0.43	Gambia	0.17	0.25	0.25
Angola	0.42	0.35	0.40	Georgia	0.73	0.75	0.78
Argentina	0.85	0.88	0.90	Germany	1.00	1.00	1.00
Armenia	0.57	0.75	0.75	Ghana	0.50	0.60	0.83
Australia	1.00	1.00	1.00	Greece	1.00	1.00	1.00
Austria	1.00	1.00	1.00	Guatemala	0.73	0.90	0.90
Azerbaijan	0.25	0.15	0.15	Guinea	0.38	0.45	0.45
Bahrain	0.05	0.05	0.15	Guinea-Bissau	0.75	0.63	0.55
Bangladesh	0.80	0.80	0.80	Guyana	0.80	0.80	0.80
Belarus	0.50	0.15	0.15	Haiti	0.85	0.62	0.40
Belgium	1.00	1.00	1.00	Honduras	0.80	0.83	0.85
Benin	0.80	0.80	0.80	Hungary	1.00	1.00	1.00
Bhutan	0.10	0.10	0.10	India	0.93	0.95	0.95
Bolivia	0.95	0.95	0.92	Indonesia	0.15	0.62	0.83
Bosnia				Iran	0.20	0.65	0.50
Botswana	0.90	0.95	0.95	Iraq	0.05	0.05	0.05
Brazil	0.90	0.90	0.90	Ireland	1.00	1.00	1.00
Bulgaria	0.90	0.90	0.95	Israel	0.95	0.98	1.00
Burkina Faso	0.25	0.32	0.50	Italy	1.00	1.00	1.00
Burundi	0.42	0.45		Ivory Coast	0.20	0.45	0.50
Cambodia	0.55	0.60	0.60	Jamaica	0.95	0.95	0.95
Cameroon	0.30	0.30	0.30	Japan	1.00	1.00	1.00
Canada	1.00	1.00	1.00	Jordan	0.40	0.40	0.40
Central African Republic	0.75	0.75	0.55	Kazakhstan	0.32	0.30	0.20
Chad	0.33	0.40	0.40	Kenya	0.25	0.40	0.90
Chile	0.90	0.92	0.95	Kuwait	0.15	0.15	0.15
China	0.15	0.15	0.15	Kyrgyzstan	0.35	0.35	0.35
Colombia	0.88	0.85	0.85	Laos	0.15	0.15	0.15
Comoros	0.63	0.52	0.73	Latvia	0.90	0.90	0.90
Costa Rica	1.00	1.00	1.00	Lebanon			
Croatia	0.28	0.55	0.85	Lesotho	0.90	0.60	0.90
Cuba	0.15	0.15	0.15	Liberia	0.50	0.50	0.50
Cyprus	1.00	1.00	1.00	Libya	0.15	0.15	0.15
Czech Republic	1.00	1.00	1.00	Lithuania	1.00	1.00	1.00
Denmark	1.00	1.00	1.00	Macedonia	0.80	0.80	0.95
Djibouti	0.17	0.47	0.60	Madagascar	0.95	0.85	0.85
Dominican Republic	0.80	0.90	0.90	Malawi	0.80	0.80	0.75
East Timor			0.80	Malaysia	0.67	0.65	0.65
Ecuador	0.95	0.90	0.80	Mali	0.85	0.80	0.80
Egypt	0.20	0.20	0.20	Mauritania	0.20	0.20	0.20
El Salvador	0.85	0.85	0.85	Mauritius	1.00	1.00	1.00
Equatorial Guinea	0.25	0.25	0.25	Mexico	0.70	0.83	0.90
Eritrea	0.20	0.20	0.15	Moldova	0.85	0.85	0.90
Estonia	0.80	0.80	0.80	Mongolia	0.97	1.00	1.00
Ethiopia	0.55	0.55	0.55	Morocco	0.15	0.20	0.20
Fiji	0.75	0.77	0.77	Mozambique	0.80	0.80	0.80
Finland	1.00	1.00	1.00	Myanmar	0.15	0.15	0.13

Appendix III continue

Polity							
Country	Period 1 94-96	Period 2 98-00	Period 3 02-04	Country	Period 1 94-96	Period 2 98-00	Period 3 02-04
Namibia	0.80	0.80	0.80	Somalia	0.50	0.50	0.63
Nepal	0.75	0.78	0.20	South Africa	0.95	0.95	0.65
Netherlands	1.00	1.00	1.00	South Korea	0.80	0.90	0.90
New Zealand	1.00	1.00	1.00	Spain	1.00	1.00	0.97
Nicaragua	0.87	0.90	0.90	Sri Lanka	0.75	0.75	0.93
Niger	0.67	0.53	0.70	Sudan	0.15	0.15	0.57
Nigeria	0.18	0.62	0.70	Swaziland	0.05	0.05	0.15
North Korea	0.05	0.05	0.05	Sweden	1.00	1.00	0.37
Norway	1.00	1.00	1.00	Switzerland	1.00	1.00	1.00
Oman	0.05	0.05	0.10	Syria	0.05	0.08	0.72
Pakistan	0.90	0.42	0.25	Taiwan	0.87	0.95	0.42
Panama	0.95	0.95	0.95	Tajikistan	0.20	0.45	0.80
Papua New Guinea	1.00	1.00	1.00	Tanzania	0.37	0.50	0.43
Paraguay	0.85	0.83	0.88	Thailand	0.95	0.95	0.72
Peru	0.55	0.55	0.95	Togo	0.40	0.40	0.77
Philippines	0.90	0.90	0.90	Trinidad	0.95	1.00	0.60
Poland	0.93	0.95	1.00	Tunisia	0.35	0.35	0.77
Portugal	1.00	1.00	1.00	Turkey	0.90	0.85	0.48
Qatar	0.00	0.00	0.00	Turkmenistan	0.05	0.05	0.58
Republic of the Congo	0.75	0.20	0.30	Uganda	0.30	0.30	0.17
Romania	0.80	0.90	0.92	Ukraine	0.85	0.83	0.47
Russia	0.70	0.75	0.85	United Arab Emirates	0.10	0.10	0.07
Rwanda	0.20	0.23	0.33	United Kingdom	1.00	1.00	0.87
Saudi Arabia	0.00	0.00	0.00	United States	1.00	1.00	1.00
Senegal	0.45	0.60	0.90	Uruguay	1.00	1.00	1.00
Serbia and Montenegro	0.15	0.42	0.55	Uzbekistan	0.05	0.05	0.68
Sierra Leone	0.33	0.50	0.78	Venezuela	0.90	0.87	0.30
Singapore	0.40	0.40	0.63	Vietnam	0.15	0.15	0.58
Slovakia	0.85	0.95	0.58	Yemen	0.40	0.40	0.23
Slovenia	1.00	1.00	0.97	Zambia	0.72	0.55	0.75
Solomon Islands	0.90	0.77	0.83	Zimbabwe	0.20	0.22	0.15

Appendix IV

Table 1. Regression results for total exports.

Variable	CIM						Polity					
	1994-1996		1998-2000		2002-2004		1994-1996		1998-2000		2002-2004	
		Prob.										
Constant	-18.27	0.000	-19.88	0.000	-22.73	0.000	-20.86	0.000	-21.04	0.000	-23.81	0.000
GDPi	1.05	0.000	1.11	0.000	1.19	0.000	1.10	0.000	1.13	0.000	1.21	0.000
GDPj	0.79	0.000	0.84	0.000	0.85	0.000	0.85	0.000	0.85	0.000	0.89	0.000
Distance	-1.46	0.000	-1.51	0.000	-1.54	0.000	-1.37	0.000	-1.44	0.000	-1.46	0.000
CIMi	1.48	0.000	0.76	0.001	1.22	0.000						
CIMj	-0.15	0.556	-0.29	0.136	0.53	0.024						
CCiCCj	19.55	0.000	14.19	0.000	10.08	0.000						
Polityi							0.45	0.000	0.22	0.001	0.32	0.000
Polityj							0.12	0.181	0.24	0.000	0.23	0.001
PCiPCj							1.07	0.000	1.50	0.000	0.78	0.001
F-statistic	1422		2767		3028		2484		4532		4858	
R-square	0.591		0.604		0.627		0.645		0.657		0.689	
Observations	5919		10910		10802		8194		14184		13193	

Dependent variable: Export

Table 4. Regression results for food sector exports.

Variable	CIM						Polity					
	1994-1996		1998-2000		2002-2004		1994-1996		1998-2000		2002-2004	
		Prob.										
Constant	-7.99	0.000	-8.99	0.000	-9.35	0.000	-10.13	0.000	-11.24	0.000	-12.06	0.000
GDPi	0.63	0.000	0.66	0.000	0.77	0.000	0.67	0.000	0.68	0.000	0.76	0.000
GDPj	0.58	0.000	0.60	0.000	0.61	0.000	0.65	0.000	0.66	0.000	0.65	0.000
Distance	-1.11	0.000	-1.06	0.000	-1.16	0.000	-1.05	0.000	-0.99	0.000	-1.15	0.000
CIMi	1.46	0.000	1.03	0.000	-0.07	0.834						
CIMj	-0.16	0.538	-0.37	0.149	-1.39	0.000						
CCiCCj	13.85	0.000	16.58	0.000	23.66	0.000						
Polityi							0.94	0.000	0.65	0.000	0.75	0.000
Polityj							-0.19	0.033	-0.24	0.005	-0.01	0.899
PCiPCj							0.94	0.000	1.85	0.000	1.72	0.000
F-statistic	557		687		1209		988		1199		716	
R-square	0.369		0.362		0.362		0.418		0.417		0.424	
Observations	5728		7276		7588		8250		10048		9866	

Dependent variable: ExportFood

Table 7. Regression results for machinery and transport equipment sector exports.

Variable	CIM						Polity					
	1994-1996		1998-2000		2002-2004		1994-1996		1998-2000		2002-2004	
		Prob.										
Constant	-19.13	0.000	-19.71	0.000	-23.31	0.000	-21.85	0.000	-22.68	0.000	-25.84	0.000
GDPi	1.19	0.000	1.19	0.000	1.27	0.000	1.24	0.000	1.26	0.000	1.40	0.000
GDPj	0.59	0.000	0.63	0.000	0.66	0.000	0.65	0.000	0.68	0.000	0.71	0.000
Distance	-1.36	0.000	-1.41	0.000	-1.52	0.000	-1.34	0.000	-1.41	0.000	-1.53	0.000
CIMi	1.81	0.000	1.38	0.000	3.36	0.000						
CIMj	-1.05	0.000	-0.76	0.001	-0.52	0.084						
CCiCCj	20.57	0.000	19.02	0.000	18.39	0.000						
Polityi							1.23	0.000	0.97	0.000	1.06	0.000
Polityj							-0.49	0.000	-0.33	0.000	-0.25	0.006
PCiPCj							1.76	0.000	2.53	0.000	1.60	0.000
F-statistic	1276		1599		1855		2279		2888		3183	
R-square	0.564		0.555		0.582		0.616		0.622		0.649	
Observations	5932		7687		7992		8532		10552		10318	

Dependent variable: Export Machinery Transport
Equipment